DEVELOPING ICT-BASED SUPPLEMENTARY READING MATERIALS FOR THE SEVENTH-GRADE STUDENTS AT MADRASAH TSANAWIYAH MAARIF KARANGASEM

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ABSTRACT

This study aims at developing ICT-based supplementary reading materials for the seventh-grade students at Madrasah Tsanawiyah Maarif Karangasem. Specifically, this study identified the students' needs, described the design of the ICT-based supplementary reading materials, and identified the content validity and the quality of the ICT-based supplementary reading materials. This study followed the ADDIE approach, which consists of five steps, analyze, design, develop, implement, and evaluate. This study involved 40 seventh-grade students, two content experts, and one media expert. The study data were collected using questionnaires, interviews, observation, and expert judgment sheets. The researchers analyzed the data through qualitative and quantitative analysis. This study found that the students need reading materials with colorful designs, exciting pictures, videos, and online quizzes that can be accessed online. The developed ICT-based supplementary reading materials were proven to have high content validity. Besides, this study also identified that the ICT-based supplementary reading materials have good quality.

KEYWORDS
madrassah tsanawiyah, reading class, supplementary materials

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Introduction

Reading is an important aspect of life. Many benefits can be obtained from reading, such as improving cognitive performance, increasing knowledge, and sharpening memory (Y.-H. Chang et al., 2021; De-la-Peña & Luque-Rojas, 2021; Huettig & Pickering, 2019; Y. Wang et al., 2022). Reading activities can help students to think critically, creatively and constructively (Jimenez et al., 2021; Segundo Marcos et al., 2020). Besides, it also helps them to have the ability to comprehend and process the knowledge they have gained and relate it with the knowledge they already have (Kiili & Leu, 2019). Even history proves that the nation's intellectuals are born in an environment accustomed to reading activities.

However, it is unfortunate that the level of interest in reading in Indonesia is quite low. Based on a survey conducted by the Program for International Student Assessment (PISA), Indonesia's literacy rate is ranked 62 out of 69 countries (Rahardi & Dartanto, 2021). This shows that the literacy rate in Indonesia is very low. Literacy is a person's ability to use information to develop knowledge so that it brings benefits to society (D & Qur’ani, 2019; Eisenberg, 2008). By having good literacy skills, a person's level of understanding in concluding the information received becomes better. In other words, literacy skills help people increase their knowledge to think critically later (Grafstein, 2017; Sartori et al., 2022). Therefore, we need to start promoting the habit of reading in order to improve students' literacy.

The pre-observation results found that the seventh-grade students at Madrasah Tsanawiyah Maarif Karangasem faced some problems in reading class. During the observation, the researcher found that the students were passive during the reading class.
Many of them were yawning when they were reading. Yawning indicates the students are bored (Solé-Beteta et al., 2022). When the teacher asked them to read aloud, most students could not read fluently, and many mispronounced the words. Only a few students could correctly answer the reading comprehension questions after reading a text. Thus, the data show those students had some issues with reading comprehension. The results of the interview also confirmed that situation. The English teachers at that school admitted that their students were not motivated to read and had low reading comprehension. The teachers said that the students were passive and unhappy when they had reading class.

According to the teachers, the available reading materials could not interest the students. The teachers mostly rely on the student worksheet. The student worksheet was printed in white and black color; no colorful pictures were available in the student worksheet. Those black-and-white reading texts make the students not interested to read since young learners like to read books with lots of pictures and colors (Strouse et al., 2018). Besides, the reading texts in the student worksheet were not provided with pre-activities that helped the students to understand them. Pre-activities are crucial in reading; activities that activate students’ prior knowledge and build their vocabulary mastery related to the reading texts will help them comprehend the reading texts easier (Anisah et al., 2021).

At Madrasah Tsanawiyah (MTs) Maarif Karangasem, the English teachers of the seventh-grade students also used the handbook the government provided. It was a printed book, and most of the pages were in black and white colors. In addition, most of the handbooks were used handbooks that their seniors have used. Thus, many of them were not in good condition. Besides, since it is a printed book, it could not provide the students with audio or video that helps the students to read or understand the text better (Çırakoğlu et al., 2022). The use of technology is one of the factors that have a positive effect on students’ reading interests (Pitoyo, 2020).

Considering the above problem, providing interesting supplementary reading materials can be an alternative to solve those problems. However, choosing reading materials for children can be difficult, and a reasonably strict selection process is required (Morgan, 2013). Some considerations that might be made in choosing a book suitable reading materials for children to read include the physical aspect and value of the reading text (Bayraktar, 2021). For example, reading materials may have negative values or contain destructive content that can be imitated or influence children's behavior. Therefore, the selection of books for children is not only based on their physical appearance but also considers their values. Other considerations needed in choosing reading materials for children are the type of age, quality of content, moral messages, character values, and language (Adam & Harper, 2021). Teachers should select reading materials through the color and pictures they have. After that, they must also see the message the reading materials want to convey. If these two aspects have been met, they can be used as reading material for children.

Considering that the seventh-grade students at MTs Maarif Karangasem only used printed handbooks and the difficulties finding an exciting and appropriate reading book for young learners, this study aims to develop ICT-based supplementary reading materials for seventh-grade students. These supplementary ICT-based reading materials will be additional materials that the teachers can use to reduce the students’ boredom during reading class. These ICT-based supplementary reading materials will have some benefits compared to conventional printed reading materials. The ICT-based supplementary reading materials will provide text, colorful pictures, videos, and audio to make the
reading interesting. Young learners love colorful things (Mardhatillah & Ratmanida, 2016). Thus, the ICT-based supplementary reading materials can be interesting for students. The availability of videos and audio can reduce students' boredom, and pictures as illustrations help learners understand the reading text better (Limbong et al., 2021). In addition, the seventh-grade students were mostly born in 2008. It means they are categorized as Generation Z because Generation Z was born between 1995 and 2010 (Sakdiyakorn et al., 2021). One of Generation Z's characteristics is learning better through technology (Murillo-Zamorano et al., 2019). Thus, ICT-based supplementary reading materials that can be opened on a smartphone, computer, or laptop may help them to study reading better.

Some researchers have done studies on developing reading materials for English as a foreign language (EFL) learners using technology. Agustina et al. (2018) developed reading materials by utilizing local folklores. They collected and rewrote the local folklores in English as reading materials for ninth grade of Junior High School in Rejang Lebong. Those reading materials were made in the form of printed materials. Thus, it also requires the students to bring the printed materials whenever they want to read them. Atmazaki (2019) developed context-based reading materials for the seventh grade students. He developed the reading materials because he believed that the available reading materials were not contextual. Since they were not contextual, the students found difficulties in understanding the available reading materials. Those reading texts were also made in printed reading materials. Hidayat and Setiawan (2020) conducted a study to develop supporting reading material for grade seven students at an Islamic junior high school in Gresik. They develop the reading materials in the form of electronic reading materials that were developed using various software, such as utoPlay Media Studio, Button Shop, Wondershared Quiz Maker, and Microsoft PowerPoint. Then they save them in a Compact Disc (CD). However, since the reading materials were developed using various software, the users also need to use various software to open them. Suputra (2022) developed ICT-based supplementary reading materials for the seventh grade students. The study found that the developed reading materials were valid and ready to be used for teaching reading for the seventh grade students. This reading materials were in the form a website.

From the previous studies, it was found that most of the developed reading materials were in the form of printed materials. Some studies have confirmed that printed materials have some limitations. Those limitations are printed materials need extra space since it should be brought every time the students want to read it; printed materials cost more money that the electronic ones; and printed materials cannot provide text, pictures, audio, and video in one place as the electronic materials (Klimova, 2021; Stewart, 2000; Yamson et al., 2018). There was no study that conducted to developed ICT-based reading materials for the seventh grade students at madrasah tsanawiah. Thus, this study would like to develop an ICT-based supplementary reading materials that can be open using various software, so that it can be open in smartphones, laptop, tablets, or computer. This reading materials will be different from the reading materials that were developed by Hidayat and Setiawan (2020) that used various software and consisted of different types of file, and the study that was conducted by Prasetyo (2017), who developed ICT-based English material in the form of website. This reading materials were developed in electronic flipped book and the reading materials came with text, pictures, audio, and video, all in one file.
Research Method

To achieve the study objective, the researchers did the study in the steps of the ADDIE approach, namely, analyze, design, develop, implement, and evaluate (Branch, 2009). During the analysis step, the researchers collected information about students’ needs regarding the developed product. Design is the step to designing effective instruction, including assessments, selecting learning forms, and creating instructional strategies. The development phase depends on the first two phases: the analysis and design. The researchers integrated technology with educational settings and processes in this third phase.

The researcher began to develop and create good quality factual samples for instruction design, materials, and implementation of learning. During the implementation step, the researchers turn plans into action. Three main steps to pass this phase should be taken: training instructors, preparing students, and managing the learning environment. The evaluation step is done to identify the level of effectiveness, especially in how the application of the developed material affects students' reading interest and reading comprehension. In addition, at this stage, an evaluation is also carried out from the perceptions of teachers and students on implementing the material developed. However, this study will not be conducted until the evaluation process. In this study, the researcher only conducted the first two steps of the ADDIE approach. The summary of the steps is available in Table 1 below.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Result</th>
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<tbody>
<tr>
<td>Analysis</td>
<td>Analyzing students’ needs on the product</td>
<td>The identification of students’ needs on the product</td>
</tr>
<tr>
<td>Designing</td>
<td>Designing the product based on the student's needs</td>
<td>The product design</td>
</tr>
<tr>
<td>Developing</td>
<td>Developing the product and checking the content validity and quality</td>
<td>The prototype of the product and the results of its content validity and quality</td>
</tr>
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</table>

This research was conducted at MTs Maarif Karangasem. The research subjects were the seventh-grade students who take English language education subjects, and the research object was the developed product. Following the purpose of this study, data collection was carried out using two different questionnaires and expert judgment sheets. The first questionnaire was used to identify students' needs. While the second questionnaire was used to identify the product quality. The expert judgment sheets in this study were used to check the content validity. Thus, this study will involve two content experts and two media experts. The questionnaire used to identify students' needs was developed using young learners’ characteristics, Generation Z, and reading comprehension theories. The researcher used a questionnaire developed using criteria of good language learning material and learning material components theories to collect data about the quality of the ICT-based supplementary reading materials.

Data from the first questionnaire results to identify students' needs were analyzed qualitatively using an interactive data analysis model (Miles & Huberman, 2014). The researchers analyzed the expert judgment sheet results through the inter-rater agreement model (Gregory, 2015).
A product is considered valid if the content validity coefficient is $\geq .78$ (Tavares et al., 2018). This study used the content validity formula to determine the content validity coefficient.

Content validity \[ \frac{D}{A+B+C+D} \]

The data from the result of the second questionnaire will be quantified and analyzed quantitatively. The score gathered from the questionnaire was categorized based on category criteria, as shown in Table 2.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Categorized as</th>
</tr>
</thead>
<tbody>
<tr>
<td>$(M_I + 1.5SD_I) &lt; X$</td>
<td>Very Low Quality</td>
</tr>
<tr>
<td>$(M_I + 0.5SD_I) &lt; X &lt; (M_I + 1.5SD_I)$</td>
<td>Low Quality</td>
</tr>
<tr>
<td>$(M_I - 0.5SD_I) &lt; X &lt; (M_I + 0.5SD_I)$</td>
<td>Moderate Quality</td>
</tr>
<tr>
<td>$(M_I - 1.5SD_I) &lt; X &lt; (M_I - 0.5SD_I)$</td>
<td>High Quality</td>
</tr>
<tr>
<td>$X &lt; (M_I - 1.5SD_I)$</td>
<td>Very High Quality</td>
</tr>
</tbody>
</table>

Source: (Nurkencana & Sunartana, 1992)

Result and Discussion

This section explains the seventh-grade students' needs at MTs Maarif Karangasem on ICT-based reading materials. Then, it continued with the description of the ICT-based reading materials design that includes the storyboards and the explanation of each part of the storyboards. This section also explains the development process of the ICT-based reading materials and the results of content validity and quality tests.

The Seventh-Grade Students’ Needs on ICT-based Reading Materials

The researcher used questionnaires to collect data about the seventh-grade students' needs at MTs Maarif Karangasem on ICT-based reading materials. The questionnaire was developed using three theories: characteristics of young learners, characteristics of Generation Z, and reading comprehension theories. The Indonesian questionnaire was delivered to the students (see Appendix 1). The questionnaires were delivered to 40 students.

This study found that all seventh-grade students at MTs Maarif Karangasem like reading materials with colorful designs, are provided with interesting pictures that illustrate the content of the reading materials, and enjoy learning through educational games. Seventh-grade students usually are 12 years old and still categorized as young learners (Harmer, 2012) and young learners love to have colorful learning media (Ana, 2015). Colorful teaching media can make them stay focused and enjoy learning (Inharjanto & Lisnani, 2021). Teaching media with pictures, especially colorful pictures,
can make the students more interested in studying than those without pictures (Strouse et al., 2018; Tarchi et al., 2021). Pictures in reading texts also have been proven to help students build their prior knowledge in reading activities (Li & Choi, 2023).

Most of them also love reading materials with videos, music, and quizzes, and they can be accessed using mobile devices such as smartphones, tablets, and laptops. Besides, the questionnaire results also confirmed that most students stated that the available reading materials did not provide them with videos, music, and quizzes. The use of related videos to the reading texts has also been found by some researchers effective as a medium to improve students’ schemata before they start reading the texts (Sari, 2021). Besides, videos have also become an effective medium for explaining procedure texts (Moore, 2022). Thus, since the ICT-based supplementary reading materials are procedure texts, videos are helpful in this study. Thus, in this study, the ICT-based reading materials provide the students with colorful designs, interesting pictures that can illustrate the reading content, videos, audio related to the reading content, and quizzes related to the reading materials. Besides, the reading materials should be able to be opened using smartphones, tablets, and laptops. Some studies have proved quizzes to be effective in helping students to improve their reading comprehension (Brüggemann et al., 2023). In addition, the students also want the ICT-based supplementary reading materials to provide music. Music can help students release boredom and reduce stress by improving their moods (Wang et al., 2022). Reading, in general, is considered a boring activity for many students (Wijayanti, 2020). Thus, providing music can be a good idea for them.

The seventh-grade students also want the ICT-based supplementary reading materials to provide educational games. This need is also related to the young learner characteristic that young learners love to play games (Crescenzi-Lanna, 2022). Games make learning fun and enjoyable for young learners, so they are active during teaching and learning (Rahimi et al., 2022). Thus, applying educational games during the teaching and learning process will increase young learners’ motivation to study (Jääskä et al., 2022).

In addition, many students believed that the available reading materials could not help the students to build literal understanding, prior knowledge, and critical thinking. For some students, the available reading materials also could not help them identify the main idea, understand explicit and implicit information, and conclude the reading text that they have read. Thus, the researcher concluded that the available reading materials could not help the students to optimize reading comprehension. The reading materials should provide the students with activities to help them build their reading comprehension better.

In terms of the reading text genre, based on the curriculum applied at MTs Maarif Karangasem, the genre of the texts for the seventh-grade students are descriptive and procedure. The descriptive text describes things around the classroom and house. While for the procedure, the students need to read the procedure for cooking a particular food and cleaning the house. The purpose of the reading activities in English language subjects is to build students’ reading comprehension. Thus, in this study, the researcher develops reading texts by following the genre and the text's topics as required by the curriculum used at the school.

The Development Process and the Product Content Validity

To develop the product, the researcher did some processes. First, the researcher creates the product's design as a storyboard. This storyboard describes how ICT-based
reading materials look like and what components are available in the reading materials. The storyboard and its components are related to the need analysis results. In the storyboard, the researcher tried to fulfill all of the students' needs as what had been identified during the analysis step. Those components include reading texts (descriptive and procedure), pictures, audio/music, videos illustrating the text, quizzes, educational games, and activities to build students' prior/vocabulary knowledge. Each of the reading materials consists of four sections. The initial section is to build students' prior knowledge, the second to build students' vocabulary mastery, the third for the reading activity, and the fourth to evaluate the students' reading comprehension. The storyboards of the ICT-based reading materials are shown in Figure 2.

The development process of the ICT-based supplementary reading materials was started by designing the storyboard based on the need analysis results. Creating a storyboard is crucial in developing ICT-based media because it will be a guide in developing the real media to make the development process effective and efficient (Rohmah, 2019). The researcher tried to include all of the things that the students need to be in the ICT-based supplementary reading materials. The researcher provided the ICT-based supplementary reading materials with colorful designs, pictures, vocabulary games, videos, and quizzes. The researcher included all those components to ensure that the reading materials interest the students and can increase students' reading comprehension. Because when the students are interested in the learning materials, their motivation to study will automatically increase (Harahap, 2021).

![Figure 2. The Storyboard of the ICT-based Reading Material](image)

After the researcher has the storyboard, the researcher develops the ICT-based reading materials by following those storyboards. The researcher develops the ICT-based reading materials by using various applications. To create the layout of the reading texts and the videos, the researcher used the Canva application. To create the audio, the researcher used text-to-speech applications. The researcher used the Gencraft application, an AI picture generator, to create the pictures. In addition, to create the quizzes, the researcher used the Quizzes application. The following figures are samples of the product layout.
Figure 4 is the sample of the reading material cover and first section. As the design of the cover, the layout is in full color that consists of the title of the reading text, a picture that illustrates the content of the reading text, the name of the school, the name of the course, and the year when it is created. The first section consists of the title of the reading text, a video (in this sample, the video is a song about things that are available in the school), and questions to build students' prior knowledge.
Figure 5 shows the sample layout for the quiz and reading text sections. As the design made previously, this section consists of a quiz that provides the students with a vocabulary test. The researcher provided words that are available in the text. It aims to improve students' readiness to read the text better in the reading section. There is the title of the reading text, pictures that illustrate the reading content, and the reading text in this section. The pictures are all in full color.

Figure 6 shows the layout sample for the reading comprehension test section. This section consists of an online multiple-choice test that will be created using a quiz application. This test consists of 15 items and will be done online by the students through their smartphones.

Furthermore, the researcher developed four ICT-based supplementary reading materials in this study. Two descriptive texts and two procedure texts. The descriptive texts were about describing the classroom and describing the house. While for the procedure texts, one was the procedure of cooking rendang, and the other was cleaning up a house. To ensure the content validity of those reading texts, the researchers involved two content experts to check them. Since the content validity test aims to ensure that the ICT-based supplementary reading materials align with the student's needs, the expert judgment sheets’ indicators indicate the need analysis results.

The researcher gave the links of the ICT-based supplementary reading materials to the experts and gave them expert judgment sheets to evaluate the product. The experts checked the ICT-based supplementary reading materials to ensure they met the student's needs.

The expert judgment sheets show the two experts agreed that the product meets all of the indicators of content validity. The two experts confirmed that the developed product was relevant to those indicators. Furthermore, the calculation using the content
validity formula found the coefficient was 1. Since the coefficient was 1 > 0.78, it can be said that the product was valid.

**The Quality of the ICT-based Supplementary Reading Materials**

The researcher involved an English language learning media expert in checking the quality of the product. The media expert evaluated the product using the questionnaire developed using criteria of good language learning material and learning material components. The questionnaire was a five-Likert scale questionnaire and had 60 items. The questionnaire result was quantified and categorized based on the criteria made by following the theoretical ideal reference assessment.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Categorized as</th>
</tr>
</thead>
<tbody>
<tr>
<td>240 &lt; X</td>
<td>Very High Quality</td>
</tr>
<tr>
<td>200 &lt; X &lt; 240</td>
<td>High Quality</td>
</tr>
<tr>
<td>160 &lt; X &lt; 200</td>
<td>Sufficient Quality</td>
</tr>
<tr>
<td>120 &lt; X &lt; 160</td>
<td>Low Quality</td>
</tr>
<tr>
<td>X &lt; 120</td>
<td>Very Low Quality</td>
</tr>
</tbody>
</table>

Based on the result of the quality evaluation, it was found that the quality score for the product materials was 241. Thus, based on Table 3, the quality of the product was very high-quality reading materials.

The quality of the ICT-based supplementary reading materials was determined by identifying their quality in terms of criteria of good learning materials and components of learning materials. The study results showed that the product fulfills the good learning materials indicators and components of learning materials. Howard and Major (2004) argued that good language learning materials should be contextual, stimulate interaction, motivate the students to enhance their learning skills and strategies, make the learner focuses on form and function at the same time, and provide chances for the students to integrate the language used, authentic, attractive, have appropriate instruction, and flexible. Besides, based on the national education standard agency, the components of a learning material include scope, accuracy, up-to-date, stimulation of curiosity, and context.

Since this study shows that the product has good quality, the ICT-based supplementary reading materials already fulfill all aspects of a good learning material and learning material components. In addition, the product also fulfills the roles of language learning materials, as explained by Dorda and Klochko (2008), that includes a source of language learning, learning support, a tool to motivate/stimulate students to learn, and a reference. As a source of language learning and learning support, the product provides activities that guide the students to learn the targeted language. The product provides quizzes and tests to prepare the students to study and evaluate their learning process. The quizzes and tests are interactive quizzes and tests that automatically provide the students with the correct answers and show the test results automatically.

The product provides videos and colorful pictures related to the reading materials they will read. Videos and pictures can motivate students to learn (Hernawati et al., 2021). The provided reading texts also can be used as samples of the use of the English language in real life because the texts were developed by considering the students' experiences. The reading texts discuss things related to the student's daily activities or real experiences.
Thus, the product can be a reference for the students to use English for their daily activities.

**Conclusion**

Low reading interest is a common problem for Indonesian students. The low reading interest causes low literacy rate. The students need interesting teaching media to increase their reading interest. To solve that problem, the researchers developed ICT-based supplementary reading materials that provide pictures, videos, and quizzes with colorful design. Based on the study's results, this study concludes three significant points. First, the seventh-grade students at MTs Maarif Karangasem need ICT-based supplementary reading materials that provide colorful designs, pictures, vocabulary games, videos, reading text, and quizzes that can help them to improve their reading comprehension and be accessed using smartphones, tablets, laptops, and computers. Second, developing the ICT-based supplementary reading materials started with designing the storyboard based on the need analysis results and developing them by following the storyboard. Based on the result of the content validity analysis, it was found that the ICT-based supplementary reading materials were valid. Third, the result of quality analysis, this study found that the ICT-based supplementary reading materials were considered high-quality reading materials. Since the study found that the product was valid and high-quality, it is suggested that they are used for the actual teaching and learning process at MTs Maarif Karangasem. In addition, since this study was only limited to identifying the quality of the ICT-based supplementary reading materials, a study that identifies the ICT-based supplementary reading materials' effectiveness needs to be conducted.

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