The use of ICT in education is a must in the digital era. It is quality learning effort. QR Code is technology-based media developed as a very fast scanning tool. However, its existence is still rarely used in education. The existence of ICT in the form of quick response (QR) code in English lessons can support learning success as not all students have computers. QR code is a solution to the problem of students because it can be installed on Android. This study examines the use of QR Code media in optimizing English learning, especially in listening skills. This study on the use of QR Code was conducted in 2021 at SMK Patriot Peterongan Jombang with a total of 25 students as the subject. The type of this research is development research. To analyze the results of the research, it is used quantitative descriptive analysis. Data obtained through questionnaires and learning outcomes tests. The researcher examined the influence of QR Media using paired sample t-test. The results showed that there is a significant effect after being given treatment with the significance is < 0.05, that is 0.00. Through QR Code, students can evaluate learning outcomes well and make it easy to understand the material being studied. The results of this study are very relevant in learning, especially in increasing students' learning outcomes to learning English at the senior high school level.

Keywords: QR Code, English learning media, listening skill

1. INTRODUCTION

English as a foreign language is one of the most important things in the era of globalization because it is regarded as a formal language that must be mastered in the modern era. English has become a world language, occupying a dominant position in the era of communication to connect and transfer knowledge around the world (Muzayyanna Zatulifa, M. Z., Riswandi, R., Fitrwan, H., Akla, A., 2018). English teaching faces challenges, especially if the learners are a group of teenagers who lack enthusiasm for teaching and learning activities. Knowing the learning method is the teacher's requirement. Understanding the various learning methods and how to apply them will make learning more meaningful. One of the
ways to improve students' English ability is to make them listen to English frequently because the words that they hear often will make it easier for them to remember English vocabulary. In order to improve listening skills, people can exercise by listening to English, because listening to English can improve listening skills (Listiyaningsih, 2017).

When we learn the language especially English, we must understand some important knowledges in the language. In English, 4 skills are used, namely listening, speaking, reading, and writing. Teachers need to understand the obstacles that learners encounter in these four skills, in order to prepare effective courses and guide learners to develop their language skills (Hiew, 2012). These four skills are very important for those of us who study or want to be proficient in English. One of the skills that we really need to master is listening.

Listening is our understanding of hearing English, both directly or through media like music or film. It is an important material in English because we must be able to know what people say to us. Listening skill is key to receiving messages effectively, it is a combination of hearing what another person said and with the person who is talking (Tyagi, 2013).

Learning English can be very difficult. Sometimes students think they do not understand what the speaker is saying. Listening is a single process, and it is more accurate to think of it as a series of related processes—recognizing the voice of the speaker, perceiving the tone pattern to show the key points of the information, understanding the relevance of the content and the current topic, etc. (Lynch, T., & Mendelsohn, D. 2010). Questions usually come in the form of vocabulary, length, and several pronunciations. Some students often think that the faster the speaker speaks, the harder it is to be understood. Another problem is that students are not familiar with the accents and types of vocabulary. In listening teaching, we will talk about the comprehension of conversation, because comprehension is an aspect of listening, and because many factors affect comprehension, comprehension may become very complicated.

The study was conducted at SMK Patriot Peterongan Jombang in February 2021. The study showed that the learning process that is often done at school is the lecture method with the help of student worksheets or package books. As a result, students feel bored because they only listen to the teacher explain.

Many technologies / ICT are used in education, such as applications, the Web, or others, but there are still many teachers who are not ideally using them. The success of the learning process will affect the results achieved by students. Therefore, teachers should find ways to solve learning problems. The QR Code exists to overcome this problem, especially in English subjects to improve listening skills.

2. METHODOLOGY

This study uses the research and development (R&D) method. The researcher chose to use a 4D development model consisting of 4 main stages, namely define, design, development, and dissemination. This model is used because of it is easy and does not require a long time and helps the researcher in the study. 4D model is a simple instructional design model that helps the researcher to design the product.
that will help the students to increase their ability in learning process (Irawan, A. G., Nyoman Padmadewi, N., & Artini, L. P., 2018).

This study used one group pre-test - post-test design. This design is used in order to determine the influence of using the QR Code before and after the treatment carried out at SMK Patriot Peterongan Jombang. The purpose of using this design is to measure the increase in understanding of class X students of office administration and hotel management between before and after using QR Code media.

The illustration of the one group pretest post-test research design is as follows:

<table>
<thead>
<tr>
<th>Pretest</th>
<th>Treatment</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1</td>
<td>X</td>
<td>O2</td>
</tr>
</tbody>
</table>

Information:
O1 = Pretest score, (Test value of student learning outcomes before using QR Code media)
X = Treatment, (The application of learning using QR Code)
O2 = Post-test score, (Test value of student learning outcomes after using the QR Code)

Location, time, and subject of research
1. Research location
   This research was conducted at SMK Patriot Peterongan
2. Time of research
   This research was conducted in the academic year 2020/2021 even semester
3. Research Subject
   The research subjects in this study were students of class X Office Administration and Hotel management at SMK Patriot Peterongan with a total of 25 students.
2.1 RESEARCH PROCEDURE

The activities carried out at each stage of developing 4D model learning devices can be explained as follows:

1. Define
   
   The definition in this case includes defining needs in the learning process. Students of SMK Patriot Peterongan class X Hotel management and office administration are involved as key information because they are competent to reveal the real conditions of the impact of learning using QR Code media. English teachers are involved as a participatory team because of potential users of QR Code media. Activities at this stage are defining related to development requirements. This stage is a need analysis.
   
   a. Front end analysis
      
      At this stage, the researcher is looking for the information about student academic backgrounds, cognitive development, background of the social life and economy of students.
   
   b. Material analysis
      
      At this stage, the researcher examined the curriculum used in the school. The curriculum used in the school which became the location of the study was the 2013 curriculum.
   
   c. Analysis of tasks
      
      At this stage, the researchers compiled based on basic competencies and indicators of achieving the Kinds of the text material. The specifications of the learning objectives of the activities carried out by researchers at this stage are the description of basic competencies and more specific achievement indicators and adapted to material analysis and analysis of previous tasks.

2. Design

The purpose of this stage is to produce a learning device design. The results at this design stage are called the initial draft. Activities at this stage are:

   a. Media selection
      
      At this stage, the researcher determines the right and appropriate media to present the Kinds of the Text material that is in accordance with the learning model used. The selection of media is tailored to the objectives of learning, characteristics of students, teaching and learning strategies, time, media function, and teacher's ability to use the media.
   
   b. Format selection
      
      At this stage, the researcher chooses the format to design content, the selection of learning strategies, and learning resources that are in accordance with the principles, characteristics, and steps that are in accordance with the learning models used.

3. Develop

At this stage, the product has been designed and consulted with the supervisor. The products that have been produced are evaluated, whether the products used are feasible or not. If the product is not yet feasible, it needs to be
revised. The purpose of the development stage is to produce a final draft of a good learning device. Activities at this stage are expert validation both of material or media. The results of the initial design, namely the initial draft validated by the validator, and the revision were used as a basis for repairing learning devices to get the final draft.

4. Disseminate

There are 3 stages of dissemination, among others, validation testing, packaging, diffusion, and adoption. The validation testing stage is a stage where the product has been revised at the development stage then implemented in the real target. Furthermore, the measurement of the achievement of the goal is to determine the effectiveness of the product. The last activity of this stage is doing packaging, diffusion, and adoption. This stage is done so that the product can be utilized by others. After being packed the product is disseminated so that it can be absorbed (diffusion) or understood by others and used by others.

a. Development Product Trials

The trial needs to be done and the product produced is really good and right on target. Product trials are also one of the requirements that must be done by researchers in model research. There are several things that need to be considered in product trials, namely trial design, subject trials, data types, data collection instruments, and data analysis techniques.

1. Trial design

In this study, researchers conducted a media validation test developed to determine the feasibility.

2. Trial subjects

English learning media-based QR Code application that has been designed by researchers is then validated by the lecture of KH. A Wahab Hasbullah. The name of the validator expert, namely:

Table 3.3 Name of Validator Expert

<table>
<thead>
<tr>
<th>Validator Expert</th>
<th>Validator of media expert</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sujono M.Kom</td>
</tr>
<tr>
<td></td>
<td>Validator of material expert</td>
</tr>
<tr>
<td></td>
<td>Ulfa Wulan Agustina, M. Pd</td>
</tr>
</tbody>
</table>

b. Data analysis technique

The data analysis technique used in this research is descriptive statistical analysis. Descriptive statistical analysis is used to provide an overview of the characteristics of student learning achievement for a pre-experimental class. The learning outcome data are categorized quantitatively.

To find out which sampling is suitable, the researcher determines 2 variables, namely the Independent variable (the use of QR Code media), and the Dependent variable (student learning outcomes). While to find
whether the QR Code media affects students learning outcomes, the researcher tested using the formula paired sample t-test of pretest and posttest data, because that formula is used to determine the influence of a product/media.

3. RESULT AND DISCUSSIONS
3.1 RESULT OF RESEARCH AND INFORMATION COLLECTING

Before conducting the research, the researcher made a pre-research and gathering suitable data that can support the research and gave an estimation for the acceptable media application according to the data. This step had been conducted when the researcher teaching practice. The researcher found qualitative data according to the observation. Based on the real condition of students there, listening is quite difficult to learn. So, the researcher decided to develop a product about listening comprehension in the form of the QR Code.

After discuss with the English teacher there, the researcher found the same case too. Moreover, the researcher gave suggestions whose application to increase student listening skills will more valuable for long-term usage. In that school, students have a limited time in operating the media, for example only in IT lessons that are in the computer lab within a period of once a week. The English teachers only deliver material in the form of video or PowerPoint. Begin from there, the researcher had an idea to make ICT media but learned directly inside in a media application.

3.2 RESULT OF PRODUCT TRIAL

The results of the product trials conducted at SMK Patriot Peterongan Jombang showed that the QR Code product can be used as an alternative and innovation in teaching English both face-to-face and online learning. This can be proven by the learning outcomes achieved by the students of SMK Patriot Peterongan Jombang. During the research, researchers also conducted several analyzes, including:

1. Analysis Phase

The analysis stage is the stage where the researcher looks for any problems that exist in the process of learning English. Activities carried out at this stage are classroom observations and interviews with the teacher and several students.

a. The results of the situation analysis.

   Based on classroom observations, several things were found, including:
   1. The number of students in the class is 28 people
   2. Some students seem to be passive
   3. Learning media using package book or PowerPoint

b. Results of problem analysis.

   Based on the results of observations, some of the problems found were that students tended to be bored with learning activities using the methods used. Students want something new in the learning process.
c. The results of the analysis of the determination of learning media. Based on observation conducted with English teaching teachers, to overcome existing problems it is necessary to have interactive learning media so that students feel enthusiastic and interactive in participating in learning.

2. Design Stage
This stage is the stage of designing interactive learning media which includes making display designs, making materials, and making practice questions. At this design stage, it is still conceptual in nature and will underlie the next development process.

a. Product design

![Product Design](image)

Figure 1. Product Design

Product design is the design of the relationship between one content and another. The display design is made to make it easier to create applications. The following is the display design of the QR Code interactive learning media.

### 3.3 RESULT OF VALIDITY DATA

1. Instrument Validity
The data collection method used in this study was a questionnaire. The instrument validity test was carried out by involving experts to test the suitability of the instrument with the research objectives. Expert Validators are lecturers in the Information Engineering Study Program and in English department of KH. A Wahab Hasbullah University. For the form of validation instruments using Likert scale and to calculate the instrument validation test using the AIKEN Value formula.

Here is the AIKEN Value formula.

\[ V = \frac{\Sigma s}{n (c-1)} \]

Source: Aiken (1985)

The following table is the validation level criteria.

<table>
<thead>
<tr>
<th>Score range (v)</th>
<th>Validity level</th>
</tr>
</thead>
</table>
a. Material Expert Validation

Material expert validation is a validation stage that functions to determine the feasibility of a product in terms of the content of the material presented. The material expert validation was carried out by a lecturer at the Department of English Education, KH University. A Wahab Hasbullah. The results of the instrument validation can be seen below.

Following are the validation results and input from material experts:

<table>
<thead>
<tr>
<th>No</th>
<th>Assessment aspects</th>
<th>Validator value</th>
<th>Rate scale</th>
<th>Σs</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Material quality</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>0.75</td>
</tr>
<tr>
<td>2</td>
<td>Language quality</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Test quality</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Based on the table above, it can be obtained data on the validity of learning media in terms of material. Data from material experts were obtained from questionnaires made by researchers and had been filled in by material experts. The questionnaire contains 9 instrument items and consists of 3 aspects. According to the table above V ≥ 0.8 (0.86). That is means the material validity is at a high level.

b. Media Expert Validation

Media expert validation is a validation stage that functions to determine the validity of a product in terms of the media displayed. Media expert validation was carried out by lecturers of the Education Information Engineering Department. Following are the validation results and input from media experts:

<table>
<thead>
<tr>
<th>No</th>
<th>Assessment aspects</th>
<th>Validator value</th>
<th>Rate scale</th>
<th>Σs</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Views</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>0.75</td>
</tr>
</tbody>
</table>
Based on the table above, it can be obtained data on the validity of learning media in terms of media. Data from media experts were obtained from questionnaires made by researchers and filled in by media experts. The questionnaire contains 9 instrument items and consists of 3 aspects. According to the table above $V \geq 0,8 (0,9)$. That is means the media validity is at a high level.

3.4 RESULT OF DATA COLLECTION

The researcher calculates the difference test of two samples in pairs. Paired sample T-test is the same subject but experiences different treatments. Here, the researcher examines about the differences in the test without any influence and the test using the media. The hypothesis of this research is “There is a significant effect on the difference in treatment before and after giving the media”. The following are the result of paired sample T-test:

There are 3 tables of calculation results using SPSS with a significant level 5% (0,05).

Source : Primary data processed

<table>
<thead>
<tr>
<th>Paired Samples Statistics</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Test</td>
<td>68,1600</td>
<td>25</td>
<td>6,97424</td>
<td>1,39485</td>
</tr>
<tr>
<td>Post Test</td>
<td>86,5600</td>
<td>25</td>
<td>4,14407</td>
<td>.82881</td>
</tr>
</tbody>
</table>

Based on the data processing statistics, the pre-test is 68,1600 while the post-test is 86,5600. It means that the post-test is higher than the pre-test.
Paired Samples Correlations

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>25</td>
<td>.424</td>
<td>.035</td>
</tr>
</tbody>
</table>

The table above is the result of paired sample correlation. Correlation data processing is used to find out whether or not the pre-test and post-test data relationship. The result is 0.035. This means that there is a correlation because significance is less than 0.05.

Paired Differences

<table>
<thead>
<tr>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>95% Confidence Interval of the Difference</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>Lower</td>
<td>Upper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-18.40000</td>
<td>6.42910</td>
<td>1.28582</td>
<td>-21.053</td>
<td>15.74620</td>
<td></td>
<td>.000</td>
</tr>
</tbody>
</table>

From all calculations with a 95% confidence level, showed that significance is 0.000. It is means the hypothesis is accepted because significance is less than 0.05. In other words, there is a significant effect on the difference in treatment before and after giving the media.

A. Product Revisions

Product revisions in the research and development of the QR Code interactive learning media are carried out once, as follows:

1. Revision

Revision is a revision after the validation of media experts and material experts. Suggestions and input from media experts and material experts are then used as a subject to revision. The following are explanation of the product revisions.

Before revised | After Revised
3.5 CONCLUSION

Based on the data obtained at each stage of the research, including the stage of defining, designing, developing as well in the dissemination stage, it can be concluded that the QR Code-based ICT media is feasible, effective and can be used to develop the material and students learning outcomes, especially in English subjects in listening skill at SMK Patriot Peterongan Jombang.

REFERENCES


