**INFOGRAPHICS DEVELOPMENT FOR SECONDARY SCHOOL STUDENTS IN ENGLISH LEARNING**

|  |  |
| --- | --- |
| Kadek Nesya Febi PramestiUniversitas Pendidikan Ganesha*nesyafebipramesti@gmail.com*I Gusti Ayu Lokita Purnamika UtamiUniversitas Pendidikan Ganesha*lokitapurnamika@undiksha.ac.id*Made Hery SantosaUniversitas Pendidikan Ganesha*mhsantosa@undiksha.ac.id* | **Abstract:** *This study aimed to develop infographics as teaching media for 7th students of grade secondary school in learning English. The method used in this study was Design and Development research (DnD) promoted by Richey and Klein (2005) which consist three steps, namely design, development, and evaluation. Initial observation had been done at one of junior high school in North Bali. In that observation, it was found the use of visual media in teaching still monotonous. The visual media that used in the teaching and learning process were only PowerPoint and videos from YouTube. The PowerPoint was mostly used in the teaching and learning activity. The PowerPoint slides were filled with many words related to the material. The teacher only explained the material through PowerPoint without doing other learning activities. The development of infographics was done to support the teacher in using visual media in teaching and learning process. The data collections of this study were carried out by library research, document analysis, and expert judgment. The data analysis of this study used mixed qualitative and quantitative research. The result of this study was infographics are very good media for teaching English to 7th grade junior high school. The design in each infographics was simple and effective as visual media for English teaching and learning activity. The quality of infographics was assessed using expert judgment by two experts. The result of expert judgment was the infographics media were classified as good media and did not need to be revised based on level accomplishment from* *Agung (2013). Teachers were expected to use various visual media in the class for creating fun and meaningful learning process. The infographics became complementary teaching media and can be used for a long time period*. |
| **Keywords:** *Infographics, English teaching media, visual media* |

**INTRODUCTION**

Technology is definitely useful for human life currently. The technology helps human to do the job easier. Most field that related to human life use technology for helping their activities. One of the fields that used technology is education field. In Indonesia, the use of technology in education field requires improvement. A country with best education, Finland uses teaching media in their teaching and learning process. Ruokamo, Kotilainen, Kupiainen, and Maasilta (2016) stated that in Finland the educational process emphasizes the use of teaching media. In Indonesia, teachers are rarely using teaching media besides textbooks in their teaching process. Tamrin, Azkiya, and Sari (2017) stated that teachers who have experience in teaching more than ten years, they never think need to upgrade their way of teaching in the class. It is because they satisfied teaching in the class with textbooks only. Hence, teachers are expected to adapt with an effective and efficient teaching and learning process.

Technology in education can be used for assisting teacher in using teaching media. Teaching media are tool that used by the teacher to deliver the material easily to the students. Teaching media with technology development creates various kind of teaching media innovations. It supports teacher to deliver the information to the students. Setyawan and Susanto (2019) stated that using media in teaching and learning process can create steady and interactive communication between teacher and students and the interactions are multi-directional. One of the media is visual media. Visual media are instructional media that used in the teaching and learning activity to encourage and motivate students in learning (Shabiralyani, Hasan, Hamad, & Iqbal, 2015). The use of visual media in the classroom also demand students’ mind through visual sense. Besides that, the activeness of students in participating in class increases while looking at the visual media. Shabiralyani et al. (2015) mentioned that using visual media in teaching and learning activity gives chance to the teacher in creating more professional and consistent performance. Students are mostly interested with the appearance of the media. Visual media will be able to attract students’ attention and decrease students’ boredom in teaching and learning process. In learning English as foreign language, the students must have motivation to learn English. Teaching using visual media can helps students to understand the information easily. Reyna (2013) said that using visual media in teaching and learning process makes students thinking critically about something they read or see. Students also remember the word easily if they see the word directly. Therefore, the teaching and learning process will be easier for the students.

The initial observation was done at one public secondary school in a rural area in North Bali. In it secondary school, teachers mostly used visual media in their teaching and learning process. Teachers’ opinion about visual media is because visual media are easy to use and more effective. However, there is no variation in using visual as teaching media. The use of visual media in teaching and learning process is monotonous. Teaching media that mostly used in the English class are PowerPoint and videos. PowerPoint as teaching media is not effective medium because it has lot of slides. In learning process, students may not able to focus to repeat the material easily because they have to find the material between the slides. Moreover, the video that used in the teaching and learning process are mostly do not cover learning focuses. Teachers usually give the link of video where the videos mostly from YouTube. The videos that given to the students sometimes show only definitions and examples. These videos do not make efficient media for teaching because the video does not cover learning focuses. Besides that, teaching media using videos also spend a lot of data plan and storage capacity. Media innovation is needed for teaching English. Besides media innovation, innovative strategies and teaching techniques are also needed in English teaching and learning process. Therefore, the infographics for 7th grade junior high school are developed for assisting teacher in teaching English.

Infographics is included in visual media which can be used as teaching media. Baglama, Yucesoy, Uzunboylu, and Ozcan (2017) stated that infographics is defined as the visualization method to explain complicated material become easier to understand. The use of infographics is facilitating the teacher and students in their teaching and learning process. Infographics are created with various designs to attract students’ attention through appearance of the media. The content in the infographics focuses on important points in each topic which makes the teaching process more effective (Alyahya, 2019). The use of infographics is easy because does not need many preparations. The teacher and students also can save their data plan because infographics does not need much data plan. In addition, the infographics as teaching media has benefits for students. Islamoglu et al. (2015) mentioned that there are some benefits for students in teaching and learning process using infographics, namely improve students’ comprehension of the concepts and information, enhance students’ ability in thinking critically and creatively, and improve retention and recall information. Therefore, the use of infographics is simple and easy for students and also teachers. The media of infographics will support the teaching and learning process to be more effective and efficient.

Based on this research, there are three related studies that used to support this research. The first study was done by Reyna (2013) about the principles of good visual media. The principles of good visual were, namely design elements, color schemes, typography, consistency of layout, displaying information in effective way, and attractive (Reyna, 2013). These principles should be considered in visual media as teaching media. The use of visual media is for displaying the information to the students. Hence, the information that is conveyed should be arranged properly to make the medium is effective and easy to the students. The appearance of the media is also important because it attracts students’ attention in teaching and learning. Besides that, aesthetics stimulate students’ motivation in learning. Therefore, principles of good visual media are important in developing visual media as teaching media.

The study was done by Alyahya (2019) about the process of designing the infographics as a learning tool. Alyahya (2019) developed infographics in University level and the result found that using infographics in teaching and learning process could increase students’ interest in learning. The infographics was designed simply which made students learning in effective way. Besides that, the infographics is one of innovative teaching media which commonly used in English teaching and learning process. The students felt excited and interested in learning by using infographics because it was rarely used by them. Hence, using infographics as teaching media could attract students’ attention while teaching and learning process.

Ibrahim and Maharaj (2019) study discussed the impact of infographics on language learning. In this study, the impact of infographics was taken from undergraduate students. The purpose of Ibrahim and Maharaj’s study was to examine the effectiveness of infographics on students who learn English as second language. The result showed that the infographics as teaching media could improve students’ learning outcome. Therefore, the infographics as teaching media motivated students to learn English.

Hence, the development of infographics as English teaching media creates the content and the media to look interesting. Infographics is teaching media that can assist teacher to get used with technological development in education field. The difference of this research with other research is the infographics are developed with learning focuses of English for 7th grade junior high school into one page.

**RESEARCH METHODOLOGY**

**Research design**

This research uses Design and Development research by Richey and Klein (2005). There are three steps in design and development research, namely design, development, and evaluation. The following is the figure of the steps that used in design and development research.

Evaluation

Development

Design

*Figure 1. Research Steps by Richey and Klein (2005, p. 24)*

These steps are adjusted to Design and Development research by Richey and Klein (2005). These three steps are implemented in this research for developing infographics as teaching media. The aim of this study is developing infographics as teaching media in learning English for 7th junior high school.

**Respondents**

The respondents of this study were English teachers and students of 7th grade junior high school in North Bali. The researcher was carried out initial observation to the English teacher of 7th grade. One of secondary school in North Bali is used as basis for consideration in developing infographics as teaching media. The consideration in developing infographics is based on the initial observation in one of secondary school in North Bali that has been done to see the syllabus and also English teaching media that used by the teacher for 7th grade.

**Instruments**

There are some instruments that used in this study. The first instrument is researcher’s note. Researcher’s note is used to summarize the important points from the study of 7th grade junior high school syllabus. The other instrument is blueprint of developing infographics. This blueprint is created by the researcher consist the content that will be put in the infographics. The blueprint is created after studying the 7th grade junior high school syllabus. Besides blueprint, there is expert judgment. The expert judgment is used to assess the quality of infographics, especially for the content and media. The expert judgment is adapted from Findawati and Suprianto (2014). The last instrument is instrument validation. For the content validity, the formula used is cross tabulation by Gregory (2000). These instruments are used for developing infographics as teaching media.

**Procedures**

Before assessing the infographics that have been created, the expert judgment sheets were validated by the experts to make sure the criteria in the instrument are appropriate. Based on the feedback from the experts, the instruments were not need to be revised. The criteria in the instruments are appropriate for doing the judgment of the infographics as English teaching media. After validation by the experts, they assessed the quality of infographics by using expert judgment. In expert judgment, there were two sheets, namely content expert evaluation and media expert evaluation. The experts assessed ten infographics for 7th grade junior high school and also gave comments in the evaluation sheet.

**Data collection**

The data collection in this study was guided using Design and Development research promoted by Richey and Klein (2005).

1. Design of infographics

In the design stage, it is started with analyzing the syllabus of 7th grade junior high school used as development blueprint. The syllabus was studied and then made the development blueprint by observing to several learning focuses. The learning focuses used include definition, language features, generic structure, examples, and question exercises based on each topic. These learning focuses are important points in developing infographics as English teaching media. The infographics is developed with a platform named Canva. It is one of editing platform that easy to use. Canva also has thousands of templates that can be edited and modified, and provides hundreds of font that can be used easily by the users (Mubarok & Asri, 2020).

1. Development infographics

In the development stage, the infographics is started to be developed using Canva based on the development blueprint that has been designed in the previous stage. The infographics for each topic is made in one page that contains learning focuses based on the development blueprint. The content in each infographics is presented as concise as possible and adapted to the template used. All infographics are added appropriate elements and fonts to give aesthetic value to the design. The researcher adds Quick Response (QR) code to complete the infographics design. QR codes are used to make it easier for users to access practice questions for each topic by simply scanning it. Questions for each topic are written in Google Form. For accessing the infographics, all infographics are placed in Google Classroom. Besides that, Google Classroom provides various activities to support the students and teacher in creating an active learning process, namely material, quizzes, questions, and feedback.

1. Evaluation of infographics

The evaluation stage is done to determine the quality of infographics. Determining the quality of infographics was carried out by doing expert judgment from two experts. There are two components of expert judgment, namely content expert judgment and media expert judgment. The instruments that used in this research are researcher’s note, blueprints for developing media, and expert judgment. A researcher’s note was carried out for analyzing and studying the 7th grade junior high school syllabus. The use of the syllabus is as a consideration for creating a media development blueprint. Media development blueprint contains ten topics in 7th grade which have been adjusted to the learning focuses. The expert judgment is an evaluation product to assess the quality of infographics as English teaching media. The expert judgment in this research are contained of expert judgment and media expert judgment which are adapted from Findawati and Suprianto (2014).

**Data analysis**

The results of the media quality will be analyzed qualitatively through expert judgment from two experts. The researcher calculates the results of expert judgment by using formula from Tegeh and Kirna (2013). After that, the results will be matched into the level of accomplishment by Agung (2013). The media will be classified as good media if the results are more than 75% and does not need revision. Conversely, if the results from the media are less than 75%, the media must be revised.

**RESULT AND DISCUSSION**

**The development of infographics**

1. ***Design***

The first step in the design stage is analyzing 7th grade syllabus. Syllabus analysis becomes a basis for developing infographics as teaching media. The 7th grade syllabus was studied and used for creating a media development blueprint in this research. The result of syllabus was ten topics in 7th grade English lesson are appropriate to be summarized and designed into infographics. There were ten topics of 7th grade English lesson that included in the blueprint. Besides that, learning focuses were also included, namely definition, generic structures, language features, examples, and practices questions based on the syllabus of 7th grade junior high school. Nevertheless, not all learning focuses are included in the topic because they are adjusted based on the topics’ discussion. Furthermore, the learning focuses in each topic are included into a design template which has been developed using a platform named Canva.

1. ***Development***

In the development stage, there are four platforms that involved in the process of making infographics as English teaching media. The platforms are namely Canva, Google Form, QR (Quick Response) Code Generator, and Google Classroom. The use of Canva is for designing the infographics design for each topic. Canva provides various features and templates that can be used by the researcher to develop infographics as English teaching media. The features and templates in Canva can be adjusted based on the creator’s creativity. Besides Canva, Google Form is also used in developing infographics as teaching media. The use of Google Form was for placing the practice questions for each topic in infographics. There are ten questions in every topic. In Google Form, the results of students’ answer and also the correct answer will be shown after submitting the answers. Other platform in development stage is QR Code Generator. After creating the questions, the link of Google Form in each topic is converted into QR code which will be put in the infographics design. Then, Google Classroom is used for making the teaching and learning process more interactive. In Google Classroom, there are some activities that make teaching and learning process interactive, namely questions and answers, and feedback. The following are the examples of completed infographics designs:



Figure 2. The sample designs of Infographics

Two designs of infographics above are the sample design from ten topics for 7th grade junior high school. The learning focuses are adjusted to the template that used in each topic. Therefore, the content in each topic can be presented properly and attractively.

**The quality of infographics**

The quality of the media is assessed using expert judgment which conducted by two experts. Before doing the expert judgments, the instrument validation has been done and the results show that the instruments are relevant to be used in expert judgment. Since the instruments are relevant to be used in expert judgment, the expert judgment process can be carried out. The infographics are assessed using the formula by Tegeh and Kirna (2013) which can be seen in Figure 3. Formula of the categorization of the data

Percentage = Actual Score x 100%

 SMI

*Figure 3. Formula of the categorization of the data (Tegeh & Kirna, 2013, p. 17 )*

Note :

Actual score : total answer x weight of each selection

SMI : total of questionnaire item x the highest weight

The final result from Tegeh and Kirna's (2013) formula are matched into level of accomplishment from Agung (2013). The level accomplishment that promoted by Agung (2013) can be seen in Table 1. Level of accomplishment.

Table 1. Level of accomplishment (Agung, 2013,p. 58)

|  |  |  |
| --- | --- | --- |
| Level of Accomplishment (%) | Qualification | Information |
| 85-100 | Very good | No need revision |
| 75-84 | Good | No need revision |
| 64-74 | Enough | Need revision |
| 55-64 | Bad | Need revision |
| 0-54 | Very bad | Need revision |

Table 2. The results of evaluation sheet

|  |  |  |
| --- | --- | --- |
|  | **Judge 1** | **Judge 2** |
| **Content evaluation sheet** | 94% | 80% |
| **Media evaluation sheet** | 95% | 82% |

Based on the result in Table 2, the content of infographics is categorized as very good media. It is proven by the results from first and second expert in content evaluation sheet. The first expert gives 94% and second expert gives 80% in the content evaluation sheet. For the media of infographics, first expert gives 95% and second expert gives 82%. The media of infographics is also categorized as very good media. The results from both experts are categorized as very good media based on the level accomplishment from Agung (2013) in Table 1. Therefore, the development of infographics does not need a revision.

**Evaluation**

In the expert judgment, there are several inputs from two experts as evaluation for the media that have been developed. There are some suggestions that given from both experts to infographics as teaching media. The first suggestion is providing the steps for using infographics in teaching and learning process. The steps of using infographics are important to provide for avoiding the problem in using infographics as teaching media. Hence, the steps in using infographics are included to help the user while using infographics. Next suggestion is providing score for students’ performance. Giving points to the students can stimulate and motivate them in learning. It can be done in practice questions for each topic. After the students answering the questions, they will see the score and answer keys directly. It will show immediately after students submitting the answers. Furthermore, making the media is more interactive in teaching and learning process. Attracting students’ attention, the media also use Google Classroom and Google Form in teaching and learning process. Google Form is used for putting the questions in each topic. Google Classroom is used for teacher and students to communicate or discuss the topic. The last is giving feedback. In giving feedback should be considered as evaluation, especially in Google Classroom. Teacher and students can give feedback on the infographics media in Google Classroom.

**Discussion**

The use of teaching media is still monotonous in teaching and learning process. It is proven from the result of preliminary observations in one of secondary school in North Bali. The teachers used PowerPoint as teaching media in English teaching and learning process. The use of PowerPoint as teaching media becomes monotonous because the teacher only explains the material through slides without other learning activity. Sometimes, the slides contain a lot of words and do not put the point of the material only. For avoiding in the usage of monotonous media in teaching and learning process, the infographics are developed as English teaching media for 7th grade students of secondary school. Infographics is defined as visualization method because it is explaining complicated material to become more understanding (Baglama et al., 2017). The infographics as teaching media will be developed with summarized material. Ozdamli and Ozdal (2018) have done a study to develop infographics as teaching media and it found that the infographics are effective media to attract students’ attention in learning. Students’ attention can increase with an attractive teaching media because it creates fun learning in the class.

This study of developing infographics is using three stages, namely design, development, and evaluation. These stages are from the concept of Design and Development by Richey and Klein (2005). The infographics that developed are based on a media development blueprint and media development blueprint is based on the 7th grade syllabus. The development blueprint is made for taking notice the learning focuses which consist of definitions, language features, generic structures, examples, and exercises. There are ten topics of 7th grade that developed into infographics as teaching media. Each topic of infographics consists with learning focuses and the materials are delivered in one slide. A good design of infographics considers color schemes, typography, consistency of layout, displaying information effectively, and aesthetics (Reyna, 2013). Reyna (2013) says that if media are designed interesting and properly, it motivates students in learning process. The media use four platforms to develop the infographics as effective media and support teacher in delivering the English material, namely Canva, Google Classroom, Google form, and QR Code Generator.

The development of infographics uses various templates from Canva to support its aesthetic without reducing the important point that will be delivered. In terms of appearance, infographics are supported by aesthetic designs to become good visual media. Shabiralyani et al. (2015) say that the visual quality of teaching media is also judged by how it appears visually and teaching media must be able to draw students' attention while facilitating the learning process. Hence, the researcher focuses on the appearance of infographics to create the infographics as good visual media for teaching and learning process. Beside appearance, the researcher also focuses on the content of infographics. The content of infographics is a summary of the material for 7th grade students of junior high school. In each infographics contains with social functions, language features, examples, and questions but for generic structure is added based on the topic needed. These learning focuses are added in one slide of infographics to create efficient learning in the class (Yildirim, Çelik, Yildirim, & Kaban, 2016). Therefore, the content and media infographics will look harmonious.

Besides Canva, the infographics are also developed using QR code. Petrova et al. (2016) define QR code as an electronic barcode that direct to certain information by scanning with a scanner. The QR code in the infographics is used to access the practice questions that are already available for each topic. The questions are created in Google Form and the link of Google Form is converted into QR code. The QR code is added based on the topic in the infographics. There are two advantages to using QR code, namely help the user to access the information and store data easily (Petrova et al., 2016). The use of QR code helps user to access the practice questions easily. To access the questions, users need to scan the barcode by using scanner that available in a smartphone. Using QR code is also efficient because it helps to store the practice question for each topic. The display of the QR code in infographics does not interfere with the content. The display of the QR code is adjusted to make it look neat. Hence, the infographics just need one slide.

The use of Google Classroom is as place to put all the infographics for 7th grade junior high school. In Google Classroom, the creator also put some features to support the teaching and learning activity. One of the features is practice section. In practice section, the user can access the questions through QR code. The questions are created in Google Form where the result and answer keys of the exercise will appear after submitting the answers. The questions that used in the exercises are low order thinking because it focuses on students’ understanding of the material first. The development of infographics is as complementary teaching media and teacher is expected to be more creative in creating the teaching and learning activity. In the Google Classroom, there is a feature named discussion where the students can share their understanding the material and ask question to other students. Hence, Bicen and Beheshti (2017) stated that using infographics as teaching media can help to accommodate the material and interactive learning activity. Infographics, as teaching media have benefits such as the media are easy to access, the appearance of the media is interesting, summarized material is easy to understand, improve students’ communication skill through visual, and practice students’ critical thinking (Bicen & Beheshti, 2017)

The quality of infographics that developed as teaching media is classified as very good media. The result of expert judgments that have been done by two expert, media are classified as very good media and did not need revision based on the formula by Tegeh and Kirna (2013) and the level of accomplishment by Agung (2013). The content of infographics from expert 1 is 94% and expert 2 is 80%. These score of content infographics are included in very good media in the level of accomplishment. In addition, the media of infographics gets 95% from expert 1 and 82% from expert 2. The score of media infographics are included in very good in the level of accomplishment. Hence, the infographics that developed in this study do not need revision. The study from Alyahya (2019) shows that infographics are good to be implemented as teaching media. The result is from the perceptions of teacher and students about infographics are good to be used in teaching and learning process. Hence, the infographics that developed in this study are classified as good media and have good quality for teaching English in 7th grade junior high school.

The infographics media are included to visual media. Visual media are used to teach students who have visual styles in learning. Visual learners are students who learn best through visual (Awla, 2014). However, it does not mean the infographics just can be used for visual learners. In developing infographics, the design of infographics is created to be simple and interactive to support the learning activity in the class. This development of infographics as teaching media is designed to follow the education development of 21st century. This century is known as technology era. The infographics that have been developed must be adjusted by the teachers in creating teaching and learning activity with collaboration of knowledge, pedagogy, and technology or known as TPACK (Technological Pedagogical Content Knowledge). In 21st century which is known as technology era, teachers must have the ability in knowledge, teaching strategies and also digital technology in the teaching activities (Koehler, Mishra, Akcaoglu, & Rosenberg, 2013). Teachers should use technology in every learning activity which include knowledge and teaching strategies (Koehler et al., 2013). Therefore, the development of infographics is expected to be able to support teachers in technology-based teaching process.

The media development in this study has been developed based on principles of good visual media by Reyna (2013). Principles of good media makes the infographics become good teaching media in teaching and learning process. In infographics, some features and designs have been adjusted to learning focuses and the design template to give aesthetic impression to the reader. The aesthetic of infographics does not detract the meaning of concept that conveyed in the infographics. The infographics as English teaching media is supported with four platforms to become effective teaching media. Moreover, the quality of infographics is done by using expert judgment from two experts. Hence, the infographics developed has very good quality as English teaching media in teaching and learning process.

**CONCLUSION AND SUGGESTION**

**Conclusion**

The infographics were developed as complementary teaching media for 7th grade junior high school. 7th grade syllabus is as the based for developing infographics with ten topics and they are adjusted to the learning focuses in each topic. The infographics are designed with summarized material to become simple in using the media. The aim of using summarized material is to make the material that delivered to the students effectively in one slide of infographics. Infographics development is also supported with various platforms for making the media effective and attractive in teaching and learning process. The results of infographics’ quality are very good media. The results of infographics’ quality are conducted by two experts using expert judgments. Because the quality shows very good media, the infographics do not need a revision. However, there are some improvements based on experts’ evaluation in content and media of infographics. Refinement is created to improve infographics as English teaching media. Refinements for the content of infographics are adding practice questions, giving points, adding a feedback room, and providing steps to use infographics in teaching and learning process. The infographics will help the teacher in the teaching process. Besides the teacher, students will get motivation in learning process while using infographics as teaching media. Therefore, the infographics for 7th grade students are classified as good visual media.

**Suggestion**

There are some suggestions in this study for English teacher, students, and other researchers.

1. **To the English Teacher**

The researcher suggests to the English teacher to use other visual media besides PowerPoint. Using other media in teaching and learning process can help the teacher to create fun and meaningful learning process in the class. One of the visual media is infographics. Using infographics can motivate the students to learn and participate in the learning process. The English teacher must be willing to learn something new, one of which is learning to use new media accordance with technological advance.

1. **To the Students**

The researcher in this study suggests the students to get used learn by using media not textbook only. Visual media are one of type media that can be used in teaching and learning process. Using visual media can motivate students to be more active in the learning activity. Infographics are visual media that used only one slide that can help students to understand the material easily because the material has been summarized.

1. **To Other Researchers**

The researcher suggests to other researchers to continue this study to find the effect of using infographics as teaching media for students. This study also can be used as a reference to other researchers that doing researches that related to this study.

**REFERENCES**

Agung, A. A. G. (2010). *Evaluasi pendidikan*. Singaraja: Universitas Pendidikan Undiksha.

Alyahya, D. M. (2019). Infographics as a learning tool in higher education: The design process and perception of an instructional designer. *International Journal of Learning, Teaching and Educational Research*, *18*(1), 1–15. doi:https://doi.org/10.26803/ijlter.18.1.1

Awla, H. A. (2014). Learning styles and their relation to teaching styles. *Interantional Journal of Language and Linguistics*, *2*(3), 241–245. doi:10.11648/j.ijll.20140203.23

Baglama, B., Yucesoy, Y., Uzunboylu, H., & Ozcan, D. (2017). Can infographics facilitate the learning of individuals with mathematical learning difficulties? *IJCRSEE (International Journal of Cognitive Research in Science, Engineering and Education*, *5*(2), 119–128. doi:10.5937/IJCRSEE1702119B

Bicen, H., & Beheshti, M. (2017). The psychological impact of infographics in education. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, *8*(4), 99–108. Retrieved from https://www.edusoft.ro/brain/index.php/brain/article/view/733/821

Findawati, Y., & Suprianto. (2014). Bahan ajar multimedia interaktif kewirausahaan SMK menggunakan model pembelajaran problem based learning. *JNTETI*, *3*(4), 257–263.

Gregory, R. (2000). *Psycological Testing: History, Principles and Aplications*. Boston: Allyn and Bacon.

Ibrahim, T., & Maharaj, A. (2019). The impact of infographics on language learning. *IJCSNS (International Journal of Computer Science and Network Security)*, *19*(12), 47–60. Retrieved from http://paper.ijcsns.org/07\_book/201912/20191208.pdf

Islamoglu, H., Ay, O., Ilic, U., Donmez, P., Kuzu, A., & Odabsi, F. (2015). Infographics: A new competency area for teacher candidates. *CYpriot Journal of Educational Sciences*, *10*(1), 32–39.

Koehler, M., Mishra, P., Akcaoglu, M., & Rosenberg, J. (2013). The Technological Pedagogical Content Knowledge framework for teachers and teacher educators. *ICT IItegrated Teacher Education: A Resource Book*, (December), 1–8.

Mubarok, F. U., & Asri, A. N. (2020). Infographics : Media for improving students ’ writing abilities. *International Seminar on Language, Education, and Culture*, *2020*, 78–87. doi:10.18502/kss.v4i4.6469

Ozdamli, F., & Ozdal, H. (2018). Developing an instructional design for the design of infographics and the evaluation of infographic usage in teaching based on teacher and student opinions. *EURASIA Journal of Mathematics, Science and Technology Education*, *14*(4), 1197–1219. doi:10.29333/ejmste/81868

Petrova, K., Romanello, A., Medlin, D., & Vannoy, S. (2016). QR codes advantages and dangers. *ICETE 2016 - Proceedings of the 13th International Joint Conference on e-Business and Telecommunications*, *2*, 112–115. doi:DOI: 10.5220/0005993101120115

Reyna, J. (2013). The importance of visual design and aesthetics in e-learning. *Training & Development*, *40*(28), 28–31. doi:10.1016/b978-0-12-803844-4.00008-x

Richey, R. C., & Klein, J. D. (2005). Developmental research methods: Creating knowledge from instructional design and development practice. *Journal of Computing in Higher Education*, *16*(2), 23–38. doi:https://doi.org/10.1007/BF02961473

Ruokamo, H., Kotilainen, S., Kupiainen, R., & Maasilta, M. (2016). Media education today and tomorrow. *National Audiovisual Institue*.

Setyawan, F. H., & Susanto, S. (2019). Developing educational game as language acquisition media for young learners. *Jet Adi Buana*, *4*(2), 192–199. doi:10.36456/jet.v4.n2.2019.2081

Shabiralyani, G., Hasan, K. S., Hamad, N., & Iqbal, N. (2015). Impact of visual aids in enhancing the learning process case research: District dera ghazi khan. *Journal of Education and Practice*, *6*(19), 226–234. Retrieved from https://files.eric.ed.gov/fulltext/EJ1079541.pdf

Tamrin, M., Azkiya, H., & Sari, S. G. (2017). Problems faced by the teacher in maximizing the use of learning media in padang. *Al-Ta’lim Journal*, *24*(1), 60–66. doi:http://dx.doi.org/10.15548/jt.v24i1.262

Tegeh, I. made, & Kirna, I. made. (2010). *Metode penelitian pengembangan pendidikan*. Singaraja: Universitas Pendidikan Undiksha.

Yildirim, S., Çelik, E., Yildirim, G., & Kaban, A. (2016). A study on the development of an infographic reader questionnaire and reader opinions. *SHS Web of Conferences31, 01009*. doi:https://doi.org/10.1051/shsconf/20163101009