

Students' Abilities in Reading Infographics Text in Junior High Schools

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Abstract

Infographic text is a visual text in the form of a combination of images, graphics, illustrations, and typography that serves to facilitate readers in understanding information. Therefore, infographic text is presented with an attractive appearance by increasing the number of illustrations and a little text. The widespread use of infographic text in every aspect of life today requires everyone to have adequate ability to read infographic text. Therefore, in this study the author conducted research on the ability of junior high school students to read infographic texts. The method used in this research is quantitative descriptive method. The object of the research is students of Class VIII of Junior High School in one of the districts in Central Java province. The results showed that the ability to read infographic texts of junior high school students in one of the districts in Central Java still needs to be improved. It can be seen from the low score obtained in doing infographic text questions. There are several efforts that teachers can make to improve students' ability to read infographic texts, namely by increasing visual literacy, improving reading skills, providing knowledge about infographics, and providing practice reading infographic texts.

Keywords: Student's ability; reading infographics text; junior high school

Introduction

The use of infographic texts in various media is increasing nowadays. Infographics are considered an effective means of conveying information because they display the core idea or main

point of explanation to the reader. Through infographic text, readers do not need to read a long form of text to get the information conveyed by the author. Simply by looking at the infographic text carefully, readers will get important information quickly and effectively.

In general, infographic text can be defined as a visual text that contains a combination of images, graphics, illustrations, and typography that serves as a visual text that contains a combination of images, graphics, illustrations, and typography with the aim of making it easier for readers to understand information easily. Therefore, infographic text is presented with an attractive appearance, namely by increasing the number of illustrations and a little text.

Infographics are visual representations of information. Infographic text is used to tell a story, convey an idea, or research a problem through graphics or images of information. Infographics are now widely used in various media to increase readers' understanding of certain topics or issues. Apart from print media such as newspapers and magazines, infographic text is also widely used in various electronic and digital media as part of a publication strategy.

The widespread use of infographic texts in every aspect of life today requires everyone to have adequate ability to read infographic texts. The ability to read infographic texts can be done in reading lessons, namely in learning Indonesian at Junior High School. The reason is, in learning to read in junior high school, students are expected to have adequate reading comprehension skills in order to absorb information on all subject matter. Reading activities that are needed today are not only reading texts that contain writing, but the ability to read infographic texts that are widely used in this era.

Reading comprehension is a process of refining the meaning of writing between the reader and the text (Broek & Espin, 2012, Ertem, 2020). Reading comprehension skills are very important for students to succeed both at school and in everyday life. In line with this opinion, Papatga & Ersoy, (2016) argued that to achieve good reading comprehension, the right strategy is needed so that the learning objectives of reading comprehension can be achieved. Mc Ewan (2007) and Shanahan, et al (2010) revealed there are five steps in reading comprehension strategies, namely asking questions, making inferences, making connections, visualizing, and summarizing. According to him, visualization is an important component in reading comprehension.

Infographic texts are reading materials that are full of visual objects. In understanding this text, readers will do a lot of visualization processes. Medina (in Yarbrought 2019) stated that people will remember well through images, not words or speech. In line with this statement, Dunlop & Lowenthal (in Yarbrought 2019) also stated that people will learn and remember more effectively and efficiently through the use of text and visuals than through text alone.

Infographic texts are very important in today's life. Therefore, students must be given adequate learning to understand infographic texts. Although infographic text is a form of text that has an attractive appearance and is able to attract students' attention, in reality not all students can understand infographic text well. Many students are confused and cannot find the information presented in the infographic text.

Students' inability to understand infographic texts can be seen from a survey conducted by the author on several junior high school students. In the survey, the author presented ten questions taken from the infographic text. The survey results showed that there were still many students who could not read or understand the contents of the infographic text correctly. Of the ten questions asked, the average student was only able to answer 4.99 questions correctly.

In education today, infographic texts are featured as part of the numeracy group of national assessments. The purpose of including infographic text in the national assessment is to train students to think critically and be able to absorb information quickly and effectively. This is

because in the current era, humans are required to be able to think quickly and be able to solve problems quickly and correctly. Therefore, students' inability to read infographic texts is a problem that demands great attention from teachers.

Literature review

Definition of infographic text

Infographic is short for "information graphic". Infographics use visual terms to explain information. The information described does not need to contain a certain amount of data, have a certain complexity, or present a certain level of analysis (Lankow 2014:20-21). In contrast to Lankow, Smiciklas (2012:1) explains that infographics (graphical summary of information) is an image that combines data with design, to help people and organizations communicate messages to the audience easily and quickly. Unknowingly, the use of infographics has been around for a long time in everyday environments. Such as in newspaper publications that explain the sequence of events, instructions in food products, drug education billboards, and also the use of world maps.

Infographics are divided into two types, namely (a) quantitative infographics and (b) qualitative infographics. Quantitative infographics are data-driven (more narrative) infographics that tell a story and help viewers make sense of the visualization. However, quantitative infographics can consist of just a title, graphics, and basic instructions on how to read the visualization and allow the audience to discover meaningful information on their own, without the need for narrative context. Qualitative infographics are infographics whose main purpose is to entertain and engage the audience. Qualitative infographics are as creative as possible, but they still need to convey the message (Lankow 2014:134).

In contrast to Lankow, according to Sugiarto (2015: 20) infographics are divided into several types, namely as follows, First, Static Infographics, which are infographics presented in static visual form without moving audio/animation concepts, examples are diagrams, graphs, tables, and lists. This type of infographic is published at exhibition events, books, newsletters, newspapers, and magazines. Second, Timeline Infographics, which are infographics that are designated with a sequential event that occurs in it. Timeline infographics make the reader aware of a chronology or events that take place according to the time that occurred (infographics that have definitely happened) such as historical stories, and chronology of the seconds of proclamation. Third, Process infographics, which are infographics commonly found in collections of cooking recipes that use the concept of step by step. The use of these infographics is more in everyday life because many of them are more loaded or help people understand the instructions made into these infographics, for example, such as packaging in food products that require certain preparations. Fourth, Location and Geographic Infographics, which are infographics that are often found in maps or floor plans of a building to complex astronomical maps. Fourth, Kleinmagazin Media is a printed visual media or infographic-based magazine that contains information about transportation (*Verkehrsmittel*) in Germany, accompanied by illustrations, images, and designs. Types of transportation ranging from land, water, and sea transportation can be studied well. This magazine can be used to convey complex information to students, so that the material is easily understood quickly. In addition, it can solve the problem of narrative and boring information into more interesting information with the use of images and letter processing.

The use of infographic text in education

Infographics are believed to have been around for a long time. Many experts say that the first infographic texts existed in the form of cave paintings. The paintings were made with the aim

of disseminating information about animals and hunting methods (Opoku, et al 2021). This opinion is reasonable considering that humans are visual creatures, so it is not surprising that infographics have been around for a long time. However, the form of infographics in ancient times and today have differences, both in terms of form and content.

In education, infographic texts have been widely used, especially in teaching. Infographic text is used as a teaching medium because it has an attractive visual design. This is in line with the purpose of creating infographic text which aims to convince people about data. Smiciklas, (2012) suggests that infographics come from the words information and graphics. Infographics means images that combine data sets and graphics to convey messages briefly and create good communication with the audience.

Infographic texts are considered in the world of education because they have a goal to make the message conveyed effective and efficient. In addition, infographic texts are considered in education with the aim of improving the quality of the learning process, especially increasing students' interest in reading. This thought is based on the form of infographic text in the form of an attractive visual design so that it can attract students' attention to read. This statement is supported by Shanks, et al (2017) which states that infographic text has an attractive appearance because it is in the form of evidence-based data, easy-to-read fonts, attractive colors and colors, making it easier to convey information to readers.

Some research on the utilization of infographic text in education has been conducted by Bicen and Behesti (2017). The study aimed to determine students' perceptions of the use of infographic texts in education. The results showed that infographic texts can help students in mastering learning skills, motivating them, and developing their creativity. The conclusion of the study was that students prefer to learn with visual materials rather than traditional materials, such as books.

Similar research has been conducted by Alqudah et al. (2019) The purpose of the study was to determine the impact of using educational infographics by focusing on student interactions and perceptions of the meaning of the information obtained. The results showed that infographic text had a positive effect on students, as evidenced by the comparison between the control class and the experimental class.

Research on the use of infographic texts in education has also been conducted by Putra (2021). The study was conducted to review previous studies conducted by other researchers related to the utilization of infographics to increase EFL students' interest in reading. The results of the study stated that the use of infographic texts in learning is quite large, which can reduce student boredom, increase the desire to read, and develop critical thinking skills and organize ideas.

Based on the research that has been done, it can be concluded that infographic texts have a great influence in education. Some research results mention that infographic text can arouse students' interest in reading, reduce boredom, develop critical thinking skills, and organize ideas. From some of these research results, it can be concluded that infographic text has an important role in education.

Reading ability

Ability comes from the basic word able, which means able, or able to do something. According to KBBI (2008), ability means capability, proficiency, and strength. Reading is one of the basic abilities that must be possessed by humans living in the present and future centuries. The ability to read is important in a society because through reading various information and knowledge insights can be absorbed to develop the civilization of that society.

The importance of reading ability and skills is expressed by Burns, et al (1996), who state that reading ability is an absolute ability mastered by a more advanced society. Communities will tend to experience, anticipate and adjust to various changes and advances more quickly when individuals in the community have high reading skills and culture. Conversely, if a society has a low reading ability and culture, they tend to be slow in adjusting to the changes that occur around them.

Tarigan (2008) said that reading is a process carried out and used by readers to obtain messages that the author wants to convey through the medium of words or written language. Reading is essentially a complicated activity because it involves many things, not just memorizing writing, but also involves visual, thinking, psycholinguistic, and metacognitive activities.

Crawley and Mountain (1995) state that as a visual process, reading is the process of translating written symbols (letters) into spoken words. As a thinking process, reading includes the activities of word recognition, literal comprehension, interpretation, critical reading, and creative comprehension. Meanwhile, according to Sudarso (1993), reading is a complex activity by directing a large number of separate actions including understanding, imagination, observing, and remembering.

Based on the opinions of the experts above, it can be concluded that reading is a skill that requires the ability of each individual who does it. If someone has good reading skills, they will be able to read quickly and be able to understand the content of the reading as a whole. This is in line with the opinion of Tampubolon (1990) who explains that reading ability is the speed of reading and understanding the content of reading as a whole. Meanwhile, according to Somadayo (2011), reading comprehension ability is an active process of acquiring meaning that involves the knowledge and experience that the reader already has and is connected to the content of the reading.

From this description, it can be concluded that reading comprehension ability is the ability to obtain meaning both explicitly and implicitly and be able to apply information from reading by involving the knowledge and experience that has been owned. If it is related to reading infographic text, it can be concluded that the ability to read infographic text is the ability to obtain explicit and implicit information from reading infographic text.

Reading learning in junior high school

Based on Undang-Undang Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional, it is stated that learning is the process of interaction between learners and learning resources in a learning environment. Meanwhile, according to Peraturan Pemerintah Nomor 32 Tahun 2013, learning is defined as the process of interaction between learners and educators and learning resources in a learning environment. In learning activities at school, the main task of a teacher is teaching, while the main task of a student is learning.

According to Depdikbud (2009), the term skills is categorized into 4, namely; (1) Basic literacy, which is a person's expertise that is certain and must be owned by most people, such as reading, writing, and listening, (2) Technical skills, which is a person's expertise in developing techniques owned such as calculating precisely, operating a computer, (3) Interpersonal skills, which are interpersonal skills which are a person's ability to effectively interact with other people and with coworkers, such as a good listener, expressing opinions clearly and working in a team, and (4) Problem solving, which is an activity process to sharpen logic, argumentation and problem solving as well as the ability to find causes, develop alternatives and analyze and choose a good solution.

Reading learning in Junior High School aims to build a critical and creative attitude towards various phenomena of life that can foster subtlety of mind, solidarity and as a form of effort to preserve the nation's culture. After being able to preserve the nation's culture, in adulthood, students are expected to know various cultures from other countries. It is also important to add insight and knowledge to the students. To be able to know cultures from other countries, students need to interact with people who have different cultures, and dig up information through various sources (Abduh et al, 2021). Nowadays, the reading skills that students must do are different from the past. In the past, students' reading skills were limited to the ability to understand, interpret, and reflect on the content of a text that was read. In the 21st century, students' reading skills have shifted along with the development of human civilization which began to incorporate information technology in everyday life, as stated by Spiro, et al. (2015) who stated that the definition of reading literacy must be updated and expanded to reflect new skills related to the tasks required in the 21st century.

Infographic text is one of the texts that students must master. Students' ability to read infographic texts is necessary considering the many benefits of infographic texts used in everyday life, such as Lamb and Johnson's (2014) statement that there are five uses of infographic texts. First, infographic text can organize ideas in a useful and coherent way by visually illustrating key concepts and reorganizing ideas. Second, infographic text can illustrate biographical, scientific, art and design, historical, and social studies concepts that demonstrate the power of infographics to explain complex relationships. Third, infographic text can be used to effectively compare information and topics. Fourth, infographic text can present meaningful data by providing analogies, examples, and themes, and can turn ordinary data into meaningful information. Fifth, infographic text can combine words and images into an interesting story.

Such is the importance of infographic text in stimulating students' critical thinking. Therefore, the ability to read infographic texts in the current era is very necessary to be able to adapt to technological changes and developments

Research method

Research design

This research uses quantitative descriptive methods. According to Frankael, Wallen, Hyun (2012), quantitative research methods are data in the form of scores. The design used in this research is survey research. Survey research is a research method conducted by asking respondents a number of questions about several topics or issues they want to know to get answers from them. The characteristics of survey research are, (1) collecting information from a group of people to describe some aspects or characteristics such as abilities, opinions, attitudes, beliefs, and/or knowledge from the population. (2) Information collection is done by asking questions to get answers in the form of data. (3) Information is collected from a sample, not from the population. In this study, a survey was conducted to the respondents in relation to their ability to read infographic texts.

Materials

The object or target of this research is Class VIII students of Junior High School in one of the districts in Central Java Province. The reason for choosing them as the object of the research is because infographic text is one of the text types tested in the national assessment, and the national assessment is conducted for students in Class VIII of Junior High School. Therefore, the selection of the research object is based on a needs analysis to find out the extent of the students'

abilities, especially the students of Class VIII of Junior High School. The number of respondents in this study was 325 students.

Sampling procedures of data collection

The sample in this study came from 8 schools located in one of the districts in Central Java Province, with a total of 325 respondents. The details of the number of samples from each school are as follows.

Table 1. Sampling procedures of data collection

No	Schools	Class	Teachers	Students
1	School-1	VIII	1	31
2	School-2	VIII	1	38
3	School-3	VIII	1	40
4	School-4	VIII	1	39
5	School-5	VIII	1	35
6	School-6	VIII	1	65
7	School-7	VIII	1	45
8	School-8	VIII	1	32

The sampling procedure in this study was carried out in a randomized manner, namely distributing questionnaires to several schools in one of the districts in Central Java. The schools that became the research sample were schools spread across urban to peripheral schools.

Instruments

The instruments in this study were questions related to infographic texts, which amounted to 10 multiple choice text questions. Each question contains one correct answer. One correct answer has 1 point. So, if all questions can be answered correctly, the score obtained by students is 10.

Data analysis

Data analysis in this study was carried out by examining quantitative data. Quantitative data in this study is in the form of student answer scores obtained through questionnaires. Furthermore, the scores of students' answers were analyzed using percentages to make it easier to understand. The percentage of students' answers was then analyzed to find out its relevance to students' understanding in reading infographic texts. The higher the score obtained by the students, the higher their ability to read infographic text.

Results

Based on a survey conducted among 325 grade VIII students from 8 schools in one of the districts in Central Java Province, the author found some information related to their ability to read infographic texts. From the 10 questions given in the questionnaire, there are a few students who have the ability to read infographic text well, there are several students who have moderate ability to read infographic text, and there are many students who have low ability to read infographic text. The details of the survey results of students' ability to read infographic texts are as follows.

- The average score obtained by students is 4.99. This data is obtained from the following figure:

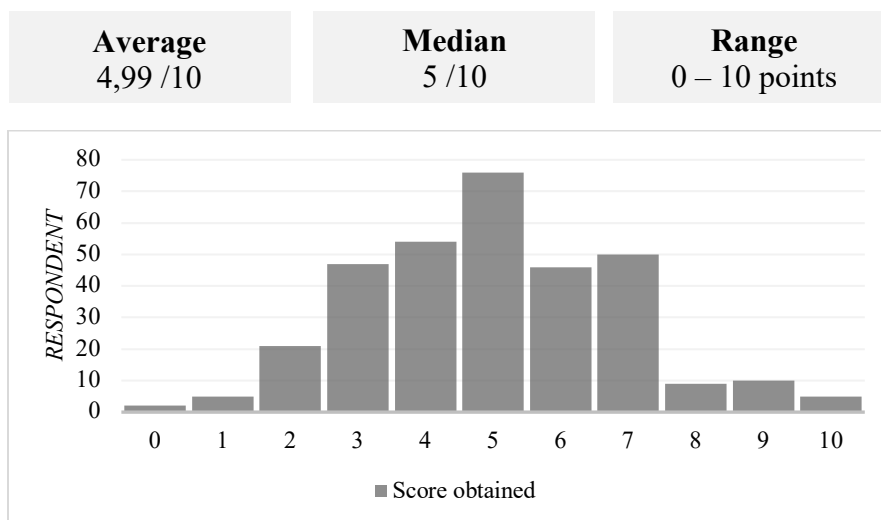


Figure 1. Average student score

Figure 1 shows that the average score of junior high school students in one district in Central Java was 4.99. This means that out of 10 questions asked, the average student can only answer 4 to 5 questions correctly.

- Of the 10 questions given, there were 7 questions that were not answered by some students, it can be seen from the following table:

Table 2. Student responses to the question

Questions	Number of students who answered	Number of students who did not answer
Based on the following infographic text data, the correct way to brush your teeth is as follows, except...	323	2
Based on the data in the following infographic text, which of the following statements is true about maggots!	321	4
"In trials at the Ornamental Fish Cultivation Research Center, Koi fish fed with maggot spawned 4 times in the same period compared to fish fed with pellet feed". From the sentence, we can understand that....	320	5
Based on the data in the following infographic text, the statement that does not match the content of the text is....	321	4
Notice the following sentence! "The reason is, if the gums and teeth have an infection, this condition can spread into other body tissues". From the sentence, we can know that....	324	1
Look at the following infographic text to answer the following questions! One of the hospitals in the West Java area conducts rapid tests for health workers periodically to provide protection to health workers. Dito is one of the health workers in the Bandung area. He has taken	324	1

the rapid test periodically. Based on the text, what Dito should do is....		
Referring to the infographic text below, we can see that if the test result is positive, the patient is advised to....	323	2

Based on the table, it can be explained that there are 7 questions that are often not answered by students, namely in text 1 there are 2 students who do not answer, text 2 there are 4 students who do not answer, text 3 there are 5 students who do not answer, text 4 there are 4 students who do not answer, text 5 there is 1 student who does not answer, text 6 there are 2 students who do not answer, and text 7 there is 1 student who does not answer.

- The results of the analysis of students' ability to answer questions based on infographic texts are as follows:
 - In question number 1, 72% of students were able to answer the question correctly. This can be seen from the following figure:

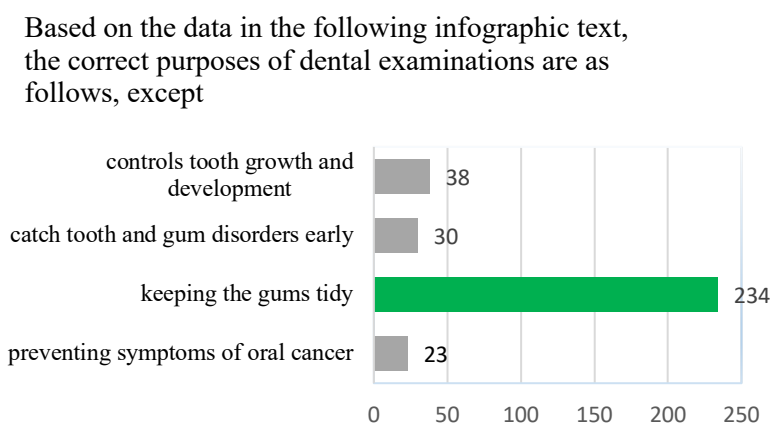


Figure 2. Question 1

- In question number 2, there were 86% of students who were able to answer the question correctly. This can be seen from the following figure:

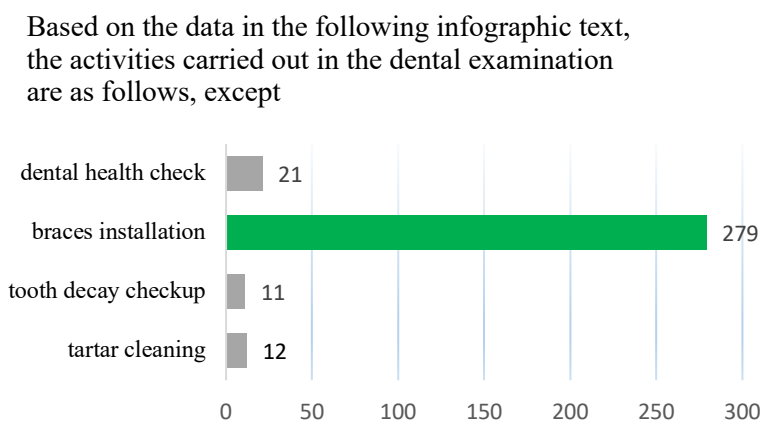


Figure 3. Question 2

- In question number 3, 38.4% of students were able to answer the question correctly. This can be seen from the following figure:

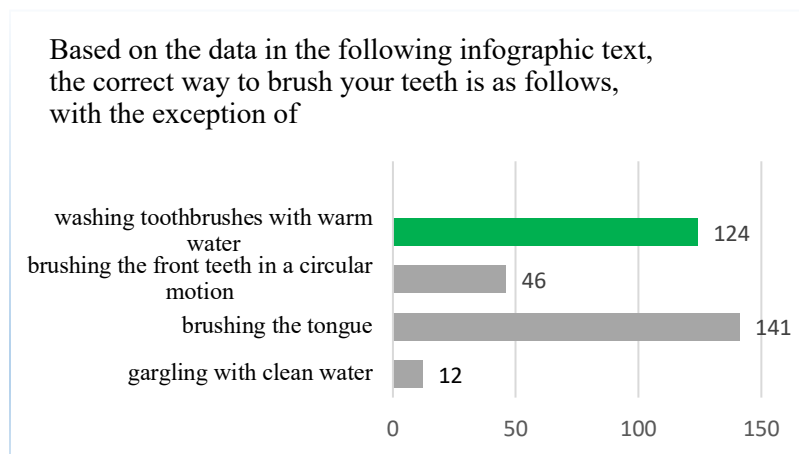


Figure 4. Question 3

- In question number 4, 89.5% of students were able to answer the question correctly. This can be seen from the following figure:

Look at the following sentences carefully!

A vaccine is a substance or compound that serves to build the body's immunity to a disease. Vaccines come in many types and ingredients, each of which can provide you with protection against various dangerous diseases.

Based on the paragraph, what is meant by vaccine is....

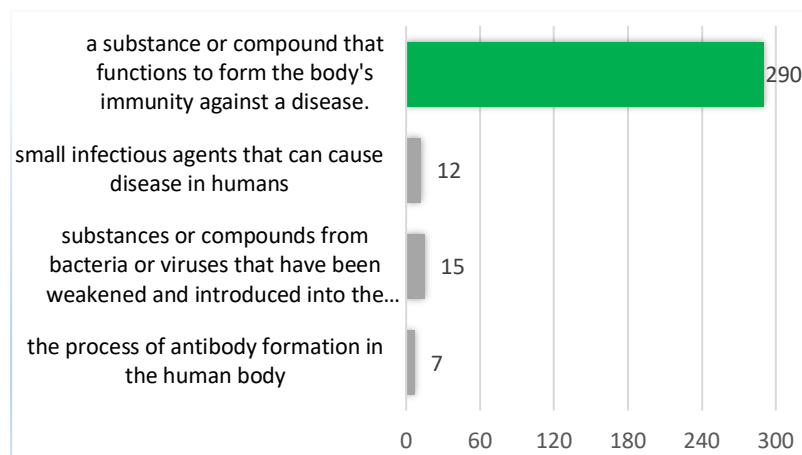


Figure 5. Question 4

- In question number 5, there were 38.3% of students who were able to answer the question correctly. This can be seen from the following figure:

Based on the data in the infographic text below, which of the following statements is true about maggots!

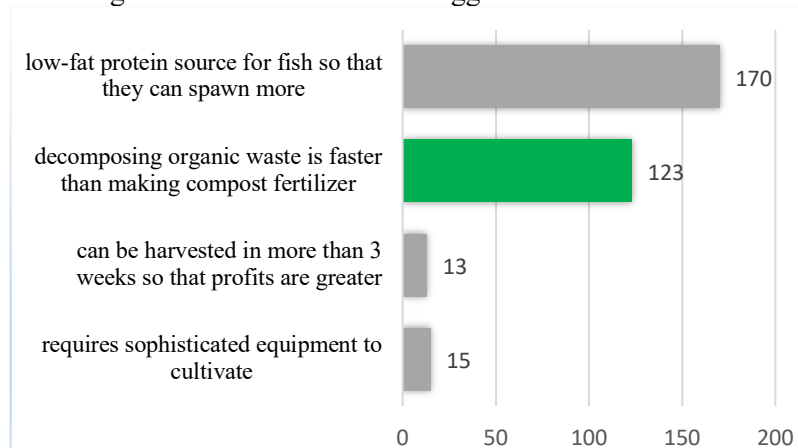


Figure 6. Question 5

- In question number 6, there were 47.8% of students who were able to answer the question correctly. This can be seen from the following figure:

In trials at the Ornamental Fish Cultivation Research Center, maggot-fed Koi spawned 4 times in the same period compared to pellet-fed fish. From this sentence, we can understand that....

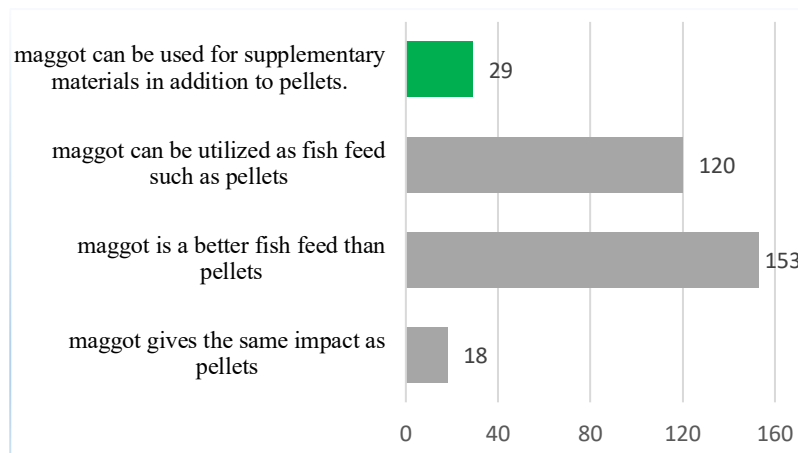


Figure 7. Question 6

- In question number 7, there were 44.1% of students who were able to answer the question correctly. This can be seen from the following figure:

Take a look at the following sentence!

“The reason is, if the teeth and gums have an infection, this condition can spread to other body tissues”. From the sentence, we can know that....

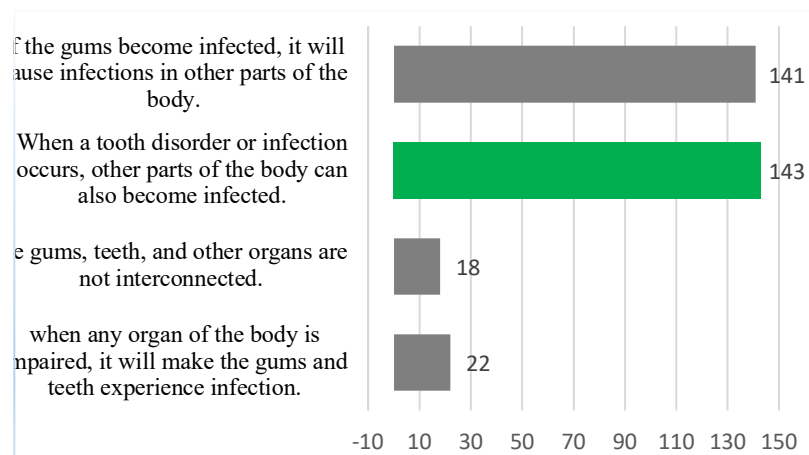


Figure 8. Question 7

- In question number 8, there were 22% of students who were able to answer the question correctly. This can be seen from the following figure:

Look at the following infographic text to answer the following questions!

One of the hospitals in West Java conducts rapid tests on health workers regularly to provide protection to health workers. Dito is one of the officers in the Bandung area. He has taken the rapid test periodically. Based on the text, what Dito should do is....

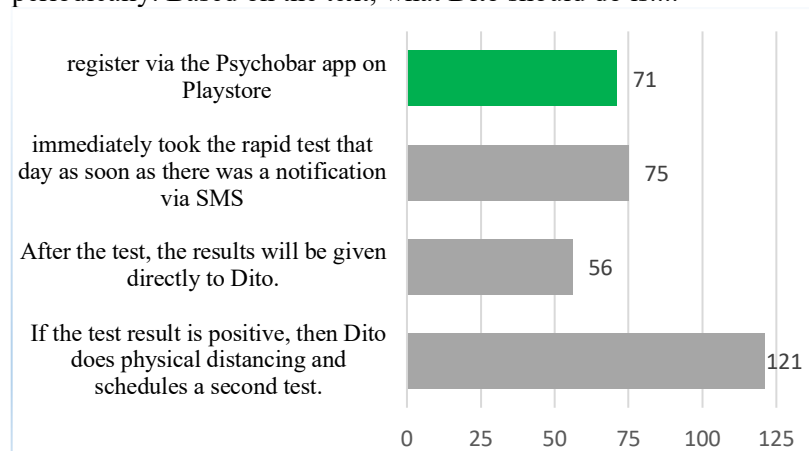


Figure 9. Question 8

- In question number 9, there were 37,3% of students who were able to answer the question correctly. This can be seen from the following figure:

Based on the following infographic text, it can be recognized that if the test result is positive, the patient is advised to....

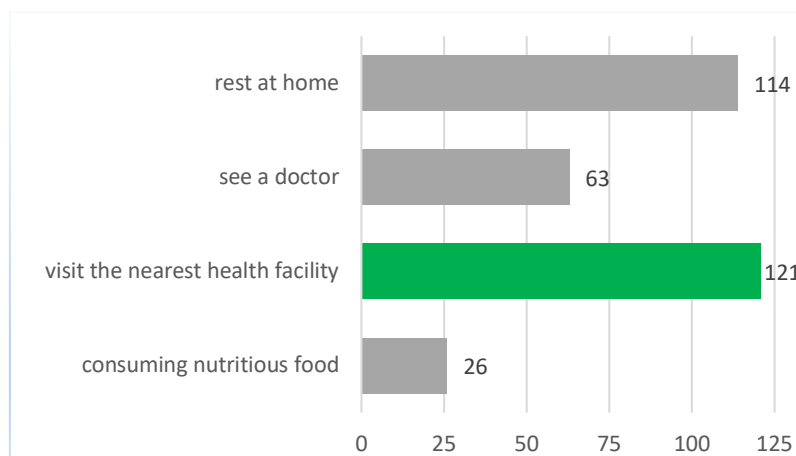


Figure 10. Question 9

- In question number 10, there were 26,2% of students who were able to answer the question correctly. This can be seen from the following figure:

Based on the data in the following infographic text, the statement that does not match the content of the text is

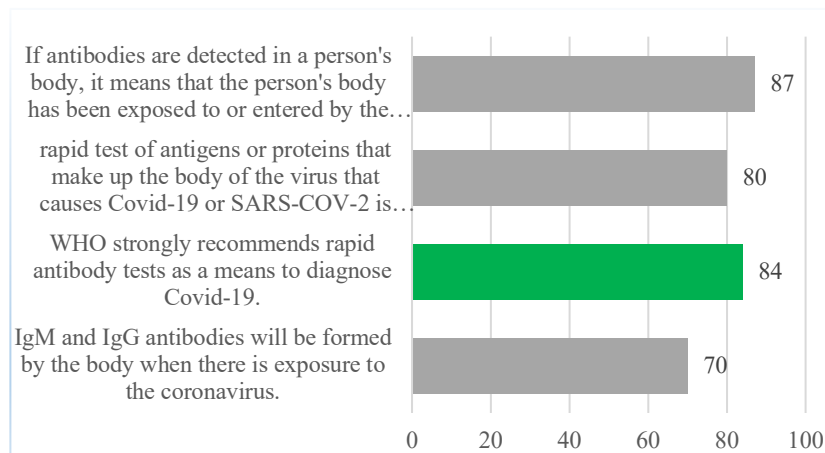


Figure 11. Question 10

Discussion

The result showed that the ability to read infographic text among junior high school students in one of the districts in Central Java Province needs to be improved. This can be seen from their ability to answer infographic text questions. In question number 1, for example, 72% of students were able to answer the question correctly. This number is not too bad, but question number 1 is categorized as an easy question. Likewise with question number 2, 86% of students were able to answer the question correctly. Problem number 2 is also an easy problem. In question number 3, there were only 38.4% of students who were able to answer correctly. Problem number 3 is a question that invites students to think so it requires accuracy in working. In question number 4, 89.5% of students were able to answer the question correctly. However, this question did not contain infographic text. In question number 5, only 38.3% of students were able to answer

correctly, question number 6 was 89.5%, question number 7 was 44.1%, question number 8 was 22%, question number 9 was 37.3%, and question number 10 was 26% of students who were able to answer correctly. If written into a table, it can be described as follows.

Table 3. Ability of reading infographic text

Question Number	Number of Respondents	Number of Answers A	Number of Answers B	Number of Answers C	Number of Answers D	Total Number of Answers	Number of Correct Answers
1	325	38 (11,7%)	30 (9,2%)	234 (72%)	23 (7,1%)	325 (100%)	234 (72%)
2	325	21 (6,5%)	279 (86,4%)	11 (3,4%)	12 (3,7%)	323 (99,3%)	279 (86,4%)
3	325	124 (38,4%)	46 (14,2%)	141 (43,7%)	12 (3,7%)	323 (99,3%)	124 (38,4%)
4	325	290 (89,5%)	12 (3,7%)	15 (4,6%)	7 (2,2%)	324 (99,6%)	290 (89,5%)
5	325	170 (53%)	123 (38,3%)	13 (4%)	15 (4,7%)	321 (98,7%)	123 (38,3%)
6	325	29 (9,1%)	120 (37,5%)	153 (47,8%)	18 (5,6%)	310 (95,3%)	153 (47,8%)
7	325	141 (43,5%)	143 (44,1%)	18 (5,6%)	22 (6,8%)	324 (99,6%)	143 (44,1%)
8	325	71 (22%)	75 (23,5%)	56 (17,3%)	121 (37,5%)	323, (99,3%)	71 (22%)
9	325	114 (35,2%)	63 (19,4%)	121 (37,3%)	26 (8%)	324 (99,6%)	121 (37,3%)
10	325	87 (27,1%)	80 (24,2%)	84 (26,2%)	70 (21,8%)	321 (98,7%)	84 (26,2%)

In this digital age of information overload, infographic text is becoming an increasingly popular communication medium. Infographics present complex data and information in a visual and engaging way that is easily understood by a wide audience. However, students' ability to read infographic texts is still inadequate. This becomes an obstacle for them to optimally understand the information contained in infographics.

There are several factors that affect students' ability to read infographic texts, namely 1) lack of visual literacy, 2) low reading skills, 3) lack of knowledge about infographic texts, and 4) lack of practice. The lack of visual literacy is that students are not familiar with reading visual information such as graphs, diagrams, and images. Low reading skills is that students still have difficulty understanding complex and long texts. Lack of knowledge about infographics is that students are not familiar with the structure and elements of infographics. Lack of practice is that students rarely get the opportunity to practice reading infographic texts.

The low ability to read infographic text has an impact on students' ability to learn new things. Students will have difficulty understanding new information and knowledge, difficulty keeping up with the times and technology, difficulty in completing learning tasks, and inability to think critically and analytically.

Efforts to improve the ability to read infographic texts can be done with several steps, namely 1) improving visual literacy, namely teachers can provide training to students on how to read visual information, 2) improving reading skills, namely teachers can provide reading exercises for complex and long texts, 3) providing knowledge about infographics, namely teachers can explain the structure and elements of infographics to students, and 4) providing practice reading infographic texts, namely teachers can provide assignments and projects that involve reading infographics.

Conclusion

The ability to read infographic text is an important skill that students must have in the digital era. Improving the ability to read infographic texts can be done with various efforts, such

as improving visual literacy, improving reading skills, providing knowledge about infographics, and providing practice reading infographic texts.

Declaration of conflicting interest

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