

CHAPTER III

RESEARCH METHODOLOGY

A. Research Method and Research Design

1. Research Method

The method which was used in this research is Quasi Experiment. Creswell (2011) expressed that quasi experiment method include assignment, but not random assignment of participants in groups. This method is used when the researcher cannot artificially create groups for experiment; for example, preexisting classes in a school cannot be rearranged because it might disrupt classroom learning. This method was appropriate for the research which was intended to investigate the effects of digital science comic on students' knowledge improvement in Human Digestive System topic.

2. Research Design

This research used pre-test and post-test comparison design. In this design, the researcher assigned control group and experiment group and administers pretest for both. The experimental treatment was only given to the experiment group, and afterwards, both groups underwent posttest to determine the end result (Creswell, 2011).

Table 3.1. Research Design: Pre-test and Post-test Comparison of Control Group and Experiment Group

Control Group	Pre-test	T ₀	Post-test
Experiment Group	Pre-test	T ₁	Post-test

(Creswell, 2011)

T₀ in this research, as shown in Table 3.1., refers to the normal treatment where students learn the topic with conventional presentation as a learning aid. On the other side, T₁ refers to the experimental treatment where students learn the topic with digital science comic as a learning aid.

B. Population and Sample

This research was conducted in Junior High School "A" in Indonesia. The population in this research was all students in Junior High

School “A” Indonesia, while the samples are the 8th grade students from two classes in Junior High School “A”. The sampling technique for this research is Simple Random Sampling. Fraenkel, Wallen, and Hyun (2011) stated that simple random sampling is a sampling method in which each and every member of the population has equal and independent chances of being selected as a sample. As this experiment was conducted in a school, the member of population was counted in classes, in which every class have equal chance to be selected as experiment samples. Two classes out of the entire grade 8 in the school were selected as participants. The control group and experiment group consisted of 37 participants each, making a total of 74 participants in the research.

C. Operational Definition

To avoid misunderstanding about the problems in this research, the variables of this research are explained as follows:

1. Digital Science Comics in this research is a series of short comics depicting the aspects of Human Digestive System. A score sheet containing indicators from expert judgment was used to measure whether the media was appropriate for usage in teaching learning process.
2. Students’ Understanding in this research refers to the students’ concept mastery and was measured in accordance with Bloom’s cognitive levels C1 until C6. The indicators were organs of the excretory system and the main enzymes involved in digestion. This component was measured by written test in the form of multiple choice tests.

D. Assumption

1. Comic is one of the most widely accepted means of communicating science both among people with scientific background and with the general public

2. Using comics as a learning aid increases students' interest towards the lesson, therefore giving positive impact towards the academic achievement of students

E. Hypothesis

The hypotheses tested in this study are as follows:

H₀: There is no measurable difference between the knowledge improvement of students who used digital science comics as a learning aid and students who didn't use digital science comic as a learning aid

H₁: There is a measurable difference between the knowledge improvement of students who used digital science comics as a learning aid and students who didn't use digital science comic as a learning aid

F. Research Instrument

1. Scoring Instrument

To obtain data for this experiment, scoring instrument is a crucial aspect that needs to be present. There were two types of instruments which are used in this research, namely score sheet, objective test, and observation rubric. Those instruments are described as follows.

a. Score sheet

The score sheet was used to measure the quality of the media as well as its suitability as a learning aid. The criteria for evaluation were taken from experts' opinions. For comic construction, there were four large criteria that need to be considered: Layout, Story Development (including structure, formatting, and characterization), Drawing (including characters, angle, and inking technique), and Narration (Morrison, Bryan, and Chilcoat, 2002).

b. Objective test

Objective test was used to measure the cognitive ability on students; in this case, students' understanding of the material. The cognitive levels measured in this study were in line with Revised Bloom's Taxonomy levels C1 until C6. C1 (Remember) refers to

the ability to retrieve relevant knowledge from memory, while C2 (Understand) refers to the ability to Determining the meaning of instructional messages, including oral, written, and graphic communication. The next level, C3 (Apply) refers to the ability to carry out or use a procedure in a given situation, and C4 refers to the ability to break material into its constituent parts and detect how the parts relate to one another and to an overall structure or purpose. Knowledge level C5 (Evaluate) is described as the ability to make judgments based on criteria and standards, and the last level, C6 (Create), is described as the ability to put elements together to form a coherent whole or make an original product (Krathwohl, 2002).

2. Development of Scoring Instrument

a. Instrument Draft

The steps of instrument development began from the development of instrument draft. Both instruments were developed following experts' standards in accordance with their usage in the research.

The score sheet for media judgment was developed based on four major criteria of a good comic given by McCloud (2006) and Eisner (1985); namely Language, Content, Artwork, and Media. The four criteria were divided into two separate score sheets. The first score sheet focused on the functionality aspect of the digital science comic as a learning media and contains criteria related to the science content and language of the comic. The second score sheet focused on the aesthetics of digital science comic as a product of art and contains criteria related to the artwork and media of the comic.

The objective test was developed in accordance with the current curriculum used in Indonesia, precisely the 2013 Curriculum. The test items were constructed to match the learning objectives which should be achieved after the lesson. Some test

items were taken from previously used test items, from textbooks and exams, while the rest were self-developed for the sake of research. In the initial development phase, fifty multiple choice test items were produced, ranging from Bloom Taxonomy Level C1 until C6.

b. Expert Judgment

Prior to statistical analysis, the instrument for objective test was first given to experts for judgment. During this step, experts decide whether each test item was appropriate for the desired knowledge level. The end result of this judgment process was a signed form declaring that the instruments were suitable to be used in the research.

c. Instrument Analysis

After undergoing expert judgment, the objective test was tested to ensure that the test items are valid, as well as to ensure that the multiple choice test have plausible ratio of easy, medium, and difficult test items. The initial test items were given to a sample of 30 subjects. Analysis of the instrument was performed with Anates version 4.1.0. The criteria and end results returned from the validity test are explained as follows:

1) Validity

Test score validity refers to usefulness of inferences drawn from test scores for a given purpose under a prescribed set of conditions (Crocker and Algina, 2006).

To obtain the validity coefficient, the following equation may be utilized:

$$r_{XY} = \frac{N(\sum XY) - (\sum X)(\sum Y)}{N\sqrt{\sum X^2 - (\sum X)^2}}$$

(Kaplan and Saccuzzo, 2012).

The equation is called the product moment correlation equation and r_{XY} represents the correlation coefficient or the validity that was searched. X refers to the score of each

examinee for the item, while Y refers to the total score of all examinees and N is the total number of examinees (Kaplan and Saccuzzo, 2012).

Table 3.2. shows the interpretation of correlation coefficient values.

Table 3.2. Interpretation of Correlation Coefficient Values

Correlation Coefficient Value	Interpretation
0.800-1.000	Very High
0.600-0.790	High
0.400-0.590	Enough
0.200-0.390	Low
0.000-0.190	Very Low

From fifty initial multiple choice test items developed for the research, the Anates V4.1.0 analysis returned the following results, shown in Table 3.3.:

Table 3.3. Multiple Choice Test Items Validity Analysis Results

Validity Criteria	Test Item Number	Total Amount	Decision
Very High	-	-	-
High	2, 9, 24, 26, 27	5	Used
Enough	1, 6, 10, 11, 15, 20, 29, 34, 36, 39.40	11	Used
Low	4, 8, 12, 13, 19, 30, 33, 35, 38, 41, 42, 43, 47, 48, 49, 50	16	Revised
Very Low	3, 5, 7, 14, 16, 17, 18, 21, 22, 23, 25, 28, 31, 37, 44, 45, 46	17	Not Used

2) Reliability

Reliability of a test refers to the consistency of the whole test that allows the results to be replicated if the test is re-administered on the same individuals under similar circumstances (Crocker and Algina, 2006).

The reliability of a test can be measured with the following formula

$$KR_{20} = r = \frac{N}{N-1} \left(\frac{S^2 - \sum pq}{S^2} \right)$$

(Kaplan and Saccuzzo, 2012).

where KR_{20} is the reliability estimate (r), N is the number of test items, S^2 is the variance of the total test score, p is the proportion of people getting each item correct, and q is the proportion of people getting each item incorrect. p and q are found separately for each test item (Kaplan and Saccuzzo, 2012).

Table 3.4. Reliability Index Category

Reliability Coefficient	Interpretation
0.80-1.00	Very High
0.60-0.79	High
0.40-0.59	Enough
0.20-0.39	Low
0.00-0.19	Very Low

According to the analysis of objective test instrument performed using the application Anates version 4.1.0, the multiple choice test scored a reliability coefficient of 0.73, which falls into the category of high reliability as shown in the reliability index category in Table 3.4.

3) Difficulty level

The difficulty level of a test item is the correspondence between the mean item score and the proportion of examinees who answer the item correctly (Crocker and Algina, 2006). The difficulty level of a test can be determined by calculating the percentage of the examinees that answers the question correctly from the total number of examinee. The difficulty level ranges from 0.00 (very difficult) to 1.00 (very easy). For example, if 84% of the test participants answer Question 20 correctly, then the difficulty level of Question 20 is 0.84 (Kaplan and Saccuzzo, 2012). The interpretation of each difficulty level is shown in Table 3.5.:

Table 3.5. Interpretation of Difficulty Level

Difficulty Level	Interpretation
0.80-1.00	Very Easy
0.60-0.79	Easy
0.40-0.59	Mediocre
0.20-0.39	Difficult
0.00-0.19	Very Difficult

In accordance with the Anates analysis results, the multiple choice test items may be categorized as follows:

Table 3.6. Multiple Choice Test Items Difficulty Level

Difficulty Level	Test Item Number	Total Amount	Decision
Very Easy	35	1	Revised
Easy (1)	32	1	Revised
Easy (2)	45	1	Not Used
Medium (1)	4, 6, 8, 12, 19, 24, 30, 33, 34, 36, 39, 40, 41, 42, 43, 47, 48, 49	18	Used

Difficulty Level	Test Item Number	Total Amount	Decision
Medium (2)	3, 18, 22, 25, 28, 46	6	Not Used
Difficult (1)	1, 10, 11, 15, 20, 26, 29, 38, 50	9	Used
Difficult (2)	5, 7, 16	3	Not Used
Very Difficult (1)	2, 9, 13, 27	4	Used
Very Difficult (2)	14, 17, 21, 23, 31, 37, 44	7	Not Used

The analysis result, shown in Table 3.6., reveals a majority of medium difficulty test items which make up 48% of the whole initial test items.

4) Discriminating power

Item discriminating power is an index of how effectively the item discriminates between examinees that are relatively high on the criterion of interest and those who are relatively low (Crocker and Algina, 2006).

One of the ways to determine the discriminating power of a test item is called the Extreme Group Method. Using this method, the examiner divides the class into three parts; top scores, middle scores, and bottom scores. From the top and bottom score examinees, the examiner records the proportion of students who got the test item correct. The gap between the two proportions is the discriminating power of the test item. It ranges from -1.00 to 1.00 (Kaplan and Saccuzzo, 2012).

The discriminating power of a test item can be categorized into the criteria shown in Table 3.7.:

Table 3.7. Interpretation of Discriminating Power

Discriminating Power	Interpretation
0.71-1.00	Very High
0.41-0.70	High
0.21-0.40	Enough
0.00-0.20	Low

Analysis of the initial multiple choice test item returned the following results, as shown in Table 3.8.:

**Table 3.8. Multiple Choice Test Items
Discriminating Power**

Power Level	Test Item Number	Total Amount
Very High	-	-
High	6, 15, 20, 26, 34, 39	6
Enough	1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 21, 22, 23, 24, 25, 27, 28, 29, 31, 32, 36, 37, 38, 40, 41, 42, 43, 44, 45, 46, 47, 48	39
Low	30, 33, 35, 49, 50	5
Negative	7, 25	2

5) Distractors

Distractors are the incorrect choices on a multiple choice test item. More distractors in a test items are considered good for the reliability of the test item, but that's not always the case. Poorly written distractors can adversely affect the quality of the test. If distractors are too easy, then a poorly prepared test taker has a high chance of guessing the correct answer. As a result, the test will have lower reliability and validity (Kaplan and Saccuzzo, 2012).

Following the combined end result of each analysis, it was decided that there were thirty test items which were deemed

compatible to be used in the research for pretest and posttest exams. The thirty test items were comprised of 10% easy/very easy questions, 60% medium questions, and 30% difficult/very difficult questions. The correlation of the test items with Bloom's Taxonomy Levels is shown in Table 3.9.:

Table 3.9. Bloom's Taxonomy Level of Test Items

Level	Amount of Test Items
C1	15
C2	4
C3	1
C4	6
C5	2
C6	2
Total	30

3. Digital Science Comic

a. Development and feedback

This research utilized a set of digital science comic covering the topic of Human Digestive System on junior high school level. To ensure that the comic meets the needs on educational aspect, the digital comics used were self-developed as a part of research. Borrowing the format of Dr. Anatophil's Anatomy Comic Strips by Park, Kim, and Chung (2011), the digital comics were presented as a set of four-panel comic strips, each corresponding to one part of the digestive system. As a final result, there were ten comic strips, each consisting of one title card with the name of the organ and three to four story panels. The comic strips followed the main character's journey through the digestive system; thus, it was arranged in accordance with digestive tract and the accessory organs encountered along the journey. The comic was written in both English and Bahasa Indonesia to allow flexibility in

classroom settings which might use English only, Bahasa only, or bilingual classrooms.

Prior to being used as a learning aid, the digital science comics were submitted to two experts for judgments and recommendations. Four aspects of the comic, namely Content, Language, Artwork, and Media, were analyzed to determine if the comic strips were appropriate for use as a learning aid. The comic was scored using four-point scale of satisfaction (range 0-4). The final score of all comic strips are presented in Table 3.10.

Table 3.10. Expert Score on the Digital Science Comic

Aspect	Sub-aspect	Score
Contents	Accuracy of science depiction	4
	Curriculum correlation	3
	Accuracy of daily life portrayal	4
	Thinking-triggering	4
Language	Narration and dialogue	4
	Storyline	3
	Spelling and grammar	4
	Words and image correlation	3
	Science-related word choices	4
Artwork	Comic structure	4
	Panel arrangements	3
	Neatness of drawing	4
	Portrayal of characters	4
	Illustration of scientific aspects	4
Media/Platform	Readability across platforms	4
	Reading order	4
	Digital processing	4
	Image/font size	4

The result obtained from the scoring rubrics was in the form of quantitative data (score). To analyze the data, the scores were

converted into percentage form using the formula adapted from Riduwan (2010)

$$\% = \frac{Na}{Nx} \times 100$$

Hence, based on the formula, the final score of the digital science comics as teaching media was

$$\frac{68}{72} \times 100 = 94.4\%$$

The quality of the media is then interpreted into the category adapted from Arikunto (2002) as shown in Table 3.11.:

Table 3.11. Percentage Range and Descriptive Criteria

No	Percentage Interval	Criterion
1	76%<score<100%	Very Good
2	50%<score<75%	Good
3	26%<score<50%	Fair
4	0%<score<25%	Poor

(Arikunto, 2002)

Thus, based on the scores obtained from expert judgment and interpretation of the satisfaction score, it was decided that the media was appropriate for use as a learning aid.

b. Feedback follow-up

The digital science comic, after a series of expert examination, is determined to be appropriate to be used as a learning aid with a score of 94.4%. However, the comic did not get the stamp of approval without criticisms and suggestions. There are aspects of the comic which still have room for development in further studies.

In the process of data collection, a questionnaire is also given to the experts along with the scoring sheet. The two experts involved in this study were free to give suggestions orally during discussion time or written down in the questionnaire. The full pages of the questionnaire are included in Appendix B1.

1) Contents

The contents aspect of the digital science comic covers the accuracy of science depiction, the correlation of the content with current curriculum, the connection between contents and daily life occurrences, and the possibility of the contents triggering students' scientific thinking. It obtained a score of 15/16 (93.75%) in the scoring sheet.

The science contents are deemed as accurate and depicted as it is in real life. In other words, the comic does not give misleading information about scientific facts; in this case, regarding the digestive system and the organs involved in it. There is a minute suggestion, however, regarding the use of "Food" as the main character of the story. Since the "Food" in the story is anthropomorphic and depicted as human-like, the background story of "Food" is not explained in details and despite the food going through the entire digestive system, the comic lacks the details of what the food becomes after each process in the digestive system. This is done to make the main character a little less "scientific". The use of less-scientific characters in a science comic is a good way to attract young readers as well as keeping the comic light and less textbook-like (Weitkamp & Burnet, 2010). Still, one expert gave a suggestion to make the main actor of the story an actual food, so the readers can actually see the progress of food throughout the digestive system, from the beginning until the end where it's expelled from the body in the form of feces. An example of the main character drawing is shown in Figure 3.1.

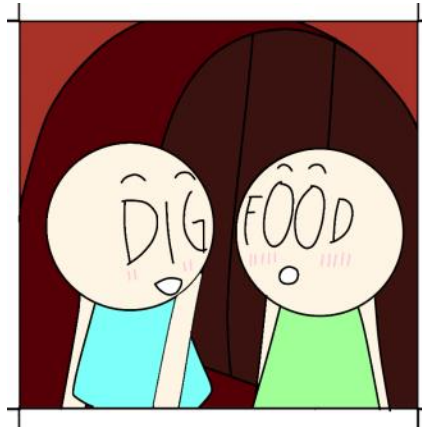


Figure 3.1. Example of the anthropomorphic shapes of the main characters

The expert's second suggestion for this aspect stems from the correlation between the comic and the curriculum. In general, the comic already follows the outline of contents required by curriculum; however, there are parts of the materials which are not explained in details in the comic or completely omitted from the story. In this case, such materials include the process of digestion in the intestine, which is explained in the comic but still missing some important details. Also, according to *Dokumen Kurikulum 2013* (Tim Pengembangan Kurikulum Kemdikbud, 2013), the materials for Human Digestive System cover the topic of digestive diseases, which are completely omitted from the story in the comics. The topic of digestive diseases was originally not written in the story to avoid having too many materials for just one prototype teaching media, but it shall be covered in future researches.

2) Language

The language aspect of the comic obtained a score of 18/20 (90%). It covers five sub-aspects in total, namely storyline, narration, grammar, word-image correlation, and science-related diction.

The recommendation for this aspect highlights the storyline where there are still some parts that lack specific details. An example of this case happens in Comic Strip #4: Esophagus where

the explanation about the shape of esophagus and sphincter muscle is not detailed enough, as shown in Figure 3.2.

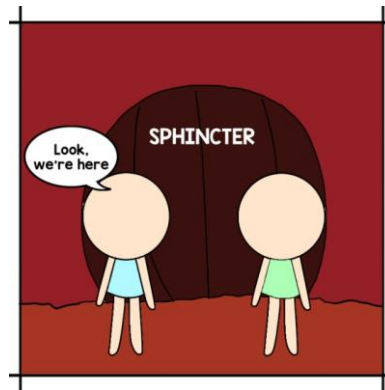


Figure 3.2. Panel depicting esophageal sphincter

As for the narration and dialogue, there are no problems with grammar and diction, and the only problem related to language is about how the dialogues should better support the topic of digestive system as required by curriculum.

3) Artwork

The artwork aspect of the comic consists of panel structure and arrangement, characterization, and depiction of objects and organs. It obtains the score of 19/20 (95%). The suggestion made for this part mostly concerns the panel division. Even though the comic is written in a 4-panel format, there are sections that only contain three panels.

Regarding panel arrangement, there was also a question as to why the comic was arranged in a “box” format instead of “strip” or “vertical” which are more common for short comics. The comic formatting depended on its accessibility. When the comic is uploaded on social media platforms, it has to be resized to fit the page. After trials, it was decided that the “box” format is more comfortable to be accessed in both computer and phone due to the larger font size. Figure 3.3. and Figure 3.4. show the example of comics in box format and strip format, respectively.

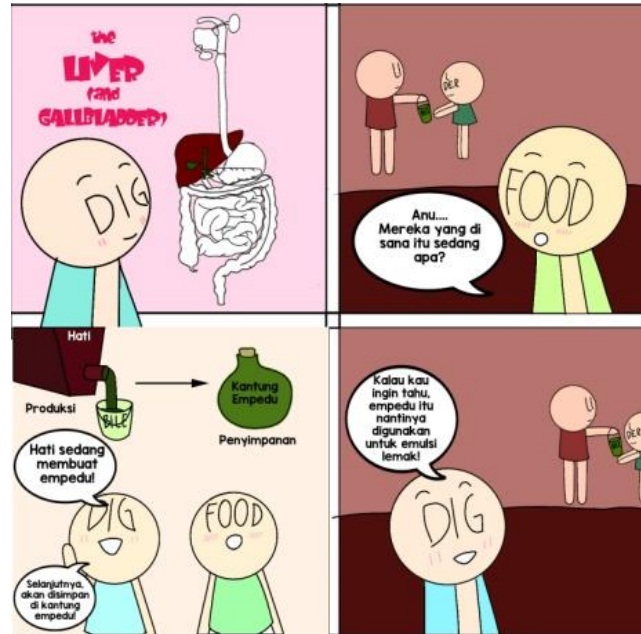


Figure 3.3. Example of comic in box format



Figure 3.4. Example of comic in strip format

4) Media

The media aspect of the comic mainly covers the digital editing and readability of the comic. It obtains a full score of 16/16 (100%). As a learning aid, the comic is presented to students in two ways; the comics are given to students in class as a read-together presentation and afterwards, the same materials are uploaded to a social media platform for students to read at home and learn from. The digital processing of the comic, such as color choices and placement of objects, are deemed appropriate and provides a comfortable reading experience. The slight problem that occurs in this aspect is that despite being uploaded in box format, the font is still small to read in phone screens that are less than 4" wide. However, since the comic is also uploaded as individual boxes in

arranged order, the small font doesn't become such a hindrance towards students' reading experience.

G. Data Collection Technique

In accordance with the research design, the objective test was given to the subjects in two steps. The initial test, or pretest, was given to measure the preliminary knowledge of the research subjects in the topic of Human Digestive System. Since the topic was not yet taught to junior high school students in the first semester of grade 8, subjects are expected to have limited prior knowledge of the topic. Limited prior knowledge was a prerequisite for the research since the research would then measure the difference of knowledge level before and after studying.

The pretest was given to the control group and experiment group under the same conditions. Same set of instrument was used for both groups and 30 minutes test duration was applied in both classes. This measurement was taken to ensure that there are no external factors that might interfere with the pretest and possibly alter the test results.

At the end of the final meeting, both groups of participant were required to complete a posttest with the exact same questions and test conditions. The posttest was given after the experiment group was exposed to a lesson using digital science comic as the learning aid and the control group studied the same materials without the digital comic. The outcomes of the posttest and pretest were then calculated and compared between the control class and experiment class. By comparing the increase of knowledge levels between the group which was exposed to the digital science comics and the group which didn't use them, the impact of digital science comics towards students' knowledge of a certain topic could be measured.

H. Data Processing Technique

1. Significance Test

To analyze the correlation between pretest and posttest results, the determination of normalized gain (n-gain) index needs to be conducted. The formula used to calculate normalized gain was proposed by Hake (1998) and is explained as follows:

$$\langle g \rangle = \frac{\text{posttest score} - \text{pretest score}}{\text{maximum score} - \text{pretest score}}$$

The interpretation of normalized gain scores is shown in Table 3.12.:

Table 3.12. Interpretation of Normalized Gain

Gain	Interpretation
$g > 0.7$	High
$0.3 < g < 0.7$	Medium
$g < 0.3$	Low

(Hake, 1998)

In this research, there were 30 test items utilized in the pretest and posttest, therefore the maximum score that can be obtained in each test is 30.

2. Normality Analysis

The normality analysis was used to determine whether the research data is distributed normally. Normal distribution is one of the assumptions which have to be met if a data is to be analyzed using parametric test in inferential statistics. If the data is proven to be not normally distributed, several non-parametric tests can be used as an alternative to analyze the data (O'Neil, 2009).

In this study, the preliminary test was performed using IBM SPSS 20.0 application with Kolmogorov-Smirnov test. The significance level (α) is determined to be 0.05. Thus, H_0 would be accepted if the significance level is >0.05 and rejected if the significance level is <0.05 . The assumptions for the test are:

H_0 : The samples come from a population that is normally distributed

H₁: The samples come from a population that is not normally distributed

3. Hypothesis Test

The hypothesis test proceeded from the result of preliminary tests, and was intended to measure the statistical correlation of two dataset; in this case, the n-gain of the experiment group and control group. If the data comes out as normally distributed, the hypothesis test can proceed with Independent Samples T-Test; otherwise, the hypothesis test can proceed with non-parametric test such as Mann-Whitney U Test. The result of this test would accept one of the following hypotheses:

H₀: There is no measurable difference between the knowledge improvement of students who used digital science comics as a learning aid and students who didn't use digital science comic as a learning aid

H₁: There is a measurable difference between the knowledge improvement of students who used digital science comics as a learning aid and students who didn't use digital science comic as a learning aid

I. Research Procedure

1. Preparation Stage

Before conducting the research, it is important for the researcher to prepare everything which will be needed for the research. In this stage, the instruments and media for the research were prepared, as explained in the following steps:

- a. Identify issues to be used as research materials through observation of actual problems
- b. Read and analyze an array of previous researches and books to help determine the research problems and focus

- c. Choose the subject and material which will be the center of this research. In this study, Human Digestive System is chosen because as a topic that deals with the inside of the human body, this topic cannot be taught to students by showing them directly, hence a media is needed
- d. Arrange the lesson plan appropriate for teaching the topic
- e. Create the media which will be used. In this study, the media that will be used is in the form of science comic. The media will be developed in the following steps:
 - 1) Collection of materials in accordance with the topic
 - 2) Development of character design and storyline
 - 3) Draft making
 - 4) Comic completion (digital editing and uploading)
 - 5) Expert judgment
- f. Create the instruments which will be used to measure the results. In this study, there are two kinds of instruments: scoring rubric (to grade the media) and objective test (to measure students' academic achievement)
- g. Have the test items judged and validated by experts to make sure it is appropriate for use in classroom evaluation
- h. Test the quality of test items by giving them to qualified junior high school students
- i. Do statistical analysis to separate good quality test items from bad ones
- j. Determine research sample using random sampling method

2. Implementation Stage

After the preparation was done, the research was conducted as follows:

- a. Assign samples into an experiment group and a control group
- b. Administer pretest to both groups to measure the initial knowledge level of samples

- c. Conduct teaching learning process with the following procedure:
 - 1) The digital science comics are shown as slides to the students in a normal classroom setting
 - 2) The students work in pairs and complete a worksheet together with the teacher (researcher) using information obtained from the digital science comics
 - 3) For the control group, same procedures apply but normal presentation slides are used instead of digital science comics
- d. Administer posttest with the exact same questions as the pretest to both groups to measure the difference in knowledge level

3. Completion Stage

On the final stage of the research, the following steps were performed:

- a. Collect data from the whole research process
- b. Analyze the data with proper methods. For objective test, the result will be analyzed with statistical analysis, and other instruments will be analyzed accordingly
- c. Make conclusion from the obtained results

4. Research Flow

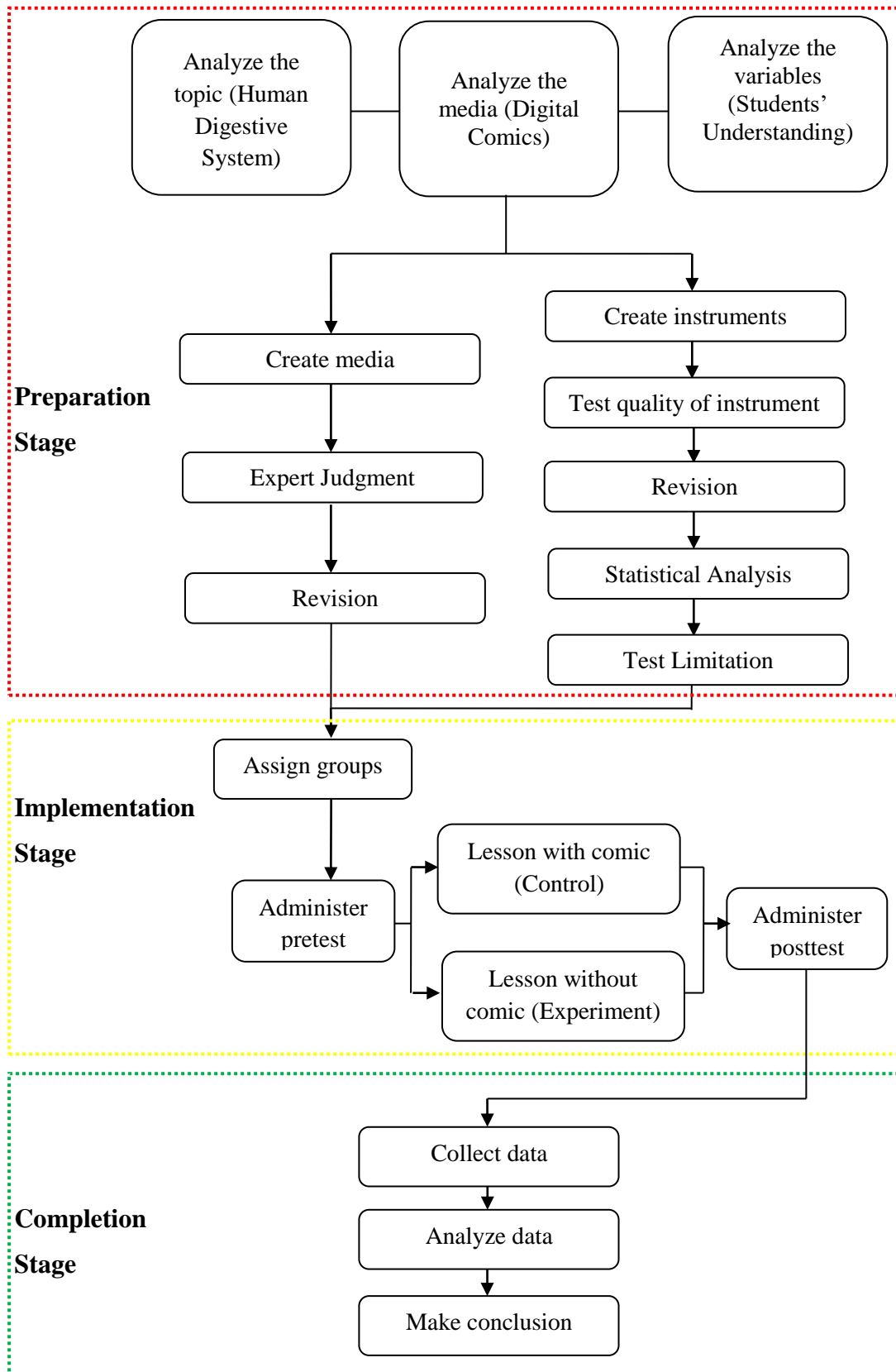


Figure 3.5. Research Flow