



Crafting Static Infographics as A Teaching Media on the Human Body Organ System Material in Phase F to Strengthen PPRA

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Abstract

Static infographics as a teaching material that can be used as a way to increase students' learning motivation. This study discusses the development of teaching materials in the form of static infographics of organ system material in the human body in Phase F for Student Profile of Rahmatan Lil Alamin (PPRA) reinforcement. The purpose of this study was to produce valid and practical static infographic teaching materials. Based on the results of interviews with one of the Biology teachers in the teaching and learning process on the material of organ systems in the human body only uses teaching materials in the form of PowerPoint and videos taken from YouTube. As a result, students' interest in the material of the organ system in the human body is still low. The material used in this static infographic is in the form of enrichment material containing PPRA values, namely the value of being civilized (ta'abbud), balanced (tawazun), dynamic and innovative (tathawwur waibtikar), and tolerance (tasamuh). This research uses the Research and Development method, which is a study to create, produce, and develop a new product. This research uses the Plomp model in 2013 which is limited to the prototype stage. Data collection techniques were carried out using interviews, observation, documentation, and questionnaires given to respondents. Based on the results of the study, the average score from material experts, media experts, and linguists was 3.61, which falls into the "highly valid" category. Additionally, the practicality questionnaire received an average score of 3.64, categorizing it as "highly practical." The results of these responses that static infographic teaching materials are valid and practical for use in the learning process.

Keywords: *Enrichment of Organ System Material in the Human Body, PPRA, Static Infographics*

INTRODUCTION

Education is an effort to convey knowledge, insight, skills, and special expertise to individuals to develop student's talents and personalities (Analicia & Yogica, 2021; Orkha et al., 2020). This is the aim of national education, namely to develop the potential of students so that they become human beings who believe and put their trust in God Almighty, have a noble character, are healthy, knowledgeable, capable, creative, and

independent, and become citizens of a democratic and responsible country (Nurhayati & A. H. U., 2023; Putra, 2021) Education is related to the learning process. Learning is the interaction carried out by students and teachers to achieve learning goals. Learning objectives in Indonesia cannot be separated from the role of the curriculum (Putra, 2021). The Merdeka Curriculum is a new policy program by the Ministry of Education and Culture of the Republic of Indonesia (Kemendikbud RI), launched by the Minister of Education and Culture, Nadiem Anwar Makarim. According to the Ministry of Education and Culture of the Republic of Indonesia, the Independent Curriculum is a curriculum that was developed as a curriculum framework that is more flexible and focuses on essential material, developing personality and skills in students (Benita, R. W., & Ofianto, 2023). There are learning outcomes in the Independent Curriculum which are arranged in several phases (2-3 years per phase), namely primary and secondary education consisting of six phases, namely, Phase A to Phase F which cover all subjects at the educational level (Sulistiyani, F., Mulyono, R., & Mulyono, 2022). Phase F of the independent curriculum is a phase intended for classes XI and XII at SMA/MA, SMK or equivalent levels. In this phase, students can choose their preferred subjects according to the students' interests and talents (Ayundasari, 2022). Through elective subjects in phase F, students are allowed to learn according to their interests, talents and abilities which will support students' competencies for the need to continue their education to the next level, entrepreneurship, or to enter the world of work (Fernando & Anggun, 2023).

There are main themes for the project to strengthen the profile of Rahmatan Lil'alamin students which can be chosen from the values of religious moderation by educational units, among others: Civility (*ta'abbud*), exemplary (*qudwah*), citizenship and nationality (*muwatanah*), taking the middle path (*tawassut*), balanced (*tawazun*), straight and firm (*I'tidal*), equality (*musawah*), deliberation (*syura*), tolerance (*tasamuh*), dynamic and innovative (*tathawwur wa ibtikar*) (Mufid, 2023). Teaching and learning activities are supported by various aspects, one of which is teaching materials. Teaching materials are a set of tools or materials that are organized to become aids in learning. It is very important to develop teaching materials because it can help teachers to interact actively with students (Manalu, J. B., Sitohang, P., & Turnip, 2022). Static infographics are a type of visual teaching material developed by many teaching material designers today, where static infographic teaching materials are not just teaching materials that have content in the form of text but have interesting and innovative visual elements (Arimbawa, I. P. A., Agustini, K., & Santyadiputra, 2018).

This is different from other teaching materials such as online teaching materials, e-modules and e-books, which require an internet connection to access, while infographics do not require the internet to be used. Static infographics can foster students' interest in reading, develop teacher creativity, and innovate teaching materials in the classroom. Static infographics are not presented using long text but are presented in a more interesting way, thereby giving students more insight into understanding the information in the learning material (Supriyatno, 2019). Infographics are ideas, data, or knowledge presented through graphs, charts, etc. so that information can be presented in a different way. The aim is to make it easier for students to understand and remember information without having to read long texts. Static infographics are a tool that supports the learning process so that the

message or information conveyed can be understood quickly and easily, and students can process information that is not directly conveyed by the teacher by first generalizing the information (Anggun, 2021; Priantini, 2021)

The results of observations at one school, namely MAN 2 Palembang, in the teaching and learning process on biology material only used teaching materials in the form of PPT (*PowerPoint*) and videos taken from YouTube. Students are more dominant in using teaching materials in the form of textbooks from the Ministry of Education and Culture and student worksheets (LKPD). The lack of a variety of teaching materials that support the independent curriculum, especially in phase F, for example, means that there are no teaching materials that are posted in the classroom that can be read by students outside of class hours. The currently available teaching materials also do not support the PPRA values in the Independent Curriculum. Students' low interest in reading will result in a lack of positive attitudes toward biology learning, a low ability to formulate their ideas, as well as a lack of learning concepts due to students not being interested in the lack of strategies and teaching materials used in the learning process that are not interesting. Teachers' awareness of students' thinking processes is crucial for addressing learning difficulties. Teachers must interpret students' understanding and identify the sources of their difficulties to assist them effectively (Gal, 2019).

In today's world of education, static infographics can be a new choice for teachers in conveying learning to students. Static infographics can visualize images in printed form so that they can minimize explanations that are too long and complicated, combine detailed and up-to-date information with the current situation, and clarify the presentation of information that can stimulate the five senses of sight (Kato & Kambayashi, 2022). Static infographics are one of the teaching materials that are easy to convey well to students. So, by developing teaching materials in the form of static infographics, it will be possible to increase students' reading interest and learning outcomes. There is still a low level of research into the development of static infographic teaching materials in the world of education, especially in human organ systems. So researchers will develop the development of teaching materials in the form of static infographics regarding organ systems in the human body in Phase F to strengthen Student Profile of Rahmatan Lil Alamin (PPRA).

RESEARCH METHODS

The type of research used in this study is Research and Development (R&D). This research specifically involves the processes or steps required to develop a new product or improve an existing one. This study aims to develop instructional media on the human body organ system material using the Plomp development model, which consists of three stages: preliminary research, the prototyping phase, and the assessment phase (Plomp & Nieveen, 2013). The selection of the Plomp model in this study is due to its suitability for developing a product, namely instructional media.

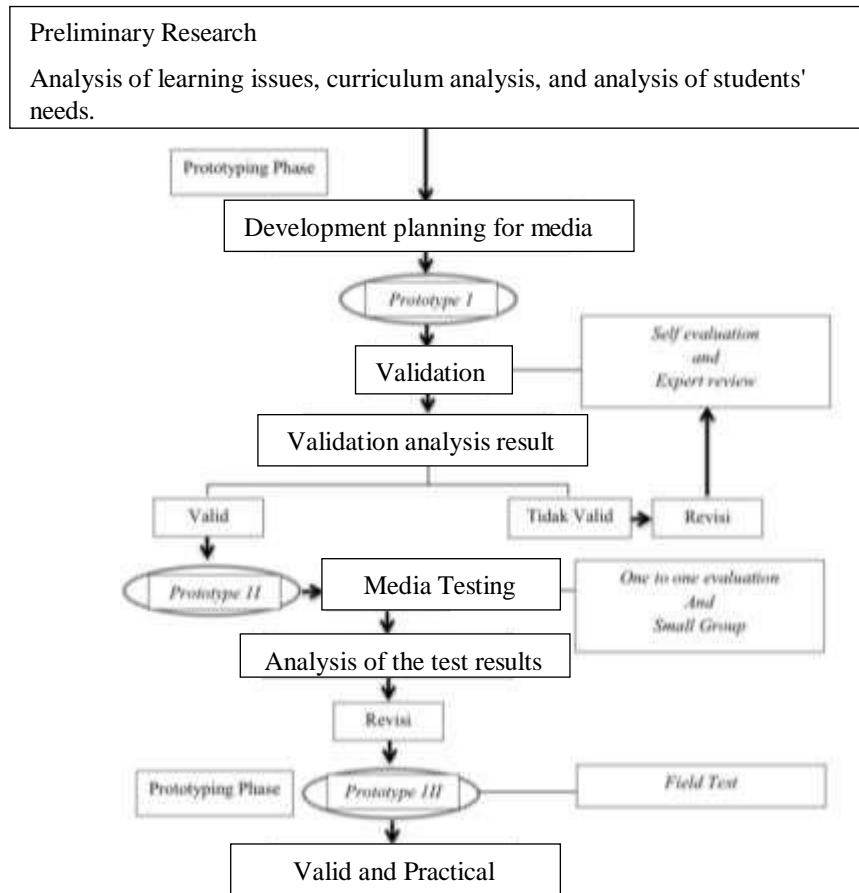


Figure 1. Static Infographic Media Development Plan Using the Plomp Model (Modified from (Anggun, 2019))

By the model developed by this research using the Plomp research model, several stages have been structured systematically to make it more focused. The steps for developing teaching materials in the form of static infographics regarding organ systems in the human body in phase F to strengthen PPRA are as follows: *Preliminary Research, Prototyping Phase, and Assessment phase*. During the Prototyping Phase, a series of Prototypes are developed. The prototype is evaluated by referring to formative evaluation. Tesser revealed that formative evaluation has many layers which include self-evaluation, expert review, one-to-one evaluation, small group discussion, and field test (Plomp & Nieveen, 2013).

RESULTS AND DISCUSSION

In this section, the author will divide the discussion into several points according to the steps of the Plomp model.

1. Preliminary Research

The development of teaching materials in the form of static infographics on organ systems in the human body in phase F to strengthen the PPRA that has been developed consists of an initial investigation stage (Preliminary Research), where at this stage curriculum analysis, interviews with biology teachers, and analysis of student needs are carried out. There are several activities carried out by the author at this initial investigation stage, namely: analysis of problems in biology learning, curriculum analysis, and analysis of student needs. Curriculum analysis is carried out by understanding learning outcomes in the material on organ systems in the human body contained in the teaching module. Teaching module analysis is carried out by improving several learning objectives so that they are by the enrichment material in the teaching materials used. For information, the Madrasah at the research site uses the Independent Curriculum. MAN 2 Palembang School 2023 has used the Merdeka Curriculum in class X, however in classes XI This is because in the Merdeka Curriculum teachers are required to use teaching materials that are interesting, informative, and by students' needs so that they can understand learning materials according to learning outcomes.

Interview with biology teacher and needs analysis, the interview aims to find out what problems or obstacles are faced in the field of biology learning. Interviews were conducted in August 2023 using the interview guide. Researchers conducted interviews with Biology teachers at the Madrasah where the research was conducted. In general, the problem found is the lack of teaching materials that support biology learning, even only using teaching materials in the form of PPT (PowerPoint), videos taken from YouTube, Tarso, or teaching aids in biology laboratories. After that, student analysis regarding needs and problems in learning activities. Student analysis includes problems faced by students in the Biology learning process regarding organ systems in the human body. The sample in this study was class XI.4 students whose ages were between 16-17 years and were in the formal operational period stage. Data from student analysis results were obtained from initial observations seen from the results of questionnaire analysis that had been filled out by students. The results of the student analysis show that during the learning process, the teacher did not use a variety of teaching materials but only focused on PPT and printed books. This phenomenon can result in students' narrow thinking patterns regarding understanding the concepts being studied. This can cause students to have difficulty solving problems (Miftahussa'adiah, 2022; Yanto, 2019).

Excessive use of gadgets also makes students' eyes tired. For this reason, they expect teaching materials that can be read at any time in class, as well as having additional information about the material they are studying that is packaged interestingly.

Preliminary research is the initial activity of a development with several stages, namely curriculum analysis, analysis with biology teachers, and student analysis. From these three analyses, the researchers found that the MAN 2 Palembang school since 2023 has used the Independent Curriculum in class X, but in classes XI and next year. The validation test on static infographic teaching materials aims to check the suitability of learning objectives, learning outcomes, presentation, suitability of image displays and descriptions, and grammar in static infographic teaching materials. Siregar (2015) states that validation is the most important requirement for a product so that it can measure what is being measured. At this stage, the validity test carried out is validated by expert lecturers. Expert lecturer validation aims to determine the suitability of each aspect of the infographic such as material, media, and language.

2. Prototyping Phase

It continues with the development stage or prototype-making stage (Development or Prototyping Phase) which is followed by formative evaluation, namely self-evaluation, expert review, and one-to-one evaluation. The following are the results of the development of static infographics that have been obtained. The design of this prototype is based on the results of problem analysis, namely curriculum analysis, analysis of problems in biology learning, and analysis of student needs. The results of the curriculum analysis produced a teaching module for human organ systems. So three materials were obtained, and these three materials were arranged based on the enrichment of simple material to the enrichment of complex material. These three materials are related to each other so that students can learn to enrich the material gradually. The three materials are the sensory system, endocrine system, and reproductive system.

The finished prototype 1 was then analyzed using Self-evaluation. Self-evaluation is carried out by researchers and supervisors to see whether there are still major or minor errors in the prototype that has been made. The results of the analysis still contain many typos in several parts of the static infographic, as well as adding the UIN logo, Independent Curriculum logo, and Madrasah logo. All the components in the static

infographic are complete so that a static infographic is produced (prototype 2). The static infographics developed were validated by four lecturers. Validation of the development of infographic teaching materials includes four aspects, namely material aspects, media aspects, language aspects, and Al-Qur'an aspects.

Table 1. Validator Suggestions for Static Infographic Development

No	Validator Name	Validator Suggestions	Feed Back
I	II	III	IV
1	Dr. Delima Engga Maretha, M.Kes., AIFO.	Refine the learning objectives according to the material taken	Already repaired
2	Dini Afriansyah, M.Pd	Add images that supported the material	Already repaired
3	Ratih Rahmasari, M.Pd	Add images that supported the material	Already repaired

The suggestions from the validators in Table 1 were used as the basis for revising the developed static infographics to produce valid and practical static infographics. After the revisions, the validators filled out the validation sheet. The results of the validation of the static infographic development can be seen in Tables 2 and 3 as follows.

Table 2. Detailed of Revision

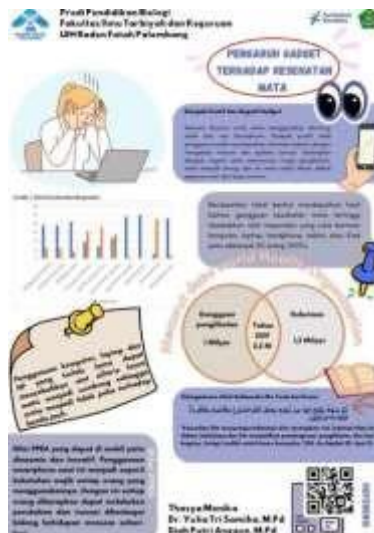
No	Before Revision	After Revision
1	Change the material to make it more interesting to read. The data taken must be from articles	The material has been changed. The data taken is sourced from articles.



- 2 Improve the layout of the infographic to be more systematic. The material has been changed to make it more interesting to read. The layout of the infographic has been revised, and the material has been updated.



- 3 Improve the main title to make it more appealing to read. Reduce the size of the images. The material has been updated. The images have been reduced in size.



- 4 The text size in the infographic must be consistent. Reduce the size of the barcode scan image. Add relevant images. The text size has been adjusted. The barcode scan image has been resized. Additional images have been added.



- 5 It's advisable to be consistent in choosing colors. Updated



6 Please pay attention to punctuation in each infographic. The first sentence of each paragraph should be indented.

Updated



Table 3. Static Infographic Validation Results

No	Indicators Assessed	Number of Aspects	Average Score	Category
1.	Material Requirements	8	3.75	Very Valid
2.	Media Requirements	15	3.26	Valid
3.	Language Requirements	6	3.83	Very Valid
4.	Al-Qur'an Requirements	10	4.00	Very Valid
Total		39		
Average		3.71		Highly Valid

Table 4. Practicality Test Results of One-to-One Evaluation of Static Infographic Teaching Materials by Students

No	Indicators Assessed	Average Score	Category
1.	Media display	3.63	Very Practical
2.	Material suitability	3.66	Very Practical
3.	Language	3.83	Very Practical
4.	Interest in media	3.43	Practical
5.	Implementation of learning and novelty of learning media	3.50	Very Practical
Overall Average		3.61	Highly Practice

Table 5. Practicality Test Results of Small Group Trials of Static Infographic Teaching Materials by Students.

No	Indicators Assessed	Average Score	Category
1.	Media display	3.60	Very Practical
2.	Material suitability	3.75	Very Practical
3.	Language	3.75	Very Practical
4.	Interest in media	3.50	Very Practical
5.	Implementation of learning and novelty of learning media	3.66	Very Practical
Overall Average		3.65	Highly Practice

Table 6. Practicality Test Results of Static Infographic Teaching Materials by Educators

No	Indicators Assessed	Average Score	Category
1.	Curriculum	3.50	Very Practical
2.	Presentation of material	3.80	Very Practical
3.	Media display	3.80	Very Practical
4.	Implementation of learning and renewal	3.60	Very Practical
Overall Average		3.67	Highly Practice

Table 7. Practical Results of Educators and Students

Practicality	Score	Category
Teacher Biology	3.67	Very Practical
Participant educate (<i>One to one</i>)	3.61	Very Practical
Participant educate (<i>Small group</i>)	3.65	Very Practical
Overall Average	3.64	Highly Practice

Static infographic teaching materials are declared very valid because they fulfill four aspects, namely material, media, language, and Al-Qur'an. Validator's suggestions will be used by researchers to carry out revisions to support the improvement of learning tools so that they are valid for use (Norma, J dan Muhlis, 2022). Static infographic teaching materials fulfill the material aspect because the theoretical basis in static infographic teaching materials supports learning outcomes and learning objectives, supports understanding of concepts, and some images help students understand the material.

Apart from that, the teaching materials used in this static infographic are enrichment materials that contain PPRA values, namely the value of Civility (*ta'abbud*), for example, students can uphold noble morals, character, identity, and integration as *Khairy ummah* in human life. Balanced (*tawazun*), the value that students can take is that they can understand and deepen their religious experience in a balanced manner covering all aspects of life. Dynamic and innovative (*tathawwur waibtikar*), always open to making changes according to current developments. And tolerance (*tasamuh*), students can respect differences both in religious aspects and aspects of life (Mufid, 2023). Teaching materials must align with learning objectives to achieve instructional goals (Rai & Kaur, 2023; Sianipar et al., 2022).

Based on validation results on media aspects with valid criteria. The presentation of this media aspect received a valid category because of the components, presentation, easy-to-read writing, and good and attractive color combinations, thereby increasing students' motivation in carrying out learning. There is a QR Code that can be accessed to go to the source of the referenced article. According to Istiqomah (Istiqomah, Masriani, rahmat, R., Rini, M., Ira, 2022), the appearance of teaching materials that look neat and attractive can foster students' interest in reading the material being studied.

Communicative language will make it easier for students to understand learning material. The teaching materials are under Indonesian spelling, apart from that the language is clear, easy to understand, and understood by students. The language aspect is one aspect that needs to be considered in preparing teaching materials, the language used should be simple and easy to understand (Arianatasari, A., & Hakim, 2018)

The average of the four aspects, namely the material aspect, media aspect, language aspect, and Al-Qur'an verse aspect, obtained a score of 3.71 with a valid category. This can be confirmed that learning teaching materials in the form of static infographics is very suitable for use in material on organ systems in the human body in phase F to strengthen PPRA. Teaching materials that meet the criteria of being very valid have aspects of suitability to support learning (Analicia & Yogica, 2021).

After the validation test was carried out, it was discovered that the static infographics used were very valid and could be applied in schools. Next, a One-to-One practicality test was carried out on three students who had various competencies. Based on the average results of the One-to-One practicality test, three students obtained a score of 3.61 in the very practical category. Learners commented that the product was fun and practical to use during the learning process.

Then, the Small Group test was carried out on six students, and the results of the Small

Group test on six students obtained a score of 3.65 in the very practical category. Students commented that static infographics were fun because there were interesting pictures and not too much writing so they could be understood. According to (Hikmah, A. S., & Ghany, 2022), it is important to pay attention to the practicality of a research product, and a product is said to have good practicality if the possibility of using the product is large. The practicality sheet for developing teaching materials in the form of a static infographic is used to determine the responses of students and educators regarding the practicality of the product being developed.

The practicality test for educators shows how teachers are helped by teaching materials that contain enriching elements and are linked to PPRA values. So that it adds insight and curiosity that there is a relationship between religious values and natural knowledge. Based on the practicality test, educators obtained a score of 3.67 in the very practical category. Based on these data, it can be concluded that the development of teaching materials in the form of static infographics on organ systems in the human body in phase F to strengthen PPRA has advantages in understanding enrichment material in learning and increasing students' interest in reading so that it is very suitable to be used to support learning.

CONCLUSION

The conclusion that can be drawn from this research is, that the development of teaching materials in the form of static infographics, material on organ systems in the human body in phase F for strengthening PPRA, was validated by three validators according to their respective fields consisting of material experts with a score of 3.75, media experts with a score of 3.75. 3.26, and linguists with a score of 3.83 with a total of 3.61 a very valid category so it is very suitable to be used as teaching material in teaching and learning activities. The results of the practicality trial of teaching materials in the form of static infographics consisting of the practicality of educators and students obtained an average score of 3.64 in the very practical category so that they can be used in the learning process.

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