



A STUDY ON VISUAL CONTENT OF INFOGRAPHIC MEDIA HIERARCHY AS TEACHING MATERIAL ON BIOLOGY MATERIAL

Nuzul Syarbini¹, Elsi Susilawati², Nur Agilia Mardhatillah³

^{1,2,3} Universitas Islam Negeri Alauddin Makassar, Makassar, Indonesia

¹nuzulsyarbini@gmail.com, ²elsisusilawati26@gmail.com, ³nuragiliamardhatillah@gmail.com

ABSTRACT

The development of technology makes learning media to be interestingly used and makes the material to be easy to understand. An interestingly learning media is infographic media. Infographic media become an effective teaching material in biology learning. Infographic media is closely related to the visual role of hierarchy. Visual hierarchy is one aspect that eases readers to understand information in a structured and systematic manner. The method used in the research is exploratory descriptive. The researcher collected general information related to teaching materials on biology materials and research studies from UIN Alauddin Makassar Biology Education students who used infographic media as teaching materials. Analysis of visual literacy used the theory of visual hierarchy. In terms of visual hierarchy, three teaching material media have been implemented to a good visual hierarchy. The content through a combination of colors, shapes or elements, a good layout, and the selection of created text models becomes contrast. It is because a good understanding of the visual hierarchy can create an infographic that is not only aesthetic but also comfortable for readers to read. Infographic media teaching materials used in viral materials, the phylum Echinodermata, and the digestive system have followed an appropriate visual hierarchy as teaching material media. Of the three infographic media as teaching materials above, of course, they have followed the visual hierarchy.

Keywords: visual hierarchy, teaching materials, infographic media, biology

KAJIAN ISI VISUAL HIRARKI MEDIA INFOGRAFIS SEBAGAI BAHAN AJAR PADA MATERI BIOLOGI

ABSTRAK

Perkembangan teknologi membuat media belajar dapat dikemas menarik serta membuat materi mudah untuk dipahami. Media belajar yang dikemas menarik adalah media infografis. Media infografis menjadi bahan ajar yang efektif pada pembelajaran biologi. Media infografis erat kaitannya dengan peranan visual hirarki. Visual hirarki adalah salah satu aspek yang memudahkan pembaca untuk memahami informasi secara terstruktur dan sistematis. Metode yang digunakan dalam penelitian adalah deskriptif eksploratif. Peneliti mengumpulkan informasi umum berkaitan dengan bahan ajar pada materi biologi dan studi penelitian dari mahasiswa Pendidikan Biologi UIN Alauddin Makassar yang menggunakan media infografis sebagai bahan ajar. Analisis literasi visual menggunakan teori hirarki visual. Dari segi hirarki visual, tiga media bahan ajar telah diterapkan hirarki visual yang baik. Konten yang melalui kombinasi warna, bentuk atau elemen, tata letak yang baik, serta pemilihan model teks yang tercipta membuat jadi kontras. Sebabnya pemahaman terkait hirarki visual yang baik dapat menciptakan sebuah infografis yang tidak hanya estetis namun juga nyaman dibaca oleh pembaca. Bahan ajar media infografis yang digunakan pada materi virus, Filum Echinodermata, dan sistem pencernaan telah mengikuti visual hirarki yang baik sebagai media bahan ajar. Dari ketiga media infografis sebagai bahan ajar diatas tentu telah mengikuti visual hirarki.

Kata Kunci: visual hirarki, bahan ajar, media infografis, biologi

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INTRODUCTION

Learning is a process of activities that are composed of several components and interconnected, including the interaction of students with educators in order to achieve planned goals. The activity process includes the process of guiding, organizing, directing and

even organizing the surrounding environment, so that students can be encouraged to carry out the learning process. Quality learning is the main supporting factor in the formation of students, so that they are able to follow the changing times

both in a broad and narrow scope. (Aprida and Muhammad 2017).

The limitations of textbook media in providing or presenting information often use language that is difficult for students to understand. Teaching materials that are prepared manually have not been able to overcome the learning problems faced by students. The solution that can be done to improve this situation is to revise printed textbooks that have been developed as a whole and rearrange them in the form of interactive multimedia teaching materials as a companion to printed textbooks. This allows students to be able to understand the material easily (Dini and Eka, 2016).

With the development of technology, learning media can be packaged attractively, and make the material easy to understand. The learning media that is packaged interestingly is infographic media (Made and Nyoman, 2020). Infographic media has the potential to be an effective teaching material in biology learning, in addition to being able to present interesting visual information, infographic media can also improve students' visual skills.

The results of observations on students majoring in biology education UIN Alauddin Makassar, the main problem experienced in the process of making infographic media as teaching material is the application of the visual concept of hierarchy. Based on this, visual hierarchy has an important position in order to provide complete and clear information. Creative and innovative media is needed to increase effectiveness in learning, so that the learning process does not seem less interesting and boring so that it can hinder the knowledge transfer process (Audie, 2019).

Infographic media is a media that focuses on (1) images, in this case the intended image is a combination of data with visual communication design; (2) diagrams; and (3) schemes, this includes a combination of words, lines and symbols so that complex messages can be conveyed concisely but the information provided is clear (Jessica, 2015: 19). From this, infographic media is closely related to the role of visual hierarchy. Visual hierarchy in this case is

one of the important aspects in infographics because it can make it easier for readers to understand information in a structured and systematic manner.

This research is supported by several previous studies, including Made (2021), by examining Instagram visual content as a medium for public dissemination about covid-19. The second study by Brian and Jennifer (2019), with visual analysis of the elements of the card game 'the art of batik'. And the third research by Ni Luh Desi (2013), about the visual elements of packaging as a product communication strategy. By paying attention to visual media as infographic teaching materials made by several UNAM Biology Education students, it is a differentiator or novelty of this research from previous research.

Although the use of infographic media is growing and popular, there is still limited related research that examines the effectiveness of the use of infographic media in learning biological material, especially in terms of the application of visual hierarchy. So to answer this statement, there is a need for analysis related to the content or content on infographic media used as teaching materials.

LITERATURE REVIEW

In obtaining knowledge or learning the scope of biological material, teaching materials in the learning process from all forms of materials used in education are an important part (Magdalena et al, 2020). With the teaching materials, educators will be helped to carry out the learning process and will help students understand the context of biological material easily. Teaching materials have various forms and characteristics, but the focus of teaching materials in this study is infographic media teaching materials. The target of this teaching material is of course the one used by students. Therefore, the media used for the learning process must be interesting and weighty in terms of content. The information used also contains biological material.

The visual concept of hierarchy in media Infographic

A graphic designer can use visual media to communicate messages through creativity and pour it in the form of visualization. In applying visual concepts to a media, it is necessary to pay attention to several things that are its components such as words, images, numbers, graphics, and illustrations. These components are contained in one visual medium that aims to provide information. Information expressed in visual form is arranged based on the level of importance, this is called visual hierarchy. Visual hierarchy is a process in which the human eye observes and analyzes visual elements sequentially (Yogantri and Ariesta, 2021: 103). Therefore, the placement and arrangement of visual elements must be well controlled in order to clarify the hierarchy or level of target attention to all elements displayed (Widya and Darmawan, 2016). The application of visual hierarchy in infographic media is considered very important so that readers can understand the content sequentially through the information in the infographic. Infographics help visualize complex data and information to be easy to read and understand (Ozdamli, et al. 2016). In addition, the presentation of information supported by creativity, beauty, and appropriate illustrations, infographics become interesting and easy to remember (Senjaya, et al. 2019: 56). Therefore, understanding a good visual hierarchy not only creates infographics that have aesthetic value but are also comfortable to read and easy to understand (Yogantri and Ariesta, 2021: 104).

The Importance of Media Use Infographics as teaching materials on biology material

Infographic media is defined as a form of visual presentation of information / data aimed at readers to illustrate information that is difficult to understand. Providing information is then divided into several explanations specifically on certain parts of the definition of the infographic itself (Via et al, 2019). This is so that the information is presented more than just writing and has a visual influence so that it invites motivation to learn.

Some criteria that need to be considered for infographic media as teaching materials are

that they must be in line with the learning component, including (a) Material, in the form of what will be achieved after the learning process either through studies, research or reliable sources (Kominfo, 2018); (b) Media, this type of media is related to the sense of sight; (c) Students, this is an interaction with the media to clarify the occurrence of information processes (Musfiqon, 2011: 70).

The use of media in the teaching-learning process can help increase interest in learning, as well as motivation from students, one of which is through visual media, namely infographic media. Infographics can display information in an interesting and easy-to-understand way, so that it can help learners understand biological concepts better and attract their attention to learn the material (Meyrinda and Setyo, 2017). Infographics can make you more efficient in studying complex biological material by organizing information in a logical and easy-to-understand sequence.

This can be used as a medium for teaching materials which of course can be done by presenting information visually and interestingly, so as to improve students' visual skills, improve students' understanding of the material, and increase student motivation to learn.

Visual Implementation Infographic Media Hierarchy on Biological Material

Visual hierarchy is a principle that can be used in making infographics that categorize the layout of elements based on the importance of information to be loaded. With this visual hierarchy, the order of information that will be received by readers will be easier to understand (Yogantari et al, 2021). This means that infographic media by paying attention to the use of visual hierarchy used in biological material will make students easily understand the material taught systematically, this is because biology lessons require a lot of memorization both in terms of concepts and how a system works (Maulana, 2018).

METHOD

The method used in this study is exploratory descriptive. This is used to describe in general then explain a phenomenon, then researchers only want to know things related to the state of something (Dendi, 2015). Data collection uses documentation studies, where the results of general information are related to teaching materials on biology materials and research studies from Biology Education students of UIN Alauddin Makassar who use infographic media as teaching materials. The data obtained is analyzed, then describes the data that has been collected by content or document analysis methods using visual hierarchy theory. Analysis techniques are presented in the form of images and text. This research will be carried out at UIN Alauddin Makassar Campus in May 2023.

RESULTS AND DISCUSSION

The application of the visual concept of hierarchy in infographic media is considered very important so that readers can understand the

content sequentially in the infographic. So in making infographics, it is necessary to pay attention to the sequence of information presented so that the resulting infographics not only display attractive visuals but also content that is easy to understand. Here are some infographic teaching materials made by several UNAM Biology Education students and have been used in the learning process. This teaching material is further described based on the visual concept of hierarchy with an exploratory descriptive method with the aim of describing the state of a phenomenon. The phenomenon described in this study is the application of the visual concept of hierarchy in infographics by describing the elements in infographics. The important elements that can be considered are the writing of headlines, the order of material from general to particular, color contrast, layout, selection of images or illustrations that match the content, and readability.

Media Virus Material Infographic

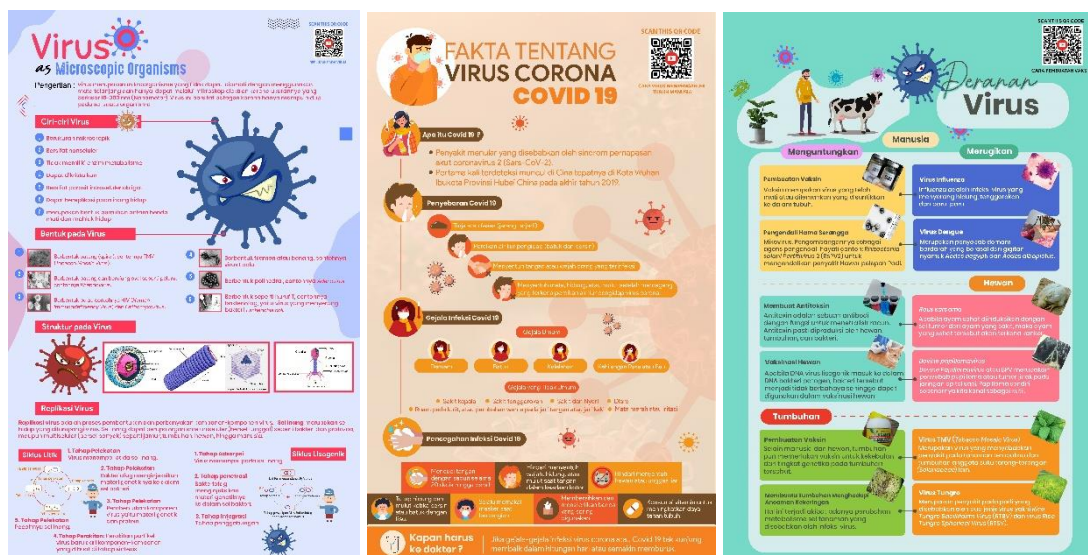


Figure 1. Teaching Materials Media Infographics Virus Material

The media is teaching material in research conducted by one of UINAM's Biology Education students who has been applied. Because biological material is general, the media only focuses on

viral material. In this case, the content of the media discusses the classification, facts, and role of viruses that are presented with attractive visuals. Therefore, it can be said that the media

used has visual unity in the same visual elements, this has an impact on the quality of the teaching materials used.

He continued by using infographic media, content in the form of concisely arranged text remains relevant to the original content. This infographic method can change the understanding and processing of information from learners quickly. The graphics used in infographics are also designed to present new information structures that were previously complex to be concise and easy to understand (Meyrinda and Setyo, 2017). In addition, the format used utilizes attractive visuals and the language used in this infographic media is an easy-to-understand language that makes it easier for students to understand the message or content of the media.

In terms of visual hierarchy, the three images above have applied a good visual hierarchy. Content that goes through a

combination of colors, shapes or elements, good layout, and the selection of text models created makes it contrasting. This is why an understanding of a good visual hierarchy can create an infographic that is not only aesthetic but also comfortable to read by readers. Then related to the important element of infographic media is that headline sentences can be considered first before looking at the entire media. This multilevel presentation of information facilitates the delivery of information. Thus, readers can understand information gradually and also easy to understand. This approach is commonly known as "pyramid information breaking" because the data presented has a pyramid-like shape, where general topics are at the top and more specialized subtopics are below it.

Media Infographic Material Phylum Echinoderms

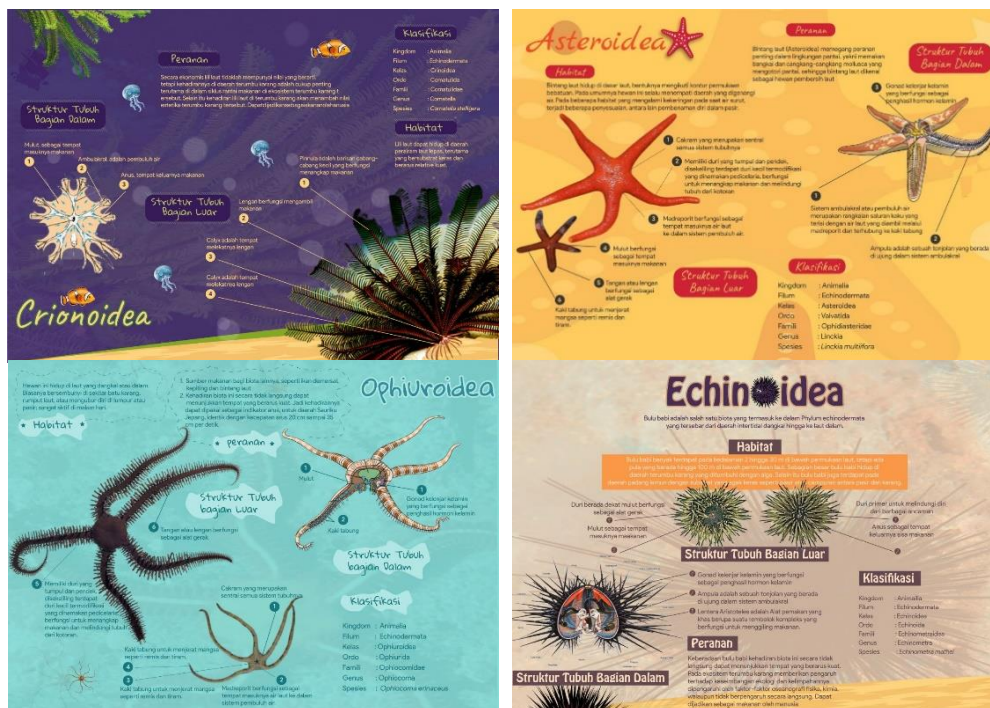


Figure 2. Teaching Materials Media Infographics Phylum Echinoderm Materials

The infographic above displays information about the phylum Echinoderms including habitat, inner and outer body structure, roles, and classifications. In the visual hierarchy,

the contrast between text elements and the background is considered good. The selection of images has also been adjusted to the content of the material, and the title of the material has been

made more contrasting from other text elements. Unfortunately, the font size is still too small so to read it needs to be zoomed. In some infographics, the contrast between the font color and the background is still lacking so that the text color almost blends with the background, this of course will make it difficult for the reader. Each sub-material title is made more contrasting than the explanation so that the reader will easily distinguish the part of each material, however, in the sub-material there is no numbering so there is

no marker of which part needs to be read first, moreover the size and typeface of the sub-material titles are all the same. Material content that is too dense is the main reason for some of the shortcomings found, so to overcome it can be by dividing the material content into several infographics, so that readers can read and understand the material well and comfortably.

Media Digestive System Material Infographic



Figure 3. Media Teaching Materials Infographic Digestive System Material

The discussion on the digestive system material includes several things such as the structure and function of the digestive tract and digestive glands as well as the types of abnormalities (symptoms and causes) that occur in the digestive system. To deliver materials

optimally, educators can use learning media that help maximize material information received by students. One of the learning media that can be used as an option is infographic media.

Making infographic media on digestive system material uses the principle of visual

hierarchy, which pays attention to illustration elements, colors, and text. The color combination used is inspired by the color hunt. The use of infographic media during the learning process helps educators in delivering their material so that students can more easily remember and understand the material delivered by looking at images and explanations of material on infographic media filled with interesting color combinations. An attractive display will make students not feel bored and can improve students' cognitive abilities with the help of attractive images and colors (Putra, 2021).

An example of an infographic media that presents digestive system material can be seen in Figure 5. The use of contrasting colors in infographic media will attract attention not only that, there are bolded words with larger sizes making it easier for students to categorize materials from the infographic media. The selection of image illustrations is also very important in visualizing each organ of the digestive system, this helps maximize students in understanding the material presented.

Infographic media that discusses the mouth, the word "Mouth" is made larger than others to provide information that on this infographic media sheet the main discussion is the mouth which is the first organ in the digestive system. In addition, there are additional images such as teeth and tongue that provide information that the digestive process that occurs in the mouth is also assisted by teeth, tongue, and salivary glands.

The words "esophagus" and "stomach" in infographic media are also printed in bold, this provides information that these words are the main topics that will be discussed next about the digestive system. The images added are in accordance with the material that is the topic of discussion and the existence of information about what happens to each digestive organ.

CONCLUSIONS AND RECOMMENDATION

From the three media above, it is concluded that infographic media teaching materials used in virus material, phylum

Echinodermata, and digestive system have followed a good visual hierarchy as a learning medium. The application of visual hierarchy to the three materials has been able to make motivation and learning outcomes increase. This is depicted on the elements and colors on the media which is very interesting to pay attention to. Of the three infographic media as teaching materials above, of course, they have followed the visual hierarchy, but there are several things that are considered later in the learning process such as media size and print color sharpness.

REFERENCES

- Audie, N. (2019). Peran Media Pembelajaran Meningkatkan Hasil Belajar Peserta Didik. *Prosiding Seminar Nasional Pendidikan FKIP*, 2(1), 586-595.
- Dewi, M,S,A dan Nyoman Ayu Putri Lestari. (2020). E-Modul Interaktif Berbasis Proyek Terhadap Hasil Belajar Siswa. *Jurnal Ilmiah Pendidikan dan Pembelajaran*, 4(3), 433-441.
- Hananto, Brian Alvin., & Jennifer Audiah. (2019). Analisa Visual Dari Elemen Permainan Kartu 'The Art Of Batik'. *Jurnal Bahasa Rupa*, 2(2), 136-145.
- Kartika, J.D. (2015). *Logo Visual Asset Development*. Jakarta: PT Elex Media Komputindo.
- Kominfo. (2018). *Kiat Bikin Infografis Keren dan Berkualitas Baik*. Jakarta: kementerian dan Informatika Republik Indonesia.
- Luh, N.D.I.D.S. (2013). Elemen Visual Kemasan Sebagai Strategi Komunikasi Produk . *Jurnal Komunikasi PROFETIK*, 6(1), 43-52.
- Magdalena, Ina., dkk. (2020). Analisis Bahan Ajar. *Jurnal Pendidikan dan Ilmu Sosial*, 2(2), 311-326.
- Maulana, M. R. (2018). Perancangan Buku Seri Infografis Biologi Sebagai Media Pembelajaran Untuk Kelas IX. *E-proceeding of Art & Design*, 5(1), 157-165.

- Musfiqon, HM. (2012). *Pengembangan Media dan Sumber Pembelajaran*. Jakarta: Prestasi Pustaka Publisher.
- Nurwega, D. (2015). Pembinaan Karakter Antikorupsi Siswa Pada Lingkungan Boarding School (Doctoral dissertation, Universitas Pendidikan Indonesia).
- Ozdamli, F., Kocakoyun, S., Sahin, T., & Akdag, S. (2016). Statistical Reasoning of Impact of Infographics on Education. *12th International Conference on Application of Fuzzy System and soft Computing*. Vienna: Elsevier.
- Putra, I. (2021). Media Pembelajaran Biologi Berbentuk Infografis Tentang Materi Sistem Imun Pada Manusia. *Jurnal Penelitian dan Pengembangan Pendidikan*, 5(3), 439-445.
- Senjaya, W. F., Karnalim, O., Handoyo, E. D., Santoso, S., Tan, R., Wijanto, M. C., & Edi, D. (2019). Peran Infografis Sebagai Penunjang dalam Proses Pembelajaran Siswa. *Jurnal Pengadilan Kepada Masyarakat*, 2(1), 55-62.
- Tobing, Meyrinda dan Setyo Admoko. (2017). Pengembangan Media Infografis pada Materi Pemanasan Global untuk Meningkatkan Hasil Belajar Peserta didik di SMA Negeri 19 Surabaya. *Jurnal Inovasi Pendidikan Fisika*, 3(6), 196-202.
- Widya, L. A. D., & Darmawan, A, J. (2016). *Pengantar Desain Grafis*. Jakarta: Direktorat Pembinaan Kursus dan Pelatihan.
- Wulandari, Via., dkk. (2019). Pengembangan Media Pembelajaran Ebook Infografis sebagai Penguatan Kognitif Peserta didik X MIA". *Jurnal Kajian Teknologi Pendidikan*, 2(1), 37-44.
- Yogantri, M. V., & Ariesta, I. G. B. B. B. (2021). Konten Visual Instagram Sebagai Media Diseminasi Publik Tentang Covid-19. *SENADA*, 4, 104-107.