Mapping News Visualization Pattern on Katadata.id and Tirto.id

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Abstract
This study addresses the research gap in understanding the types and patterns of visualization used in Covid-19 infographics. By analyzing infographics from popular media platforms in Indonesia, such as Katadata.co.id and Tirto.id, this research aims to fill the existing gap and find visual trends and preferences relevant to health communication. The theoretical framework draws upon concepts from visual communication, information design theory, and health communication. Using a qualitative approach and content analysis techniques, the study examines a sample of infographics from the aforementioned media platforms, categorizing the visualization and showing key trends and preferences. The findings reveal that both media outlets predominantly utilize illustrations, graphics, and text elements rather than charts. Bar graphs and column charts are the most widely used chart types, with Katadata.co.id showing higher frequency of chart elements compared to Tirto.id. Additionally, Katadata.co.id presents a greater number of interactive charts. The colors commonly employed for charts include blue, yellow, orange, and brown. However, the study does not delve into underlying reasons for these visual trends, whether they stem from specific visual strategies employed by the media or are influenced by other factors. The research findings contribute to the development of visually appealing and easily understandable infographics for policymakers and graphic designers.
Keywords: Data Visualization; Infographics; Covid-19; Visual trends, Health communication

Introduction

Information in visual form is something that is undeniable nowadays. Visual information is very popular and favored by the younger generation. This is because the human mind can capture information faster and more permanently than in verbal or written form (Altin, 2017). Information visualization is very important in terms of perceiving knowledge. In everyday life, humans use many types of visual communication to explain their thoughts to others. Visual communication is an easy-to-share form of spreading news and information through social media. Visuals can help users understand and remember important information. Without a visual element, the message may fail to convey or it may take a long time to digest the facts (Siricharoen & Siricharoen, 2018).

One form of visualization is infographics. It is more convenient for the brain to understand infographics than plain text. Infographics are especially used for complex ideas to explain ideas more flexibly

(Siricharoen & Siricharoen, 2018). There are several guidelines on visual communication design that are used in a balanced way, for example, color, typology, illustration, typography, symbols and simplicity (Siricharoen & Siricharoen, 2018; Altin, 2017).

Cairo teaches how to make effective infographics, one of which is by controlling the color and type of writing. He recommends using two or three colors and one or at most two styles of fonts to help create unity and composition (Cairo, 2013).

One of the main uses of infographics is to report news during the Covid-19 pandemic that hasn't really ended. News in infographic format is found in almost all media pages. This format is used to spread public health messages. In practice, infographics are used to convey information about Covid-19 itself, ranging from the process of spreading, preventing, and handling it, to data in the form of numbers of patients/victims/communities who have recovered. Infographics have the power to take complex or extensive health information and simplify it (Siricharoen & Siricharoen, 2018; Indah & Hasanah, 2022).

Not only infographics, data visualization is also one of the popular formats for conveying information on Covid-19. The two are almost similar but not the same. Jacob (2020) revealed that the combination of visualization and text always succeeds in building a narrative in the minds of readers. Data visualization or infographics make readers understand complex information easily.

Although the presentation of statistical data has been going on for hundreds of years, the terminology in this field is still evolving. Infographics have similar features, especially with data visualization, so the two concepts are often difficult to distinguish. Data visualizations are originally designed by humans, but are then drawn algorithmically with graph, chart, or diagramming software. The advantage of this approach is that it is relatively easy to update or recreate the visualization with more data or new data (Altin, 2017). Infographics can contain visualization data but can't the other way around. The approaches between the two methods are very different.

McCrorie and colleagues found that an effective infographic is an infographic that is able to build a symbolic analogy or color in the minds of readers. For example, blood pressure is visually analogous to a traffic light. High blood pressure is shown as a 'red light', meaning 'danger' or the need to 'stop', while the opposite is true for healthy blood pressure as a 'green light' (McCrorie et al., 2016).

Although data visualizations may represent large volumes of data, information visualizations are often less aesthetically rich than infographics (Altin, 2017). In the midst of today's changes in communication, media visualization is also included in it. Aesthetics are becoming more relevant today than visuals. This results in the dominance of media attention being more inclined to aesthetics (Simakova, 2020).

Infographics are becoming more and more popular and reach more readers with the use of interactive infographics. Users are invited to participate in news gathering, become active readers and can easily sort out the expected information. The use of attractive images is more effective for readers to understand and explore the news than long text formats. This visual is also able to be stored longer in the reader's mind (Altin, 2017).

On the one hand, designers do various ways to make the infographics produced to be interesting and memorable. One of them is by adding festive decorations and or illustrations. On the other hand, Tufte calls excessive decoration "chartjunk". In fact, he emphasized "the chartjunk is an insult to information and readers. Chartjunk often distorts data. Infographic readers are considered as intelligent readers in capturing information (Cairo, 2013).

Dick found a problem in his research. He discovered a series of misleading techniques that were applied too frequently and too consistently to count as mistakes, over a span of three years—and more than 200 infographics (Dick, 2020). Welhausen conducted an analysis on four New York Times infographics during the Ebola Pandemic. This study looks at the use of color, information context (low/high context) and individual or collective data sources. These three things can affect the public's perception of risk. From the results of his research, Welhausen suggested several things such as quantitatively displaying information using various visualization strategies, including explanatory text and/or visuals to further contextualize data visualization, and adding comparative data visualization (Welhausen, 2015).

With the popularity of infographics and data visualization, research with this broad umbrella of topics is becoming more and more common. McCrorie and colleagues (2018) conducted an experimental test to see the effectiveness of using chart types on health information. In this study, the Icon Array chart type is considered more effective than the written format. However, skill with numbers or numerals becomes the main determinant of the meaning ability of the given statistical information. In her research, Sisikova tries to show the aesthetic potential of media from infographic messages in certain cases. This can be done with a visual content analysis approach to media content. The results of the study show that message aesthetics are very relevant and information is a very striking medium (Simakova, 2020).

Adi and Setiautami conducted a qualitative content analysis of infographics on the Instagram @Tempodotco medium. The qualitative data obtained were analyzed using information visualization theory. Researchers see how this infographic product is an effort to provide guidance and knowledge in dealing with a pandemic (Adi, D; Setiautami, 2021). Meanwhile, other studies try to see it from the consumer side. To see how consumers value and appreciate the visualization of funds or infographics, the researcher uses a mix method. This study used data collection techniques with focus group discussions and surveys. The results show that respondents read news visualizations on various platforms (Haan et al., 2017).

Researchers consider two research focuses, both on infographic products and consumer acceptance, to be crucial. Researchers see a gap between the popularity of such visual information and there has been no research that describes the trends and preferences of visual information in media based on quantitative research.

This research started by exploring the infographic product of two media which would later continue in the analysis of other media that have this news format.

Seeing visualization patterns and infographics on news in Indonesia becomes a strong capital to continue on consumer research. A research conducted by Rochyadi Reetz et al shows that most people seek information related to pandemics through these three channels, private television, websites and social media (Rochyadi-Reetz et al., 2020; Rosemary et al., 2021). Digital media is one of the most popular mediums for seeking information. plus visual data is the format that dominates pandemic reporting in Indonesia. News formats with visual illustrations or graphics have sprung up to describe the pandemic situation. Infographics have made headlines in a number of reports in conveying Covid-19 cases.

Creating the right visuals is not an easy process but the case of Covid-19 and a number of other pieces of information must be disseminated quickly. This has posed a challenge for a number of media outlets in an effort to accurately convey crisis information to people who are confused at the same time. As a journalist and researcher of visual journalism, Cairo believes that news media faces many challenges in using the same graphics as other professions that also use it regularly, such as marketing and advertising professions. Cairo even said that the mistakes made by graphic designers in media such as newspapers and magazines had been going on for a long time. This mistake is at least in part the result of centuries of tradition in which visual communication has not been extensively researched (Cairo, 2013).

This research aims to fill the existing gap and find visual trends and preferences relevant to health communication. The study examines a sample of infographics from the Katadata.co.id and Tirto.co.id and categorizes the visualization by mapping format visualization, chart type, chart element, chart interactivity, chart color and news framing. In the end, this research shows visual key trends and preferences.

Theoretical Framework

Currently, there are many definitions of infographics. Infographics are a combination of information and graphics. Infographics represent information, data, concepts and even are considered to mean thousands of words. The purpose of using infographics and journalism is to convey information to the public (Dick, 2020).

Cairo considers infographics to be "functional art". He emphasizes the use of infographics with purpose. The goal is to build information to provide convenience to the reader (Cairo, 2013). Infographics, as implied, are information graphics. Designers in this case

are media, trying to educate the audience about a particular topic or issue in an attractive way that is visually easy to navigate through a combination of words and visuals. Infographics are often used to quickly communicate complex quantitative and/or qualitative information to readers. Designers usually combine data views, lists, graphs, and other visual elements to emphasize a point. Infographics are even used to invite or persuade readers to follow something (Toth, 2013). Infographics are visual representations of information or data, for example as charts or diagrams and good infographics are worth a thousand words. More formally, infographics are defined as visualizations of data or ideas that attempt to convey complex information to an audience in a way that can be consumed quickly and easily understood. Infographics combine data with design to enable visual learning. This communication process helps convey complex information in a way that is faster and easier to understand (Altin, 2017).

Infographics are visual representations of data, for example as charts or diagrams and good infographics are worth a thousand words. More formally, infographics are defined as visualizations of data or ideas that attempt to convey complex information to an audience in a way that can be consumed quickly and easily understood. Infographics combine data with design for visual communication. This communication process helps convey complex information in a way that is faster and easier to understand (Siricharoen & Siricharoen, 2018).

Infographics can be consumed in three basic formats; static, mobile and interactive. Static infographics are the most widely used form of information design. People use infographics on the web mostly in static format. Static infographics, which have a variety of uses from scientific publications to editorial content and activity reports, can display a rich collection of information in a single image (Altin, 2017). Infographics can be powerful storytelling devices. This is because infographics have an interesting visual component. It helps groups connect to information more easily. Infographics help build emotion and build understanding for the importance of the concepts presented. Infographics still play an important role as a "communication springboard". But, infographics have limitations, especially when

designers are used to represent complex models (Smiciklas, 2012).

Visualizations help readers discover stories for themselves. People can consume infographics Infographics c in three basic formats; static, mobile, and interactive. Static infographics are the most widely used form of information design. People use infographics on the web mainly in a static format. Static infographics, which have a variety of uses from scientific publications to editorial content and activity reports, can display a rich set of information in a single image (Altin, 2017).

There are typologies of graphical forms presented in British standards: Bar graph, Line graph, Area graph, Pie graph, Isotope graph, Scatter graph, Histogram, Three-dimensional graph, Superimposed graph, Thematic map, and Illustrated graph. Pictorial graph The purpose of using graphics can be grouped into: a. as an illustration, b. as analysis, c. as a calculation d. as decoration. Infographics should balance data visualization standards and a journalistic code of ethics (Dick, 2020).

In traditional journalism, infographics are merely embellishments to make the news page appear lighter and more appealing to an audience growing impatient with long stories. Infographics are not treated as devices that expand the scope of our perception and cognition but as decorations (Cairo, 2013).

John Grimwade, a graphic director, emphasized the principles of creating infographics. The primary role is telling a story clearly and having a narrative through each graphic. Any infographic project should start by analyzing the story and then finding the best way to say it by dividing it into chunks that are easy to digest without losing depth (Cairo, 2013). Similar to what was conveyed by Grimwade, Cairo explains the steps in making infographics: a. Find the information/stories you want to share and the main points you want to emphasize. b. collect as much information as possible. c. choose a graphic. d. complete the research by making sketches and storyboards. e. think of visual types like color. f. transferring sketches to a computer using a graphic-making software tool (Cairo, 2013).

Material and Methodology

This research method is content analysis. Content analysis is a scientific method that documents the features that appear in media content or the meaning of messages that appear

in other media formats. By describing the content of media content, other communication messages, content analysis can reveal the context in which the message was produced (Scharrer & Ramasubramanian, 2021). Content analysis researchers collect and analyze content text. The contents can be in the form of words, meanings, images, symbols, ideas, themes, or whatever is communicated (Neuman, 2014). The research was conducted on news with infographic format in the media Katadata.co.id and Tirto.id. Both of these media outlets have the same infographic channel. Readers can access the Data Journalism channel and will find infographic sub-channels. While on Tirto.Id, readers can access the Jelajah channel to get infographic sub channels.

The number of news items in the "Infographic" section on Tirto.id in June - August 2021 is 413 and 118 of them are taken as samples. The number of samples taken from Katadata.co.id news is 114.   In total, the number of news items analyzed from these two media outlets was 232. The analysis carried out on the visualization of these two media outlets was originally a replication of Jacob's (2020) research entitled Visualising Global Pandemic: A Content Analysis of Infographics on Covid –

19. Jacob (2020) conducted infographic analysis on 36 news stories from The Hindu and 97 news stories from The Times of India (Jacob, 2020). This researcher looks at infographic formats (data points, infographics, infographics with text), infographic levels and types, news frames. Replication is done by consulting with journalists Pandu Lazuardy Patriari and Oki Triono.

The measuring instrument used refers to previous research which is modified into news topics (covid news and non-covid news), charts (there are graphs and no graphs), type of graphs (bar graph, pie chart, line chart, map, bubble chart), source of graphic data, Type of visualization (illustrations and text, illustrations and graphics), Sources of visualization information, news frames).

Result and Discussion

Of the 114 samples of graphic news taken from the katadata.co.id, 92 have a topic about Covid-19 and 22 do not have a topic about Covid-19. Meanwhile, during the same period, the number of news samples taken from the tirto.id page is 118, of which 100 do not have a topic about Covid-19 and 14 have a topic about Covid-19.
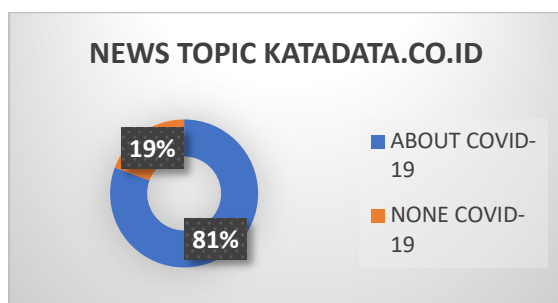

Figure 1. Topics of Katadata.co.id media news
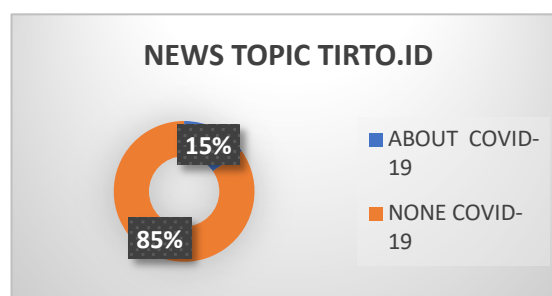Source: content analysis

Figure 2. Topics of news media Tirto.id
Source: content analysis

The Visualization

The visualization displayed on Katadata.co.id news consists of 63 illustrations and texts, 32 illustrations and text and graphics, 17 illustrations and graphics, 1 illustration and 1 news item without visualization. Illustration and graphic visualization types are the graphic contained within the illustration. Illustration, text, and graphic visualization types are graph elements separate from the illustration.

Meanwhile, the visualization of 118 news stories from Tirto.id consists of 116 news stories with illustrations and text, and 2 news items consist of graphics only. These two media outlets have the dominance of visualization in common, the types of illustrations and text. Graphic elements are only contained in 19 news stories, 2 in Tirto.id news and 17 news stories in Katadata.co.id.
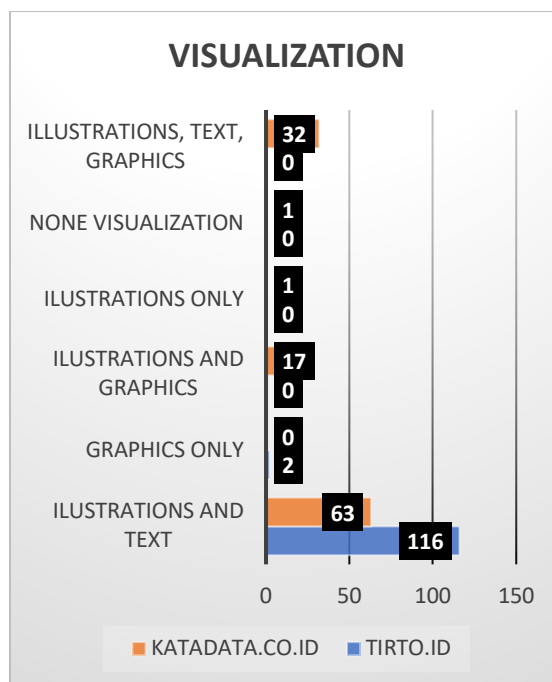
Figure 3. Visualization of news coverage of Katadata.co.id and Tirto.id
Source: content analysis

Chart elements

This measuring tool is to see graphic elements in the news. In the 126 infographic reports on Katadata.co.id, 77 news items did not contain graphic elements and 49 contained graphic elements in their reports. Meanwhile, of the 106 news stories on Tirto.id, 105 did not contain graphic elements and 1 news story contained infographic elements.
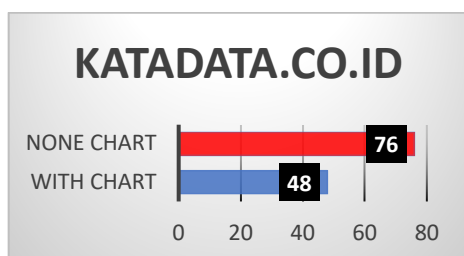

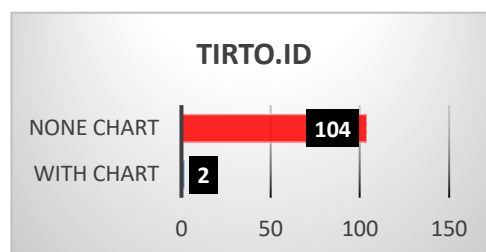**Figure 4.** Katadata.co.id chart elements
Source: content analysis

Figure 5. Chart elements of Tirto.id
Source: content analysis

Chart type

Two Tirto.id news stories that contain graphic elements use a bar graph type in rush green and a line chart in blue. Both of these graphs are static. Meanwhile, 48 news items on Katadata.co.id have graphic elements. The Bar Graph type dominates with 27 news stories, 14 news column chart types, 2 news stacked bar types and two separate bar graph types, donut graph, small donut graph, and a combination of 1 story each. The type of combination chart that appears in one news item is a combination of line chart and column chart. 9 news items with charts not only has 2 charts and 1 news item which has 3 charts.
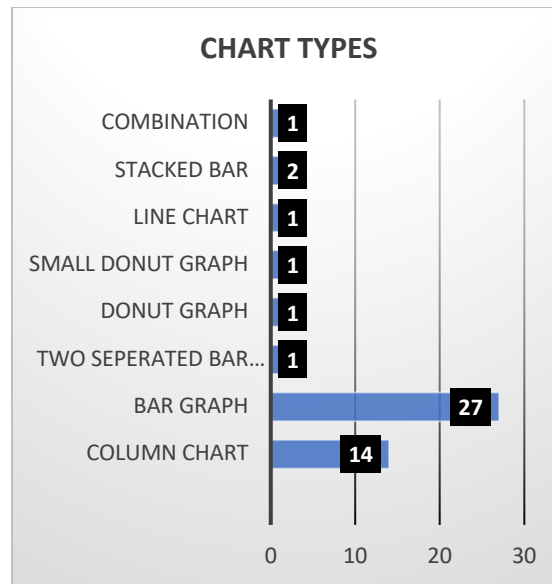
CHART TYPES

Type	Value
COMBINATION	1
STACKED BAR	2
LINE CHART	1
SMALL DONUT GRAPH	1
DONUT GRAPH	1
TWO SEPERATED BAR...	1
BAR GRAPH	27
COLUMN CHART	14

Figure 6. Types of chart Katadata.co.id
Source: content analysis

48 news stories that have graphs in it, there are 39 news stories with interactive graphics and 9 news stories that are status. This study also looks at the color element in the news graph. If a single color is seen on the chart, blue is the most widely used with 9 charts, followed by yellow and orange with 8 charts, purple with 7 charts and brown with 6 charts. There are also graphics with a combination of 2 colors with 6 graphs and more than three colors with 4 graphs. However, in terms of the number of colors used in the combination of 2 colors, the color yellow becomes more dominant. The combination of two colors consists of blue-brown, blue-yellow, yellow-red and yellow-orange.
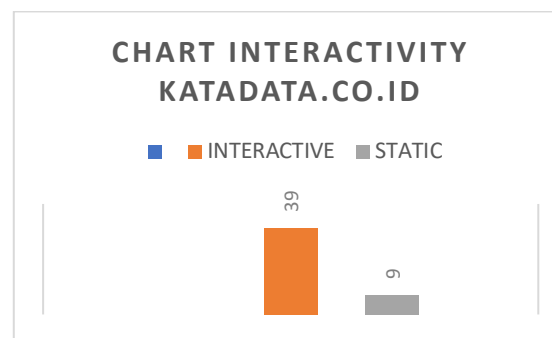
CHART INTERACTIVITY KATADATA.CO.ID

■ INTERACTIVE ■ STATIC

39
9

Figure 7. Katadata.co.id chart interactivity
Source: content analysis

CHART COLOUR KATADATA.CO.ID

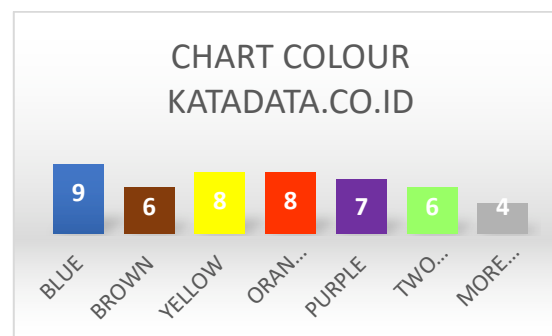| BLUE	BROWN	YELLOW	ORAN...	PURPLE	TWO...	MORE...
9	6	8	8	7	6	4

Figure 8. Color chart Katadata.co.id
Source: content analysis

News Frame

The framing of news can be distinguished into two things, namely on all news or only news that is the topic of Covid-19. Overall topics and news frames consist of: Advertorial with 3 news items, Economics with 3 news items, Film with 4 news items, Law with 8 news items, Music with 4 news items, Sports with 8 news items, Education with 4 news items, Social Culture with 34 news items, Figure with 18 news items, Technology with 13 news items, Politics with 20 news items, Health with 9 news items, Vaccination with 39 news items, Covid-19 variant with 4 news items, Countermeasures, Prevention, Covid-19 assistance with 13 news items, Covid Medicine with 3 news items, Case increase with 6 news items, Tips for Coping with Covid with 8 news items, Clarification of Vaccination Hoax with7 news items, Government Policy with 11 news items, Symptoms of Covid -19 with 2 news items, Impact of Pandemic with 11 news items.
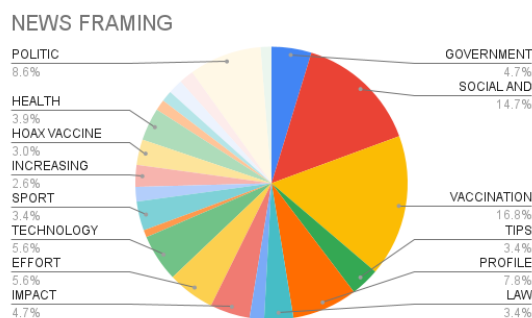

Figure 9. News frame
Source content analysis

If it is only related to the topic of Covid-19, the most widely reported vaccination is news frame with 39 news items, followed by Variant of Covid-19 with 4 news items, Advertorial with 1 news items, Impact of pandemic with 11 news items, Symptoms of Covid-19 with 2 news items, Government policy with 11 news items, Other topics about health that is not directly related to Covid-19 with 5 news items, we are facing the Covid-19 pandemic with 8 news items, clarification of vaccination hoaxes with 7 news items, framing of Covid-19 drugs with 3 news items, news with framing of increasing cases of Covid-19 with 6 news items, framing of the Covid-19 variant with 4 news items, efforts in the form of prevention, prevention and assistance for Covid-19 with 13 news items.
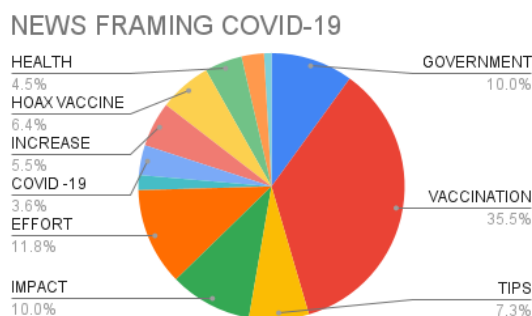

Figure 10. Covid-19 Topic News Frame

The framing of news can be distinguished into two things, namely on all news or only news that is the topic of Covid. Overall topics and news frames consist of: Advertorial with 3 news items, Economics with 3 news items, Film with 4 news items, Law with 8 news items, Music with 4 news items, Sports with 8 news items, Education with 4 news items, Social Culture with 34 news items, Figure with 18 news items, Technology with 13 news items, Politics with 20 news items, Health with 9 news items, Vaccination with 39 news

items, Covid-19 variant with 4 news items, Countermeasures, Prevention, Covid-19 assistance with 13 news items, Covid Medicine with 3 news items, Case increase with 6 news items, Tips for Coping with Covid with 8 news items, Clarification of Vaccination Hoax with 7 news items, Government Policy with 11 news items, Symptoms of Covid -19 with 2 news items, Impact of Pandemic with 11 news items.

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If we examine the infographic news on these two media outlets in the same time period, it turns out that there are various differentiators. When the Covid-19 pandemic is at a critical point, the two media outlets have different policies. Katadata.co.id infographic news is dominated by information about Covid-19. Meanwhile, Tirto.id takes a different path. More than 80% of the infographic news published by Tirto.id is not related to Covid - 19. Only 15% of the news space is filled with Covid-19 information. Research shows that high consumption of Covid-19 news has an impact on fatigue from consuming 'news fatigue' news and even readers avoid Covid-19 'news avoidance' news.

Female participants reported feeling tired of the topic mainly because the news was mostly negative and reported constantly. In addition, the work factor and the multiple burdens of participants play an important role in the practice of news fatigue in Jakarta based on gender. This perceived fatigue encourages women's participation to avoid news about COVID-19 (Natasya & Setianto, 2021).

Since the onset of the Covid-19 pandemic, news coverage in various media outlets has been dominated by Covid-19 news.

Even negative information that causes fear, worry, panic is popping up everywhere. A study showed that the headlines in January – June 2020 had negative sentiments (Syed et al., 2020). Other research shows that a number of respondents experience a loss of interest to avoid Covid-19 news (Buneviciene et al., 2021).

The results of this research showed that 50 news items carried graphic elements. There are no graphic elements in 182 news stories. The following details show the types of charts used for the 50 news items carrying graphic elements: Bar chart 46 news items, Line Chart 2 news items and Pie Chart 2 news items. Meanwhile, there are 8 news stories that have more than 1 type of graph. Visualizations displayed on the news in the infographic section: Illustrations and text with 211 news items, Illustrations and graphics with 17 news items, Graphics only with 2 news items, Illustration only with 1 news item, No visualization with 1 news item.

News visualization on the 'infographic' channel of these two media outlets has almost the same characteristics. The dominant visualization of these two media outlets is a combination of illustration and text. This type of visualization makes it easy for designers to create aesthetic elements stand out from the data. Graphic elements that are identical to the data do not stand out in these two media outlets. In fact, Tirto.id only found two news reports containing graphic elements. The rest is a visualization of illustrations and text or also known as posters.

Even so, using visualization is a good way to convey complicated information. The use of infographics in news has a positive effect on users in terms of measured variables, including cognitive effects and news reception (Won, 2019). Visualization cannot stand alone. This means, the visualization must be displayed together and in line with the text (Haan et al., 2017). This was found in the analysis of the two media outlets. The dominance of visualization was followed by text which is a combination of illustration and text.

These two media outlets do not make the chart a core of visualization. This is seen from the minimum number of diagrams found in both media outlets. This is in line with this thought that infographics are more than just diagrams. Although they (can) contain diagrams. Charts and graphs can communicate data, Infographics

convert data into information (Veszelszki, 2016). Although the basic concept of infographics mainly emphasizes two things, namely information and graphics. Infographics, as implied, are information graphics. Designers usually combine data views, lists, graphs, and other visual elements to emphasize a point. Charts or diagrams and good infographics are worth a thousand words (Toth, 2013) (Altin, 2017).

Visualization of news coverage with health topics is not an easy thing. There is a high risk of successfully blending various visual elements well. Even the ineffectiveness of information in the form of visuals and infographics can be fatal. Welhausen presented the results of his research on ways in which data visualization on epidemic diseases affects risk perception in a global context. He proposes strategies that can be taken by designers when creating data visualizations for audiences to take into account the cultural context in crisis and emergency risk scenarios (Welhausen, 2015).

Diversity is important for designers to pay attention to. Infographics produced and presented with the help of technological means which can sometimes lead to negative results. This is related to the misleading knowledge and diversity (Kelidou & Siountri, 2020).

Katadata.co.id uses simple graphic elements in its information or news. There are 48 news stories that use a number of different types of charts. As many as 27 of them use the Bar graph format. Interestingly, Katadata.co.id also tries to use graphs that are not commonly used, such as two separate bar graphs, stacked bars or a combination of 2 types of graphs.

Interactive graphics are considered to be one of the determinants of the success of visual communication. Wong (Won, 2019) proposes the use of interactive infographics and design improvements so that the communication effect is further enhanced. It's just that, interactive visuals require more time and ability. Apart from visualization capabilities, newsroom regulations also affect the visualization creation process. Often the speed of news delivery does not give designers room to consider the right visuals for a story (Smit et al., 2014)

Warm colors increase the perception of risk. Furthermore, data visualization is a form of high context collectivistic visual communication, which reduces perceptual risk among experts but intensifies risk perception

among non-experts. Technical communicators can draw from the following guidelines when constructing data: visualizations that communicate risks to an intercultural audience: quantitatively display information using a variety of visualization strategies, including explanatory text and/or visuals to further contextualize data visualizations, and add comparative data visualizations (Welhausen, 2015).

Color plays an important role in conceptual considerations regarding what the content and theme is, who is the target audience, and what impression and identity you want to display in the design of infographic media. The use of color is also quite vital in infographic media, including creating differences between content and categories, creating unity, placing emphasis on certain content that you want to highlight, and creating contrast between figures and ground so that the message in infographics can be easily understood by the target audience (Listya, 2018).

Interactive: Given the high level of technological features in data journalism, we cannot take for granted that in the view of the audience data journalism would be protected from the very negative effects of technology paternalism. Furthermore, from a longer-term perspective, if paternalistic tendencies in journalism, even though they may primarily be part of the design, aided by technological features, contribute to mistrust in journalism, one may argue that this particular development, if not transparently explained to the audience, can contribute to negative effects on the role of the media in our society (Appelgren & Appelgren, 2017).

Conclusions

The visualization displayed on Katadata.co.id news consists of 66 illustrations and texts, 32 news reports, 16 illustrations and graphics, 1 illustration and 1 news item without visualization. Meanwhile, the visualization of 118 news stories from Tirto.id consists of 116 news stories with illustrations and text, 2 news items with graphics only. These two media outlets have in common the dominance of visualization. This research is still ongoing to see visualization patterns or patterns of using infographics on a number of media outlets in Indonesia.

Visuals in the news can help inform a problem but not much is known about how it affects consumers (Powell et al., 2015). On the other hand, Infographics on risk information were found to have a detrimental effect on measures related to risk perception/understanding, but the effect was mainly seen in less educated participants. Infographics can be powerful storytelling devices. This is because infographics have an interesting visual component and it helps groups connect to information more easily. Infographics help build emotion and build understanding for the importance of the concepts presented (LaRose & Eastin, 2004).

Further, the visual trends and preferences of this pattern depiction are used to be principal to see its acceptance to consumers. It is important to know how people (by any categorize) acquire visual information. One method that can be used to see the ability of the community to receive pictorial information is to conduct experimental tests. These tests have even been carried out since infographics were first used. Classic infographics are considered stiff and don't encourage reader engagement. This classic format dissatisfaction gave rise to a concept called an isotype (Dick, 2020).

References

Adi, D; Setiautami, D. (2021). Distributing information through infographic on tempodotco to build understanding and awareness about COVID-19 virus outbreak in Indonesia Distributing information through infographic on tempodotco to build understanding and awareness about COVID-19 virus. *International Conference on Biospheric Harmony Advanced Research 2020.* https://doi.org/10.1088/1755-1315/729/1/012109

Altin, N. C. (2017). Use of Interactive Infographics in News Sites. *Scholars Journal of Arts, Humanities and Social Sciences*, *5*(11C), 1749–1754. https://doi.org/10.21276/sjahss.2017.5.11.28

Appelgren, E., & Appelgren, E. (2017). An Illusion of Interactivity The paternalistic side of data journalism. *Journalism Practice*, *0*(0), 1–18. https://doi.org/10.1080/17512786.2017.1299032

Buneviciene, I., Bunevicius, R., Bagdonas, S., & Bunevicius, A. (2021). COVID-19 media fatigue : predictors of decreasing interest and avoidance of COVID-19 e related news. *Public Health*, *196*, 124–128. https://doi.org/10.1016/j.puhe.2021.05.024

Cairo, A. (2013). The Functional Art. In *The Functional Art*. http://medcontent.metapress.com/index/A65RM03P4874243N.pdf

Dick, M. (2020). The Infographic. In *The Infographic*. https://doi.org/10.7551/mitpress/11379.001.0001

Haan, Y. De, Kruikemeier, S., Lecheler, S., Smit, G., Van, R., Nat, D., Haan, Y. De, Kruikemeier, S., Lecheler, S., & Smit, G. (2017). When Does an Infographic Say More Than a Thousand Words ? When Does an Infographic Say More than a Thousand Words? Audience evaluations of news visualizations. *Journalism Studies*, *0*(0), 1–20. https://doi.org/10.1080/1461670X.2016.1267592

Indah, S. N., & Hasanah, K. (2022). *Infographic Data Visualization as an Alternative Form of News (Content Analysis of Covid-19 Vaccine Issues of Data Journalism-Based Media*. *15*(Agustus 2022), 30–45.

Jacob, R. (2020). Visualising global pandemic: A content analysis of infographics on COVID - 19. *Journal of Content, Community and Communication*, *10*(6), 116–123. https://doi.org/10.31620/JCCC.06.20/09

Kelidou, E., & Siountri, K. (2020). The use of Infographics as an educational tool for the upcoming digital transition. *International Conference on Cultural Informatics, Communication & Media Studies*, *1*(1). https://doi.org/10.12681/cicms.2730

LaRose, R., & Eastin, M. S. (2004). A Social Cognitive Theory of Internet Uses and Gratifications: Toward a New Model of Media Attendance. *Journal of Broadcasting & Electronic Media*, *48*(3), 358–377. https://doi.org/10.1207/s15506878jobem4803_2

Listya, A. (2018). Konsep dan Pengunaan Warna dalam Infografis. *Jurnal Desain*,

6(01), 10. https://doi.org/10.30998/jurnaldesain.v6 i01.2837

Natasya, M., & Setianto, P. (2021). *Gender , Konsumsi Berita COVID-19 dan News Fatigue di Jakarta*. 05, 1–14. https://doi.org/10.24198/jkj.v5i1.31587

Neuman, W. L. (2014). Social Research Methods: Qualitative and Quantitative Approaches. In *Pearson Education Limited*. https://doi.org/10.2307/3211488

Powell, T. E., Boomgaarden, H. G., De Swert, K., & de Vreese, C. H. (2015). A Clearer Picture: The Contribution of Visuals and Text to Framing Effects. *Journal of Communication*, *65*(6), 997–1017. https://doi.org/10.1111/jcom.12184

Rochyadi-Reetz, M., Maryani, E., & Agustina, A. (2020). Media use and gratification sought by the public during the Coronavirus outbreak in Indonesia: A national survey. *Jurnal Komunikasi Ikatan Sarjana Komunikasi Indonesia*, *5*(1), 111–124.

Rosemary, R., Syam, H. M., Anisa, N., Yanuar, D., & Putera, H. S. (2021). Acehnese People's Information Seeking Behavior about COVID-19. *Ikatan Sarjana Komunikasi Indonesia*, *6*(1), 13–21.

Scharrer, E., & Ramasubramanian, S. (2021). *Quantitative Research Methods in Communication The Power of Numbers for Social Justice* (Vol. 21, Issue 1). Routledge. http://journal.um-surabaya.ac.id/index.php/JKM/article/view/2203

Simakova, S. (2020). Media aesthetic component of communication and its manifestation in infographic content Componente estético da mídia na comunicação e sua manifestação no conteúdo infográfico Palavras-chave. *Juiz de Fora, PPGCOM – UFJF*, *14*(1),

84–96. https://doi.org/10.34019/1981-4070.2020.v14.30188

Siricharoen, W. V., & Siricharoen, N. (2018). Infographic Utility in Accelerating Better Health Communication. *Mobile Networks and Applications*, *23*(1), 57–67. https://doi.org/10.1007/s11036-017-0900-3

Smiciklas, M. (2012). *The Power of Infographics*.

Smit, G., de Haan, Y., & Buijs, L. (2014). Visualizing News: Make it work. *Digital Journalism*, *2*(3), 344–354. https://doi.org/10.1080/21670811.2014.897847

Syed, J. H., Kashif, A., & Parveen, M. (2020). Sentiments and emotions evoked by news headlines of coronavirus disease (COVID-19) outbreak. *Humanities and Social Sciences Communications*, 1–9. https://doi.org/10.1057/s41599-020-0523-3

Toth, C. (2013). Revisiting a Genre: Teaching Infographics in Business and Professional Communication Courses. *Business Communication Quarterly*, *76*(4), 446–457. https://doi.org/10.1177/1080569913506253

Veszelszki, Á. (2016). Information Visualization: Infographics from a Linguistic Point of View. *The Power of the Image*, *May*. https://doi.org/10.3726/978-3-653-04298-6/19

Welhausen, C. A. (2015). Visualizing a non-pandemic: Considerations for communicating public health risks in intercultural contexts. *Technical Communication*, *62*(4), 244–257.

Won, J. (2019). A Study on News Graphic Design in Social Media. *The Journal of the Korea Contents Association*, *19*(12), 57–67.