

METHODS APPLYING INFOGRAPHICS IN ONLINE NEWSPAPERS

Thi Hang Le, Dinh Son Nguyen

Posts and Telecommunications Institute of Technology

Abstract: In the technological era, we are less reading news from printed newspapers rather we choose to receive information from online newspapers. The main reason is the shift in the type of devices we use to gain information. In significant urban areas, for example, Hanoi and Ho Chi Minh, every individual has approximately one cell phone and one PC [14]. Hence, the way that we interact with news is different from the past. Moreover, with the power of technology and the continuous growth of the Internet system, there are various types of news that strengthen the connection between audiences and online newspapers. One of them is multimedia news such as infographics. This paper will look at how infographics solve certainly connection issues between audiences and online newspapers. Moreover, the paper analyzes the famous types of infographics used in the famous online newspaper in Vietnam and how news creators would use infographics effectively.

Key Words: Infographic, Online newspapers, Multimedia journalism.

I. INTRODUCTION

Each person having at least a mobile phone and a PC in urban areas in Vietnam shows that most Vietnamese people in urban areas gather information through electronic devices and on

the Internet. Thus, various traditional news moved from mainly producing printed news to online news including famous newspapers such as VietNamNet, VnExpress, and TuoiTre. Rather than keep caring printed newspapers with them, audiences would choose to read news from the online newspaper which is compact and easy to carry. The development of technology encourages the growth of new types of news. One of them is multimedia journalism. It is known as news that belongs to contemporary news and disperses news content either utilizing at least two media designs through the Internet [6]. Thus, multimedia journalism become a new way for newspapers to increase their connection with their audiences. No longer just words and pictures, multimedia journalism provide a dynamic connection with the combination of different media such as audio, motion, pictures, and words [6]. Therefore, multimedia journalism becomes a trend in the current world, especially in the production of online news since audiences would have a dynamic interaction while gathering information from online newspapers.

Multimedia journalism has various forms. The most two well-known forms are E-magazines and infographics [8]. The paper focuses on infographics since it was an effective form of multimedia journalism that

Tác giả liên hệ: Lê Thị Hằng, Nguyễn Đình Sơn

Email: hanglt@ptit.edu.vn; sonnd@ptit.edu.vn

Đến tòa soạn: 20/4/2022, chỉnh sửa: 27/5/2022,
chấp nhận đăng: 12/06/2022

help audiences understand and remember information faster. In other words, the audiences of the new media want to consume significant data within a short period of time. Infographics are one of the solutions for this issue [11]. It is the reason why the use of infographics has been increasing in recent years. However, its use in online newspapers remains unclear. What is more, in order to use infographics effectively, the creators need to understand the dynamic of the information and how to use the combination of different media to present the complex information. Thus, the paper would discuss the use of different types of infographics in online newspapers and how to use/create infographics effectively. What is more, in this paper, we would only focus on the typical style of infographics (still infographics) and not include the analysis for motion and interactive infographics, as with those infographics, audiences need to take time to interact with while our main idea is the fast understanding of the audiences by using infographics.

II. LITERATURE REVIEW

1. Infographic

The mortal brain is more suitable to identify and comprehend connections and patterns if data is decoded into visual forms [4]. Infographics have come more like storytelling with the combination of different media than just a typical data chart. From Newsom and Haynes's point of view, an infographic is a graphic visual representation of information, data, or knowledge intended to clarify and integrate delicate information snappily and easily [10]. Others believe that an infographic is the use of computer-supported creating interactive visual representations of data to build a cognition [3]. Hence, the definition of an infographic is a representation of information in a graphic format in a digital

format, designed to make the data fluently accessible regard use to snappily communicate a story, to simplify the large quantities of data, to see data patterns and connections, and to enhance the story in the connection. Moreover, infographics have been applied to the generally used computer systems. Recognition and understanding of infographics is a fairly new exploration field. With a moment's overflow of information, infographics help compendiums understand and reuse the information quickly. An effective infographic not only tells compendiums' stories but will also produce interest and induce people to read the composition analogous to how good captions and prints attract compendiums.

An infographic divides into three corridors, composed of visuals, content, and knowledge [12]

The visual aspect of the infographic has a strong relationship with the design. Meanwhile, the design of the infographic also has the precedence mix of appeal, appreciation, and retention, grounded on the purposes and Objects of the infographics.

The content of the infographic can be divided into three parts, which is a preface, the main event, and the conclusion. The preface section needs to introduce the anthology to the content of the infographic. The main event for an infographic should be noteworthy for the followership, and it should contain new information. The last part of the content is a conclusion, and infographic design should drive the anthology to the end of the display and wraps up all dispatches.

The knowledge in the infographic is about showing data and deduction from the content. pressing applicable content to provoke deduction fluently is an art. If the infographic is concentric, having the most precious content both visual and factual in the middle is a plus.

2. Online newspaper

A newspaper is a scheduled publication containing news of current events, informative articles, and diverse features [13]. An online newspaper is the online version of a newspaper, either as a stand-alone publication or as the online version of a printed periodical [13]. An early representative of an online newspaper or magazine was News Report, an online newspaper created by Bruce Parrello in 1974 on the PLATO System at the University of Illinois [13]. Beginning in 1987, the Brazilian newspaper Jornaldodia ran on the state-possessed Embratel network, moving to the Internet in the 1990s. By the late 1990s, hundreds of U.S. journals were publishing online performances but didn't yet offer important interactivity. One illustration is Britain's Weekend City Press Review, which handed a daily news summary online beginning in 1995 [13]. moment, online news has come a huge part of society which leads people to argue whether or not it's good for society. Austr Taylor, author of the popular book The People's Platform argues that online news doesn't give the detail demanded to completely understand what actually happen. It's additional just a fast summary to inform people what happed but doesn't give a result or obsession to the problem. There are two main types of online newspapers which are E-edition and Web-Edition [13].

With E-edition, the characteristics are laid out just like a print newspaper, with all formatting complete; includes all the illustrations, announcements, and photos as it is; preserves the look and sense of the print interpretation; and primary interpretation of the shift from print to the digital format.

With Web-Edition, the characteristics are existing independently on the Internet, with a distinct style separate from the print

publication; including brief stories of news, photos, connected web pages, and range transfer; virtually all published newspapers have web performances.

3. Infographic solution for online newspaper

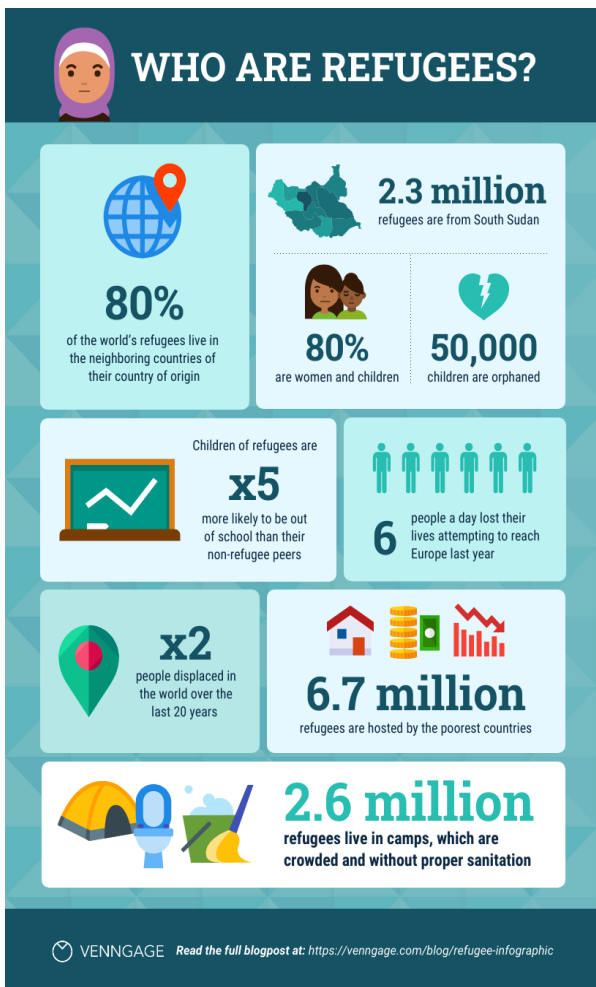
News facing a certain problem with the information which is Information richness. It is considered “the ability of information to change understanding within a time interval” [5]. Information richness is growing with the constant increase of information in the digital environment. As similar as in the media environment, media richness theory is that all communication media vary in their ability to enable users to communicate and to change understanding [7]. This proposition places all communication media on a nonstop scale according to their capability to adequately communicate complex communication. Media that can overcome different frames of reference and clarify obscure issues are richer whereas dispatched media that demand additional time to convey understanding are supposed less rich. In addition, the main purpose of choosing a communication medium for a specific communication is to lower the equivocality of messages. However, it's unclear and therefore more delicate for the receiver to decode If communication is equivocal.

Complex information when represented only by words and a few pictures is hard to understand and capture the idea of the information in a short period of time. Hence, the use of infographics, in this case, helps the audiences acquire complex information faster since “the human brain is able to identify and comprehend relationships and patterns if data is encoded into visual forms [4]”. The combination of different media in a connective system helps explain the dynamic of complex information.

4. Types of infographics

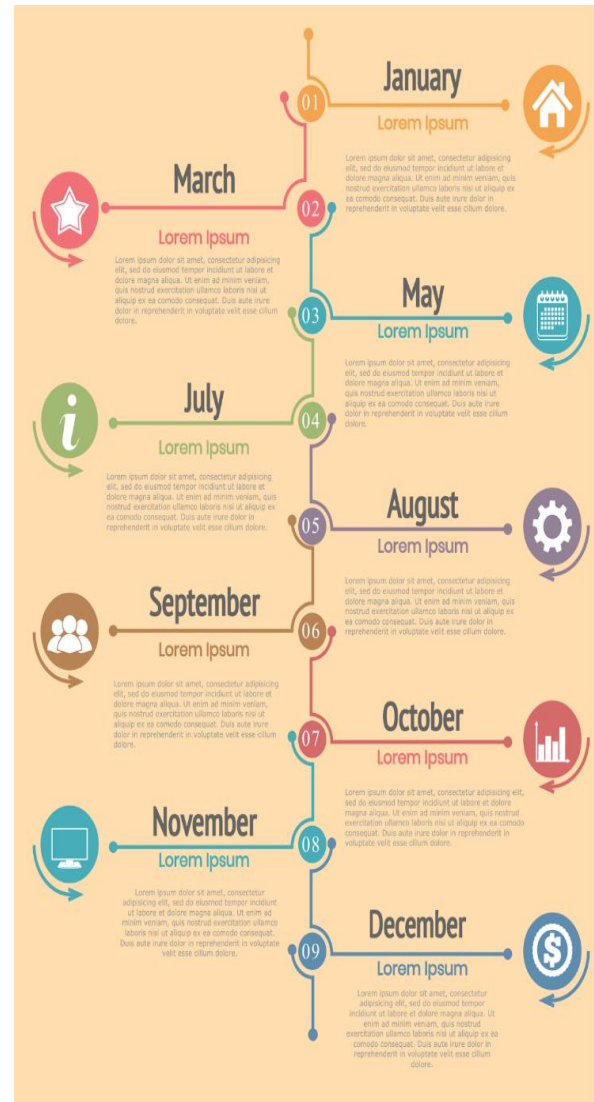
With different information, there would be different ways to visualize them to the audience. Some major types of infographics based on their usability are [1]:

Statistical Based Infographic: This type of infographic includes figures, charts, graphs, tables, and lists. Among the most common turn are horizontal bar charts, perpendicular column charts, and round or round pie charts, that can review statistical information. These forms show how a system works, lines of authorization of the company, and shows a successional association. It can be made in an interactive manner as well.



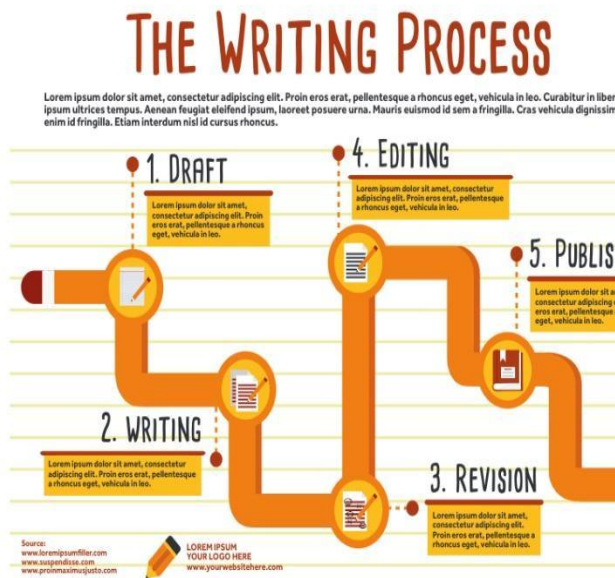
Picture 1: An example of a Statistical Based Infographic; Source: Venngage Inc. 2011-2022

TimeLine Based Infographic: The timeline shows the sequence of events according to the time each event had happened. A timeline enables followership to realize chronological connections veritably fast. occasionally it shows in irregular, time-by-time paragraphs.



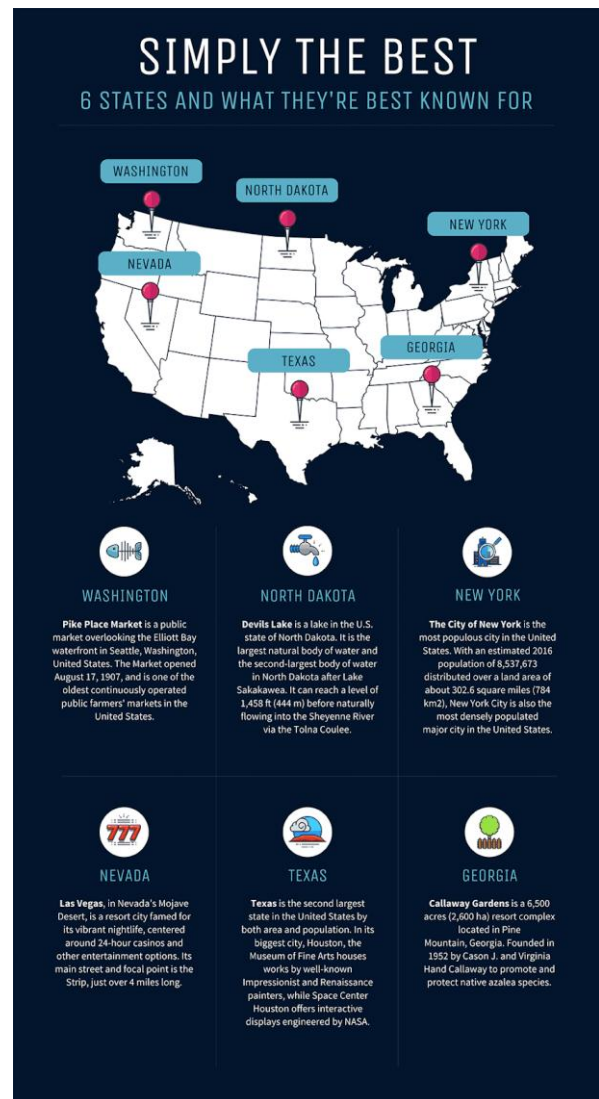
Picture 2: An example of a TimeLine Based Infographic; Source: Easelly n. a.

Process Based Infographic: These process grounded generally can be set up in recipe magazines or explained about methods using an infographic. Also, this type of infographic can be used to clarify in workspaces of plants or services. It can make compendiums to understand its practices in a limited space.



Picture 3: An example of a Process-Based Infographic; Source: Easelly n. a.

Location or Geography Based Infographic: With extensive use of GIS, maps can also consider a smart way to show geography-grounded infographics. They include symbols, icons, figures, graphs, tables, arrows, and bullets. There is numerous well-given GIS note that is used in maps to identify highways, streets, subways, and facilities. numerous familiar icons and symbols designed for places like traveler spots, hospitals, and airfields. Scale is an imperative consideration also because all places and landmarks are marked according to the exact scale or ratio.



Picture 4: An example of a Location or Geography Based Infographic; Source: Venngage Inc. 2011-2022

There are some basic types of infographics that are based on their usability. Part of that, depending on the information from different fields, the types of infographic could be divided into different groups that contain one or more of the types of infographics above.

III. ANALYZING TYPES OF INFOGRAPHICS IN THE ONLINE NEWSPAPERS

1. Common groups and types of infographics in online newspaper

In the research analyzing 375 stories from two famous magazines which are [9]:

Al Bayan is one of the oldest and the most extensively spread online newspaper in UAE and is possessed by important and rich establishments with the leading Arab journals in enforcing recent technology;

USA Today has the widest spreading of any online newspaper in the United States with The Wall Street Journal and The New York Times with a daily readership of nearly 3.2 million.

The result showed that the most used infographics in online newspapers were chart-based graphics (6.9%), illustration-based graphics (34.7%), and type-based graphics (58.4%). Hence, rather than diving into types of infographics by their usability, the research defined the groups of infographics based on their characteristics. In other words, by using the method, the researcher would save time for analyzing and looking at the broader picture while researching. Moreover, the research includes the specific types of infographics in each group, which are:

Type-based graphics: Pull quotes, Lists, Summary, Sidebars, Timelines, Quotations collections, Q & A, Step by step guides, Checklists, Ratings, Bio, Box, and Glossary;

Illustration-based graphics: Drawings and illustrations, Maps, Icons and logos, and Diagrams Tables;

Chart-based graphics: Bar charts, Line charts, Pie charts, Pictorial charts.

Hence those groups include the types of the infographic which are stated in the literature review. The research did not analyze the effectiveness of a different group, it only analyzed what groups and types of infographics were used the most in online magazines. In order to understand the dynamics of each group and some common types used in the group, the paper would continue to analyze the representative types of each group by looking at

the application of the types in a Vietnamese online newspaper.

2. Bad and good infographics: The ways to understand the dynamics of the infographic

It is difficult to justify what is a bad or a good infographic in general. However, research by Arum in 2017, the paper pointed out a guide to identifying bad and good infographics. The research stated that [2]:

The characteristics of a bad infographic are:

Gratuitous: Infographics have a strong visual connection between text and simple diagrams but it lacks icons and symbols without any purpose.

Confusing: With the high level of information and no clear objective when arranging the visual some infographics make data or information harder to understand.

Overloaded: The visualization has too much information together, it makes the infographic fail to make a point, decreasing the attention of readers.

Bad design: The unplan and no structre design can damage an infographic. This can be a matter of colors not matching the topics, fonts hard to read, and unclear layouts which fails to represent the information correctly.

Misleading: Intentional highlight in the infographic but the highlight has no connection with the topic leading to false representation to promote an agenda or make an unfair marketing claim.

On the other hand, the characteristics of a good infographic are:

Immediacy: To establish immediacy, a creator needs to lead the audiences directly and instantly with the content to create a sense of urgency or excitement.

Compellingness: It refers to building interest, attention, and admiration by sharing

provocative or novel ideas or problems; or using surprising information which can make a message memorable and sticky. Moreover, the narrative structure compels the users through the content to find out what happens in the end.

Resonance: Resonance is about connection when infographics help link the topic with users through the plan and wording for the information.

Coherence: A coherent infographic is when the elements create the infographic linked together, that shares a complete and well-formed message that is credible and believable.

Therefore, from the research, the paper would consider the effectiveness of an infographic by analyzing connections between different media (including the word count, the style, the graphic factors) and the interesting (highlight) factors. Since there is no clear measure for different groups of infographics with specific styles, the paper would use the measuring methods to find a way to understand a good infographic for the specific types of infographics and how to use it effectively.

3. Analyzing types of infographics in the online newspaper VietNamNet

The paper chooses VietNamNet as the research subject. The main reason is that according to decision 820/QĐ-BTTTT in 2018, VietNamNet Newspaper is a unit under the Ministry of Information and Communications, which was reorganized on the basis of merging VietNamNet Electronic Newspaper and Vietnam Post Newspaper according to Resolution No. 54/NQ-CP of the Government dated May 10, 2018 [15]. VietNamNet Newspaper is a multimedia press agency with many publications, performing the function of the Ministry's mouthpiece; carrying out the task of information and communication for the cause of development of branches and fields under the Ministry's state management [15]. In other

words, VietNamNet is a well-known online newspaper in Vietnam. It also has a separate category for multimedia news so it would be the best subject to understand the application of infographics in the online newspaper.

First of all, the paper would analyze the first group of infographics which is Type-based graphics with commonly used styles which are TimeLine and Summary infographics.

With the TimeLine infographic, we could see in a case study of a timeline infographic in VietNamNet. Overall, the infographic stated about the International Day of Happiness on March 20: Origin, meaning, and what to do to spread happiness. The infographic uses the timeline structure to highlight events on the Day of Happiness throughout the year. The effectiveness of the infographic is shown by the signature structure for the timeline. The structure is that years are the most stand-out element on the infographic. When we state a timeline, Time is an important element. Thus, before making any judgment about the content, this design element with years or time factors being the most attractive elements is the first thing that needs to be done when creating the TimeLine infographic. With the color, the infographic the color matches the theme of happiness with bright color. The content and the highlight factors merge together and are linked with the timeline because as a timeline infographic Time is the most focused element, the main content needs to connect directly to the Time element. However, with the limited space between the timeline, the content needs to be compact with each other. It is the reason why highlight information and main contents are connected with each other. Moreover, placing the timeline in the middle of the infographic creates attention for audiences to view the timeline first which is considered a good strategy when arranging the layout.



Picture 5: International Day of Happiness
March 20: Origin, meaning, and what to do to
spread happiness; Source: VietNamNet
20/03/2022

With the Summary infographic, we would look at the news with the title: “2 minutes of ‘golden’ first aid for accident victims. Overall, the following infographic will help you visualize what to do to give first aid to traffic accident victims in common situations as well as what to absolutely avoid in order not to make the victim worse or even die a death. The infographic is an effective summary infographic with a clear heading. If the TimeLine infographic with time is the main element, in a summary, the main points are the main element. By having a clear header with different sizes for the main header and sub-header, the infographic

helps the audiences summarize the information quickly. Moreover, with the classic cross layout, the audiences would have a breakpoint (which is a picture) between the long information. The infographic also has red highlight text for important information. This way would shorten the time for audiences to acquire the information. All in all, with a summary infographic creating highlights with high contrast and a simple layout is key since the information is already dynamic and long. Thus, the high contrast highlight encourages the focus point for the audience and the simple layout help balance the long form of the information.



Picture 6: 2 minutes of ‘golden’ first aid for
accident victims; Source: VietNamNet
04/03/2016

types of infographics. From the examples above, we could see the pie chart would go with the illustration or the line chart would be a part of the timeline. The reason for the dynamic is the extension in the way of creating infographics. With the increase in the ideas for infographics, creators combine and restyle the chart-based graphics into a new form that is more interesting and creates more connection with the audiences.

From the analyses above, the paper provides a clear view of the methods to maximize the application of different groups and commonly used types of infographic in the online news.

IV. RECOMMENDATION FOR AN EFFECTIVE APPLICATION OF THE TYPES OF INFOGRAPHICS IN ONLINE NEWSPAPERS

From the guide of the stated research and the analysis of the case study, the paper conducts some ways to apply infographics effectively in online newspapers.

First of all, it is the balance. Balance the visual elements in infographics. All infographics have a limited space for us to represent information. We could not just put all the information into the layout. In order to eliminate the confusion issue, the infographic needs to have balanced information. In other words, the space of each element needs to balance the other. If the middle is crowded with information, the top, bottom, and two sides of the infographic need to have less information to balance the strong attention of the information in the middle of the layout.

Secondly, it is the priority rule. In different types of infographics, they have their own main focus point such as time with timeline infographics. Therefore, according to the guide and the examples, the main focus point gets the

most attention from the audience. Others would support the main focus point by adding attention to it or providing more information about it.

Thirdly, less is more. With complex information, the less detailed information the more effective the infographics. Interesting infographics have a strong connection with the audience. Rather than just using words to explain the details, we could use other media such as pictures or highlight color contrast to explain the content with visual elements.

Finally, combining types of infographics to create dynamic interaction with audiences. The combination helps tell the story with more added visual elements. The safe option for the recommendation would be to use chart-based graphics with others since chart-based graphics support visuals for other interesting types of infographics. Moreover, they are also based on other types of infographics.

V. CONCLUSION

In the digital era, infographics and other forms of multimedia journalism have been increasing. The more development of the technology, the more interesting and new ways to present information through multimedia journalism in general and infographics in particular. Infographics help online newspapers solve the complex information issue.

However, without using the infographic correctly, the adverse effect would occur with a higher level of complexity of information delivered to audiences. Hence, the paper analyzes the common types of infographics and introduces the recommendation methods to help create and apply infographics in online newspapers effectively.

REFERENCES LIST

- [1] Artacho-Ram, M. A. Rez, J.A. Diego-Mas, J. & Alcaide-Marzal (2008). "Influence of the mode of graphical representation on the perception of product aesthetic and emotional features: An exploratory study", *International Journal of Industrial Ergonomics*, no. 3, pp. 942– 952.
- [2] Arum, N. S. (2017). *Infographic: Not Just a Beautiful Visualisation* by University of Birmingham, Alumnus
- [3] Card, S. Mackinlay, J. & Shneiderman, B. (1999). *Readings in Information Visualization: Using Vision to Think*, Morgan Kaufmann Publishers.
- [4] Cleveland, W. S. (1994). "The Elements of Graphing Data", Revised Edition. Hobart Press, New Jersey.
- [5] Daft, R. L. & Lengel, R. H. (n. a.). *Organizational Information Requirements, Media Richness and Structural Design*, pp. 250.
- [6] Deuze, M. (2004). "What is multimedia journalism?". *Journalism Studies*. DOI: 10.1080/ 1461670042000211131: 140 – via Taylor & Francis Online.
- [7] Dennis, A. R. & Valacich, J. S. (1999). *Rethinking Media Richness: Towards a Theory of Media Synchronicity*, IEEE Computer Society, Proceedings of the 32nd Annual Hawaii International Conference on Systems Sciences.
- [8] Hernandez, R. K. & Jeremy Rue, J. (2016). *The Principles of Multimedia Journalism: Packaging Digital News*, Routledge.
- [9] Manar, D. (2020). *The Use of Infographics in Online Newspapers*. University of Sharjah (UoS) *Journal of Humanities and Social Sciences*. 17. 10.36394/jhss/17/1B/15
- [10] Newsom, D. & Haynes, J. (2004). *Public Relations Writing: Form and Style*, pp.236.
- [11] Smiciklas, M. (2012). *The Power of Infographics: Using Pictures to Communicate and Connect With Your Audiences*. Que Publishing, Indiana, no. 2, pp. 13-20.
- [12] Sneh, R. (2009). "The Anatomy Of An Infographic: 5 Steps To Create A Powerful Visual," SpyreStudios [Online]. Available: <http://spyrestudios.com/the-anatomy-of-an-infographic-5-stepsto-create-a-powerful-visual/>
- [13] Tremayne, M. (2006). *Internet Newspapers: The Making of a Mainstream Medium*. University of Texas at Arlington.

Website:

- [14] <https://research.hktdc.com/en/article/MzQ0OTgzNjg3>
- [15] <https://thuvienphapluat.vn/van-ban/Bo-may-hanh-chinh/Quyet-dinh-820-QD-BTTTT-2018-chuc-nang-nhiem-vu-quyen-han-co-cau-to-chuc-cua-Bao-VietNamNet-383407.aspx>



Lê Thị Hằng, received the Ph.D degree in 2016, from University of Toulouse 1, France, currently working at Posts and

Telecommunications Institute of Technology. Research field: Social media, Mass media, Public Relations.



Dinh Son Nguyen, Master of media at Macquarie University rewarded in 2019, currently working at Posts and Telecommunications Institute of Technology. Research field: Social media, Marketing Strategies, Multimedia.