

Identifying Effective Element in Photography as Communication Tool for Enhancing Public Awareness of Environmental Issues

Mohd Pirdaus Mat Husain^{1,2}, Mohd Nor Shahizan Ali¹, Ammar Redza Ahmad Rizal¹

¹Universiti Kebangsaan Malaysia, Malaysia, ²University College of Yayasan Pahang (UCYP), Malaysia

ARTICLE INFO

Article history:

Received Jan 02, 2023

Revised Feb 15, 2023

Accepted Mar 15, 2023

Keywords:

Environmental issues,
Photography,
Documentary photography,
Public awareness,
Photographers,

Conflict of Interest:

None

Funding:

None

Corresponding Author: Mohd Pirdaus Mat Husain, Centre for Research in Media & Communication (Mention), Faculty of Social Science & Humanities, Universiti Kebangsaan Malaysia. Tel: +60-14-3268793). E-mail: p97285@siswa.ukm.edu.mycom



© Mohd Pirdaus Mat Husain , Mohd Nor Shahizan Ali, Ammar Redza Ahmad Rizal

This is an open access article under the CC BY-SA 4.0 international license.

1. Introduction

Photography functions as a means of communication, employing visual representations that hold multiple interpretations related to various subjects or occurrences, such as environmental issues. The purpose of photographic imagery is to aid the audience in comprehension and eliciting responses. Each photograph possesses the potential to exert influence over the audience, particularly among those regularly exposed to it.

According to Agarwal (2022), photography is a flexible form of art that has become an important component of many disciplines while maintaining or relinquishing its own distinct identity. The degree of exposure individuals has to photographic images depends on their level of engagement with communication technology (Carter, 2015). Digital technology, for example, has changed all technology into a digital format. Camera quality, picture quality, image clarity, image transmission, image storage, and other sensitive surfaces have all advanced in the realm of photography (Yifeng Lu et al., 2022).

Since the 1960s, photography has played a significant role in raising awareness about environmental problems. Seppanen and Valiverronen (2010) argue that the failure to effectively communicate

environmental issues to the audience leads to a waning interest in recurring environmental problems. Janpol & Dilts (2016) suggest that through exposure to environmental documentaries, people's attitudes and behaviors can be transformed. While economic progress is crucial for improving quality of life, it is equally important to preserve the environment. Climate change, environmental degradation, and heavy reliance on non-renewable energy sources remain significant concerns.

The balance between economic development and environmental protection should be emphasized. The focus on disputes and issues are necessary in order to draw the audience's attention to how the photographic image might be used to educate is important. Visual studies are important. Environmental issues that arise widely are the main factors that led this study to be done. At the turned of the twentieth century, the use of photography expanded rapidly as a result of advancement of technology, with photographers using a variety of digital platforms to express meaning to a topic. Among these are environmental problems that clearly endanger both humans and the earth.

All of the study's issues are framed in terms of how photographic images might influence society. This is due to the growth of communication technology, which has resulted in a much more open society in which information may be sent to the audience. As a result, the distribution of meaning to the audience through photographic images is viewed as a non-limited medium of communication with the intention of persuading the audience.

According to Hanisch et al., (2019), one of the most effective ways to raise environmental awareness is through images that can evoke emotions and bring the society closer to environmental issues. Hertzmann (2018), "Prior to the invention of photography, realistic images of the world could only be produced by artists". The audience simply sees the photographic image at a glance and does not understand the actual significance of the image. According to Knoth and Skinner (2007), research in the field of visual communication only look at images and issues, not the building of meaning on the issues that arise.

Norziha et al. (2009) stated that visual communication is defined as a form of communication that uses visual symbols such as pictures and graphics to express ideas and convey meaning. It has its own strengths and values in our daily lives. Mustaffa (2011) supports this idea by suggesting that each visual image content is divided into two parts. The first is known as the realistic function or sense, which is responsible for expressing the truth or any other information that may be observed in real-world situations. This is also known as interpretation or perception, so it serves the purpose of analyzing and interpreting the image. As a result, it requires the proper understanding of how to interpret visuals that swirl what is happening around us every second and minute. It has its own syntax and grammar, which must be decoded and comprehended.

Whatever the variation of the type of research, photography as an unwritten document is more commonly used in research projects with a strong inductive component and have a qualitative dimension (Ferreira & Serpa, 2020). In contrast to not taking or not planning to take photos, Diehl et al. (2016) found that taking photos during almost any experience—or even just planning to take photos without actually doing so—significantly increased enjoyment and engagement. Similar findings were made by Cox et al. (2008) , who discovered that actively seeking out photo opportunities can boost engagement. These findings suggest that finding, isolating, and framing the elements that will be captured is more important than the act of taking an image itself in order to pique interest.

Environmental communication scholars have also argued that pictures or photos are useful instruments for spreading knowledge of environmental problems and accomplishing the aforementioned campaign goals (Mungai, 2009). Even so, there is still not much research on the subject of using photographs to communicate online campaigns about environmental issues. Although there was a ton of material about environmental online campaigns and photo communication in the tools used for this research, very few of them combined the two into a single topic. Therefore, this study explores how photography can be used to convey messages about environmental issues and possibly urge society to take action in an effort to close the gap. Lester (2020) claims that photographs that portray nature can aid in addressing some of the most urgent environmental issues facing humanity.

2. Literature Review

2.1 Visual communication

Visual communication is the delivery of information to the audience through the use of visually appealing components that can be read, viewed, and linked to data (Freeman, 2019). Signs, typography, illustrations, graphic design, info-graphics, industrial design, ads, animation, color, sketches, charts, photos, videos, objects, models, maps, PowerPoint shows, and internet tools can all be a part of it. The advantages of visual communication are numerous. McCloud (1993) stated "visual communication is the process of sending and

receiving messages using images." Visuals have had the ability to convey information across borders and transcend language boundaries, making them a crucial tool for global communication. According to Freeman (2019), since visual information is processed more quickly and with fewer linguistic barriers than a paragraph of text, visual communication can convey information quicker and more effectively through its visual components. On the other hand, visual communication techniques like photos make it simple to increase awareness. (Keshavarzi, 2010). It is possible to capture a picture in a way that builds memory while also providing context and allowing for evaluation. (Peregrina, 2015).

Anyone who is familiar with photography would assume that it includes both the actual photograph and the production procedure. However, fewer individuals would consider how we view the image to comprehend its meaning. Contrary to developing nations where individuals are taught how to enjoy photos in school, not many people in some developing nations were taught to appreciate the message in photographs as a form of visual communication. However, a person's understanding of a picture is dependent on his or her past experiences, present information, society, environment, and emotional state at the moment the picture is being viewed. comprehending a picture that depicts the initial state of the actual environment and comprehending a picture that has been edited are very distinct in visual communication from what an image could contribute to human society (Yaacob & Saleh, 2017).

2.2 The digitization of photography

Over the last few years, the evolution of digital photography has been seen to change (Van Dijck, 2008). During the analogue period, photography was mostly used for personal purposes, with the photographic image being stored solely for personal storage. This personal photography is created for the goal of capturing memories that are temporary (Stuhlmiller, 1996). According to Van Dijck (2012), the main objective of an individual to capture the image is to build identity and meaning in communication, who claims that photography offers the audience the precise meaning about a memory specific image.

Today's advancements of communication technology have revived the photography industry. Photography has caught the attention of a wide range of people who want to share any type of photographic image online. The invention of photography in the early eighteenth-century BC marked the beginning of society's awareness of how to portray people a genuine side of reality.

With the advent of photography into newspapers and magazines, it has been successful in assisting the public in comprehending a topic. Anneloes van Gaalen (2013) stated that "*not everyone trusts paintings, but people believe images*". In recent years, digital photography has mostly replaced traditional film photography. By 2006, most varieties of film and film cameras had been discontinued by all of the manufacturers. While some attention has been paid to how the shift away from film and traditional camera manufacturers has affected businesses in the photo industry, many of the most fascinating repercussions of digital photography can be seen in the ways professionals utilize the photography. The evolution of digital photography has transformed the primary function of a photograph nowadays.

Chesher (2012) explains that the main purpose of digital photography is to show the audience about the individual's pleasure in terms of lifestyle, culture, society, and fulfillment. This purpose varies depending on how a photographer creates the specific image and how the quality of a professional photographer's image different from an image that produced by amateur photographer's image. Mayer (2008) describes, digital photography is now divided into two categories, which is the professional photographer and amateur photographer. These two components of digital photography establish two distinct contexts for the production of images with the real meaning.

The development of digital photography has now encouraged audiences to constantly share their life patterns with other audiences. Petersen (2009) explains that photographic image sharing has now become part of users 'daily activities. Leon (2018) explained the digital photography is a component of the development of photography, which has shifted from purely personal to social photography. The audience believed that the photographic images that has been created should be shared with a varied majority of peoples in order to show their life, culture, and social patterns. According to Dalziell & Genoni (2015), digital photography is a reliable source of information with its own aims. Rose (2012), photography is capable of affecting and changes the attitudes toward social issues that occur around us, as well as communicating true meaning. McMaster (2015) supports up that statement by stating that photography is the medium capturing the truth or gateway to reality.

2.3 Documentary photography

Documentary photography dates back to around 1500- 1600 B.C. Documentary photography was being used in the society when they begin record their lifestyle and environment. This idea is supported by the discovery of paintings on cave walls in France that portrayed human life at the time. When it comes to social science

studies that reveal how humans communicate, we can't avoid discussing features of documentary photography that contain representations and ideas capable of eliciting an emotional response from the viewer. The use of visuals such as documentary photos can also indirectly become iconic because of the function and power of documentary photos in conveying propaganda and ideology through interpretation with digital media.

Documentary photography exists from a social scientist's perspective, in which the main topic, which is the most significant part of a photographic image, owns and connects art and reality (Kolodny 1974). It serves as a component of real-life community storytelling. Documentary photography aims to inform an audience about a current issue or event through digital media (Pisarek 2006). Photographic images are used to support the written material. This is because the use of photographic images provides for a more in-depth understanding of the issues that being discussed. According to Khan (2017), documentary photography is a tool for social change because it creates a visual narrative as well as comprehensive storytelling, which facilitates in the development of a distinct point of view and the identifying of solutions to the problems. As a result, documentary photography has been viewed as an important field among the audiences.

Documentary photography has proved that its functions and capabilities in successfully delivering the global issues. For example, a photograph of a Syrian refugee boy named Aylan Kurdi who was discovered stranded on the Turkish coasts has grabbed the attention of the world. The images managed to draw the attention of the whole world community to this ongoing war refugee crisis. According to Harris (2001), documentary photography should also include the elements that be able to persuade audiences across the world that they can also respond, and think that the issues such as environmental issues actually happened. The impact of documentary photography is determined by the extent to which the image may interact with the viewer. Documentary photography covers all photographic images that are able to convey the meaning and emotions contained in the image to the audience who sees it (Ilija,2015).

2.4 Narratives

The term "*narrative*" refers to a technique for conveying information that is interesting, relevant, and able to engage with an audience (Kim 2016). Narratives are believed to have the ability to influence the audience's ideas and opinions about issues that happened. Narrative concepts exist and are applied in a variety of social science disciplines including film, music, theatre, and even visual communication. Narrative is used to describe and clarify any situations or issues (Kim et al., 2018). The use of images seen in narrative have helped us to improve our understanding regarding the issues (Law, 2000). Therefore, the audience can contribute insights and should be able to understand a storyline with such a beginning, middle, and end. It begins with an explanation of what happened, how it happened, and how it was solved.

Jenkins (2003) defines narrative as "one or more events told by one, two, or more narrators to one, two, or more recipients of the plot," while Fludernik (2009) defines narrative as "a conjunction or discourse to a story that can be told through various forms of media and must provide information about an event." Narrative theory has a number of characteristics that distinguish it from other theories. The elements found in this narrative theory, according to Chatman (1979), can explain the distinction between story (content) and discourse (expression) found in each photographic image. Therefore, the main objectives of this research are to cover the gap that exists by exploring the role of photography as medium of communication in enhancing the public awareness on environmental issues. This study, will be focusing on the in-depth interview among the photographers who are the expertise in creating the meaningful photographs.

Visual narratives are the use of visuals, either still or moving, to tell tales and convey messages. They are a strong form of communication that mixes visual components with sequential storytelling tactics to attract and fascinate viewers. Visual storytelling may take many forms, including comics, graphic novels, films, animations, and even interactive media. Visual storytelling have the power to elicit emotions, elicit empathy, and leave viewers with enduring memories. Storytellers may direct the audience's attention and influence their comprehension of the narrative through carefully created images, composition, colour, and framing. The employment of visual symbolism, metaphor, and visual storytelling techniques improves the depth and intensity of the narrative experience.

Ryan and Thon (2018) suggest that "visual narratives facilitate engagement by allowing viewers to actively participate in the construction of the story world." Because visual tales are interactive and immersive, viewers may become active participants, interpreting and generating meaning from the pictures shown to them. Visual tales have earned substantial attention and acclaim in a variety of sectors in recent years. Visual narratives are used in education as instructional aids to improve learning experiences and increase critical thinking abilities (Simmons & Womack, 2017). Learners can better absorb and recall difficult ideas when information and concepts are presented in a visual and narrative fashion.

3. Method

A qualitative method has been used which is an in-depth interview with photographers. All informants are divided into two groups which are freelance photographer and press photographer. Each interviews took 20 to 30 minutes and included questions designed to elicit information on events or actions from the informants' viewpoints.

It is important for the researcher to conduct in-depth interviews because they needed to understand about the informants' personal opinions and impressions (Silverman, 2017), as well as their thoughts on specific themes related to the purpose of the study. Table 1.below are the details of the informants:

Table 1. Informant profile

Num	Informant	Years of experience	Category
1	Informant 1	7 years	Profesional photographers
2	Informant 2	5 years	Freelance photographers
3	Informant 3	12 years	Profesional photographers
4	Informant 4	6 years	Freelance photographers
5	Informant 5	5 years	Freelance photographers
6	Informant 6	9 years	Profesional photographers

The selection of informants for this study uses the snowballing technique because the subject selected are from the same population that has the same characteristics (Zakaria & Tauhaid, 2018). All the informants of this study are photographers that familiar with environmental issues. Thus, the feature will produce research data that exactly with the research topic will be obtained.

Studies were imported to ATLAS.ti for first, second and third stage analysis which led to the creation of final themes and concepts. The use of ATLAS.ti for coding encouraged a cyclical and iterative approach to data analysis. According to Saratto et al. (2020), analysis by using ATLAS.ti can be used with different theoretical approaches.

The ATLAS.ti can

be used with different theoretical approaches and multiple data

analysis processes.

4. Results and Discussion

Based on discussions with the informants, the following are some of the important findings in the areas of how photography can be used as a medium to raise awareness among audiences regarding the environmental issues. There are four major themes which emerged from this study.

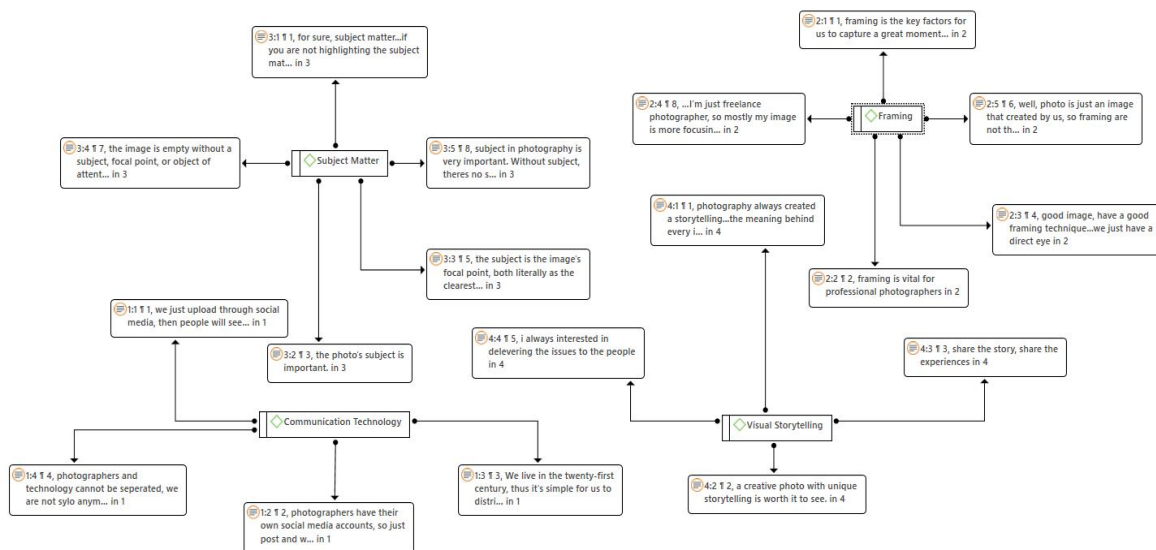


Figure 1. Network Diagram of Identifying Effective Element in Photography as Communication Tool for Enhancing Public Awareness of Environmental Issues in ATLAS.ti.

a. Communication Technology

At this time, communication technologies have an impact on every element of human life. Information can now be accessed through a variety of media channels due to advancement of communication technology. The majority of the informants believed that, as communication technology help to enhancing the awareness and photographers would be able to share helpful information about specific issues and events through online media channels such as social media.

The advancement of communication technologies has had a tremendous impact on raising public awareness about certain concerns. Photography can be viewed as valuable tools that can help society in concentrating more attention on environmental issues as stated by majority of the informants in the following excerpts:

...as a photographer, yes...we need to show to the people that we are among the best in delivering the issues the audiences, especially nowadays...we just upload through social media, then people will see...
(Informant 1)

...it's actually quite simple to create public awareness about environmental issues. All of the photographers have their own social media accounts, so just post and wait for feedback...
(Informant 3)

...as a freelance photographer, I believe that photography is important in educating society about any issues, not just environmental issues. We live in the twenty-first century, thus it's simple for us to distribute positive content and knowledge about photography to audiences...
(Informant 4)

...photographers and technology cannot be separated, we are not silo anymore. Communication through photo is very important and is the best medium to convey the information...
(Informant 6)

Photographers nowadays are aware that photography and technology are closely linked. The accessibility of numerous communication mediums must now be used to convey information and raise public awareness about the importance of protection of environment and other issues.

b. Framing in Photography

Framing is a photographic compositional method for isolating a subject by integrating elements from the scene as a frame. Michels (2018) stated that a good framing be able to react as a social function in spreading the issues to the public. Framing has the ability to alter how a narrative is presented to the audience, as well as the audience's impression of the subject (Entman, 1993). Informants 1,3 and 6 in the group of professional photographers agreed that framing is one of the most essential criteria in enhancing and attracting public attention to issues as stated in the following excerpts:

...as a professional photographer, framing is the key factors for us to capture a great moment...
(Informant 1)

...framing is vital for professional photographers to ensure that our photographs be able to tell the story to the audience, so we as a photographer has played a role in the society...
(Informant 3)

...good image, have a good framing technique...we just have a direct eye contact with the subject and we develop a story...
(Informant 6)

Meanwhile, some informants from the group of freelance photographers stated that framing is not important for them in creating a photograph, but the most important is to follow the client request as stated in the following excerpts:

...well, photo is just an image that created by us, so framing are not the key factors for me...what ever it is...we follow the ideas and request from client...
(Informant 2)

...I'm just freelance photographer, so mostly my image is more focusing on client and what i think is nice and important to me...
(Informant 5)

c. Subject Matter

Subject matter is the major and primary objects such as human, animals or environment. The placement of subjects in the image is a key component in enhancing and attracting the audience's attention to give the focus on the issues. Ferreira & Serpa (2020) states, subject matter in photography can be seen as an

objective/subjective element, its interpretation, its role in the illustration of an issues. Major subjects such as humans and environment. Most of the informants agreed that subject matter is very important in every single photograph. It serves as the primary focal point and aids viewers in understanding and being informed of the subject. As stated in the following excerpts:

...where is your focus? for sure, subject matter...if you are not highlighting the subject matter, you are not highlighting the main issues...
(Informant 1)

...without a doubt, the photo's subject is important. That is the main point you are addressing. You shoot a photo with no subject matter or relevant subject...the result is a photo that is completely ridiculous...
(Informant 2)

...the subject is the image's focal point, both literally as the clearest point in the shot. The photographer's decisions are influenced by the subject. The main issues that we are discussing is environmental issues. So, photographers should focus on more subject that related to the environmental issue, then we can create awareness about this...

(Informant 3)

...the image is empty without a subject, focal point, or object of attention. To educate the audience, a photograph must have a clear subject...

(Informant 4)

...subject in photography is very important. Without subject, theres no story to tell...

(Informant 6)

Every photographer needs to choose the right subject matter in order to make sure that they are covering the right issues. Furthermore, the subject matter is able to communicate directly with the audience.

d. Visual Storytelling

Photographs are frequently used to tell stories about locations, specific social groups, and natural change. However, there is little research on the sociocultural processes and power dynamics involved in creating "visual knowledge" and understanding pictures, and there is also little focus on how images and visual storytelling are used to (re)orient conversations about change (Samuel, 2020). Majority of the informants said that in every single image, it always relates to the storytelling. As stated in the following excerpts.

...photography always created a storytelling...the meaning behind every image is important, it helps audiences to understand the issues...

(Informant 2)

...a creative photo with unique storytelling is worth it to see. That the role of photography...

(Informant 3)

...why people share their photos online? Because they want to share the story, share the experiences. That the role of photography...

(Informant 5)

...for me, i always interested in delevering the issues to the people. Just like what you are asking...the environmental issues. As a photographer, I'm just focusing the right issues so that people will understand better...

(Informant 6)

Wang et. Al (2019) explain that visual storytelling aims to generate a narrative paragraph from a sequence of images automatically. Almost everyone has experience with this form of storytelling, which ranges from the exchange of personal reminiscences to family and cultural histories. The World-Wide Web can facilitate the sharing of such stories in digital form, and has inspired a movement towards "digital storytelling. Balabanovic et al., (2000) explained that almost everyone has known of this form of storytelling, which includes everything from personal reminiscences to family and cultural histories. The World Wide Web has sparked a movement toward "digital storytelling," which allows people to share such stories in digital form.

5. Conclusion

The relevance of photography in transmitting meaning and changing audience understanding of issues has been explored in this article. Photography has the potential to be a powerful tool in ensuring that audiences are always aware of and exposed to important issues. The advancement of digital technology has brought a varied range of information from all over the world, and has indirectly made all of this information spread so quickly and without boundaries, and this information is getting increasingly fast as various digital material is created (Weidman 2015).

Furthermore, key conclusions from this study can help either public or government in ensuring that the photography is capable of contributing to society's development. Overall, the narrative and technical aspects employed in all of the photographic photos analyses are consistent. This implies that the technical aspect is crucial in ensuring that each image produced is capable of drawing the audience's attention to the narrative content of each image displayed. Rutherford (2015) suggest that, as a result of the ways in which the medium interprets, juxtaposes and renders the elements in front of the lens, the camera is capable of depicting scenes, events and moments that did not exist and could not have existed until brought into being by the act of photographing them.

There is also a strong connection between the community, which communicates frequently through photographs and exchanges viewpoints on issues that arise, particularly through social media. The usage of subject matter that relates with the current issues is important in order to develop 'audience thinking' on certain issues. This indicates that the use of subject matter with digital technology is increasing over time, allowing any information or media content to be transmitted and received by the audiences very quickly, especially by those who have access to a fast internet network. Besides that, the finding also revealed that photography can be used a major tool in conveying information and develop audiences' interest towards the addressed issues. Each photograph has its own meaning.

This construction of meaning is considered as a technique for the photographic image to communicate with the audience. Indirectly created meanings are capable of conveying what an actual event. Kress and Van Leeuwen (2006) explained the photographer and the audience have a close interaction when it comes to constructing the meaning of a photographic image. Therefore, this study revealed that four main theme that related to the role of photography in enhancing the public awareness on environmental issues.

References

- Agarwal, Kritika. (2022). *Photographic Paradigm for Documentation of Artifacts. Multidisciplinary subjects for research -XV (Vol 02)*. Redshine Publisher
- Carter, C. (2015). *Rhetorical Exposures: Confrontation and Contradiction in US Social Documentary Photograph*. Tuscaloosa: University of Alabama Press.
- Chatman, Seymour (1979). Story and Discourse: Narrative Structure in Fiction and Film. *Journal of Aesthetics and Art Criticism* 38 (2):207-208 (1979). Doi. [10.2307/430732](https://doi.org/10.2307/430732)
- Chesher, C. (2012). Between image and information: The iPhone camera in the history of photography. *Studying Mobile Media: Cultural Technologies, Mobile Communication, and the iPhone*, Routledge, London. 98–117. <https://doi.org/10.4324/9780203127711>
- Cox, A. M., Clough, P. D., & Marlow, J. (2008). Flickr: A first look at user behavior in the context of photography as serious leisure. *Information Research*, 13(1), paper 336.
- Dalziell, T., & Genoni, P. (2015). Google comes to Life: Researching digital Photographic archives. *Convergence*, 21(1), 46 57. <https://doi.org/10.1177/1354856514560298>
- Diehl, K., Zauberman, G., & Barasch, A. (2016). How taking photos increases enjoyment of experiences. *Journal of Personality and Social Psychology*, 111, 119–140. doi:10.1037/pspa0000055
- Diehl, K., Zauberman, G., & Barasch, A. (2016). How taking photos increases enjoyment of experiences. *Journal of Personality and Social Psychology*, 111, 119–140. doi:10.1037/pspa0000055
- Diehl, K., Zauberman, G., & Barasch, A. (2016). How taking photos increases enjoyment of experiences. *Journal of Personality and Social Psychology*, 111, 119–140. doi:10.1037/pspa0000055
- [Diehl, K., Zauberman, G., & Barasch, A. \(2016\). How taking photos increases enjoyment of experience. Journal of Personality and Social Psychology, 111, 119-140. https://doi: 10.1037/pspa0000055](https://doi.org/10.1037/pspa0000055)
- Ferreira, C. & Serpa, S. (2020). Photography in Social Science Research. *Journal of Educational and Social Research*. 10. 62. 10.36941/jesr-2020-0065.
- Fludernik, M. (2009). 12 Guidelines for Budding Narratologists. In *An Introduction to Narratology* (pp147-149). Abingdon, Oxon: Routledge.
- Freeman, J. (2019). Benefits of visual communication. Retrieved from <https://www.edrawsoft.com/benefits-of-visual-communication.html>
- Hanisch, E. & Johnston, R. & Longnecker, N. (2019). Cameras for conservation: wildlife photography and emotional engagement with biodiversity and nature. *Human Dimensions of Wildlife*. 24. online.

- <https://doi.org/10.1080/10871209.2019.1600206>
- Harris, C. (2001). Visual journalism: Photojournalism discussions. *Instructor's Manual for Harris and Lester's Visual Journalism: A Guide For New Media Professionals*.
- Retrieved Oct 18, 2021, from <http://commfaculty.fullerton.edu/lester/abacon/pjdis.html>
- Hertzmann, A. (2018). Can computers create art? *Arts*, 7(2), 18. <https://doi.org/10.3390/arts7020018>
- Ilija, T.T. (2015). Press Photography and Visual Framing of News.
- Jenkins, O. (2003). Photography and travel brochures: The circle of representation. *Tourism Geographies*, 5(3), 305-328
- Janpol, H.L. & Dilts, R. (2016). Does viewing documentary films affect environmental perceptions and behaviors? *Applied Environmental Education & Communication*, 15:1
- Keshavarzi, F. (2010). Evaluation Techniques of Photography in Visual Communications in Iran. *OpenAIRE*, 1-4
- Khan AIS, Mazhar B. Effects of Photojournalism on Reader's Exposure and Retention. *Global Media Journal*. 2017, 15:28
- Kim, J. (2016). *Understanding narrative inquiry*. Los Angeles, CA: Sage Publications.
- Kim, N. W., Bach, B., Im, H., Schriber, S., Gross, M., & Pfister, H. (2018). Visualizing nonlinear narratives with the story curve. *IEEE Transactions on Visualization and Computer Graphics*, 24(1), 595-604.
- Kolodny, R.(1974). Concerned Photography: An Anthropological Viewpoint. Paper delivered at Conference on Visual Anthropology, Temple University, March.
- Law,J. (2000). On the subject of the object: Narrative, technology and interpellation. *Configurations*, 8 (1), 1-29
- Leon, S. (2018). *Meaning In Photography, Step by Step Method of Semiological Analysis*. Zona Limite, 1.
- Lester, P. M. (2020). *Visual Communication: Images with messages* (9th edition). Thomson Wadsworth.
- McCloud, S. (1993). *Understanding Comics: The Invisible Art*. HarperPerennial.
- McMaster, S. (2015). Truth in Photography or: How I Learned to Stop Worrying and Press the Shutter. N/A. <https://doi.org/10.18848/2154-8560/CGP/v08i02/77-98>
- Michels, S. (2018). Re-framing Photography – Some Thoughts. <https://doi.org/10.1515/9783839430064-002>
- Mungai, C. (2009). The power of images in environmental governance: Communicating through photographs to create environmental awareness and influence behavior change. Retrieved January 21 from <https://www.megforum.uni-freiburg.de/prevfora/forum2010/papers/papnjeri/view>
- Mustaffa H. A. (2011). *Photography: Its Significance Strands and Values in Education*. Shah Alam: University Press.
- Norziha M. Z., Halimah B. Z. and Azlina A. (2009). Visual Informatics: Bridging Research and Practice. *First International Visual Informatics Conference, IVIC 2009 Kuala Lumpur, Malaysia, November 11-13, 2009 Proceedings*. Springer.
- Peregrina, E. (2015). *Aperture and Exposure: The Photography of Literature*. Princeton, NJ :Princeton University.
- Petersen, S.M. (2009). *Common Banality: The Affective Character of Photo Sharing, Everyday Life and ProdisageCultures*. Unpublished Ph.D., IT University of Copenha-gen, Copenhagen, Denmark.
- Pisarek, W. ed. (2006). *Słownik terminologii medialnej [Dictionary of Media Terminology]*. Cracow: Towarzystwo Autorów i Wydawców Prac Naukowych Universitas.
- Rose, G. (2012). *Visual Methodologies: An Introduction to Researching with Visual Materials*. 3rd ed.London: Sage.
- Rutherford,. (2015). Photography as an act of collaboration. *Journal of Media Practice*. 15. <https://doi.org/10.1080/14682753.2014.1000043>
- Ryan, M. L., & Thon, J. N. (2018). Visual narratives. In *The Routledge Handbook of Comics and Graphic Novels* (pp. 78-87). Routledge.

- Samuel J. S.(2020) Visual Storytelling and Socioenvironmental Change: Images, Photographic Encounters, and Knowledge Construction in Resource Frontiers, *Annals of the American Association of Geographers*, 110:1, 120-144, <https://doi.org/10.1080/24694452.2019.1613953>
- Simmons, M., & Womack, S. (2017). Visual narrative as a pedagogical tool: Employing graphic novels in the classroom. *English Journal*, 107(2), 48-54.
- Soratto, Jacks & Pires de Pires, Denise & Friese, Susanne. (2020). Thematic content analysis using ATLAS.ti software: Potentialities for researchs in health. *Revista Brasileira de Enfermagem*. 73. <https://doi.org/10.1590/0034-7167-2019-0250>
- Seppänen, J. & Väliö, E. (2003). Visualizing Biodiversity: The Role of Photographs in Environmental Discourse. *Science as Culture*. 12. 59-85. <https://doi.org/10.1080/0950543032000062263>
- Silverman, D. (2017). How was it for you? The Interview Society and the irresistible rise of the (poorly analyzed) interview. *Qualitative Research*, 17(2), 144-158.
- Van Dijck, J. (2008). Digital Photography: Communication, Identity, Memory. *Visual Communication*. 7. 57-76. <https://doi.org/10.1177/1470357207084865>
- Van Dijck, J. (2012). Facebook as a Tool for Producing Sociality and Connectivity. *Journal of Chemical Physics - J CHEM PHYS*. 13. 160-176. <https://doi.org/10.1177/1527476411415291>
- Wang, R., Wei, Z., Cheng, Y., Li, P., Shan, H., Zhang, J., ... & Huang, X. (2019). Keep it consistent: Topic-aware storytelling from an image stream via iterative multi-agent communication. *arXiv preprint arXiv:1911.04192*.
- Yaacob, H. & Saleh, S.M. (2017). *Social Commentary Through Photographic Representation in Malaysia*, Atlantis Press.
- Yifeng Lu, Sihua Liu, Yunting Bai, "Analysis of Digital Photography Technology in the Era of Big Data", *Mobile Information Systems*, vol. 2022, Article ID 3880755, 8 pages, 2022. <https://doi.org/10.1155/2022/3880755>

The Authors:

Mohd Pirdaus Mat Husain is a PhD student at Centre for Research in Media & Communication (Mention), Faculty of Social Science & Humanities, Universiti Kebangsaan Malaysia and he is a lecturer at Faculty of Design & Computing, University College of Yayasan Pahang (UCYP), Malaysia. He can be contacted at p97285@siswa.ukm.edu.my or pirdaus@ucyp.edu.my.

Mohd Nor Shahizan Ali is a lecturer at Centre for Research in Media & Communication (Mention), Faculty of Social Science & Humanities, Universiti Kebangsaan Malaysia. He can be contacted at shahizan@ukm.edu.my.

Ammar Redza Ahmad Rizal is a lecturer at Centre for Research in Media & Communication (Mention), Faculty of Social Science & Humanities, Universiti Kebangsaan Malaysia. He can be contacted at araredza@ukm.edu.my.