

Accepted manuscript:

Russmann U., and Veneti A. (2022). Image-as-data & visual methods, in A. Ceron (Eds), *Elgar Encyclopedia of Technology & Politics*, London: Edward Elgar Publishing, pp.90-94.

## **Image-as-data and approaches of analysis**

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### **Abstract**

Today, much of the communication in contemporary online environments such as social media is accompanied by or even based on images. Image-as-data refers to any kind of still or moving image such as news images, advertisements, artefacts, television programmes, symbols, social media imagery, and films/videos. This chapter presents approaches for analyzing the image itself, qualitative visual content analysis and photo elicitation, and for examining audiences perceptions of images, semiology and eye tracking with facial recognition.

**Keywords:** Images, visuals, qualitative content analysis, photo elicitation, semiology, eye tracking, facial recognition

## **Introduction**

**Image-as-data** refers to any kind of still or moving image (with both conceived of as visual data), in analogue or digital formats, that is used for analysis in research. Such visual material includes, but is not limited to, news images, advertisements, artefacts, television programmes, symbols (e.g., flags), social media imagery, and films/videos. In a digital era, when people are surrounded by a diverse range of visual technologies (photography, television, digital graphics, video, social media etc.), any such material can be produced offline and then circulated within online environments, or can be specifically produced for digital communication (e.g., memes and shared videos). Any such visual data set can range from that consisting of a single image or icon (Blaagaard, 2019; Hariman & Lucaites, 2007) to those consisting of a few representative images related to a research topic (Veneti & Poulakidakos, forthcoming), to significantly large visual data sets (Steffan, 2020).

In the field of politics the analysis of images had been much neglected (apart from a few studies such as on campaign posters (Holtz-Bacha & Johansson, 2017) and images of TV news coverage (e.g., Coleman & Banning, 2006)) (Schill, 2012) until the rise of social media. Today, particularly with the shift of social media platforms centering on images such as Facebook as well as the growing importance of images-based social media platforms like Instagram and YouTube (Filimonov et al., 2016), images are a fundamental component in contemporary online environments.

In the competition for citizens' attention, who are exposed to a flood of information every day, images have become central for modern politics. It only takes about half a second to a second to remember an image (of medium complexity), whereas in the same time people can only decode three to five words (Kroeber-Riel, 1993). Images contain information, often

subtler and more covert than pure text, which people can reliably detect. Moreover, “[w]hen verbal and nonverbal messages contradict, receivers typically believe the nonverbal message” (Banning & Coleman, 2009, p. 6). However, when people decode images their interpretations and hence the attributed (perceived) meaning might differ from the intended meaning of the producer of an image. Therefore, it is important to analyze the image itself with its motifs and meanings as well as audience perceptions and the effects of images. For both perspectives this chapter introduces approaches and thus gives a brief glimpse in approaching image-as-data in the context of technology and politics.

### **Image as the site of meaning**

When analyzing the image itself the main question is what is (and how) depicted on an image. It is about identifying elements of meaning and in the following to find functions, structures and patterns in a larger data set of images. It is of course crucial to define to what or to whom a meaning is related to and hence, to take the context of the image into account (Rose, 2016).

### *Qualitative Visual Content Analysis*

Qualitative content analysis is often used to develop an in-depth understanding of practices and processes of meaning-making and sharing (e.g., Schreier, 2014). When using qualitative visual content analysis researchers look for latent content and seek to elicit the underlying meaning of the image and to draw realistic conclusions from it. Contrary, quantitative content analysis focuses on manifest content and describes what is directly visible and obvious. Some studies even combine the two methods. Bove et al. (2019) used a hybrid qualitative and quantitative approach to examine the visual framing and stereotyping of the burkini debate in France. Most photos were not about the burkini itself, but about the mediatized debate around

the burkini. In the three analysed leading international newswires photos of protests, press conferences and media interviews dominated. Lalancette and Raynauld (2019) explored the image management of the Canadian Prime Minister Justin Trudeau on Instagram using quantitative and qualitative content analysis. They focused on frames of images, the depiction of Trudeau's personal life and celebrity culture codes. Qualitative content analysis is a structured, systematic, category-oriented, and intersubjective way to identify and conceptualize relevant content by reducing, summarizing, and organizing visual data (Schreier, 2014). Categories and subcategories usually derive inductively from the material such as from the motifs displayed in the image. Subcategories specify what is shown in the material with respect to the main categories (Schreier, 2014; see also for a more detailed description of building a coding frame). Main categories can also be developed deductively based on the applied theoretical and conceptual framework of a study. Qualitative visual content analysis is an iterative process of developing, revising, modifying and/or adapting categories. An often-used practice is to generate categories from a small part of the material and then apply them to the full material. As images often incorporate multiple meanings, on social media it is helpful to include captions that frame the context of an image when generating categories.

### *Semiology*

Semiology (or semiotics) is the study of signs; it provides analytical tools for the purpose of facilitating exploration and examination of how visual 'texts' make sense, and how they work in relation to broader systems of meaning (Rose, 2016). Its theoretical foundations draw on the work of Charles S. Peirce and Ferdinand de Saussure, who are generally considered to be the founders of semiology's two main traditions (Rose, 2016). Building on Saussure's work, Roland Barthes (1973, 1982) positioned his examination of signs and signification within

broader cultural practices. The focus of semiological studies is the image itself, as the most important site of its meaning making (Rose, 2016). Semiology can be applied to a wide variety of visual material, including films, photos, artefacts, clothing and advertisements (see Judith Williamson's seminal study of advertising). Social semiotics constitutes a relatively recent development in semiology, one that places particular emphasis on the practices and processes that underlie the production or reception of visual texts (Hodge & Kress, 1988; van Leeuwen, 2005). This emphasis focuses on consideration of the ideological underpinnings and political implications of semiotic choices, and, further, conceives of meaning making "as a process deeply embedded in existing cultural norms and shaped by social structures" (Aiello, 2020a, p. 373). A useful example is provided by Rovisco (2017) who employed social semiotics to analyse a set of visual material (maps of encampments and protest images) from the Indignados-occupied squares in Lisbon, Barcelona, and Madrid. Her analysis demonstrates how protesters used innovative and creative strategies of visual communication to produce alternative meanings of the squares. In another study, Aiello (2020b) conducted social semiotic analysis, in combination with content analysis, on a large set of stock photographs from international image banks, in order to examine how news media represent digital media and young people. In both examples, social semiotics allowed for a more nuanced understanding of modes of production and interpretation, as well as of the power of technologies for image circulation with respect to both traditional and online media

### **Audience Perceptions**

Images can play a critical role in how citizens perceive, understand and evaluate politics with its actors such as politicians and social movements, their actions and messages. Images can produce positive or negative feelings about politics, impact attitude formation and thus influence the perceived legitimacy, credibility and truthfulness of politics (e.g., Lalancette &

Raynauld, 2019; Russmann, 2020). Affective and emotional reactions can have a great impact on electoral choice. Specifically in contemporary online environments, images are generally available to many different people in many different places and contexts and hence, images are interpreted differently (Rose, 2016).

### *Photo elicitation*

Photo elicitation refers to the technique of using still photography or moving image in the course of qualitative research, such as that involving semi-structured interviews and/or focus groups, to spark memories and invoke comment and discussion. The visual material used can either be participant-generated or researcher-generated, or it can take the form of third-party material, such as video footage, films, archival material, photos, or any form of digital visual material. According to Harper (1994, p. 410), photo-elicitation interviewing serves as a model of collaboration between the participant and the researcher, one during which discussion is “stimulated and guided by the images”. Using visual material during an interview facilitates the exploration of “participants’ values, beliefs, attitudes, and meanings” (Prosser & Schwartz, 1998, p. 124), “offers a visual dimension to ... unobservable thoughts, feelings, experiences” (Richard & Lahman, 2015, p. 4), and enables participants to both consider things that they may have forgotten, and to see familiar things in new ways (Banks, 2001). Moreover, studies have emphasised the potential this method holds for alleviating the awkwardness that an interviewee may feel by providing images to discuss (Banks, 2001; Collier & Collier, 1986), and in the case of participant-generated material, the potential for empowering the research participant, with discussion focused on their own visual material providing them with a central role in this aspect of the research process (Packard, 2008; Rose, 2016). Various researchers (e.g., Collier & Collier, 1986; Banks 2001, 2007; Richard & Lahman, 2015; Rose, 2016) have provided insightful methodological discussions and raised

process concerns in relation to decisions about research design, the selection of visual material, and data analysis. While photo elicitation was initiated and originally used primarily by anthropologists (Collier & Collier, 1986), a growing interest in using visual material in qualitative research is evident across a number of socio-political fields/disciplines. An example of such, is the use of photo elicitation by Leonard and McKnight (2015) for the purpose of exploring teenagers' perceptions of conflict and division in strife-torn and contested cities. Participants living in segregated areas of Belfast were presented with 11 photos depicting the city's traditional ethno-religious divisions. Their responses offered valuable insights as to the participants' spatial perceptions. In another study, Marcella-Hood (2020) used self-curated photo elicitation in order to explore self-identity as expressed online through visual social media. Her study involved style influencers who were asked to select and discuss a sample of their own Instagram posts that they felt represented their Scottish identity. This use of photo elicitation facilitated a more meaningful engagement with the participants, as well as encouraging discussions concerning the materials and how these related to their identities.

### *Eye tracking and facial recognition*

To detect affective and emotional reactions of user perceptions of images, particularly in contemporary online environments, research increasingly uses eye-tracking and facial recognition. Eye tracking and facial recognition are often used in experiments setting people in front of a computer screen or even a mobile phone (currently, for the latter primarily eye tracking is used) to analyze the effect of images on its audience. Eye tracking provides fairly accurate references of the reception process (Geise, 2011) such as at which postings on an Instagram account of a politician a person looks at first, how long a person looks at different pictures, videos or stories and on what content displayed in them. As “an apparatus,

physiological, reception-accompanying observation method eye tracking captures the majority of the genuine eye movement and allows a description and analysis qualitatively as well as quantitatively” (Geise, 2011, p. 151). Examining political online participation in an experimental study integrating eye tracking measurement, Geise et al. (2020) found that political online participation is positive influenced by digital media images that are perceived as being newsworthy, surprising, emotional, and attractive. Facial recognition is used to identify and measure recipients’ feelings when viewing an image. Facial expressions are widely accepted as strong indicators for emotions (Ekman, 1993). To simplify it, an upturned mouth and arched eyes indicate that a person feels happy, whereas a downturned mouth and slanted eyes suggest anger (Ekman, 1993). Certainly, in reality there exist numerous different facets of emotions and corresponding facial expression. Since facial expressions are allusions to emotional states, they contain highly relevant information about a person’s likely behavioral tendencies what makes it highly interesting for politics.

## **Conclusions**

Before researchers start collecting data, they have to consider that the increase of restrictions of technological platforms make it harder to collect images that are disseminated and circulated online. This may affect the sample of a study. Hence, when working with image-as-data researchers may face a few obstacles. However, what is even more important to consider are the researcher’s ethical responsibilities. Collected images can usually be studied without the knowledge of its producer. When reproducing images that display participants, anonymity can be maintained by redacting their faces. To participants in studies as well as in publications, researchers should disclose what images are collected, for what purpose and how the data is to be used and protected.



## References

Aiello, G. (2020a). Visual semiotics: Key concepts and new directions". In L. Pauwels and D. Mannay (Eds.), *The SAGE handbook of visual research methods* (pp. 367-380). Sage.

Aiello, G. (2020b). Visualizing teens and technology: A social semiotic analysis of stock photography and news media imagery. *New Media and Society*, 22(3), 528–549.

<https://doi.org/10.1177/1461444819867318>

Banks, M. (2001). *Visual methods in social research*. Sage.

Banks, M. (2007). *Using visual data in qualitative research*. Sage.

Banning, S., & Coleman, R. (2009). Louder than words: A content analysis of presidential candidates televised nonverbal communication. *Visual Communication Quarterly*, 16(1), 4-17. <https://doi.org/10.1080/15551390802620464>

Barthes, R. (1973). *Mythologies*. Paladin.

Barthes, R. (1982). *Camera Lucida: Reflections on photography*. Jonathan Cape.

Blaagaard, BB. (2019). Picturing the political: Embodies visuality of protest imagery. In A. Veneti, D. Jackson & D. G. Lilleker (Eds.), *Visual political communication* (pp. 247-263). Palgrave.

Bowe, B., Gosen, J., & Fahmy, S. (2019). Personal choice or political provocation: Examining the visual framing and stereotyping of the burkini debate. *Journalism & Mass Communication Quarterly*, 96(4), 1076-1098. <https://doi.org/10.1177/1077699019826093>

Collier, J. Jr., & Collier, M.. (1986). *Visual anthropology: Photography as a research method*. University of New Mexico Press.

Ekman, P. (1993). Facial expression and emotion. *American Psychologist*, 48(4), 384–392.

<https://doi.org/10.1037//0003-066x.48.4.384>

Filimonov, K., Russmann, U., & Svensson, J. (2016). Picturing the party—Instagram and party campaigning in the 2014 Swedish elections. *Social Media + Society*, 1–11.

<https://doi.org/10.1177/2056305116662179>

Geise, S. (2011). Eyetracking in communication and media studies: Theory, method and critical reflection. *Studies in Communication / Media*, 2, 149–263.

<https://doi.org/10.5771/2192-4007-2011-2-149>

Geise, S., Heck, A., & Panke, D. (2020). The effects of digital media images on political participation online: Results of an eye-tracking experiment integrating individual perceptions of “photo news factors”. *Policy & Internet*, 13(1), 54-85. <https://doi.org/10.1002/poi3.235>

Hariman, R. & Lucaites, J. L. (2007). *No caption needed: Iconic photographs, public culture, and liberal democracy*. University of Chicago Press.

Harper, D. (1994). On the authority of the image: Visual methods at the crossroads. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 403– 412). Sage.

Hodge, R., & Kress, G. (1988). *Social semiotics*. Polity Press.

Holtz-Bacha, C., & Johansson, B. (2017). *Election posters around the globe: Political campaigning in the public space*. Springer International Publishing.

Kroeber-Riel, W. (1993). *Bildkommunikation* [Visual communication]. Vahlen.

Lalancette, M., & Raynauld, V. (2019). The Power of Political Image: Justin Trudeau, Instagram, and Celebrity Politics. *American Behavioral Scientist*, 63(7), 888-924.

<https://doi.org/110.1177/0002764217744838-37>

Leonard, M. & McKnight, M. (2015). Look and tell: using photo-elicitation methods with teenagers. *Children's Geographies*, 13(6), 629-642.

<https://doi.org/10.1080/14733285.2014.887812>

Marcella-Hood, M. (2020). Instagram versus reality: the design and use of self-curated photo elicitation in a study exploring the construction of Scottish identity amongst personal style influencers on Instagram, *Qualitative Research*, 1–25.

<https://doi.org/10.1177/1468794120934404>

Packard, J. (2008). I am gonna show you what's really like out there: the power and limitation of participatory visual methods. *Visual Studies*, 23, 63-77.

<https://doi.org/10.1080/14725860801908544>

Prosser, J., & D. Schwartz. (1998). Photographs within the sociological research process. In J. Prosser (Eds.), *Image-based research: A sourcebook for qualitative researchers* (pp. 115–130). Routledge.

Rose, G. (2016). *Visual methodologies. An introduction to researching with visual materials*. Sage.

Richard, V. M., & Lahman, M. K. E., (2015). Photo-elicitation: reflexivity on method, analysis, and graphic portraits, *International Journal of Research & Method in Education*, 38(1), 3-22. <https://doi.org/10.1080/1743727X.2013.843073>

Rovisco, M. (2017). The indignados social movement and the image of the occupied square: the making of a global icon, *Visual Communication*, 16(3), 337–359.

<https://doi.org/10.1177/1470357217702088>

Russmann, U. (2020). Wahlkampf auf Instagram und was bei den WählerInnen ankommt und was nicht: Eine Analyse zweier Instagram-Profile von Spitzenkandidaten im österreichischen

National-ratswahlkampf 2017 [Election campaigning on Instagram and what voters value and what not]. In C. Brantner, K. Lobinger, G. Götzenbrucker & M. Schreiber (Eds.), *Vernetzte Bilder. Visuelle Kommunikation in Sozialen Medien* (pp. 89–109). Herbert von Halem.

Schill, D. (2012). The visual image and the political image: A review of visual communication research in the field of political communication. *Review of Communication*, 12, 118–142. <https://doi.org/10.1080/15358593.2011.653504>

Schreier, M. (2014). Qualitative content analysis. In U. Flick (Ed.), *The Sage handbook of qualitative data analysis* (pp. 170–183). Sage.

Steffan, D. (2020). Visual self-presentation strategies of political candidates on social media platforms: A comparative study. *International Journal of Communication*, 14, 3096–3118.

Van Leeuwen, T. (2005) *Introducing social semiotics*. Routledge.

Veneti, A. & Poulakidakos, S. (forthcoming). The political symbolism of flags in revolutionary movements: The case of the 1821 Greek war of independence. In D. Lilleker & A. Veneti (Eds.), *Edward Elgar research handbook in visual politics*. Edward Elgar.