

# VISUAL RESEARCH METHODS TO IMPROVE TEACHING

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## ESSAY 136/08

VIDEO ANALYSIS

EDUCATIONAL RESEARCH

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Visual research focuses primarily on human behaviour and on culture as subjects/objects that inform visual representations, embodying the values and norms of a given society, organisation or group. However, research strands are also emerging, aided by increasingly sophisticated technologies, which make use of elements that are not necessarily related to a visual reference present in the real world, as relational and comparative constructs of non-visual data and conceptual representations of ideas. The expansion of data that are not purely visual constitutes a new and fascinating

aspect of research, a transformation of the non-visual object into a visual object.

Some recent research and systematic reviews that draw on Visual Research Method approaches offer a reflective basis for an analysis of the method that can be applied to teaching and learning processes.

VRM is, in fact, a window onto social and educational interactions, such as those that take place in a school classroom and it can be a pro-active method in educational research. Research based on video analysis provokes reflection and deepens awareness of the visual elements under scientific analysis.

## VISUAL RESEARCH METHOD: ORIGINS AND INFLUENCES

### **VRM and Methodological Approaches**

There are various approaches to research that make use of visual data, particularly in view of the multiplicity of collected data that constitute the empirical source. Research using video adheres to different approaches, depending on aims, epistemologies and hypotheses. In the social and educational sciences, video technology has been used in research for decades, in particular to record interactions and learning and teaching situations in the classroom. The analysis technique used often involves coding the material, so methods differ depending on whether they tend to be more content-analytical and category-based or more oriented towards interpretation and hermeneutic analysis. A first methodological distinction might consider visual data in standardised or interpretative logics.

Standardised video analysis is commonly used in many research areas. In many fields, there is a strong tendency to classify, and even automate, data analysis. In standardised approaches, the analytical procedure consists of coding video segments according to predetermined patterns deduced from more or less explicit theoretical assumptions. Associated with this typology is, for instance, video content analysis.

Interpretive video analysis, categorised within a non-standard research matrix, makes use of or is juxtaposed with numerous methodological approaches that make use of this form of data collection and analysis: from ethnography, videography, web-based analysis to video content analysis, iconography, visual semiotics, eye-tracking, video photo elicitation and photo diaries.

In the case of research on visual data that interprets existing representations, or produces new data on what is captured, a solid theoretical basis is required, consistent with the aims of the study. Without theory, our vision may be clouded, or based on implicit views and assumptions, of which we may

not even be fully aware. It is quite naïve to expect that video research will enable us to collect large amounts of data. Theory is needed to give direction to scientific research.

VRM is to be understood as a method that can be associated with a visual subject-object, it advocates a predominance of the seeing with knowing relationship but in a way that interacts with and is not alternative to other cognitive relationships.

In VRM it is possible to focus attention on issues which at first glance may not be of much significance, but a specific position, hypothesis or idea can help relevant scientific information to emerge.

Researchers approaching Visual Research adhere to different theoretical and epistemological frameworks, which have changed and been adapted over time to the specific visual analysis such as: semiotics, rhetoric, sociology, psychology, cultural studies. Recently, the juxtaposition of research based on visual perception and neurobiological theories makes extensive use of sophisticated techniques and tools that also draw on visual evidence.

Some theoretical frameworks that can be used for VRM offer concrete and widely recognised methodological tools, others do not seem to suggest any method of investigation and leave researchers with wide margins of action, including less systematic ones, where qualitative and/or quantitative or mixed data are not consistent with analytical processes. Not all theories seem to work as anchors that allow an in-depth analysis of visual representation. The theoretical foundation of a project not only involves micro level analysis of the video data, such as forms and contents of the collected data, but also includes a thematic focus around which VRM can respond. A first distinction that seems to frame the vastness of research based on visual methods, pertaining to the social and educational field, categorises VRM according to three dimensions: origin and nature of the visualisation, research methodologies and designs, and formats and research objectives.

The classification is not intended to provide a synthesis of existing methods and techniques in the VRM panorama, but rather to highlight the complexity and richness of the research that adheres to the various methodological approaches. There is still the risk of artificially attributing more importance to the visual data and, consequently, to the method, than to the research itself and to the question it is intended to answer. Social and educational research (but really all scientific research) must always be interpreted beyond the mere contingency of the data.

Another way of deciphering visual research within an epistemological interpretationist framework assumes that visual data represent meanings that have to be understood by the actors themselves. The research aims are pursued on the basis of the meaning of the actions and images for the participants involved.

Of particular relevance in defining the visual approach to images is the theoretical construct of visual framing, as a process linked to the choice of the visual episode and of the image, that best represents the event itself. Visual framing theory appears to be linked to the decision to represent the event. Although this perspective is anchored to static images taken from photos, not videos, it opens up the idea that they can be contextualised, decontextualised, and reconstructed according to the lens of the person who processed them, created them, and took them. Framing is the connecting element between the empirical (the image, the visual data) and the interpretative (the categorisation).

### **Visual Perception**

Seeing the world always also means looking at the world in order to understand it. Our visual experience is the result of processes of multimodal integration (Gallese & Guerra, 2015, p. 16). In order for images to be encoded, the brain needs to engage in acts of selective abstraction of the images (e.g., while observing a portrait, but also a video frame, certain parts of the cortex are activated, which is a marker that

reflects the individual's ability to categorise the image on the basis of perceptual characteristics or judgements about them). Studies on perception show that subjects do not always pay attention to certain elements, especially when the gaze does not observe what it does not expect to see.

A second form of abstraction is called identity; it is a recognition by the brain of recurrent perceptions (perceptual constancy). It is imperative for the brain to eliminate everything that it does not need in order to identify objects and situations, so as to concentrate on essential and constant features of the perceptual event.

On an operational level, for example, some research conducted using video analysis on teaching has accompanied the process of identifying and selecting images through the dimension of selective attention, as the first phase of highlighting events. Selective attention means a situation (an event, a discourse, but also an element) to which a research participant, teacher or researcher, decides to pay attention at a certain moment. This is an operationalisation of the analysis of visual data, which must be accompanied by processes of reasoning and reflection in order to allow a real awareness of the video analysis. The ability to highlight and select a video frame is conditioned by numerous factors related to perceptions, influenced by the expectations of those who observe and analyse.

#### VISUAL RESEARCH METHOD TO IMPROVE TEACHING

Multiple studies have shown that the use of video is very effective for the professional development of teachers. Indeed, there is some general consensus on the benefits of using video and visual data in education, particularly for teacher training, to improve professional practices to gain for a reflective posture on experiences (Gola, 2021).

Visual data, and videos in particular, as compared to other types of data, offer teachers the ability to capture, edit,

annotate, review and share evidence of personal teaching practice in an authentic format. Video can capture the richness and complexity of classroom activity, learning from it can occur through analysis, discussion, and deconstruction of recorded events.

Studies that address the topic of video-mediated learning and how it is actually implemented and applied in teaching require a thoughtful process within a research strategy, a true video-based pedagogy (Baecher, 2020).

Video analysis, for trainee, novice and expert teachers, is a tool for learning to observe, reflect and think critically about one's teaching strategies. From a didactic point of view, the video, through the recording of teaching actions, provides permanent images and favours a 'removed' analysis of the events themselves.

Based on the literature review by Cyrille Gaudin and Sébastien Chaliès (2015), there seem to be some reasons that contribute to the increasing use of videos in teacher education and professional development. Firstly, videos offer a wider range of observation of classroom events as compared to classical observation, thereby maintaining an authentic adherence to teaching events. The video-analysis method is an artefact of didactic, educational practice, fostering a relationship between theory and practice. There are several purposes and strategies behind the visual approach: from selective attention, reasoning, analysis of practices, acquisition of new knowledge, selection and organisation of videos specifically dedicated to learning objectives and contexts. Many of these studies have been carried out in collaborative environments, through visualisation systems in teams, or professional learning communities, with the aim of jointly watching and analysing videos of classroom lessons, postgraduate lessons or actual lectures.

In the review conducted by Brian Marsh and Nick Mitchell (2014), the active construction of theoretical perspectives and of the analysis of practices requires the design or set-up of environments that foster a shared language

between novice and experienced teachers. This common factor seems to support definite advantages in the use of video for teacher learning. Video analysis is an avenue for enhancing teachers' reflective capacity and for developing annotation skills and awareness of classroom interactions so that they move from an initial superficial level of attention to the ability to discern more substantively significant interactions, particularly in classroom activities and with students.

In a similar and subsequent review proposed by Christine Hamel and Anabelle Viau-Guay (2019) on the use of video for the professional development of both newly qualified (66%) and experienced teachers (28%), 89 studies were analysed, highlighting how teachers, through the use of video tools, approach teaching experiences, analyse practices and try to reflect on alternative actions. The results show, on the one hand, a discrete improvement in the participants' reflective capacity over time when supported by video-analysis, but also show that the subjects were frequently focused on the technical aspects of the profession, or centred on themselves, without succeeding in the practice of balanced observational distancing that would allow conscious awareness and a meta-reflective level. The low aptitude for reflection requires video-analysis paths directed towards acts of awareness and improvement (not only measurement) 'designed' within specific frameworks, in order to avoid deviations from or poor success of the same interventions (Gola, 2021).

Julianne Moss (2013) poses the question of how VRM approaches are used in educational research. The researcher urges that by becoming more familiar with research methods, through practice, an understanding of them is developed. It means the possibility of exercising a 'mature stance' of being in research.

Not only researchers, but also those involved in teacher training and development, agree that video analysis has many pedagogical implications and potential for teaching



and learning, but the methods of using video can vary, depending on teaching objectives and contexts.

According to Laura Baecher (2020) visual documents allow one to learn how to observe teaching and learning, specific practices, what the teacher and students observe, as well as how one observes one's own experiences. Several studies have shown that the ability to annotate and analyse elements of teaching reflects the skills of an experienced teacher, but there is still little research that focuses on analysing video to promote real-life transformations of teachers in classroom activities with a consequent impact on effectiveness towards students.

In order to raise awareness of the teaching experience and the potential of using video, particularly in teacher training, attention should be focused on different attitudes, which also have a specific methodological value in considering visual data:

- videos for learning to teach - videos of the classroom and of teaching situations takes on the dimension of an artefact, of an exemplary case, which is enriched by other information;
- videos as a retrieval of past teaching experiences - the retrieval of past teaching experiences enables teachers to make sense of teaching situations, with a direct reference to their own practice;
- videos as a direct connection to the observed experiences - teachers' immersion in their own or others' experiences is facilitated by the observation of authentic and plausible lessons.

Laura Baecher (2020) proposes some scenarios for the use of video analysis in teaching contexts: the use of video for learning in teacher training contexts, the use of video for learning in further education contexts, such as individual learning or peer learning, and finally, video analysis for supporting supervisors or school leaders.

David Clarke and Man Ching Esther Chan (2019) offer four possible concepts for characterising the role of video in educational research:

- videos as a window through which to see the classroom;
- videos as a lens to focus attention on specific and micro aspects of classroom activity;
- videos as a mirror that catalyses teachers' and students' reflection on their practice and learning;
- videos as a distorted mirror in which the researcher sees a representation of his or her own values and perspectives reconstituted through visual data retrieved from classroom experiences.

The VRM approach to teacher education and professional development supports the possibility of learning specific teaching skills, of analysing practices, of reconsidering self-image and of verbalising one's experiences. To be effective trust in and openness to one's own and others' experiences are required.

## CONCLUSION

VRM, with the different approaches and methods used alongside it, takes on the contours of mainly empirical research, which makes use of visual data often collected in the field. It draws on research processes that can become systematic, to investigate educational and social realities on the level of reflexivity, or to measure knowledge and learning, to monitor processes and to check reactions and behaviour.

Visual data can be an exceptionally rich method for educational and social research. VRM challenges certain assumptions, it stretches our thinking and it deepens our awareness of ourselves or of the visual elements themselves that are subject to scientific analysis (Baecher, 2020; Gola, 2021).

The methods and tools associated with VRM seem promising for observing, analysing, studying and immersing oneself through suitable views in educational and social settings, such as a classroom.

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