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APPLIED VIDEO CONTENT ANALYSIS IN MARKETING RESEARCH – LESSONS LEARNED

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Abstract

In research, video analysis can be used instead of text analysis as an observative research technique. Video content analysis provides additional information on the study subject. However, since the method requires much more work and greater researcher experience, it is not very often used. The aim of this article is to shed some light on this research method and to provide a practical guideline for research. For this purpose, an automotive sales study that aimed to determine the personal factors most relevant to achieving sales success was utilized as an illustrative example to propose an observational design approach. In the context of this illustrative study, personal selling scenarios were filmed and shown to respondents who then completed a sales effectiveness survey. The study has shown that the usage of video observational methods enables additional information to be gathered in the area of marketing research as well as of strategic management.

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1. Introduction and Problem Statement

The use of observational research has become more common in marketing research, in the area of strategic management, as well as in many other business and non-business areas in recent years. This can be justified by the fact that the analysis of video materials, also known as video content analytics (VCA), offers several advantages. The informational content of a video is higher than that of audio or text material, as non-verbal messages are transmitted in addition to verbal messages. Communication is conducted via three channels: the actual content (spoken word), the tone and the gestures (Solomon, Bamossy & Askegaard 2003; Mehrabian, 1969).

At this point it is useful to refer to Erickson's (2011, p.4) statement that *"the usage of video recording has qualities and features that mean it differs significantly from other kinds of data such as audio recordings or filed notes regarding its character as real-time sequential record, a fine-grained multimodal record and its durability, malleable and shareability".*

Due to improvements in analysis software and information technology, the use of video content analysis has been facilitated so that nowadays it can be conducted by any researcher. However, despite this fact, many researchers still are hesitating to employ this method in their own research, even when it would clearly improve the research outcome. The aim of this article is to provide some practical guidelines for researchers. In a first step, the theoretical fundamentals are discussed, the procedure of video content analysis is presented, and an illustrative practical example is given.

2. Video Content Analysis in Research

As highlighted by Kissmann (2009), the potential of video as an investigative tool within social science has only recently become the subject of substantial sociological reflection; it has previously been theoretically and methodologically rather neglected. Furthermore, according to Bakeman (2000, p.139), "observational methods are mainly used when studying human infants and animals but can also be used in variety of research contexts". Nevertheless, in the social sciences, the utilization of videos in observational designs is now widespread (Erickson, 2011; Jewitt, 2012). Observational studies are sometimes referred to as natural experiments (Meyer, 1995; Rosenzweig & Wolpin, 2000) or as quasi-experiments (Shadish, Cook & Campbell, 2002).

According to Cochran (1965), an observational study can be defined as an empiric comparison of treated and control groups in which *"the objective is to elucidate cause-and-effect relationships [. . . in which it] is not feasible to use controlled experimentation, in the sense of being able to impose the procedures or treatments whose effects it is desired to discover, or to assign subjects at random to different procedures".*

As summarized by Jewitt (2012), video can be used in a number of ways for research including: (1) participatory video approaches in the context of action research and practice-based interventions concerned with participation and empowerment, (2) video-making as a video graphical approach which includes participatory video, (3) the use of existing videos as a data source, (4) video elicitation alongside interviews or focus groups in order to stimulate discussion (Roth, 2009) and (5) video-based fieldwork involving the collection of naturally occurring data using video cameras.

One of the main advantages of video records are that these data form a durable, malleable and shareable record that can be repeatedly viewed and manipulated, i.e., viewed in slow or fast motion, frozen or replayed with or without sound or images. Furthermore, the use of digital video software tools also enables researchers to move through the video via codes linked to the video, to create new narratives across the video and to parcel it up in new ways (Jewitt, 2012). However, Snell (2011) regards the 'sensory overload' of video data as a significant methodological issue in video-based research including data management, coding and sampling.

Taking these principles and standards into consideration, it is clear that one must ensure that video is the best data collection tool when selecting the most feasible research method. There are some research contexts and sites where it may not be possible, feasible or ethical to use video, or where the type of data video can collect may not align with the research questions to be addressed (Jewitt, 2012). Furthermore, regarding the validity of video recordings, there are two aspects that need to be taken into consideration and dealt with appropriately (Jewitt, 2012): (1) the extent to which the camera has an impact on the social setting while in-situ and (2) the actual reality status of the video record when it is generated at a real event.

Where there is an underlying focus on reality and objectivity, the use of video as a reflexive tool in the research process must be founded on a desire to capture and preserve reality. Since a video recording is a replica of what happened, video is regarded in social research as being unobtrusive in social events and having a low influence on the research participants and therefore the data collected (Jewitt, 2012). If a video record is seen as an unproblematic replica of events, it is likely to be treated as a collection of data items from the moment it is recorded. It can therefore be understood as an information source that needs to be counted and coded in order to transform it into data (Jewitt, 2012).

3. Study Design and Video Production

The decision whether to conduct a video-based study to gain the best research outcome is essentially determined by the research question, the actual research subject and the hypotheses, and this has been widely discussed in research method-related literature (Bortz & Doering, 2006).

As already shown in this article, there are several different methodological approaches to performing video-based studies (see also Jewitt, 2012). The design of the illustrative research study example led to the decision to conduct a quasi-experiment (video observational study), as presented in the following section of this article.

The illustrative automotive sales study utilized a car-buying scenario to validate the hypotheses in order to derive a conceptual framework for a sales process. Cars are familiar to the studied population, and car-buying situations offer both B-to-C and B-to-B applications. The sales condition was relatively involved, since the comparatively high purchase price needed to be explained in terms of overall lifetime value. The customer needed to be specifically informed about unique product features, advantages and benefits.

Based on the literature, the relevant criteria of the sales action, in terms of verbal and non-verbal communication (tone of voice and body language) were indicated. In order to investigate the influence of these factors regarding a possible intention to buy as an outcome of the sales pitch, a set of videos was produced. These videos contained variations of the sales approach as follows: V1 (male, helpful and

understanding), V2 (male, aggressive and pushy), V3 (female, helpful and understanding) and V4 (female, aggressive and pushy). In the next step, the content of the videos was analysed and coded according to the real value of the investigated factors. In the following step, participants were asked to rate the videos using a pretested and validated questionnaire. In a final step, the results were compared with the video coding and analysed using SPSS. A small group of experts contributed to validating the research procedure, to the measurement scales and to pretesting the questionnaire. The study was conducted at a public university in the United States (for details of the study please refer to Stros, Heinze and Riha (2017)).

Four two-minute videos were produced, featuring a 'salesperson' talking to a customer, but in fact, professional actors were employed. The study utilized professional actors rather than actual salespeople since there was concern regarding the ability of professional salespeople to act in an authentic manner. Two professional actors, one female and one male, were employed. Each actor played two different roles.

In each video, the independent variables (emotional expressions, body language and spoken words) were either emphasized or not emphasized. To display emotional expressions (affect), the professional actors emphasized either high or low levels of pleasure, arousal and dominance. Regarding body language (behaviour), actors portrayed either high or low levels of immediacy cues, relaxation, movements and facial expressions. Concerning the spoken word (cognition), both positive and negative versions of the sales dialogue were scripted and acted. The videos were filmed so that the viewer could see the upper body of the salesperson but could not see the facial expressions of the customer. Each video contained the following narrative sequence: (1) welcome and introduction, (2) product presentation pitch and application information and (3) final phase and preliminary sale attempt.

Regarding the video production, there are a few methodological issues that must be addressed. Some researchers see video recording as distorting social interaction. Some attempt to minimize the effects of the presence of the camera and the researcher using small wall- or ceiling-mounted cameras operated using a preset program or by remote control, or by using one-way mirrors, to ensure the validity of the data (Jewitt, 2012). Consequently, the question of where to position a camera is an important aspect of all video-based studies. It establishes a sense of the relationship to the event and is of central importance to the type of data to be recorded (Jewitt, 2012). The videos of the illustrative example were produced using trained actors who followed a given script (role play), and consequently, the positioning of the camera was not a critical issue in this case.

5. Video Sampling and Coding Analysis

Due to fact that video content analysis is a very labour-intensive process, it is advisable, if possible, only to evaluate the relevant video fragments. As emphasized by Goldman, Erickson, Lemke and Derry (2007), the selection of a video fragment is an essential part of video analysis. Consequently, the sampling of video clips enables researchers to move from the stage of reviewing whole events to concentrating on increasingly shorter segments (Jewitt, 2012). Therefore, it must be highlighted that alongside good planning in the data collection phase, effective ways of sampling and reducing the data are required in order to obtain a productive overview. The challenge is to balance complexities and reductionism (Jewitt, 2012).

In the case of the illustrative study example (automotive study), the methodology of event-based sampling, also known as behaviour sampling, was used. This permits a researcher to study the frequency,

duration and intensity of the behaviour (Pellegrini, 2004; Bowker et al., 2009). This methodology has been successfully used in previous research (Bethell et al., 2007; Nock & Kurtz, 2005). Among the various coding categories, physical description codes, such as 'muscle contraction', are believed to be the most objective (Pellegrini, 2004, p.108; Ostrov & Collins, 2007).

Coding is an inherently theoretical process and relates to practices of observation that are embedded in concepts of scientific methodology (Jewitt, 2012). According to Bakeman and Gottman (1997), the development of a reliable coding scheme is crucial for appropriately capturing the behaviours in question and testing the experimenter's a priori hypotheses. Furthermore, as described by Ostrov and Hart (2000, p140), "having exhaustive code also speaks to the content validity of a coding scheme enabling it to measure all facets of the construct. It is important to recall that the larger the coding scheme, the more taxing the observational procedures will be for the coders". Some researchers undertake systematic coding using pre-established coding schemes drawn from theoretical approaches and disciplines, others build codes from their data or the literature on a specific area and some researchers remain at the case study and descriptive analysis level without using coding at all (Barron & Engle, 2007).

The use of video recordings in social research raises methodological issues about transcription of gestures, for instance, or gaze. It must be ensured that these transcripts are in line with those for speech. This is an important criterion of a good transcript and good final coding (Bezemer & Mavers, 2011; Jewitt, 2012).

For the coding of the videos in the illustrative automotive sales study, a coding template was required. This coding template (code plan) contained the decisive non-verbal factors for the sales talk outcome, as shown in Table 1. For each of these factors, there are two main decisive criteria: the number of observed actions and the duration of the event.

Table 01. Code plan (own source)

Factors (Variables)	Measuring Scale
Touching	Number of observed actions multiplied by time
Forward Lean	Number of observed actions (more than 15°)
Eye Contact	Number of observed actions multiplied by time
Arm Position Asymmetry	Number of observed actions multiplied by time
Sideways Lean	Number of observed actions (more than 15°) multiplied by time
Hand Relaxation (Mode: 1=not tense, 2=moderately tense, 3=tense)	Number of observed actions multiplied by time
Neck Relaxation	Number of observed actions multiplied by time
Rocking Movements	Number of observed actions multiplied by time
Head Nodding Movements	Number of observed actions multiplied by time
Gesticulation	Number of observed actions multiplied by time
Facial Pleasantness (Mode: 1=positive, 2=negative)	Number of observed actions multiplied by time
Facial Activity	Number of observed actions multiplied by time

As described by Bakeman (2000, p293), the coding of observational data is like the coding of any quantitative data within the social and behavioural sciences. In practical terms this means that a score is given for each of the constructs and summed across the whole observed session (Ostrov & Keating, 2004). Once the system is set up, coding can be done relatively quickly (close to real time), and much more

efficiently than transcribing the same amount of data. Like transcriptions, coded data act as an intermediate representation of the raw video recording data (Snell, 2011). However, in the event of different session lengths, it is common practice to generate an average rate per session for behaviours (Crick et al., 2006).

These principles and standards of practice were utilized by previously instructed coders to individually analyse the produced videos. The data on the body language (behaviour) variables were then collected via observational coding of each video, using fOCUS II software.

The agreement between observers was assessed using Cohen's kappa, k, where the observed agreement between two observers applying a series of mutually exclusive and exhaustive codes is adjusted by removing the agreement occurring by chance alone (Bakeman & Gottman, 1997). This gives a more accurate indicator of reliability between two coders than percentage agreement. A k value of unity indicates 100% agreement. A sliding scale of reliability was adopted, whereby $k > 0.75$ represents excellent agreement, $0.6 < k < 0.75$ signifies good agreement, and $0.4 < k < 0.60$ represents fair agreement (Bakeman & Gottman, 1997). However, even when occasional errors were made in the original coding, provided these problems were not systematic, this was not of great concern (Bakeman, 2000, p293).

In a final step, the data obtained from the survey and video coding were merged and standardized for further analysis in SPSS. The quality of the data was tested, and outliers, missing values, skewness and kurtosis were all checked. No abnormalities were observed. The data were normally distributed. A multiple regression analysis was determined to be the best strategy for testing the proposed hypotheses (for the study outcome, please refer to Stros, Heinze and Riha (2017)).

6. Discussion and Limitations

In marketing research as well as in the area of strategic management, the use of video observational methods enables additional information to be gathered. Furthermore, it enables research to be conducted that would not be possible with classical methods such as surveys and questionnaires, due to their limitations. Consequently, new scientific contributions can be expected if an increase in the usage of this method occurs. However, despite the fact that video observation and content analysis can now be conducted faster due to improvements in software and information systems (IT), there is still a difficulty to be overcome. In order to fulfil the research criteria of objectivity, reliability and validity, a study must be correctly designed and conducted. As a result, researchers must be both experienced and proficient in quantitative research or alternatively they must undergo training. In addition, observational video studies are usually labour-intensive.

There are limitations associated with observational coding. Bakeman (2000) stated that "occasionally an error is made in the original coding, but if these problems are not systematic, this is not of concern". For the current study, the reliability between observers was assessed by calculating the percentage agreement, revealing a strong average agreement rate of 91.9%.

One criticism often levelled at video content analysis is that it is reductionist. In the illustrative example, all the complexity of the sales pitch is reduced to a series of fragments. However, at this point it should be stated that this analysis privileges just one mode of communication. Additional qualitative analyses need to be employed (Snell, 2011). Consequently, because even the most carefully designed

observational study will have weaknesses and ambiguities, a single observational study is often not decisive, and replication is often necessary (Rosenbaum, 2005).

Regarding the observation software, it should also be emphasized that, as with other research tools, this should be used with sensitivity, adopting a critical stance (Snell, 2011). Observation software offers a method of sorting, storing, organizing and systematically analysing a large data set, but does not include an inbuilt methodology, and must be carefully set up, especially in the case of the coding scheme.

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