Tackling the issues and challenges of using video data in adult literacy research

Ali R. Abasi
University of Maryland, USA

Maurice C. Taylor
University of Ottawa, Canada

Although video has long been used as a teaching aid in adult literacy and basic education, literacy researchers seem to have ignored the potential benefits of using video as a tool that could add rigour to research. Reporting on their field experiences of an adult literacy learning study in Canada, the authors provide a narrative account of their use of video as a data collection tool. The article describes the methodological challenges associated with the use of video data and the procedures that were used to analyse video records in their adult literacy research.
Despite the potential benefits of video as a data collection tool and the increasing popularity of video data in many branches of social sciences, adult literacy researchers seem to have overlooked using video as an effective tool to enhance their research. As a case in point, a focused search conducted by the authors in major North American journals in adult literacy and basic education from 2000 to 2006 for studies that used video as a methodological tool resulted in only one study (Mellard & Scanlon 2006) relying on video as a data collection tool in an investigation of a strategic instructional model in adult basic education classrooms. Prompted by this under-utilisation, in this article we discuss the enhancing effects of video data and consider the key issues and challenges associated with the use of video in empirical research. Drawing on an adult literacy case study that we conducted in Ontario, Canada, in 2005 in which whole class sessions were video-taped, we then discuss the important issue of analysis of video data by drawing on the specific procedures that were developed to analyse the data.

**Using video as a data collection tool**


There is a sizeable literature dealing with different aspects of the use of video in research. Part of this literature addresses the technical

Within this body of literature, a number of researchers have made a strong case for the inclusion of video as an indispensable research tool. Grimshaw (1982), for instance, has discussed the permanence of video data that provides unprecedented assistance to the field researcher. This unique feature enables the researcher to re-visit the field as many times as needed which ultimately enhances analysis and interpretation. With each re-viewing of events in their wholeness, the researcher can change analytical focus and arrive at a deeper understanding of those events.

Others such as Dufon (2002) and Radcliff (2003) have discussed the affordances that the density of video data provides to the investigator. Compared with traditional paper and pencil field-notes and audio recordings, video records are far richer. Handwritten field-notes fail to capture minute details of social interactions such as the exact words that participants express or the way they are expressed. Video data are also much richer than audio data because they capture both linguistic and paralinguistic features of the context. These unique features make video an indispensable tool in studies that rely on discourse analysis where there is a focus on the exact utterances of interlocutors as well as the relevant non-linguistic context that has a bearing on making sense of those utterances. A word of caution here is that while this feature immensely renders video data rich, it complicates data analysis. This important issue is discussed later in the paper.
A number of other researchers have discussed video data and their effects on the dependability of research (Arborelius & Timpka 1990, Lundevall, Njolstad & Aaraas 1994, Goldman-Segall 1995). Goldman-Segall (1995), for example, has pointed out that video transposes events across time and as a result it makes it possible that several researchers observe the same event(s) and arrive at distinct interpretations. Labeling this as ‘configurational validity’, she argues that multiple interpretations can result in theoretical triangulation and ultimately add to the trustworthiness of research.

**Rationale for the use of video as a data collection tool**

In a research study that was informed by the socio-cultural perspective of literacy, we investigated how collaborative learning occurred in different types of adult literacy programs. To explore the issue, nine program sites including formal and non-formal literacy programs in a large urban city in Eastern Ontario, Canada, were investigated over a period of four months in 2005. As a major part of data collection, the research team observed and video recorded one full class session at each of the nine program sites as learners were engaged in collaborative literacy learning, which resulted in 11 hours of video data.

Using our own study as a point of reference, in this section we offer a rationale for the use of video in research, and highlight the key methodological issues in the use of video in research. This section is organised in three main areas: the epistemological nature of video data, capturing the depth of the participants’ perspectives, and the practical logistics of using video.

**The epistemological nature of video data**

A major motivation for the use of video data in our study stemmed from our epistemological orientation regarding the nature of video data as well as the issue of conducting research involving
literacy learners. As with any ethnographic study, in order to arrive at valid interpretations of observations made within the classroom cultures, it was necessary to draw upon the insiders’ perspectives. For example, we wanted to know whether a particular posture by a learner meant interest, bewilderment or just boredom. This was especially important because the English-as-a-Second-Language (ESL) learners in the programs who came from various cultural backgrounds occasionally seemed to exhibit unique culturally patterned postures and gestures.

Capturing the depth of the participants’ perspectives

To capture the participants’ perspectives, we incorporated video simulated recall sessions (Calderhead 1981) with the learners as well as the teachers. During these sessions, episodes of the video data were played back and the participants were queried about the meaning of what was being observed. For instance, one of the class video recordings involved an episode where learners in small groups were working together on a booklet. During a subsequent viewing of the episode with the learners in the episode, they provided valuable information about the scene. It transpired that one of the learners had just taken the Canadian citizenship exam, and that the other learners had asked the instructor to include the citizenship exam booklet in their activities because they felt they would some day have to take the same test to become Canadian citizens. Without this input from the learners about what had been observed, we would have probably missed the importance of this literacy event, and the fact that the learners had a voice in the development of the curriculum.

The practical logistics of using video

Practical logistics was another reason for our use of video. Most of the learners attending the literacy classes were mature individuals with busy life schedules, and very often they could not be interviewed right after our observation sessions due to their other life commitments. It often happened that there was a one- or even two-week time lapse
between actual observations and the individual interview sessions. The video records refreshed the participants’ memories about what was happening on the day we conducted the observations. As the participants were watching the recordings, they experienced the events again and were able to provide detailed information on what was happening while they were assisting, or being assisted by, their peers.

Another logistical reason for the use of video derived from the division of labour among the research team. The team comprised five members, two of whom carried out the fieldwork including the observations, video recordings, interviews and document collection. The video records made it possible to bring in virtually the literacy classes to the analysis sessions attended by all team members where everyone could observe the participants’ interactions in the field. We also believed that through such collaborative viewing sessions, we would add more rigour to the study. Team members could view these video records together and offer their unique interpretations and points of view. This analytical collaboration added strength to the study through the layers of interpretations and by having a thicker description that could not have been accomplished individually.

**Procedural decisions in using video recordings**

In this section, we describe some of the decisions that were made as we videotaped class sessions. The focus will be on four main issues encountered during the data collection phase of the study: conditions for using a fixed or moveable video camera, determining the content of the video recording, the effects of the videographer’s presence, and ethical practices.

**Conditions for using a fixed or moveable camera**

The first set of decisions involved whether to use a fixed or moveable video camera. Initially, we had decided to use one fixed camera and
record as much contextual information as possible using long shots. The rationale for this approach was to cover as many learners and collaborative events and practices as possible in each class. However, once inside the individual program sites, we abandoned this idea and modified our approach. Some of the students expressed reluctance to be filmed due to their cultural or personal concerns. Therefore, instead of using long shots, we used narrow angles in order to exclude those learners from the footage. This decision in turn resulted in filming with a mobile video recorder.

On another occasion, the structure of the literacy class required the use of a fixed video. This particular class was a simulated workplace kitchen and its physical arrangements made it impossible to move around and capture the learners from different angles. To reduce intrusion and avoid interfering with the ‘naturalness’ of interactions, we decided to use a fixed camera from only one angle. The use of a fixed camera, however, affected the amount of data collected because from this fixed angle we could only film one pair of learners working in collaboration.

Determining the content of the video recording

Another important decision was whether to shoot the whole learning event or partial segments of it. Some researchers (Corsaro 1982, Erickson 1992, Heider 1976, Blum-Kulka 1997) caution about the difficulty of establishing boundaries of collaborative events. With this in mind, we decided to start videotaping whole class sessions without interruption. Filming started a few minutes before the session and continued a few minutes after the session to make sure the whole learning event would be captured. This decision was in part motivated by the qualitative nature of our research. To guard against theoretical biases that would predispose us to focus only on certain events (Denzin & Lincoln 2000), we decided to include the whole picture to capture the unexpected.
An additional decision centred on who should do the filming. Early in our video recordings, it became clear that, for the most part, we had to use a mobile video which required two researchers for each filming session. One had to function as the videographer to focus on filming the events and interactions while the other researcher had to take fieldnotes. Using this approach, we were able to supplement the video records with further observational information that moved beyond the frames of our video camera. The downside to this decision, of course, was the obtrusiveness of having two outsiders in the class.

The effect of the videographer’s presence

A further decision to be made during filming concerned what is alternatively referred to as reactivity (Bottorf 1994), monitoring (Grimshaw 1982) or reflexivity (Collier & Collier 1986). All of these terms relate to the important effect of the videographer’s presence on events. This was a crucial concern as we were interested in naturally occurring collaborative peer interactions. Although in any case study research the presence of the researcher inevitably influences what is recorded (Atkinson, Coffey & Delmont 2003), in the case of research involving video recording, this effect can be much greater.

Early on in our study and our trial filming, we realized that the very presence of a video camera tended to make some learners uncomfortable and could affect their natural behaviour. Since each class was to be video recorded only once, we were running the risk of what Grimshaw (1982) calls ‘strip-mining’, that is, parachuting into a site, doing a short video recording and evacuating the site without any kind of rapport building with the participants. In an attempt to reduce the negative effects of video recording and to avoid strip-mining, it was decided to contact the instructors well in advance and ask them to explain the data collection technique to their students before we visited the class. In addition, on the day of the filming, we set up the video a few minutes before the class started, and left the room. We thought that when students saw the camera standing as a piece of
furniture in class, they might become less anxious. Later on, at the start of the class session, we introduced the research to our students in simple terms, indicating the reasons for the use of the video and asking them to share their concerns about the technique.

In most cases this helped. However, occasionally we ran into difficulties. For example, in one class that mainly comprised learners in their late 50s and 60s, none of these steps seemed to alleviate apprehensions. Faced with this untrusting situation, we assured the learners that at the end of the class we would be showing them the footage and would edit out any sections with which they felt uncomfortable (Pirie 1996). To our surprise, after they watched the video-taped session, the learners clearly seemed relieved. It also promoted rapport with them, so much so that they even asked us to take digitally their photos and electronically mail them back to each participant.

Inspired by earlier research (Corsaro 1982, Martin & Martin 1984), we also took the additional measure of informing all the participants that we would be showing segments of the video-tapes to them during our semi-structured interviews so that they could help us interpret the clips. This helped to bring the research participants into the process and gave them a sense of ownership. It soon became apparent that these steps also made some learners curious about the research study which in turn helped to recruit participants for the interviews.

In most of the classes that were filmed, these measures appeared to be effective as many of the students seemed to forget that there was “video recoding” in progress and continued their engagement in class activities. In all filming sessions, every attempt was made to avoid being evasive, hurried, and obtrusive. We explained our intentions to the participants, reassured them about the confidentiality of the video records, and asked them to tell us how to film them and how to interpret what we had video recorded.
Ethical practices

Ethical practices were also foremost on our minds. Although such concerns are important in any type of research involving human participants, they are more pronounced when researchers videotape participants. The nature of such data makes it difficult to preserve the confidentiality of participants. Although it is possible to edit digitally or mask the faces of participants to protect their identity, such data can provide a lot of other clues that might reveal their identities (Arafah & McLaughlin 2002). Such clues can include participants’ voices and the physical signs that might reveal locations. Further, while the permanence of such data acts as an asset for the researcher, for participants it can pose a threat. For example, one instructor who was teaching specific content in the literacy program for the first time was rather apprehensive about being filmed. Before she consented to allow the researchers into her class, she requested that she would like to see the video recording after the session was completed. With us complying with her request, she seemed to be more at ease and in the end wanted the video recording to be included as a data source from her program.

Developing a data analysis approach for the video recordings

One of the most challenging tasks encountered in the study was developing a data analysis approach for the 11 hours of video data that we had collected. Data analysis is perhaps the most daunting task associated with the use of video given its multi-modal nature (Lancy 1993, Ratcliff 2003). To tackle the challenging task of analysing video data, researchers should consider three main procedures to analyse the data: reducing the video recording data, developing a video analysis coding grid, and using the grid as an instrument for analysis. In what follows we describe how we accomplished the task in our study to serve as an example.
Reducing the video data

As with any analysis of data, the first step is to reduce the data. However, the multimodal nature of this type of data makes it a much more difficult task. In our particular case, the first step in analysis was to figure out how to make sense of over 600 minutes of video recordings that had been collected. There was a need to impose a structure on the video records to address adequately two questions that were essential for each type of data source: what are we looking for? and what do we see happening in the video records? We then returned to the theoretical context of the study which helped us focus on sections of the videos that were directly related to our research questions. We had set out to understand how collaborative learning activities such as guided participation, scaffolding and cognitive apprenticeship happen among peers in different adult literacy programs. Using the theoretical lens helped us to focus on theoretically relevant episodes of the data, thus constituting the first step in video data reduction.

To reduce the video data further, we relied on observational techniques associated with qualitative ethology (Bottorff 2003, Wolcot 1992). Qualitative ethology, which is a disciplined observational method used in the close study of behaviour under natural conditions, offered ways to render the video data manageable, and it ultimately helped with the analytic meaning making process. One fundamental technique in ethological method is that of qualitative discovery, involving the inductive identification and description of important segments and regularities in behavior (Bottorff 2003). Based on this technique, we repeatedly watched selected portions of the video data that were directly related to our research question, identifying and describing important segments within each clip. Through this inductive identification process, we came up with several criteria that included literacy domains (subject and activity), gender variation, number of participants, unique
behaviours, quality of learning interactions, and the technical quality of recordings. We then chunked each one-hour video-tape into several five- or ten-minute video logs. A video log is a smaller unit of content that meets those criteria.

Developing a video analysis coding grid

In order to talk meaningfully about the reduced data and achieve consistency across episodes and researchers in interpreting the reduced data, it is imperative to develop a video analysis coding grid. In our study, after we conducted the first level of data reduction, we soon realised we needed to find ways to analyse the collection of video logs. If our observational data set consisted only of written field-notes, our analysis task would have been comparatively easier because, in working with written texts, it is easier to retrieve, code and interpret data. However, with the video records we were faced with both oral communications using language and with non-verbal behaviours and posturing that were directly related to our research question. Our next task was to develop a systematic way of viewing and analysing the logs that would help us meaningfully discuss what we were seeing in each video log.

To do this, we turned to the research on observing and recording collective action in the sociological literature. We then developed a *Video Analysis Coding Grid for Adult Literacy Learning* (see Appendix A) by drawing upon the work of Schweingruber and McPhail (1999). This taxonomy helps to identify the collective action of individuals in public gatherings with reference to four broad dimensions of facing, voicing, manipulating and locomotion/body position. Each of these dimensions is then divided into a number of exclusive categories and in turn broken into a number of elementary forms associated with the broader dimensions.

This type of taxonomy has a useful organising structure and serves as a good instrument for analysing video data about particular
behaviours in public events. However, it required further development to reflect the human activity system of a learning environment. In an earlier study examining the Zone of Proximal Development with literacy learners, Taylor, King, Pinsent-Johnson & Lothian (2003) developed a Literacy Observation Checklist which identified the key categories and detailed elements for observing social learning behaviours, feedback behaviours, negotiation behaviours and patterns of directionality in a formal literacy classroom. This data collection tool was used to modify the taxonomy into a video coding grid.

Four similar broad dimensions were kept in the instrument and included *Facing, Verbalising, Manipulating Materials and Body Locomotion*. Each dimension was further broken down into specific behaviours or forms that were associated with the sub-categories of the Literacy Observation Checklist. For example, in a small group or dyad, the direction people were facing in and their proximity to each other helped to determine both the type and quality of support an adult learner received or provided (*Facing*). A second dimension, named *Verbalising*, identified the type of talk that transpired in the small group interactions and focused on five specific skills that were used during oral communications. *Manipulating Materials* was the third broad dimension and included the major types of learning resources that adults use in a classroom or group. The final category, *Body Locomotion*, focused on six non-verbal behaviours that were important in building a positive climate among peers during a small group interaction or dyad. Across all dimensions, an open-ended category was included and allowed a viewer to add other behaviours not named while watching the video logs. Once the grid was assembled into a chart form, a trial run was conducted on a number of different video logs and minor formatting revisions were made.
Using the grid as an instrument for analysis

The coding grid was very useful in talking meaningfully about how learners supported each other in small groups or in dyads. This coding scheme afforded a simple and clear enough means with which research team members could micro-analyse how the more capable and less capable learners actually scaffolded each other in literacy learning. In the micro-analysis of the video logs, the coding grid functioned as a crucial analytical instrument. Using the grid, team members repeatedly and carefully viewed the logs and coded the learners’ interactions. Once this step was completed, we came up with an ethnogram (Eibl-Eibesfeldt 1989), or a textual description of the behaviours observed in the video logs. Each researcher wrote an ethnogram that was based on the reduced data for each of the one hour video tapes. The resulting ethnograms were then subjected to content analysis to identify themes and patterns. As each of the five other data sources were prepared, reduced and analysed separately, they were all brought together using the constant comparative technique. This database yielded a rich and thick description of how collaborative learning occurs. A detailed report of the investigation can be found in Taylor, Abasi, Pinsent-Johnson and Evans (2007).

Concluding remarks

The unique features of video data such as permanence, high correspondence with reality and its comparatively high richness can be of considerable assistance to the adult literacy researcher. Although there are downsides to the use of video – for example, it might make recruitment of participants or gaining access difficult – on balance, the benefits can outweigh the downsides. Our firsthand experience of using video as a data collection tool prompts us to advocate its use. However, we also think that it would be wise to consider carefully, well in advance, how the video data will be handled. It would be useful to conduct a trial run using the process
that we have described and devise an instrument such as the analysis grid explained in this paper.

References


About the authors

**Ali R. Abasi** is a lecturer at the University of Maryland, USA. His research interests include development of academic literacies and second language curriculum development.

**Maurice C. Taylor** is a full professor at the University of Ottawa in the Faculty of Education where he teaches and supervises graduate students in adult education. His research interests include adult literacy learning, workplace education and adult development.

Contact details

Ali R. Abasi, School of Languages, Literatures and Cultures, University of Maryland @ College Park, College Park, MD, USA 20742
Tel: +1 301 405 3315 Fax: +1 (301) 314 8012
Email: aabasi@umd.edu

Maurice C. Taylor, LMX 230, 145 Jean-Jacques Lussier Street, Ottawa, ON, Canada K1N 6N5
Tel: +1 (613) 562 5800 (X: 4037)
Email: mtaylor@uottawa.ca
### Appendix A

**Video Analysis Coding Grid for Adult Literacy Learning**

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Video-tape code</th>
<th>Date of recording/programs</th>
<th>Date of analysis</th>
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<table>
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<tr>
<th>Number of participants</th>
<th>Video log 1</th>
<th>Video log 2</th>
<th>Video log 3</th>
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<tbody>
<tr>
<td>Facing</td>
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<tr>
<td>Across</td>
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<td>Side by side</td>
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<td>Far proximity</td>
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</tr>
<tr>
<td>Other</td>
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| Verbalising            |             |             |             |
| Questioning            |             |             |             |
| Explaining             |             |             |             |
| Discussing             |             |             |             |
| Reading                |             |             |             |
| Prodding               |             |             |             |
| Other                  |             |             |             |

| Manipulating materials |             |             |             |
| Paper                  |             |             |             |
| Newspaper              |             |             |             |
| Dictionary             |             |             |             |
| Workbook/sheets        |             |             |             |
| Calculators            |             |             |             |
| Computer               |             |             |             |
| Other                  |             |             |             |

| Body locomotion        |             |             |             |
| Laughing               |             |             |             |
| Touching               |             |             |             |
| Pointing               |             |             |             |
| Drawing                |             |             |             |
| Gesturing              |             |             |             |
| Listening              |             |             |             |
| Other                  |             |             |             |