

## Reality Lost? Re-Use of Qualitative Data in Classroom Video Studies

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**Abstract:** There has been debate on the re-use of qualitative data in the social sciences for more than a decade now. However, video data are rarely explicitly discussed in this regard, even though new media pose both new opportunities and new challenges when it comes to the archiving and secondary analysis of qualitative data. Two illustrative case studies from the educational sciences are presented here to document the processes of archiving and secondary analysis of video data. These cases are based on the two Norwegian classroom video studies *PISA+* and *Budding Science and Literacy*. In light of these two cases, we propose that establishing more common practices for video research and re-use of video data will help address the contextual issues often related to re-use of archived qualitative data, as well as the ethical and practical issues that may weigh more heavily with archived video data than with other types of qualitative data. For the video research communities, this would involve establishing ethical guidelines for re-use and sharing, standardized tools and procedures for generating data, agreed-upon analytical tools, and procedures for logging and archiving video data. By making this the focus of debate, research communities engaged in video research may, in turn, contribute to more cumulative research in the field, and in the educational sciences in general.

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## 1. Introduction

There has been more than a decade of debate on the use of archived qualitative data (BISHOP, 2007; COLTART, HENWOOD & SHIRANI, 2013; CORTI, FOSTER & THOMPSON, 1995; HAMMERSLEY, 1997, 2010; MAUTHNER, PARRY, BACKETT-MILBURN, 1998; PARRY & MAUTHNER 2004, 2005; THOMPSON 2000). Archived qualitative data are often portrayed as a rich and unique, albeit unexploited, source of research material (CORTI, 2007; CORTI & BISHOP, 2005; DALLAND, 2011), but certain methodological issues have been raised regarding the re-use, and on ethical and epistemological grounds in particular. As qualitative data are characterized by an authentic and intuitive or informal element (HAMMERSLEY, 1997, p.138), and bound by the conditions and context of their production (MAUTHNER et al., 1998), how is the secondary researcher to deal with what may get lost in the process of archiving? In the present article, we will use two Norwegian video studies from the educational sciences as illustrative cases—one from the perspective of the secondary analyst and one from the perspective of the archivists—to investigate ways to address the contextual issues that are often raised regarding re-use of qualitative data. As the archiving and re-use of video data present certain ethical and practical issues that weigh more heavily than with other types of qualitative data, we will also present and discuss how the two research projects have dealt with anonymity, informed consent, and procedures for archiving. [1]

Despite the methodological issues regarding the re-use of qualitative data that are currently being discussed (BISHOP, 2007; CORTI, 2007; FIELDING, 2004; HAMMERSLEY, 2010; MOORE, 2007; PARRY & MAUTHNER, 2004), little has been presented of actual research reporting on the re-use of archived data (BROOM, CHESHIRE & EMMISON, 2009). This has led to calls for research and examples of re-use that may inform the methodological discussion (e.g. SEALE, 2011). SEALE (p.353) also argues that a general methodological discussion (e.g. qualitative data as authentic and unique) should not be treated as an obstacle or a fixed ruling governing researchers' conduct. In addition, few articles discuss the role of archived video or observational data; instead, the discussion has largely revolved around interview data (CORTI & BACKHOUSE, 2005). This is evident in a series of special issues on re-use and archival of qualitative data in *FQS* (e.g. 2005, vol. 6, issues 1 [edited by CORTI, WITZEL & BISHOP] and 2 [edited by BERGMAN & EBERLE], and 2011, vol. 12, issue 3 [edited by VALLES, CORTI, TAMBOUKOU & BAER]), where none of the articles deal explicitly with video data. Thus, this article aims to explore the ways in which the two cases presented here have dealt with the processes of archiving and secondary analysis of video data, and how these accounts may inform the methodological discussion. The first case is based on the PhD project "Dialogue as an Instructional Tool During Whole-Class Teaching", a study in which data from the PISA+ video study (KLETTE, 2009) are used to investigate new research questions that are different from those of the initial study. The second case covers the process of archiving video data in the on-going "Budding Science and Literacy" research project (ØDEGAARD, 2010), a longitudinal classroom study that has built on the PISA+ video study in its methodological approach. We believe that establishing common

and shared practices for the archiving and re-use of video data will help address the methodological issues of re-use and contribute to moving the field of video research forward. Like GROSSMAN and McDONALD (2008), we argue that common practices will enable researchers to build on each other's work and collect knowledge for a more expansive research. Common archiving procedures may also help support the long-term ambition of programmatic research in the educational sciences, for example by contributing to building a common language and a conceptual framework for investigating classroom practices. [2]

In the subsequent sections of this article, we first examine some of the proposed advantages with using video to analyze social interaction. We then put forward the main challenges associated with archived qualitative data, and re-use of video data in particular. After outlining some of the advantages and challenges of using archived video data, we present the two illustrative cases. Finally, we discuss the two video studies in light of common practices to prompt further discussion on how to fully benefit from the opportunities that new media provides for classroom researchers. [3]

## 2. Video Studies in Qualitative Research

### 2.1 The use of video to analyze social interaction

For many years, researchers have looked for innovative ways to improve research on the quality of teaching and learning in classrooms. Development and innovation within technology and the media industry have recently made video recording a more flexible and adaptive methodological design for investigating classroom practices (DERRY, HMELO-SILVER, NAGARAJAN, CHERNOBILSKY & BEITZEL, 2006; DERRY et al., 2010; KLETTE, 2009; KNOBLAUCH, BAER, LAURIER, PETSCHKE & SCHNETTLER, 2008; SEIDEL et al., 2009). Furthermore, the miniaturization of recording and storage devices has improved mobility and increased the range of contexts in which it may be used. It has also turned this technology into a less intrusive mediator between researchers and their research objects (KLETTE, 2009). The recent development of recording technology is clearly recognized within the design of educational video studies, where both high-tech solutions and portable black box solutions are now possible (BERGEM & KLETTE, 2010). In the educational sciences, the term *video study* refers to research of social or educational practices based on analysis of video recordings (JANÍK, SEIDEL & NAJVAR, 2009). JANÍK et al. (p.7) claim that the investigative potential of video studies lies in the fact that complex phenomena and events, when captured on video, are available for analysis that can focus *ex-post facto* on various aspects of the material under investigation. Furthermore, video studies represent complex methodological approaches, which enable the use of a number of perspectives, strategies, and methods or techniques for generating and analyzing video data (DERRY et al., 2010; JANÍK et al., 2009; KNOBLAUCH, SCHNETTLER & RAAB, 2006). Sharing and establishing such infrastructures for research represent what DERRY and colleagues (2010) refer to as *boundary objects*, which, they argue, may promote re-use in the video research communities. [4]

According to HEATH (2011), it has long been recognized that the moving image provides extraordinary opportunities for social science research. Video as a visual media seems to provide just the resources that ethnographical studies need: it gives the opportunity to catch activities as they arise in natural habitats, such as in the classroom, at home, or in the workplace (HEATH, 2011). Video data are therefore often characterized as natural data (KNOBLAUCH et al., 2006); recordings made in situations affected as little as possible by the researchers (SILVERMAN, 2005). These records can then be analyzed repeatedly, and they provide access to fine details of conduct and interaction. Moreover, they can be shared and shown to others, and they provide the opportunity to develop an archive of data that can be subject to a wide range of analytic interests. It also brings new opportunities for credibility and trustworthiness in qualitative research methodology: video recordings can, for example, be viewed multiple times by multiple people and in some cases even at different times or by different research groups. This makes it easier to subject claims or research findings to debate, or to check the researcher's interpretation against the captured event (DERRY et al., 2010). Still, it is important to emphasize that videos, nevertheless, are artifacts—a document of a certain situation or event (ERICKSON, 2006; SCHNETTLER & RAAB, 2008)—having been recorded for particular purposes and in certain contexts, as well as representing aspects of the recording activity itself (such as camera angles or focus) (KNOBLAUCH et al., 2006). Thus information derived from video recordings does not give unmediated access to "reality" (ERICKSON, 2006). As SCHNETTLER and RAAB (2008) further point out, to characterize video data as natural or naturalistic data means to recognize both the conservation of a wide range of aspects of a certain event *and* its construction by the researchers through the means of video technology. [5]

Last, but not least, sharing video data also means not having to go through the process of gathering new data in each and every research project. From a cost-efficiency perspective (cf. SZABO & STRANG, 1997), re-use of video data can be regarded as fruitful for the video research communities, as video studies require both video equipment and time. It is, however, still a time-consuming process in many ways for both the primary researchers (in terms of archiving) and secondary researchers (in terms of familiarizing with the data) (DALLAND, 2011). Furthermore, FIELDING (2004) emphasizes the potential of secondary analysis in avoiding the possibility of certain groups being over-researched. In our field of research, re-use of video data unburdens teachers and students by reducing the presence of researchers in schools and classrooms. These aspects of secondary analysis have also been argued with regard to re-use of quantitative data in the educational sciences (e.g. OLSEN, 2005). In the next section, we will draw attention to four main issues, or challenges, associated with the re-use of video data: the issue of context, the issue of fit, ethical guidelines, and data infrastructure. [6]

## 2.2 Archived video data and challenges associated with using them for secondary analysis

HAMMERSLEY (1997) considers the archiving of data to have two main functions. First, it provides the opportunity for other researchers to check findings from a study through *re-analysis*. Second, it enables other researchers to use existing data for *secondary analysis*; that is, to use archived data to find answers to research questions that differ from the ones asked in the original data analysis (HINDS, VOGEL & CLARKE-STEFFEN, 1997). Researchers can in the latter case use archived data to supplement their own primary data or to perform historical, comparative or meta-analysis on the archived data. A new angle or methods can also be employed that may not have been possible at the time of the original data analysis (CORTI & THOMPSON, 2004). Several challenges have, however, been debated in the literature on qualitative secondary analysis. We will now turn to some of these challenges, with particular focus on video data. For a longer discussion on challenges in re-using qualitative data in general, see CORTI (2011) and CORTI and THOMPSON (2004). [7]

The first challenge we would like to address is the issue of *context*, which has long been one of the main concerns when it comes to qualitative secondary analysis. MAUTHNER et al. (1998), for instance, argued that the conditions under which data are produced are inescapable, rendering re-use of qualitative data as problematic. MOORE (2007), on the other hand, claimed that that the labels of *re-use* and *use* create a false distinction between primary and secondary use of data, because all data are constituted, contextualized, and re-contextualized within any study or research process. HAMMERSLEY (2010, Section 4.9) contends that the "re-contextualization argument" fails to acknowledge that data, in some sense, exist prior to the research process, *as well as* being constituted and constructed within any study:

"Data are, then, in an important sense given as well as constructed: they are not created out of nothing in the research process, nor should we construct whatever inferences we wish to on the basis of them. At the same time, it is important to recognise that they are also constructed or produced in the course of research, and to be aware of aspects of this process that could be relevant to what would and would not be legitimate inferences from them." [8]

According to HAMMERSLEY, the methodological issue of context can arise in any research project, but the risk is greater when using secondary data; it is more a matter of degree. There can certainly be important distinctions between what is available as data to the primary researcher, and what is accessible to a second researcher who re-works the data, whether for a similar or very different purpose. In the process of acquiring primary data, researchers generate not only the data itself, but also the implicit understandings and memories of what they have seen, heard, and felt during the data acquisition process (HAMMERSLEY, 2010). Despite this constraint, CORTI (2000, §30) claims that there is an advantage to using video if we wish to use the material for secondary analysis:

"Of course, audio and video-tape recordings enhance the capacity to re-use data without having actually been there. For archives, documentation of the research process provides some degree of the context, and whilst it cannot compete with being there, field notes, letters and memos documenting the research can serve to help aid the original fieldwork experience." [9]

Video recordings undoubtedly provide the opportunity to catch activities as they arise in the natural habitat (HEATH, 2011), and at some levels, can provide secondary researchers with data that are not as dependent on what the primary researcher(s) have in terms of memories and procedures from the data collection. This is even more probable if the researcher is familiar with the research object that is being studied. Considering the example of video recordings from a classroom and a researcher who knows what is common in this type of environment, it would be easier to say that video data can enhance the capacity for re-use without having actually been there (CORTI, 2000). However, if the researcher conducting the secondary analysis is not familiar with the object of study, he or she faces further challenges in terms of interpreting the videotaped data. On the other hand, it might be argued that being familiar with the situation could bring a certain freshness and new perspective to the situation being studied (IRWIN & WINTERTON, 2011; LYG, 2004). [10]

To address some of the contextual issues of re-using archived data, BISHOP (2006, 2007) argues that it is necessary to consider the interactional, situational, and cultural or institutional levels of context that apply to your data. Here, the interactional level of context refers to what the secondary researcher is likely to discover about the interaction or conversation in the data material, without having experienced the specific context it occurs in. The situational level refers to the setting, which is what is usually referred to as "context" in qualitative studies. For instance, this includes the persons present, their relation, the physical setting etc. The third level of context concerns the institutional or cultural factors influencing the research project at the time of data collection. In an educational research setting, this may include the national curriculum at the time of observation, the political situation, and leading reform initiatives. [11]

The importance of considering the levels of context that influence one's data has also been shown to be central in analyzing video and interactional data in general (DERRY et al., 2010; LEMKE, 2000; WORTHAM, 2005; ØDEGAARD & KLETTE, 2012). One example of this comes from two studies that re-used video material from the *PISA+* study. SVENNEVIG, TØNNESSON, SVENKERUD and KLETTE (2012) used the *PISA+* data to investigate students' use of rhetoric in oral presentations. They found that one of the boys in the material excelled at using both *logos* and *pathos* during the presentation, while a girl in the same group did not have the same proficiency in using these rhetoric steps. These results were found by analyzing the video recordings of the oral presentations in the data material alone. However, when DALLAND (2011) used the same data to analyze the recordings made before this particular oral presentation, she found that the girl was the one who held the group together and organized the presentation, while the boy, on the other hand, did not contribute to the layout of the

presentation. The different interpretations in these two studies illustrate the importance of explicitly addressing the contextual issues of re-using data in terms of BISHOP's (2006) levels of context, and also that such considerations are dependent on the object of the study. [12]

Secondly, the issue of *fit* is an important challenge that must be considered when re-using data. According to HAMMERSLEY (2010), this issue can arise in any research project, as it is not always possible to obtain all the data needed for a research project. The issue of fit is, however, obviously more apparent when a researcher only possesses the amount of data that is already available to address the research questions. Thus, HAMMERSLEY argues, it is extremely important to have a research question that is likely to be answered with the available data. In this regard, an important advantage of video data is that they can be open to many different perspectives and approaches. [13]

The third challenge we would like to address concerns the *ethical issues* related to the re-use of qualitative data. Because video recordings are more sensitive to exposing the informants' identities, there are certain important issues, which weigh more heavily than with other types of data in this regard (CORTI, 2000). A common option to enable re-use and protect confidentiality with qualitative data is anonymization, usually by removing identifying information or camouflaging real names. The key issue here is to agree on an appropriate level of anonymization, so that the data are not distorted, or their potential for re-use reduced (CORTI, DAY & BACKHOUSE, 2000). Video data, however, are not easily anonymized, nor is it always appropriate to do so if they are to be subjected to new analytic perspectives or procedures. For example, if the participants' faces need to be filtered out or masked on a video recording, then the video data may lose most of its value for the secondary researcher. DERRY et al. (2010) propose that confidentiality to the research participants can still be protected in several ways, even with the non-anonymous nature of video data. Filtering and masking the identities of the participants is a possibility, albeit an expensive one, which in turn could compromise the data. They also propose restrictions of access to video data and confidential information. Access can for example be restricted to the research group or researchers officially involved in the original research project if a host controls a digital repository of the data, or it may be restricted by the depositor, as described by CORTI et al. (2000) for Qualidata. As informants usually consent to being part of a study under the promise of confidentiality with respect to the research project and its members, there is also the question of informed consent for the secondary researcher to consider (HEATON 1998); e.g. how was consent originally obtained? CORTI et al. (2000) emphasize the importance of issues concerning confidentiality and informed consent being resolved prior to data acquisition, which implies that the ethical challenges of re-using qualitative data applies to primary researchers as much as it does to secondary researchers. DERRY and colleagues (2010) conclude that these are important issues to address to enable sharing and re-use of video data, for example, by developing and sharing practices for obtaining informed consent that protect the research participants and support the future sharing of video data. [14]

Finally, issues related to *archiving procedures and storage* have to be carefully addressed when it comes to archiving qualitative data for later use, preferably already at the beginning of a research project (HUMPHREY, ESTABROOKS, NORRIS, SMITH & HESKETH, 2000). Archiving data for video studies requires vast amounts of storage space and a well-organized data infrastructure. This is because virtual repositories from such studies often include digital files of student work, digitalized field notes, various metadata, and other digital resources, in addition to video data (DERRY et al., 2010). PEA and HAY (2003), for instance, claim that developing effective metadata coding schemes is a central issue for the video research communities—if we wish to exploit the usefulness of video research tools. Associating some type of metadata to the video, or segments of the video, is a central step in the analysis of video data (PEA & HAY, 2003), and also in giving structure to a virtual repository. This is particularly important in archiving data for re-use, as it enables the secondary researchers to navigate and build on the archived data and metadata available to them. [15]

These perspectives will be used as a background for discussing the two different projects, as well as how we are working with generating, archiving, and re-using qualitative data, and video data in particular. [16]

### **3. Data and Evidence**

In the following, we present two cases to highlight some of the issues considered in the preceding sections regarding the processes of archiving and conducting secondary analyses on video data. [17]

The first case draws on a PhD project using archived video data from science and language arts classrooms from the PISA+ video study (KLETTE et al., 2008), which was conducted in 2005-2006. The study was an in-depth study of six ninth-grade classrooms, which were video recorded for three weeks, intended to explain the Norwegian results from the international comparative studies PISA and TIMSS, and come up with suggestions for improvement. The archived data material contains 152 videotaped lessons from science, mathematics, and language arts classrooms (ordinary classroom lessons and laboratory work, field work out of classrooms, excursions etc.), 13 teacher interviews, and 77 video-recorded interviews with students. The research design included a three-camera solution: one camera focusing on the whole class, one focusing on the teacher, and one on a pair or group of students. In addition, field notes were written during the same lessons. Several theses, articles, and book chapters have been written based on to the primary PISA+ video data. Since then, however, new researchers linked to the study have analyzed the PISA+ video data for new purposes and perspectives (DALLAND, 2011; DALLAND & KLETTE, 2012; SVENKERUD, KLETTE & HERTZBERG, 2012; SVENNEVIG et al., 2012). [18]

The second case takes its data from an on-going research project, the "Budding Science and Literacy" project. This study is a longitudinal, design-based classroom video study that focuses on integrated approaches to inquiry-based science and literacy in six Norwegian elementary school classrooms

(ØDEGAARD, 2010). The overarching goal of the research project is to develop a teaching model for science-literacy integration with the support of the participating teachers through design-based research (cf. COLLINS, JOSEPH & BIELACZYK, 2004). The "Budding Science and Literacy" project is connected with the PISA+ study through researchers who have worked on both projects. The research design was also modeled around the PISA+ study. The first round of data collection was conducted in 2011, and the current number of video observations in the project comprises 53 science lessons (approx. 200 hours of video data), interviews with 33 students, and pre- and post-interviews with six teachers. [19]

For this article, it is also important to consider the Norwegian context for the archiving and re-use of personally identifiable data. In Norway, all social science research projects that require the processing of personal identifiable data are under obligation to report to The Norwegian Social Science Data Service (NSD) a minimum of 30 days prior to data collection, which are then evaluated against the [Personal Data Act](#) and the [Personal Health Data Filing System Act](#). Re-use of personally identifiable data is to be restricted, and usually requires renewed consent. Data that has been anonymized, on the other hand, are not subject to the same conditions. For video data, this would imply blurring out the faces of the persons caught on the recordings and muting the sound track. For more detailed information on the ethical research guidelines for Norway, see The National Committee for Research Ethics in Norway's (2006) [Guidelines for Research Ethics in the Social Sciences, Law and the Humanities](#). [20]

In what follows, we report on these two classroom studies: one in which secondary analysis is being performed on archived video material, and one in which the primary video researchers are collecting and archiving data for future re-use. [21]

### **3.1 Two illustrative cases: PISA+ and "Budding Science and Literacy"**

#### *3.1.1 Case 1: Re-use of the PISA+ video material*

The first case considers the conduct of secondary analysis of archived qualitative data from the classroom video study PISA+. Today, both the original researchers and a number of new researchers attached to the research project share an extensive virtual data archive, which comprises audio and video data, contextual information, and metadata. The strength of having access to data from a larger project, such as the PISA+ video study, is that there are several researchers who know the material well, and who took part in the original data collection. There are also researchers who are almost finished with their projects and researchers who have recently started working with the material. [22]

##### 3.1.1.1 Navigating the video data archives of PISA+

Navigating the data archives of a classroom video study can prove to be a daunting task to which clear logging procedures offer valuable assistance. The PISA+ study logged every video recording with data and time/sequence of the

school day, subject, and teacher(s) involved. This logging system makes it possible for the new generations of researchers to get an overview of the entire data material, access requested segments and sequences, search for related sequences or contrary sequences, and use parts of the data material for their priority research focus. We will argue that clear procedures for logging and archiving the data are crucial for secondary analyses. [23]

All field notes from the videotaped lessons are transcribed, digitalized, and archived. The field notes also provide contextual information on how schools, classes, students, and teachers were selected for participation in the research (DALLAND, 2011), including procedures for informed consent from the participants. HEATON (1998) argues that a researcher who uses qualitative data for secondary analysis must be aware of how consent was obtained in the original study. It is usually not feasible to seek additional consent, she argues, and the researchers have to make a decision about whether re-use of the data violates the original contract between the participants and the primary researchers. [24]

Manuals and coding procedures used in the primary analyses were also archived together with the original data sources. The data are currently stored in a local database, which is restricted to the researchers (both primary and secondary) attached to the research project. Coding manuals from the original research project are the only data stored on this database that are published and fully accessible for a wider audience. The publication and sharing of such coding manuals is considered important for cumulative and coherent research in the field of educational sciences (KLETTE, 2009). It also provides transparency in the analytical process. [25]

Access to initial analytical approaches, such as coding manuals, have served at least two functions when re-using the PISA+ data. They have given access to the primary analytical tools, and thus, revealed possible weaknesses, problems, and strengths linked to the initial analyses. In addition, access to primary analytical tools has made it possible to build on these tools (e.g. coding categories), and thus, contribute to developing a shared language for studying classroom practices. In the PISA+ study, for example, a set of codes covering a wide range of different features of classroom interaction was developed. Some of these codes covered dialogic and monologic teacher moves in the classroom, which are critical features for our analyses of the archived PISA+ data. These codes represent coding approaches that future researchers can build on, or as we have used it, as an analytical device to further investigate features of teachers' talk during entire class sessions (ANDERSSON & KLETTE, forthcoming). In this case, having access to these original coding procedures has facilitated a more targeted use of the data material, as the sequences that were coded for dialogic talk could be elaborated on and further analyzed. [26]

One of the main arguments for secondary analysis is that it is less consuming of both time and money (SZABO & STRANG, 1997). In terms of time- and cost-efficiency, a researcher would not be able to gather such rich data material as the PISA+ single-handedly; however, it should be emphasized that time also is an

issue when working with archived data. As a secondary researcher, one has to spend a lot of time getting to know the contextual information and the video data that one aims to analyze. One might argue that the researchers involved in the original data collection will know the data better before starting the analysis, but as DALLAND (2011) and others have pointed out, the PISA+ video material gives a good description of the context—with the exception of information about socioeconomic background (due to ethical limitations of the study). In addition to rich classroom descriptions, the data source material also covers information about the students' gender, age, and ethnicity. [27]

#### 3.1.1.2 The question of fit

A related, but slightly different argument is the question of fit: how well does the data available fit with your research questions—is it likely they may be answered with the help of the available data? In re-using data from the PISA+ video study, the question of fit has been addressed through close contact with the primary researchers, both during the design of the new research project and during the project period (i.e. as PhD student and supervisor). It is our experience that if one approaches archived material without prior knowledge of what the material contains, the issue of fit becomes extremely relevant. However, when the secondary analyst is in contact with the primary researchers, this difficulty can be limited. This is mainly due to the knowledge of the primary researchers; they know content of the data, and whether the secondary researchers' research questions can be answered with the help of these data. In Norway, there are also strict ethical guidelines for re-use of personally identifiable data—such as video data—that requires the approval of both the original researchers and the Norwegian Social Science Data Services to do so. This is, of course, a factor in enabling a close cooperation between primary and secondary researchers in the re-use of video data. [28]

Having contact with the original researchers, however, is not a requirement for re-using the material. It can be an advantage to have persons who know the material well, but it can also be inhibitory if the original researchers are too attached to the material and their original perspectives and analyses. [29]

#### 3.1.1.3 Video data as contextual data and re-contextual data

The PISA+ material is used for both its original purposes (see KLETTE et al., 2008) and re-use by new researchers. Thus, all researchers working with the PISA+ data material have access to the original data material. For the secondary researcher who did not take part in the primary data collection, it is particularly important that the material is well organized. Although issues about the context of videotaping are crucial, this can be compensated for with access to all original data, clear procedures for logging and storage procedures, and access through indexing and logging systems. The more explicit and clear these procedures are, the more they support the secondary researchers in re-contextualizing the data, we will argue. Indeed, experiences from conducting secondary analyses on the PISA+ material show that having access to the original data material helps the

researcher to retrieve contextual information and to obtain information about the context of the study. This may also reduce the need for direct access to the primary researchers. [30]

BISHOP's (2006) three levels of context (the interactional, the situational, the institutional/cultural) have served as a valuable frame of reference for conducting secondary analyses on the archived PISA+ material. Research questions from the original study and those in the current study need to be taken into consideration as well. When studying a construct such as dialogue, it is necessary to consider not only the single utterances made by the teacher or the students, but also the exchange of utterances and the segment as a whole (LEMKE, 2000). A huge challenge, therefore, is to determine the length of the segments that should be taken into consideration. This depends on the purpose of the study (WORTHAM, 2005). In this case, entire lessons were selected to analyze dialogues and instruction from this large video material, and the object of analysis was accordingly concerned with the social action on an *interactional level*. If the aim of the study was to investigate changes in dialogue over the course of a school year, it would be necessary to pay equal attention to the *situational level* of context in order to take account of the social relationship between teachers and students, changes in seating arrangements and the social roles in the classroom over time. When it comes to the *cultural or institutional level* of context, however, there are certain important considerations that have to be made in re-using the PISA+ video data. The PISA+ data were collected in 2005, a year prior to the implementation of the current national curriculum in Norway. What was new to the national curriculum was a focus on *basic skills* across all subjects in primary and secondary education, which is taken to include reading, writing, arithmetic, digital, and oral skills. This implies that the research questions posed in the original study may no longer be as relevant today as they were at the time of data collection, but also that re-use of the PISA+ data needs to consider these changes in formulating new research questions. [31]

#### 3.1.1.4 Secondary analysis—an illustrative example

With access to such a large body of data, it is necessary to select a manageable sample of the material. The sample used in this case was derived from an interest in the segments that contained entire class teaching sequences in the PISA+ data. To reduce the sample to entire class sessions in science and language arts (L1) classrooms, we randomly chose lessons from those classrooms. [32]

A coding scheme—developed by FURTAK and SHAVELSON (2009)—was then used to code for dialogic and authoritative teacher moves during classroom discourse in these classrooms: the primary researchers on the PISA+ video study had previously coded entire lessons with a coding scheme describing different features in the classrooms. A preexisting coding scheme was then used to apply tested and reliable video coding categories to the PISA+ video data, in this case on the topic of how teachers use dialogue in classroom discourse. It can be mentioned that there is now large body of research on classroom discourse in the

educational sciences, but the steady emergence of new video coding categories often makes it difficult to compare findings. According to KLETTE (2009), building on previous coding schemes prevents the researchers in the field from "reinventing the wheel" over and over again. Some of these codes included teacher-student dialogue and teacher monologues in these classrooms. However, these codes only showed when the teacher interacted with the students or not; they did not separate between different teaching moves within these two categories. By applying FURTAK and SHAVELSON's coding scheme, it was possible to investigate dialogic and authoritative teaching moves on a more detailed level. In this case, the secondary analysis illustrated how language teachers used dialogues when talking about different types of texts and how the teachers in language arts and science asked questions and gave responses to the students—results that were new to the original analysis of the same data. [33]

### *3.1.2 Case 2: Archiving video data—"Budding Science and Literacy"*

The second case considers the "Budding Science and Literacy" classroom study (ØDEGAARD, 2010), and approaches the re-use of video data from the perspective of the archivists (and primary researchers). The "Budding Science and Literacy" study has used the design of the PISA+ video study as a starting point, along with the experiences of the primary and secondary researchers from that study, to address some of the issues often raised regarding re-use of qualitative data in video studies. In the "Budding Science and Literacy" research project, it has been an objective from the start to archive video data, artifacts, and contextual information for the length of the project period, and to facilitate secondary analysis of the data. Here, the main factor influencing re-use of data lies in the duration of the research project. As "Budding Science and Literacy" is a longitudinal research project, all data will be archived until the end of the research project (currently the year 2030). Due to the personally identifiable nature of video data, the data material generated from the study is also bound to the primary research project and its ethical considerations, in accordance with the national ethics research guidelines and the Personal Data Act. This implies that re-use of the "Budding Science and Literacy" data is restricted to researchers formally involved in the research project. The primary research group will therefore need to apply the Norwegian Social Science Data Service for inclusion of new researchers to the research group. The new researchers will then have to follow the ethical guidelines that were established when the data was collected. In this manner, the ethical issue of anonymity for future re-use is resolved by restricting access to the data (DERRY et al., 2010). [34]

#### 3.1.2.1 Archiving "the context"

Well-documented data and contextual information are central to the archiving and re-use of any qualitative data. In order to provide future researchers with the contextual information needed for re-use of the "Budding Science and Literacy" data, emphasis was first put on capturing the "whole" of the classroom through the cameras that were to be used in the study. Accordingly, a camera set-up was designed to capture the events of the entire classroom: a whole-class camera to

provide an overview of the classroom (including all students and the teacher), a camera that follows the teacher continuously, and a head-mounted camera on a student in each of the two focus groups in the class. In this way, a researcher who wishes to focus on student conversation in groups, and who is primarily going to use data from the head-mounted student cameras, will still have access to what goes on outside of the group in question, e.g. by time-coordinating several videos. If a gaze is averted (obviously not by the student wearing a head-mounted camera), or if one of the students makes a comment about something not captured by the camera in the group, the researcher has the opportunity to use different video sources to understand what is distracting the student with the averted gaze, or what is being referenced by the other. Hence, important contextual information on an interactional level is not lost in the process (cf. BISHOP, 2006). [35]

In addition to the video data generated in the classroom from the four-camera solution, all student work, curriculum materials, and other teaching materials have also been archived. Field notes and research protocols were written during and subsequent to each video observation, and they were archived to provide contextual information. Thus, procedures for log keeping have been an important aspect of the video observations. The log keeping covers background information on teachers and students (in particular, the students in the two focus groups), dates and times of observations, time-logged field notes, and technical aspects of the video observation. The latter includes information about the research tools used in a given video observation; that is, camera specifics, the number of additional sound recordings, whether or not the video recording equipment functioned properly, or if any unforeseen interruptions or technical failures occurred that may have caused gaps in the video data. Together with the four-camera set-up, these measures all work to provide a sense of context to the material, in particular on the interactional and situational levels. Within a relatively large research project such as the "Budding Science and Literacy" project, it is also clear that all the primary researchers cannot be present for all of the video observations and data collection. Thus, contextual data seems to be equally important for the primary researchers working as a part of a research group as well as for the research community. [36]

Another step that has been taken to ensure the availability of a wider context for future researchers is to collect video recordings and surveys from the in-service professional development course. During this course, the teachers engaged in testing and adapting science lessons together with their students. On two different occasions during the two semesters that the course ran, the teachers also had to present their experiences to the other teachers in the group as a part of the course. Among other things, the teachers were then asked to connect their lessons to the national curriculum and to relevant theories from the course, as well as to include possible improvements or teaching challenges. These presentations and the following discussions were video-recorded and subsequently archived. The teachers also took part in a survey before and after the course, in which they were asked about their educational background and years of teaching, as well as more open-ended questions about their teaching

practices. From the start of the professional development course, the teachers were informed of the design-based nature of the research project and of the value of their feedback in this regard. The data generated from these video recordings and surveys provide additional and important information on the situational and institutional levels of context, relative to the period of data collection in the research project. In order to support the participating teachers with findings and implications from the research project after the course ended, voluntary seminars have also been arranged each semester, where the latest findings from the "Budding Science and Literacy" project have been presented and where the teachers can share ideas and experiences from their own teaching. [37]

### 3.1.2.2 Facilitating for secondary use of data by way of data infrastructure

Because there are challenges for secondary researchers in navigating the vast amounts of data that are generated in a classroom study, we have also developed and archived metadata-coding schemes for all the data that were generated in the study, as well as metadata from video analyses. The coding schemes range from practical codes for logging video files, such as project name, school, date, time, and source of data (e.g. whole-class camera, teacher camera, etc.) to video coding categories. In the coding schemes for logging video files, and the subsequent metadata, the names of the participating schools, teachers and students are anonymized and stored in accordance with the Norwegian "Guidelines for Research Ethics in the Social Sciences, Law and the Humanities" and the Personal Data Act. The video coding categories cover both generic classroom activities, such as reading, writing, talking, and practical activities, and subject-specific categories, such as the central processes of scientific inquiry (ØDEGAARD, MORK, HAUG & SØRVIK, 2012). These coding categories have then been applied to all of the video data in the study, and the resulting coded material have been archived together with the coding schemes and the video recordings. The video analyses have been performed with [Mangold Interact coding software](#)—a tool for the systematic logging of observational events with onset and offset times for each coded event. The coding categories for video analysis have also expanded on prior coding schemes from the PISA+ study (KLETTE et al., 2005) and the EXPLORA<sup>1</sup> project (ØDEGAARD et al., 2011) to enhance the reliability of the coding categories. The creation of such metadata-coding schemes has been central to the research project group in creating a secured virtual repository to which all members of the research project have access and know how to "read," as well as in establishing a system that can be expanded upon and used by new researchers. As PEA and HAY (2003) emphasize, metadata coding is one of the most important lessons to be learned when it comes to the usefulness of video sharing. [38]

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1 EXPLORA was a Nordic collaboration between science educators at the universities of Linköping (Sweden), Aarhus (Denmark) and Oslo (Norway) to develop a coding manual for video analysis of science lessons with the aim of investigating if there are any common teaching patterns between the countries. The resulting coding manual was published by ØDEGAARD and colleagues from the participating institutions (2011).

Creating a well-organized infrastructure for qualitative data and metadata, however, is a time-consuming effort. Although new media is made readily available to researchers, the effort needed to handle and organize the data that is generated is rarely acknowledged. In order to develop a data infrastructure that can handle the amounts of data generated in the "Budding Science and Literacy" video study and facilitate future re-use, it has been necessary to invest time and effort far beyond what the primary research questions required. [39]

### 3.1.2.3 Gaining consent in a design-based study

A central aspect of design research is *progressive refinement*, where formative research is carried out to test and refine educational designs based on principles from prior research and theory (COLLINS et al., 2004). In the case of the "Budding Science and Literacy" project, the participating teachers tested out and helped refine a model for the teaching of science and literacy through inquiry. The professional development course provided a meeting ground between researchers and participants, in which the researchers could emphasize the value of video observations from classrooms, as well as the teachers' feedback for further refinement of the teaching model. Throughout the professional development course, the teachers also had the chance to ask questions openly regarding the research project and what they would be consenting to. It also provided us, as researchers, with the opportunity to explain our reasons for wishing to archive the data for a longer period of time, and to be able to do so with the support of the teachers in the study. [40]

To deal with the ethical issues regarding the archiving of video data, both students and teachers were fully informed about the purposes of the research project prior to data collection, and they were asked to participate voluntarily by signing informed consent forms. All participating teachers were similarly informed of the aims of the research project in general, the duration and longitudinal design of the research project, their rights to confidentiality, and that all personally identifiable information will be deleted by the end of the project period unless otherwise specified. This means that some of the ethical issues regarding informed consent for re-use were addressed prior to the original data collection (cf. CORTI et al., 2000), as the participants were informed that new researchers may eventually join the research project group within the time span the project period. After the teachers consented to participate in the study, their school administrations were formally asked. The students were then asked, with parental consent, to participate in the study. The researchers involved in the project made themselves available for school visits and information meetings about the project, although none of the parents or students took up on this offer prior to the commencement of data collection. Interested parents did however ask for updates subsequent to the data collection. Therefore, members of the research group attended parent-teacher conferences to describe the research process. One student did not wish to participate in the study, and special arrangements were made for her by the researchers and her teacher to avoid her being video recorded (i.e. changing seating and adjusting camera angles). [41]

#### 4. Discussion

When archived qualitative data are used for secondary analysis, there should be little doubt that the context that informs the data can never be fully disclosed. Thus, "reality" is in some ways lost for a secondary researcher. There is however a paradox in such a phrasing. Using archived qualitative data under the assumption that the contextual information provided "completes" the data material implies that a "naively realist" position is adopted—seeing the data as "real" entities that are freed from the conditions of their production (MAUTHNER et al., 1998, p.743). As HAMMERSLEY (1997) points out, it will never be possible to gather *all* the data on which a study was originally based on. In actuality, the issues of context and fit do arise in any research study, whether primary or secondary (HAMMERSLEY, 2010). This is also apparent from the experiences with the "Budding Science and Literacy" project, in that it was not possible for all the researchers in the research group to be a part of, and present during the video classroom observations. This shows that these issues are also highly relevant for primary researchers working within a large research group. With secondary use of data, however, such issues are more likely to arise, and they need to be addressed carefully. In this regard, HAMMERSLEY draws the conclusion that it is possible, and desirable, to use material that other researchers have generated, and that the labels of "re-use" and "secondary analysis" to such work are of value to the research communities (cf. MOORE's [2007] challenge to the use of the term "re-use"). In light of our two cases, it also seems purposeful with such terminology, as the data in the two research projects seem inextricably bound to the conditions of their production. The label of re-use thus provides important background information for "reading" the data, and subsequently, the presented evidence. [42]

The PISA+ data serve as an example of this. The data were collected in 2005, prior to the implementation of the current national curriculum for Norway, which creates certain implications for the inferences that might be drawn from the data. For instance, an exchange between teacher and student in the PISA+ data material occurs at an interactional level in the classroom, but it also occurs at levels defined by the cultural and institutional conditions at the time (BISHOP, 2006). In the first case presented here, interactional and situational issues were addressed through a rich background material, from the original data collection and a close collaboration between the primary researchers and the secondary analyst. Similar issues can also be expected with the "Budding Science and Literacy" data material, in which the teachers attended a professional development course during the data collection period. In this project, archived data from the professional development course, in the form of surveys and videos of teacher presentations, help to complement the video data and the contextual information for each video observation. Although these issues apply to all video data and need to be addressed—as video segments represent certain events that are removed from their larger context (DERRY et al., 2010)—it becomes especially important to address in the re-use of video data. In light of the two cases presented here, addressing the different levels of context is clearly not an issue that only concerns the secondary researchers; it necessarily involves the

primary researchers as well. In order to provide credible and transparent accounts of the research, in addition to moving the video research communities towards a long-term goal of programmatic research, it seems that both primary and secondary video researchers should engage in developing standardized ways of generating and archiving video data in classroom studies. [43]

The issue of fit arises in the re-use of data, as the secondary researcher has a fixed set of data available to answer his or her research questions. Both cases presented here have tried to address this issue by making it an objective to archive data for further use, from the start of the original research project—for example, by having camera set-ups that aim to capture the "whole" of the classroom and explicit logging and storage procedures. Collaboration between primary and secondary researchers in the PISA+ study has also been shown here as a way to address the issue of fit. On the other hand, if we are to share video or build on data across research groups, then the importance of standardized tools (e.g. camera set-ups and logging and archiving procedures) for conducting video research in classroom studies needs to be emphasized. [44]

As both cases presented here deal largely with video data, the issues of confidentiality and anonymity are of special concern. With other forms of qualitative data, the most common option to protect confidentiality is to remove key information, such as the names of the participants and the names of the locations and places where the research was conducted. With video data, however, the participants can never be fully anonymous. One example of issues that can arise if video data are to be shared or re-used is the desire of the Norwegian Social Science Data Service to remove the sound or blur the faces in the videos in the PISA+ study if they were to be re-used, thereby compromising the data. Experience from the "Budding Science and Literacy" study, however, indicates that close cooperation between teachers and researchers—through the professional development course and the design-based nature of the research project—may be, in fact, a positive influence on teachers in consenting to long-term archival and re-use from the start. Still, it is apparent that ethical issues remain highly debatable if video research communities are to benefit fully from the sharing of video data. A case in point is how the data in both of the cases presented here are bound to the specific research project, thereby disabling sharing of data outside of the research group in question. We concur with DERRY and colleagues (2010) that negotiating such guidelines is part of the work that needs to be done by the video research communities to benefit from the increasing opportunities for sharing video data. For example, what should the ethical guidelines be for gaining consent in video studies, when the specificity of research questions is not known in advance (cf. BISHOP, 2005, 2007; PARRY & MAUTHNER, 2004)? [45]

To benefit fully from the amounts of data generated in a classroom study, there is also a need to implement explicit archiving and logging procedures. The two cases presented here suggest that such procedures should be implemented from the start of the original research project. In this manner, the secondary researcher can address contextual issues more easily, and possibly build on what

has previously been done with the data. These findings are in line with the findings of HUMPHREY and colleagues' (2000) study, in which an archivist was connected to the research project from the beginning, in order to preserve the textual data that was generated. The practice of archiving qualitative data also brings attention to the area of data infrastructure. Developing a well-organized data infrastructure is time-consuming, and it should be recognized as an important area for the video research communities to develop further in collaboration. HUMPHREY et al. (§17) claimed that there was a "need to raise awareness about data preservation among the academic and funding communities," and, in the case of video data and new media, it appears to be equally important for researchers involved in classroom studies today. [46]

GROSSMAN and McDONALD (2008) argue that in order to move the field of research on teaching and teacher education forward, there is a need to develop common, or shared, practices further. This is similar to what DERRY and colleagues (2010) envision for video researchers in the educational sciences by focusing on boundary objects, the common factors that enable us to share research and research tools in a way that accumulates knowledge in the field. One such tool is the coding categories we use in analyzing video data. In the first of our two cases, the coding schemes and original video analysis from the PISA+ study were investigated on a more detailed level; here, the experiences with having access to the original video analysis, as well as the coding categories, resulted in a more targeted use of the data material. In the second case, the PISA+ coding categories were elaborated on for higher reliability, and all metadata has been continuously archived together with the archived video data. Lately, there has been a tendency to collect and share such analytical tools across video-based research projects in the educational sciences, e.g. the EXPLORA project (ØDEGAARD et al., 2011). This tendency is also apparent in recent work with the Timescapes Qualitative Longitudinal study as well, in which COLTART et al. (2013) describe how the Timescapes study has encouraged data re-users to build on the published works of the originating project teams. [47]

Another shared practice that can be identified within the two illustrative cases that have been presented here is the methodological approach applied in the two studies. Both classroom studies have tried to facilitate for re-use from the start of the original research projects, for instance by capturing the 'whole' of the classroom with their camera set-ups, and by extensive archiving of contextual information as well as the video data. With the large amounts of data that new media offer to the video research communities, there is a need to develop and agree on such common practices and tools for conducting video research. This includes agreed-upon methods of archiving and re-using video data and metadata, but also the ways in which we follow the ethical standards that guide our research. As GROSSMAN and McDONALD (2008, p.198) state:

"To move forward, the fields of research on teaching and teacher education need to develop more programmatic research that addresses a set of critical questions over time as well as develop a range of common tools and approaches for making progress in answering those questions. [...] We also need to invest in the

development of common research instruments for generating knowledge about teaching and teacher education. We need to develop common instruments for investigating teaching [...]. Such common tools for research would help researchers make progress in aggregating knowledge about the impact of teaching approaches." [48]

Further, they argue that by literally speaking the same language, researchers can build on prior work and communicate their findings more powerfully, both to each other and to other practitioners (GROSSMAN & McDONALD, 2008). In video research, this would involve establishing ethical guidelines for re-use and sharing, standardized tools and procedures for generating data, agreed-upon analytical tools, and procedures for logging and archiving video data. By building on prior research and sharing research and research tools, video research in the educational sciences can move forward and benefit from the amount of complex data that new technology provides. [49]

## 5. Concluding Remarks

It is clear that archived video studies offer information that is open to different perspectives, and methods and strategies for generating and analyzing data (JANÍK et al., 2009), but their potential is rarely made use of. In light of the two cases that have been presented here, we believe that it is necessary for both primary and secondary video researchers to engage in shared or common practices (GROSSMAN & McDONALD, 2008) for archiving and using archived video data if we are to benefit fully from the potential of new media. This will also be necessary if we are to produce credible, transparent, and programmatic research in the field. Common practices for conducting classroom studies and re-using video data will not only help researchers address the contextual issues commonly related to archived qualitative data, but also enable researchers and research communities to pool resources for more expansive research. The re-use of video data also poses new questions in the debate on re-use of qualitative data that may be more easily addressed with other types of data. For instance, the personally identifiable nature of video data requires different approaches for sharing, and there are clearly new practical demands for archiving procedures and data infrastructure that need to be recognized. There is accordingly a need for more research that furthers the establishment of such common practices and standardized tools for doing video research (primary and secondary), which, in turn, may help advance the field of classroom video studies not to mention enable a more cumulative research effort in the field, and in the educational sciences in general. [50]

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