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A scoping review to identify the techniques frequently used when analysing qualitative visual data

Challenges were encountered when attempting to analyse video based data during a project exploring touch screen computer technology with people living with dementia. In order to inform the analytic process, a scoping review of published evidence was undertaken. Results of the scope illustrated the use of various techniques when analysing visual data, the most common of which was the transcription of video into text and analysed using conversation analysis. Three additional issues emerged in the course of the review. First, there is an absence of detail when describing the ethical implications involved when utilising visual methods in research. Second, limited priority is given to providing a clear rationale for utilising visual methods when audio or field notes may have been a viable alternative. Third, only 40% of reviewed articles clearly stated a chosen methodology. The conclusions of the review illustrate a lack of consistency across studies in the overall reporting of research methods and recommend that authors be explicit in their reporting of methodological issues across the research process.

KEYWORDS: Visual methods, data analysis, video recording, qualitative research
Introduction

Research is following societal trends in the use of the ‘visual’ in numerous aspects of life, made possible through technological advances. The rapidly increasing use of information and communication technology (ICT) in particular, as well as digital technologies, has brought to the fore the use of the visual in the ways we communicate as a society and with one another. Web 2.0 technologies have provided us with a platform to network socially using Facebook, Twitter, blogs and wikis. In addition to changing the ways we socially interact, technologies have now altered the ways we visually interact using video conferencing style applications that include Skype and Face-Time. In addition to social interaction, video conferencing also enables us to communicate in healthcare, business and educational settings.

This heightened awareness of the possibilities of the ‘visual’, specifically in academia, may be explained by various contributing factors which include: the increased access we have to reasonably priced technologies that enable such methods to be utilised; the desire of contemporary social researchers to develop innovative and creative ways to disseminate new knowledge; the differing ways that we as researchers and participants may use technologies to express ourselves using photo-elicitation for example; the dependable reputation of science regarding the ways social phenomena may be visually portrayed to the public; and the varying ways research data is now collected, analysed and disseminated in academia which has been accompanied by the advent of contemporary digital technologies.
The continuing rise in technological development coupled with an ongoing interest in visual research methods is apparent in various academic disciplines including education, social work, nursing, geography, information sciences, sociology, linguistics and health research. These developments have extended the range of techniques available to researchers for the capture, analysis and reporting of visual data, thus opening up new possibilities for research and practice. The interest in the use of visual media in research has been expressed in a comprehensive range of academic publications such as *Video in Qualitative Research* (Heath, Hindmarsh, & Luff, 2010), *Visual Research Methods* (Margolis & Pauwels, 2011), *Visual Methodologies* (Rose, 2012) and *Advances in Visual Methodologies* (Pink, 2012).

There is an expanse of information within each text ranging from ‘how to’ styles of visual methods to developments in methodology and comprehensive accounts of original studies. Some argue that visual research is not defined by methodological or theoretical traditions but rather enables researchers to utilise that which is visual, visible and therefore observable (Emmison, Smith, & Mayall, 2012). Nevertheless, existing texts contribute to an ongoing debate within visual research between the need for *cross discipline methodological frameworks*, *discipline specific frameworks* or *unique methodological frameworks*, developed specifically for certain projects.

**Cross discipline frameworks**

Image-based research methodologies reflect the use of a wide range of visuals including film, video, photographs and cartoons, within a qualitative research context. Image-based research is also ‘meant to apply generically to encompass a wide range of fields including sociology, anthropology, education and health studies’ (Prosser, 1998 p. 25). Proponents of
a cross discipline unified framework support the need for a common visual methodology in
order to create a critical platform to debate and refine visual methods, ultimately enhancing
the status of image based research. Jon Prosser provides a discussion on the specific
elements that constitute a visual methodology comprising ‘words and images’; frameworks
and contexts’; ‘data collection’; ‘the recording of data’; ‘interpreting images’; ‘ethics’; and
‘the research report’ (Prosser, 1996). These elements make up a framework aimed to direct
and inform image based research irrespective of the discipline within which it is utilised.

Discipline specific frameworks

Strengthening the debate for an integrated framework to enable clarity and decrease
disparity within image based research is proposed by the ‘Integrated Framework for Visual
Social Research’ (Pauwels, 2010). This framework provides a comprehensive step by step
progression to account for the design, implementation and dissemination of visual research.
Pauwels advocates an image based research methodology promoting ‘the idea that valid
insight in society can be acquired by observing, analysing and theorizing it’s visual
manifestations: behaviour of people and material products of culture’ (2010 p.546). The
framework comprises three themes ‘origin and nature of visuals’; ‘research focus and
design’; and ‘format and purpose’. Although remaining focused on image based research,
this framework is discipline specific to visual sociology and not intended to be applicable
across disciplines. Pauwels claims that discipline specific frameworks are required to
address discipline specific research questions and he argues that without them visual
methods can be reinvented over and over again without gaining any ‘methodological depth’
(2010 p.546), within the discipline of visual sociology. Other disciplines thus require their
own frameworks that are specific to the research questions being posed as existing frameworks will not translate sufficiently across to disciplines outside visual sociology.

Unique methodological frameworks

In contrast, others argue that visual research methodologies proposing problematically prescriptive frameworks merely succeed in distancing, objectifying and generalising visual data (Pink, 2001). This is then considered to come at the expense of the potential expressivity that is characterised by qualitative research and specifically qualitative visual research. Thus, rather than prescribe a ‘how to do visual research’ manual that provides a step by step account for collecting, analysing and disseminating visual research using existing methodological frameworks, specific methods should be creatively developed within individual projects (Pink 2001 p.4). Developing unique project specific methodological frameworks have undoubtedly been cause for critique regarding the lack of potential to direct and inform image based research in general (Prosser, 1996) resulting in issues of validity that questions methodological depth (Pauwels, 2010).

So, despite an increasing dedication to the ‘visual’, researchers in this field, as in other fields, remain disparate in their descriptions of what may constitute a valid methodological approach in the collection, analysis and reporting of visual data. There is considerable diversity in existing approaches that suggest a visual methodology that may transcend disciplines, may be discipline specific or that treats each visual methodology as unique and discrete from the other. However, no single methodological approach claims to be the only
way to undertake visual research; rather this disparity in approaches is concerned with the
appropriateness of accumulating knowledge across the social sciences, within a specific
discipline or within a particular project. It could be argued that each approach will have
strengths and weaknesses dependent upon discipline, research questions and the paradigm
within which the researcher is working. Therefore decisions need to be made regarding the
suitability of using existing frameworks or developing novel frameworks for visual data that
are unique to each project. Paradoxically, such decisions need to be informed by existing
evidence and research projects that have already taken place. It was this particular
challenge that was encountered when embarking on the qualitative analysis of the
researchers own visual data. This subsequently led to a review of the literature in order to
explore similar methods of data analysis used successfully by researchers in the past.

The Scoping Review

Scoping reviews are a style of literature review that delivers an overview of the type, extent
and quantity of research available on a given topic. Scoping reviews are commonly applied
to broader topic areas where the evidence may be distributed across a range of disciplines,
databases and study designs providing the extent of evidence for a topic at a particular
point in time. For the purposes of this review, the author has drawn on the methodological
framework referred to as the ‘York Framework’ (Arksey & O’Malley, 2005). The process
describes a combination of 5 stages; identifying the research question, identifying relevant
studies, study selection, charting the data, collating, summarizing and reporting the results.
By exploring the existing literature, conclusions can be reached regarding the current extent,
breadth and quality of research activity and subsequent evidence. The primary goal of this
A scoping review was to determine the various techniques utilised during the analysis of qualitative visual data. As indicated above, the scoping review is appropriate in this case because the topic is broad, spans many disciplines and involves various research designs enabling the large extent of evidence to be mapped effectively. Although this scoping review does not follow the quality assessment that is required for systematic reviews (Booth, Carroll, Ilott, Low, & Cooper, 2013; Centre for Reviews and Dissemination, 2009), a checklist for assessing the quality of qualitative studies (Kmet, Lee, & Cook, 2004 p.5) was referred to, elements of which were drawn from during the review. However, additional elements were included that were considered essential in enabling the author to critically comment on the quality of each article as part of this particular reviewing process. These were: ethical considerations; rationale for using visual methods; and a clear statement of methodology. This was important as different reviews will prioritise different information depending on the topic under review. Alongside the author and article title, information was recorded as follows:

1. Methodology
2. Rationale for visual methods
3. Study design & questions
4. Ethics of visual research
5. Data collection methods
6. Data analysis technique
7. General findings
8. Reflexivity
Search Method

As already indicated, the whole point of scoping the field is to be as comprehensive as possible in identifying primary studies suitable for answering the central research question (Arksey & O’Malley, 2005), which was ‘what techniques have been previously used by social sciences researchers when analysing qualitative visual data?’ To achieve this, a strategy was adopted that involved searching for research evidence via different sources including electronic databases, reference lists, hand-searching of key journals, existing networks, relevant organisations and conferences (Arksey & O’Malley, 2005). Whilst the search was broad, it should be acknowledged that practical constraints including time and on-line access to journals may have resulted in potentially relevant articles being overlooked. Literature searching took place between 7th and 14th October 2013 and included articles from all disciplines, all countries and all available years. The only limitation made on the search was that articles should be published in English.

Search terms

The search terms used were: visual methods, data analysis, video recording, and qualitative research. NOT drawings, sketches, cartoons, data collection, audio, quantitative, review article.

Search Outcome

A diagram of the search yield can be found in Figure 1. The search terms were well defined at the outset of the review, nevertheless a large quantity of irrelevant studies were identified (n=1,845). This large number highlights a particular characteristic of scoping
studies that illustrates breadth rather than depth. The inclusion criteria based on the nature of the research question were concentrated on qualitative visual data analysis techniques. The initial yield was therefore sifted and articles excluded if the title and abstract did not represent a ‘best fit’ with research question (Arksey & O’Malley, 2005). The search identified 53 articles based on title and abstracts that were considered potentially relevant. All 53 articles were read in full and a further 24 were excluded for the following reasons.

Discussion papers were excluded (for example Erickson, 2011; Mason, 2005) as the content focused on experiences and understandings of visual methods rather than techniques to analyse visual data (n=7). It was considered that increased understandings of what had taken place before could be better gained from articles reporting primary research data that would encompass the data collection and analytic techniques utilised, a greater knowledge of which was the primary aim of the scoping review. Review papers (for example Prosser & Loxley, 2008) were excluded as they were not specific to analytical techniques and beyond the remit of this review (n=5). Similarly to the discussion papers, articles that were focussed purely on methods were excluded (for example Schnettler & Raab, 2008) as authors were not describing primary research thus no focus on analytical technique (n=11).

The methods papers that were excluded focused on the history of visual methods and how methods have evolved, generally due to the digital era, rather than specific techniques to collect, analyse and disseminate visual data. Finally, one article was specific to the ethical considerations involved when using visual methods but excluded as no primary data was described for review (n=1).
After exclusions had been applied, 29 articles were identified for full review. All reviewed articles were classified by the analytic technique employed in the study design. The information in Table 1 illustrates the reviewed articles which were charted to include specific information regarding methodological techniques in combination with more general information about the study as described above.

(Insert Figure 1 about here)

(Insert Table 1 about here)
Results

All 29 reviewed articles described a study design although 20 omitted to state research questions. However, of this 20, 7 did report specific aims and objectives of the research (for example, Galman, 2009; Liu, Manias, & Gerdtz, 2012). All 29 articles reported specific techniques for data collection and general findings. Of these 29 papers, 22 went on to discuss clear data analysis techniques. The remaining 7 articles alluded to certain techniques without mentioning anything specific including coding, categorising or themes (Avraamidou & Zembal-Saul, 2010; Häggman-Laitila, Pietilä, Friis, & Vehviläinen-Julkunen, 2003; Hurdley, 2007) or they omitted to discuss any analytical processes (Capstick, 2011; Cook, 2003; Noy, 2011; Trierweiler, Nagata, & Banks, 2000). Of the 22 articles that described a specific analytic technique, the most common method used was conversation analysis (5) which requires the close scrutiny of the minutiae of talk and action to be transcribed into text and analysed. A clear example is provided by Tiitinen & Ruusuvuori (2012) who undertook an Ethnomethodology of three-party interactions in maternity clinics using conversation analysis to analyse collated video data. Findings indicated that the professional had a tendency to direct questions towards the mother as principal client rather than the father. A further two articles utilised qualitative content analysis as one method of analysing their data. For example, Maatta, Jarvenoja, & Jarvela (2012) transcribed video footage of collaborative learning situations into text. Using content analysis, codes were identified and three triggers were categorised as influencing the efficacy of student activity.

Of the 29 articles included in the review, 11 discussed the ethical issues involved with the use of visual methods in detail. For example, Capstick (2011) explored the ethical considerations of adapting a Participatory Video approach to enhance usability with people
with dementia living in a residential care setting. The author provides clear reflections concerning the ethical decisions and rationale involved when utilising visual methods as well as considering how existing methods should be modified when researching with different groups. A further 11 articles used a standard sentence that appears to be the accepted norm in academic research papers, for example ‘ethical approval was gained from the local research ethics committee’ or something similar. The remaining 7 articles omitted to mention ethical concerns regarding the use of visual research methods.

A related issue when designing research, considering the ethical implications of visual methods including confidentiality and anonymity for example, is to defend the use of the visual when traditional ‘non-visual’ methods may have been more appropriate. Of the 29 articles included in this review, 21 gave a clear explanation of why video recordings appear to supersede alternative data collection methods (for example, Bartlett, 2011; Cabassa et al., 2013; Capstick, 2011; Galman, 2009; Hostgaard and Bertelsen, 2012). Of these 21 articles, eight involved a population that may be considered vulnerable which heightens the importance of stating a clear rationale for using visual methods. Of the remaining eight articles that omitted to provide a clear rationale for the use of visual methods, three articles involved sensitive topics or participants under the age of 18 (Chivanon, Wacharasin, Homchampa & Phuphaibul, 2011; Parry, 2005; Treloar et al., 2008) which highlights the under-reporting of methods in general found in this review.

Of the 29 studies reviewed, 12 clearly stated a chosen methodology. For example, two studies utilised a methodology referred to as Photovoice (Cabassa et al., 2013; Drew et al., 2010). The methodology behind Photovoice is focussed on participatory methods, providing
certain groups, who may either be marginalised or disadvantaged in society, with a voice in
a research context. A further 10 articles were unclear but alluded to or inferred certain
methodologies including Phenomenology or Ethnomethodology. The remaining seven
articles omitted to state a specific methodology highlighting an under-description of
methods overall in this review. The inclusion of reflexive accounts in study reporting were
provided by 15 authors, 10 of which could be considered to be researching sensitive topics
with populations considered as vulnerable (for example, Capstick, 2011; Drew et al., 2010;
Häggman-Laitila et al., 2003).

Of the 29 articles reviewed, only one comprehensively described the 8 point checklist for
assessing the quality of qualitative studies (Kmet et al 2004) that was referred to and
extended upon during this review process. This comprehensive account was given in a PhD
thesis (Persaud, 2009) which realistically allowed the time and word count for such detail.
Of the remaining 28 articles, 7 only omitted one criteria from the checklist, the most
common being the statement of research questions. For example, Bartlett (2012) carried
out a Sensory Ethnography using participatory photos and audio diaries to research the lives
of people with dementia. Equal importance was given to the methods for data collection
and analysis as well as a clear methodology and detailed ethical considerations concerning
the use of visual methods in research. In addition, Mcnaughton (2009) focused purely on
analysing interactions in video recordings by providing a detailed step by step process for
data analysis. This enabled clarity and transparency for the reader but equally the detailed
focus on data analysis did not detract from the importance of discussing the chosen
methodology and the ethical considerations of the research. Finally, O'Toole (2013) sought
to capture the experience of undergraduates using Participant-Generated Video. The
methods of data collection and analysis were clear and given equal weighting in the article. The rationale for the chosen methodology was explained appropriately. There was excellent reflection on the ethics of human participation using visual methods taken from the perspective of the undergraduates as participants. Of the remaining 21 articles included in this scoping review, 8 omitted to include 4 or more criteria from the checklist (for example, Avraamidou & Zembal-Saul, 2010; Chivanon, Wacharasin, Homchampa, & Phuphaibul, 2011).

Discussion

This scoping review primarily sought to explore the range of analytical techniques utilised by researchers who have used visual methodologies in their research. Aside from the comprehensive texts discussed in the introduction, published articles that report primary research including working with images, and the process of collecting, analysing and describing results were limited. Those that were available and included in this review illustrated inconsistencies in the reporting of visual research methods. It is clear that differences in editorial practices and journal restrictions concerning the inclusion of lengthy methods sections as well as constricted word counts will limit the reporting of methodological detail. It should therefore be acknowledged that this review was not intended as a critique of current research practice but rather the restrictions in place that have resulted in the under reporting of important methodological issues based on visual data. Although journals will vary in their acceptance of included detail in an article, it should also be recognised that the under reporting of methods is a generic challenge, particularly in qualitative research and not specific to the reporting of visual methods. Nevertheless, as
this review is focused on qualitative visual methods it should be acknowledged that the results of the search yield were a product of the specific journals included in the scope.

The topic for review became the focus when attempting to analyse the authors own qualitative visual data and the challenge of gaining increased understanding regarding how to successfully achieve this. Overall, 29 articles were included and an eight point checklist for assessing the quality of qualitative studies (Kmet, Lee, & Cook, 2004) was referred to and elaborated upon for the purpose of this review. The challenge of under reported methods can be clearly illustrated in the findings from this review as only one of the articles met the complete 8 point checklist and unsurprisingly this was a PhD thesis that enabled such depth and detail to be fully reported. All 29 articles described a study design although over two thirds of reviewed articles omitted to state any research questions. Furthermore, all 29 articles reported specific data collection techniques and general findings yet only 16 went on to report a specific technique used to analyse the visual data.

Data analysis techniques

In addition to the under reporting of visual methods, the difficulties encountered when analysing visual data may be one of the reasons for its limited use (Prosser, 1998). The results of this review have highlighted limited evidence focusing directly with the techniques and processes involved in video analysis. Some have argued that ‘analysis, by definition, is a contextual issue, so general prescriptions on how to organise or process data are of limited use’ (Gibson, Webb, & vom Lehn, 2011, p208). In addition to the lack of specific techniques,
there was limited and vague detail concerning the practicalities and processes involved when analysing visual data. Nevertheless, some authors have aligned themselves with particular techniques, the most popular being conversation analysis (n=5/29) which is closely aligned with Ethnomethodology. Ethnomethodology and conversation analysis explore the organisation of ‘segments of action’ by representing the nuances of conversation through features including pauses, intonations, eye gaze, objects, gesture. These segments are transcribed verbatim and the resulting text is analysed thematically then broken down to the minutiae of speech, pause etc. Using sequences of still images aligned with text illustrates how the verbal and non-verbal are united. Researchers using these techniques stress the importance of translating what is ‘seen’ verbatim into text and extracting meaning from the written words (Rose 2000). The qualitative analysis of video data from an ethnomethodological tradition has been primarily influence by academics including Heath, Hindmarsh and Luff, (2010) as well as Knoblauch & Schnettler (2012).

However, the advent of video recorders as a data collection technique has successfully shifted the emphasis from purely text based analysis to include the complexity of all that is non-verbal as well as what may be going on contextually. Thus non-verbal behaviours including eye gaze, posture and gesture can be equally meaningful when aligned with verbal behaviour that has been transcribed into text. Nevertheless, all the reviewed articles that did define a specific technique for analysing visual data, described a process of transcribing the visual into text based transcripts. Of course, not all visual researchers will use their data once the analysis stage has passed and many will not require it to be disseminated. Yet, given the complex ethical considerations required and the time intensive nature of
analysing visual data this may question the appropriateness of using such methods over field notes or audio recordings if the visual output is ultimately to be transformed into text? Visual data can be powerful when disseminated to the right audiences as it can provide opportunities to ‘see’ the potential of an intervention, for example, rather than ‘read’ about it.

Of the 29 studies reviewed, nearly half (13) omitted to mention data analysis or were elusive regarding how they came by the study results. From this, it would appear that some researchers are creating their own unique ‘ad hoc’ solutions for data analysis which might be expected given the unique and individual nature of qualitative visual data. Some techniques have been developed for specific projects, some have been adapted from existing methods, but all are asking different kinds of questions. It could be argued that the analytical technique is uniquely tailored to the data which in turn will be influenced by differences in the participants, the context, the researcher, the methods and the materials. Thus, step by step accounts are unique to any one project and not generalisable across studies as each is distinct from the next. However, results from this review illustrate there to be limited consistency across articles in reporting data analysis techniques in general, rather authors or editors are focussing on detailing other aspects of the research process. For example, one article detailed the ethical considerations and justified using visual methods when participants are considered vulnerable (Capstick, 2011). However, this came at the expense of any detail on analytical techniques suggesting one part of the research process supersedes another. Yet if one dimension of a project is prioritised in the reporting
this will come at the expense of another resulting in an end product that will be incoherent and methodologically weak.

As indicated earlier, three important methodological issues also emerged from the scoping review in addition to the findings regarding data analysis techniques. These were: concerns with the ethical implications involved when utilising visual methods; a lack of a clear rationale for using visual methods; and limited articles clearly stating a chosen methodology. This scoping review was not intended to reach beyond the analysis of qualitative visual data thus the emerging issues are not reflected in the search terms above yet warrant further discussion.

Ethical considerations in research

This review found limited evidence regarding the appropriateness of capturing visual data in general or the rational for using visual data when audio or field notes may have sufficed. This is concerning, certainly from an ethical perspective. Ethical considerations are heightened when utilising visual methods in all research involving human participants as capturing behaviour via video or still cameras could be seen as an intrusion into a person’s privacy. Thus, issues of confidentiality and anonymity come to the fore requiring sensitive and detailed consent procedures. Yet, given the obvious importance of such procedures there is limited evidence in the literature that ethical concerns were at the forefront of the design, implementation and dissemination of research results. The results of this review highlight that many articles omitted to address any ethical issues involved when using visual
methods; this was mainly the concern of dedicated papers wholly focussed on the topic of visual ethics, Wiles et al (2012) for example. From the 29 articles reviewed only eight authors reported on the possible ethical implications of their research and understandably these studies involved participants that were under the age of 18 or considered as vulnerable. A further thirteen have assumed that a general sentence in the methods section of an academic article is sufficient clarification for the reader that the complexities involved in research ethics have been thought through. Finally, eight authors omitted to mention any ethical considerations of using visual methods in research.

It is possible that a large proportion of researchers do not utilise their visual data once analysis is complete. In cases such as these it is also understandable that limited ethical consideration would be required unless the visual data was to be disseminated. Equally, the depth of ethical detail and scrutiny from ethical review committees may depend on the particular review board, the individual research proposal or project time constraints. These considerations are beyond the remit of this review.

Certainly, in the UK, regulating the ethical implications involved in social research requires the constant and consistent review of existing and emerging ethical issues. In consequence numerous ethical frameworks have become a popular source of reference for researchers including the ESRC Research Ethics Framework for example (Wiles et al., 2008). As the popularity and incidence of visual methods in particular increases, in accordance with the ‘digital age’, the corresponding ethical guidelines are becoming more stringent and visually
specific. These now include the BSA’s Visual Sociology Group’s statement of ethical practice (BSA, 2006) and the International Visual Sociology Association Code of Research Ethics and Guidelines (Papademas, 2009).

Given the depth of detail and the possible ethical implications of using the visual in research does this mean that the visual elevates ethics to a new level of importance (Prosser, 2008)? Undoubtedly, concern has been expressed from some researchers that adhering to rigorous guidelines merely places unnecessary limits upon and detracts from the research project (Murphy & Dingwall, 2007), although this will be dependent on the individual project. Nevertheless, ethically sound research dictates that the methods and processes involved in a project are explicit thus creating comprehensive transparent and replicable results. This in turn should enable increased understanding of the topic under investigation and inform new knowledge. An obvious link was found when reviewing this literature between those studies that omitted an ethical description and the detail authors go to when rationalising the using of visual methods.

**Rationale when using visual methods**

Limited articles included justification for using video based methods. Unquestionably, certain populations will be considered as vulnerable which will necessarily require heightened and detailed rationale for using visual methods. Nevertheless, utilising visual methods should always be regarded as an intrusion into the persons privacy thus justified accordingly. Questions need to be asked whether traditional audio or field notes would
have been sufficient in many of these circumstances. A recent literature review to evaluate researcher choices involved in the use of visual methods also suggests clear messages need to be conveyed regarding methods selection (Pain, 2012). Many of these choices will no doubt be ethically driven and should require detailed consideration by the researcher and the ethical review board involved.

Furthermore, the research team needs to interrogate the study design to ensure that their rationale is defendable in their choice of method and distinguish whether visual methods are a requirement or a necessity. These questions could include; are visual methods central to the research design or secondary? How has using visual methods shaped the research results? How would the results have differed using audio or field notes? Undeniably, using video recorders as a data collection tool may provide the researcher with renewed freedom when compared with the physical effort required when taking field notes. Yet this a methodological choice that has not been addressed in the majority of articles included in this scope. The appropriateness of using visual methods needs to be considered, rationalised and defended in the dissemination of visual data. In contrast for others, Bartlett, (2012); Galman, (2009) and Mcnaughton (2009) as examples, visual methods were central and necessary to the study design and authors were explicit and detailed when describing the study rationale.
Statement of a chosen methodology

Research evidence that coherently illustrates the authors chosen methodology is scarce despite the popularity of visual methods which continues to gain momentum. For the reader, justification of a chosen methodology can add credence and plausibility to qualitative research evidence. Thus if a researcher is transparent in the methodologies they adopt this will be consistently reflected in the research question, data collection methods, analytical technique and reporting of findings. Despite the ongoing interest in visual research methods, this review found inconsistencies in the descriptions of a coherent and consistent methodological approach to reporting visual data. The results of the scope illustrated these inconsistencies as only 12 of the 29 reviewed articles clearly stated a chosen methodology including Sensory Ethnography, Photovoice and Ethnomethodology. For the remaining articles it was necessary for the reader to infer the methodological perspective as the majority were unclear but alluded to certain methodologies including Phenomenology or Ethnography. Others may be using existing methodologies including Grounded Theory for example, but are not specifically labelling their approach as such. However, it should be acknowledged again that editor and journal stipulations may influence the methodological detail of an article as some schools of thought call for the integration of methods and results for example. Understandably, the articles that explicitly detailed a chosen methodology were also more likely to reflect on the research process and their role within it (for example Liu et al., 2012; Noy, 2011; Toole, 2013). Reflexivity requires acknowledgement of the ways in which the researcher and the research process may shape the data which can ultimately enhance the credibility of the findings (Mays & Pope, 1995).
Conclusions

Qualitative visual researchers are required to be more transparent during the process of data collection, analysis and dissemination of research results than this scoping review suggests. Predictably, those that attempt to be more methodical may be critiqued for attempting to generalise and objectify their data. Nevertheless, transparency aids clarity and detailed methodical reporting can remain reflexive, expressive and subjective. As indicated earlier, some have proposed visual methods that may transcend disciplines whilst others regard each visual method as unique and discrete from the other. However, the results from this review suggest this is not a dichotomy of extremes but rather a continuum of visual research methods. Authors situate their research somewhere on this continuum and devise their own ‘ad-hoc’ solutions to data collection; analysis and reporting that may be considered unique to their project. These novel approaches are developed and undertaken as some may consider existing approaches to be unsuitable.

Although it is not suggested that there is a right or wrong way to undertake qualitative visual research, methodological appropriateness is crucial. It is expected that methods of data collection and analysis will differ across studies; it is also encouraging that researchers are using innovative and creative techniques. However, coherence and consistency are required when reporting if qualitative visual methods are to gain any methodological depth (Pauwels, 2010). If authors are explicit about their techniques, existing knowledge may be built upon and new knowledge created in areas that lack coherence such as this one. It is important that academics report their methods with more transparency, given journal restrictions, as well as continuing having necessary across discipline conversations and debates regarding their findings.
References


Toole, P. O. (2013). Capturing Undergraduate Experience through Participant- Generated Video, 18, 1–14.


Table 1: Charting of articles for review

<table>
<thead>
<tr>
<th>Author &amp; Title</th>
<th>Statement of Methodology</th>
<th>Rationale for visual methods</th>
<th>Study design &amp; questions</th>
<th>Ethics for use of visual methods</th>
<th>Data collection technique</th>
<th>Data analysis technique</th>
<th>General findings</th>
<th>Reflexivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Astell et al (2010) UK</td>
<td>Using a touch screen computer to support relationships between people with dementia and caregivers</td>
<td>None mentioned</td>
<td>To capture non-verbal behaviour</td>
<td>User-centred design and explicit research questions</td>
<td>None mentioned</td>
<td>Video recorded reminiscence sessions</td>
<td>Interacting with a touch screen is engaging for people with dementia</td>
<td>No reflexive account given</td>
</tr>
<tr>
<td>Avraamidou &amp; Zembal-Saul (2010) Cyprus/USA</td>
<td>In Search of Well-Started Beginning Science Teachers: Insights From Two First-Year Elementary Teachers</td>
<td>Unclear, inquiry based approach</td>
<td>Not provided</td>
<td>Qualitative case study design and explicit research questions</td>
<td>Not mentioned</td>
<td>Audio-recorded interviews, video-recorded classroom observations, lesson plans and samples of students work</td>
<td>Participants perceived specific learning experiences as being critical to development</td>
<td>No reflexive account given</td>
</tr>
<tr>
<td>Bartlett (2012) UK</td>
<td>Modifying the Diary Interview Method to Research the Lives of People with Dementia</td>
<td>Sensory ethnography</td>
<td>Researching with participants with possible language impairments</td>
<td>Modification of diary interview. No specific research questions stated</td>
<td>Detailed considerations</td>
<td>Participatory photo and audio diaries</td>
<td>Combination of content, thematic and interpretive analysis techniques</td>
<td>Reflexive account throughout</td>
</tr>
<tr>
<td>Cabassa et al (2012) USA Health and Wellness Photovoice Project: Engaging Consumers With Serious Mental Illness in Health Care Interventions</td>
<td>Photo-Voice methodology</td>
<td>Photovoice method empowers participants to communicate their life experiences</td>
<td>Study design explicit. No specific research questions stated</td>
<td>Appropriate review boards approved procedures. Ethics of video in research not mentioned</td>
<td>Photovoice method including images, interviews and group sessions</td>
<td>Qualitative pile sorting techniques and constant comparative method</td>
<td>Participatory research methods can foster engagement and social action amongst overlooked populations</td>
<td>No reflexive account given</td>
</tr>
<tr>
<td>Capstick (2011) UK</td>
<td>Travels with a Flipcam: bringing the community to people with dementia in a day care setting through visual technology</td>
<td>Participatory Video (PV) methodology</td>
<td>Groups at risk of marginalisation become involved in making their own films</td>
<td>Study design of 3 phases, phase 2 being the focus of the article. No specific research questions stated</td>
<td>Detailed and comprehensive ethical considerations of using video in research</td>
<td>Participatory Video</td>
<td>Video’s not analysed but rather edited and combined with participants comments</td>
<td>Reflexive account throughout</td>
</tr>
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<tr>
<td>Chivanon et al (2011) Thailand Parent/Grandparent-Child Interactions and their Influence on Child Development</td>
<td>Ethnography</td>
<td>Not provided</td>
<td>Detailed study design. No specific research questions stated</td>
<td>Approval sought from relevant Ethical Research Committee. Ethics of video in research not mentioned</td>
<td>Video recordings of observation and interview</td>
<td>Descriptive statistics, content analysis of transcripts and ethnographic analysis. Analysis of video data not mentioned</td>
<td>Improved Parents/Grandparents interactions with their children during 5 major daily activities</td>
<td>No reflexive account given</td>
</tr>
<tr>
<td>Cook (2003) UK Using Video to Include the Experiences of people with Dementia in Research</td>
<td>Ethnographic and inclusive</td>
<td>Video recordings played back to participants to elicit perspectives on the data</td>
<td>Study design and research aims included. No specific research questions stated</td>
<td>The ethical implications of using video in research is stated</td>
<td>Participant observation and informal interviewing using field notes and video</td>
<td>Eliciting views from participants was problematic. Technique used in data analysis not mentioned</td>
<td>Video is a useful tool for involving people with dementia in research</td>
<td>Detailed reflexive account</td>
</tr>
<tr>
<td>Drew et al (2010) Australia Visual Storytelling: A Beneficial But Challenging Method for Health Research With Young People</td>
<td>Photovoice and photo elicitation Methodology</td>
<td>Visual approaches can accommodate various elements including communication and promoting voice</td>
<td>Described as a self-management study design. No specific research questions stated</td>
<td>Approval sought from relevant Ethical Research Committee. Ethics of video in research not mentioned</td>
<td>Photovoice and Photo Elicitation using in-depth interviews</td>
<td>Thematic analysis using Nvivo of transcribed audio-recorded interviews. Data from visual storytelling approach coded and analysed thematically</td>
<td>Visual Storytelling can aid reflection and communication issues that are difficult to conceptualize</td>
<td>Reflexive account of key issues provided throughout</td>
</tr>
<tr>
<td>Galman (2009) USA The truthful messenger: visual methods and representation in qualitative research in education</td>
<td>Ethnography</td>
<td>Integrating the novel as a collaborative visual text provides a snapshot of participant experience</td>
<td>Study design and objectives described. No specific research questions stated</td>
<td>Detailed ethical considerations of participants expressing themselves artistically</td>
<td>The graphic novel as a visual method</td>
<td>Content analysis, frequency counts and participant interpretation of meaning</td>
<td>Integrating the graphic novel as a collaborative visual text may aid data collection, analysis and representation</td>
<td>Detailed reflexive account</td>
</tr>
<tr>
<td>Gibson et al (2011) UK Re-constituting social praxis: an ethnomethodological analysis of video data in optometry consultations</td>
<td>Ethnomethodology</td>
<td>Analysis from this perspective would not be possible without video recorded data.</td>
<td>Description of strategies of analysis taken from larger project. No specific research questions stated</td>
<td>Not mentioned</td>
<td>Video recordings of one-to-one optometrist and patient consultations</td>
<td>In-depth description of data analysis using conversation analysis</td>
<td>Highlights the importance of video as a mechanism to the microanalysis of social praxis</td>
<td>No reflexive account given</td>
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<tr>
<td>Haggman-Laitila et al (2003) Finland</td>
<td>Video home training as a method of supporting family life control</td>
<td>Video recordings allow detailed analysis of interaction</td>
<td>Study design described as video home training. Aims and research questions clearly stated</td>
<td>Ethical issues involving visual methods were discussed in depth</td>
<td>Video recorded episodes of family counselling</td>
<td>Using the general method of analysing photographs and video material developed by anthropologist-photographers</td>
<td>The method helped families gain better control over their lives</td>
<td>Detailed reflexive account</td>
</tr>
<tr>
<td>Hansebo &amp; Kihlgren (2002) Sweden</td>
<td>Carers' interactions with patients suffering from severe dementia: a difficult balance to facilitate mutual togetherness</td>
<td>Qualitative phenomenological – hermeneutic methodology</td>
<td>Video recording utilised to illuminate carers interactions with residents in a care context</td>
<td>Study design and aims described. No specific research questions stated</td>
<td>Approved by Regional Research Ethics Committee. Ethical considerations of using visual methods were mentioned</td>
<td>Video-recorded care sessions</td>
<td>Video data transcribed in to text and analysed using a 3 step approach</td>
<td>The intervention contributed to an improvement in carers skills in balancing their interactions</td>
</tr>
<tr>
<td>Hirsch et al (2011) Germany</td>
<td>Reliability and validity of the German version of the OPTION scale</td>
<td>Quantitative no methodology stated</td>
<td>Assessment of the presence and characteristics of clinician’s communication behaviour</td>
<td>Cross-sectional assessment design. No research questions stated</td>
<td>Approved by local ethics committee. Ethics of using visual methods not mentioned</td>
<td>Video recorded consultations</td>
<td>Statistical analysis of 12-item five-point OPTION scale</td>
<td>The German version of the OPTION scale is reliable at total score level</td>
</tr>
<tr>
<td>Hostgaard &amp; Bertelsen (2012) Denmark</td>
<td>Video observation in HIT development: lessons learned on benefits and challenges</td>
<td>Hermeneutic Methodology clearly defined</td>
<td>Visual methods enable a thorough insight into complex clinical healthcare settings</td>
<td>Multiple case study design. Objectives clearly defined but no research questions stated</td>
<td>Ethics were discussed, visual images of patients were not used in dissemination</td>
<td>Non-participant video observation</td>
<td>Three step process including transcription, mapping and interpretation</td>
<td>Video observation is superior to other ethnographic methods when disclosing the complexity of clinical work practice</td>
</tr>
<tr>
<td>Hurdley (2007) UK</td>
<td>Focal points: framing material culture and visual data</td>
<td>No specific methodology specified</td>
<td>Photographs can be taken as non-verbal, non-textual frames of experience</td>
<td>Autophotography. No research questions stated</td>
<td>Not mentioned</td>
<td></td>
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<td>Reflexive account given throughout</td>
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**Table 1: Charting of articles for review**
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<tr>
<td>Liu et al (2012) Australia</td>
<td>Critical Ethnography</td>
<td>Video recordings provide useful insights into the complexities of nursing handover practices</td>
<td>A critical ethnographic design. Clear objectives but no research questions stated</td>
<td>Approved by hospital and university ethics committees. Ethics of using visual methods not mentioned</td>
<td>Participant observations, field interviews, video recordings and video reflexive focus groups</td>
<td>Transcription into text, coded using Nvivo and analysed using critical discourse analysis</td>
<td>Nurse co-ordinators should relinquish organisational control of handover and appreciate the contribution of bedside nurses</td>
<td>Reflexive focus groups to offer participants feedback</td>
</tr>
<tr>
<td>Maatta et al (2012) Finland</td>
<td>Small group interaction research</td>
<td>Not mentioned</td>
<td>Mixed methods case study. Clearly stated research questions</td>
<td>Not mentioned</td>
<td>Video recorded observations</td>
<td>Transcription into text. Qualitative content analysis. Crosstabulation</td>
<td>Efficacious interaction demanded collaboration between group members</td>
<td>No reflexive account given</td>
</tr>
<tr>
<td>McNaughton (2009) UK</td>
<td>No specific methodology stated</td>
<td>Video recordings can provide rich data about the complex nature of human interaction</td>
<td>Qualitative multi-case approach. Research questions stated</td>
<td>Ethical approval obtained for visual data collection, analysis and dissemination, vital especially when the focus is non-verbal communication</td>
<td>Video recorded observation and interview</td>
<td>5 stages of analysis described including video data transcribed into text, interpreted using discourse analytical techniques</td>
<td>Analysing video based verbal and non-verbal behaviour is replicable if clear steps in the process are highlighted</td>
<td>Some reflections offered on using video recordings in qualitative research</td>
</tr>
<tr>
<td>Meeuwesen et al (2006) Netherlands</td>
<td>No specific methodology stated</td>
<td>Not mentioned</td>
<td>Study design outlined, specific research questions not stated but referred to differences in relational aspects of medical communication</td>
<td>Not mentioned</td>
<td>Video recordings of doctor-patient consultations</td>
<td>Statistical analysis using Roter’s Interaction Analysis System (RIAS) (Roter, 1993)</td>
<td>Doctors invested more time understanding non-Western patients but illustrated more empathy with Dutch patients</td>
<td>No reflexive account given</td>
</tr>
<tr>
<td>Noy (2011) Israel</td>
<td>Ethnography</td>
<td>Not mentioned</td>
<td>Unclear study design and no research questions stated</td>
<td>Not mentioned</td>
<td>Video-based observation, field notes</td>
<td>Unclear</td>
<td>Visual images tell and conceal stories concerning the production of knowledge in social science research</td>
<td>Reflexive account throughout</td>
</tr>
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<tr>
<td>O’Toole (2013) Australia Capturing Undergraduate Experience through Participant-Generated Video</td>
<td>Phenomenology</td>
<td>Required for development of specific method referred to as ‘video-voice’. No specific research questions stated</td>
<td>Video Voices, similar to Photovoice but with video. No research questions stated</td>
<td>Detailed considerations included use of visual methods</td>
<td>Participant-generated visual images</td>
<td>Interpretative Phenomenological Analysis (IPA)</td>
<td>The method of participant-generated visual images enabled education, reflection and insight</td>
<td>Reflection given on methodological strength</td>
</tr>
<tr>
<td>Parry (2005) UK A video analysis of how physiotherapists communicate with patients about errors of performance: insights for practice and policy</td>
<td>Ethnomethodology</td>
<td>Not mentioned</td>
<td>Approval was gained from the local REC committee. Ethics of using visual methods not mentioned</td>
<td>Video recorded observations</td>
<td>Conversation analysis, transcription of videos into text</td>
<td>Additional research is required in physiotherapy communication</td>
<td>No reflexive account given</td>
<td></td>
</tr>
<tr>
<td>Persaud (2009) PhD Thesis Canada Pleasure in the daily lives of people living with advanced dementia in a long-term care facility: a multiple case study</td>
<td>Draws from various methodologies including ethnography, grounded theory and phenomenology</td>
<td>Video recordings of physiotherapy sessions. Aims clearly defined but no specific research questions stated</td>
<td>Extensive due to thesis requirements</td>
<td>Video recorded observations and interviews</td>
<td>Thematic analysis</td>
<td>Some sources of pleasure were lost, some maintained and new ones developed</td>
<td>Reflective writing throughout</td>
<td></td>
</tr>
<tr>
<td>Rhodes et al (2008) UK Electronic Medical Records in Diabetes Consultations: Participants’ Gaze as an Interactional Resource</td>
<td>Not stated but Ethnomethodology inferred</td>
<td>To illustrate different styles of interaction</td>
<td>Approval was gained from the local REC committee. Ethics of using visual methods not mentioned</td>
<td>Video recorded medical consultations</td>
<td>Conversation analysis, close scrutiny of minutiae of talk and action</td>
<td>The development of EMR’s in context is required</td>
<td>No reflexive account given</td>
<td></td>
</tr>
<tr>
<td>Rostvall &amp; West (2005) Sweden Theoretical and Methodological Perspectives on Designing Video Studies of Interaction</td>
<td>Unclear</td>
<td>Video recordings essential for capturing multimodal data including speech, gestures and music</td>
<td>Study design discussed but no research questions stated</td>
<td>Approved by Swedish Research Council. Ethics of visual methods not mentioned</td>
<td>Video recorded lessons</td>
<td>Transcription of multimodal communication into text using the Analysing and Reporting Transcription Tool (ARTT)</td>
<td>Multidisciplinary theoretical framework enables the general understanding of teaching and learning in terms of interaction can be widened</td>
<td>Reflexive writing throughout</td>
</tr>
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<tr>
<td>Tiitinen &amp; Ruusuvuori (2012) Finland Engaging parents through gaze: Speaker selection in three-party interactions in maternity clinics</td>
<td>Ethnomethodology</td>
<td>Not mentioned</td>
<td>Study design described and research questions referred to but not clearly stated</td>
<td>The collection of data was approved by the ethical board of the city administering the clinics. Ethics of using visual methods not mentioned</td>
<td>Video recorded encounters in maternity clinics</td>
<td>Two phases: crosstabulation and conversation analysis</td>
<td>Tendency to direct questions towards the mother as principle client in the clinic rather than the father</td>
<td>Implications for practice provided but no reflective account</td>
</tr>
<tr>
<td>Treloar et al (2007) Australia Broadening discussions of ‘safe’ in hepatitis C prevention: A close-up of swabbing in an analysis of video recordings of injecting practice</td>
<td>No specific methodology stated</td>
<td>Not mentioned</td>
<td>Study design discussed but no research questions stated</td>
<td>Ethical approval gained from Area Health Service committee. Ethics of using visual methods not mentioned</td>
<td>Video recording injecting processes &amp; in-depth interviews</td>
<td>Videos transcribed into text, themes generated and described</td>
<td>Broadening discussion 'safer' injecting can engage experienced patients in prevention</td>
<td>No reflexive account given</td>
</tr>
<tr>
<td>Trierweiler et al (2000) USA The Structure of Interpretations in Family Therapy: A Video-Enhanced Exploration</td>
<td>Video reconnaissance</td>
<td>Video operationalises the multiple experiences, descriptions and explanations of events</td>
<td>Multiple case study but no research questions stated</td>
<td>Reviewed and approved by a standard human subjects review board. Ethics of using visual methods not mentioned</td>
<td>Video recorded family therapy sessions</td>
<td>Video footage was transcribed and entered into a database for organisation and analysis</td>
<td>Video reconnaissance offers a much needed perspective on the meaning of sessions and psychotherapeutic interactions</td>
<td>Reflective interpretation by participants</td>
</tr>
<tr>
<td>Vom Lehn et al (2001) UK Exhibiting Interaction: Conduct and Collaboration in Museums and Galleries</td>
<td>Ethnomethodology</td>
<td>Visual methods enable the capture of action and interaction</td>
<td>General description of study design but no research questions stated</td>
<td>Ethics of visual methods considered</td>
<td>Audio-visual recordings, field observations, interviews</td>
<td>Video footage transcribed into text, conversation analysis</td>
<td>Video based data collection and analysis enable the detailed examination of social interaction in action</td>
<td>No reflexive account given</td>
</tr>
</tbody>
</table>
Figure 1: A diagram depicting the search yield

- **Electronic search**: Applied Social Sciences Index & Abstracts (ASSIA), Cumulative Index to Nursing & Allied Health Literature (CINAHL), PsycINFO, ProQuest and Scopus, International Bibliography of the Social Sciences (IBSS)

- **Non-electronic search**: Bibliographies of relevant papers, Dedicated methods websites, Significant journals and text books

- **Search results combined**: (n=1845)

- **Articles screened on basis of title and abstract**: (n=53)

- **Excluded**: (n=24): Discussion papers (n=7), Review articles (n=5), Methods papers (n=11), Ethics specific (n=1)

- **Included for charting**: (n=29)

- **Organised by analytic technique**
  - Unclear or not mentioned: (n=7)
  - Conversation analysis: (n=5)
  - Content analysis: (n=2)
  - Statistical analysis: (n=3)
  - (Critical) discourse analysis: (n=2)
  - Grounded Theory: (n=2)
  - Interpretative Phenomenological Analysis (IPA): (n=1)
  - Novel techniques: (n=4)
  - Thematic: (n=3)