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

3
4
5 *Challenges were encountered when attempting to analyse video based data during a project*
6 *exploring touch screen computer technology with people living with dementia. In order to*
7 *inform the analytic process, a scoping review of published evidence was undertaken. Results*
8 *of the scope illustrated the use of various techniques when analysing visual data, the most*
9 *common of which was the transcription of video into text and analysed using conversation*
10 *analysis. Three additional issues emerged in the course of the review. First, there is an*
11 *absence of detail when describing the ethical implications involved when utilising visual*
12 *methods in research. Second, limited priority is given to providing a clear rationale for*
13 *utilising visual methods when audio or field notes may have been a viable alternative. Third,*
14 *only 40% of reviewed articles clearly stated a chosen methodology. The conclusions of the*
15 *review illustrate a lack of consistency across studies in the overall reporting of research*
16 *methods and recommend that authors be explicit in their reporting of methodological issues*
17 *across the research process.*

18
19
20 **KEYWORDS:** Visual methods, data analysis, video recording, qualitative research

21

22 **Introduction**

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

33

34 This heightened awareness of the possibilities of the 'visual', specifically in academia, may
35 be explained by various contributing factors which include: the increased access we have to
36 reasonably priced technologies that enable such methods to be utilised; the desire of
37 contemporary social researchers to develop innovative and creative ways to disseminate
38 new knowledge; the differing ways that we as researchers and participants may use
39 technologies to express ourselves using photo-elicitation for example; the dependable
40 reputation of science regarding the ways social phenomena may be visually portrayed to the
41 public; and the varying ways research data is now collected, analysed and disseminated in
42 academia which has been accompanied by the advent of contemporary digital technologies.

43 The continuing rise in technological development coupled with an ongoing interest in visual
44 research methods is apparent in various academic disciplines including education, social
45 work, nursing, geography, information sciences, sociology, linguistics and health research.
46 These developments have extended the range of techniques available to researchers for the
47 capture, analysis and reporting of visual data, thus opening up new possibilities for research
48 and practice. The interest in the use of visual media in research has been expressed in a
49 comprehensive range of academic publications such as *Video in Qualitative Research*
50 (Heath, Hindmarsh, & Luff, 2010), *Visual Research Methods* (Margolis & Pauwels, 2011),
51 *Visual Methodologies* (Rose, 2012) and *Advances in Visual Methodologies* (Pink, 2012).
52 There is an expanse of information within each text ranging from 'how to' styles of visual
53 methods to developments in methodology and comprehensive accounts of original studies.
54 Some argue that visual research is not defined by methodological or theoretical traditions
55 but rather enables researchers to utilise that which is visual, visible and therefore
56 observable (Emmison, Smith, & Mayall, 2012). Nevertheless, existing texts contribute to an
57 ongoing debate within visual research between the need for *cross discipline methodological*
58 *frameworks, discipline specific frameworks or unique methodological frameworks,*
59 developed specifically for certain projects.

60

61 Cross discipline frameworks

62 Image-based research methodologies reflect the use of a wide range of visuals including film,
63 video, photographs and cartoons, within a qualitative research context. Image-based
64 research is also '*meant to apply generically to encompass a wide range of fields including*
65 *sociology, anthropology, education and health studies*' (Prosser, 1998 p. 25). Proponents of

66 a cross discipline unified framework support the need for a common visual methodology in
67 order to create a critical platform to debate and refine visual methods, ultimately enhancing
68 the status of image based research. Jon Prosser provides a discussion on the specific
69 elements that constitute a visual methodology comprising 'words and images'; frameworks
70 and contexts'; 'data collection'; 'the recording of data'; 'interpreting images'; 'ethics'; and
71 'the research report' (Prosser, 1996). These elements make up a framework aimed to direct
72 and inform image based research irrespective of the discipline within which it is utilised.

73

74 Discipline specific frameworks

75 Strengthening the debate for an integrated framework to enable clarity and decrease
76 disparity within image based research is proposed by the 'Integrated Framework for Visual
77 Social Research' (Pauwels, 2010). This framework provides a comprehensive step by step
78 progression to account for the design, implementation and dissemination of visual research.
79 Pauwels advocates an image based research methodology promoting '*the idea that valid*
80 *insight in society can be acquired by observing, analysing and theorizing it's visual*
81 *manifestations: behaviour of people and material products of culture'* (2010 p.546). The
82 framework comprises three themes 'origin and nature of visuals'; 'research focus and
83 design'; and 'format and purpose'. Although remaining focused on image based research,
84 this framework is discipline specific to visual sociology and not intended to be applicable
85 across disciplines. Pauwels claims that discipline specific frameworks are required to
86 address discipline specific research questions and he argues that without them visual
87 methods can be reinvented over and over again without gaining any 'methodological depth'
88 (2010 p.546), within the discipline of visual sociology. Other disciplines thus require their

89 own frameworks that are specific to the research questions being posed as existing
90 frameworks will not translate sufficiently across to disciplines outside visual sociology.

91

92 Unique methodological frameworks

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

104

105 So, despite an increasing dedication to the 'visual', researchers in this field, as in other fields,
106 remain disparate in their descriptions of what may constitute a valid methodological
107 approach in the collection, analysis and reporting of visual data. There is considerable
108 diversity in existing approaches that suggest a visual methodology that may transcend
109 disciplines, may be discipline specific or that treats each visual methodology as unique and
110 discrete from the other. However, no single methodological approach claims to be the only

111 way to undertake visual research; rather this disparity in approaches is concerned with the
112 appropriateness of accumulating knowledge across the social sciences, within a specific
113 discipline or within a particular project. It could be argued that each approach will have
114 strengths and weaknesses dependent upon discipline, research questions and the paradigm
115 within which the researcher is working. Therefore decisions need to be made regarding the
116 suitability of using existing frameworks or developing novel frameworks for visual data that
117 are unique to each project. Paradoxically, such decisions need to be informed by existing
118 evidence and research projects that have already taken place. It was this particular
119 challenge that was encountered when embarking on the qualitative analysis of the
120 researchers own visual data. This subsequently led to a review of the literature in order to
121 explore similar methods of data analysis used successfully by researchers in the past.

122

123 **The Scoping Review**

124 Scoping reviews are a style of literature review that delivers an overview of the type, extent
125 and quantity of research available on a given topic. Scoping reviews are commonly applied
126 to broader topic areas where the evidence may be distributed across a range of disciplines,
127 databases and study designs providing the extent of evidence for a topic at a particular
128 point in time. For the purposes of this review, the author has drawn on the methodological
129 framework referred to as the 'York Framework' (Arksey & O'Malley, 2005). The process
130 describes a combination of 5 stages; identifying the research question, identifying relevant
131 studies, study selection, charting the data, collating, summarizing and reporting the results.
132 By exploring the existing literature, conclusions can be reached regarding the current extent,
133 breadth and quality of research activity and subsequent evidence. The primary goal of this

134 scoping review was to determine the various techniques utilised during the analysis of
135 qualitative visual data. As indicated above, the scoping review is appropriate in this case
136 because the topic is broad, spans many disciplines and involves various research designs
137 enabling the large extent of evidence to be mapped effectively. Although this scoping
138 review does not follow the quality assessment that is required for systematic reviews (Booth,
139 Carroll, Ilott, Low, & Cooper, 2013; Centre for Reviews and Dissemination, 2009), a checklist
140 for assessing the quality of qualitative studies (Kmet, Lee, & Cook, 2004 p.5) was referred to,
141 elements of which were drawn from during the review. However, additional elements were
142 included that were considered essential in enabling the author to critically comment on the
143 quality of each article as part of this particular reviewing process. These were: ethical
144 considerations; rationale for using visual methods; and a clear statement of methodology.
145 This was important as different reviews will prioritise different information depending on
146 the topic under review. Alongside the author and article title, information was recorded as
147 follows: -

148

- 149 *1. Methodology*
- 150 *2. Rationale for visual methods*
- 151 *3. Study design & questions*
- 152 *4. Ethics of visual research*
- 153 *5. Data collection methods*
- 154 *6. Data analysis technique*
- 155 *7. General findings*
- 156 *8. Reflexivity*

157 *Search Method*

158 As already indicated, the whole point of scoping the field is to be as comprehensive as possible in
159 identifying primary studies suitable for answering the central research question (Arksey & O'Malley,
160 2005), which was 'what techniques have been previously used by social sciences researchers when
161 analysing qualitative visual data?' To achieve this, a strategy was adopted that involved searching
162 for research evidence via different sources including electronic databases, reference lists, hand-
163 searching of key journals, existing networks, relevant organisations and conferences (Arksey &
164 O'Malley, 2005). Whilst the search was broad, it should be acknowledged that practical constraints
165 including time and on-line access to journals may have resulted in potentially relevant articles being
166 overlooked. Literature searching took place between 7th and 14th October 2013 and included
167 articles from all disciplines, all countries and all available years. The only limitation made on
168 the search was that articles should be published in English.

169

170 *Search terms*

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

174

175 *Search Outcome*

176 A diagram of the search yield can be found in Figure 1. The search terms were well defined
177 at the outset of the review, nevertheless a large quantity of irrelevant studies were
178 identified (n=1,845). This large number highlights a particular characteristic of scoping

179 studies that illustrates breadth rather than depth. The inclusion criteria based on the nature
180 of the research question were concentrated on qualitative visual data analysis techniques.
181 The initial yield was therefore sifted and articles excluded if the title and abstract did not
182 represent a 'best fit' with research question (Arksey & O'Malley, 2005). The search
183 identified 53 articles based on title and abstracts that were considered potentially relevant.
184 All 53 articles were read in full and a further 24 were excluded for the following reasons.

185

186 Discussion papers were excluded (for example Erickson, 2011; Mason, 2005) as the content
187 focused on experiences and understandings of visual methods rather than techniques to
188 analyse visual data (n=7). It was considered that increased understandings of what had
189 taken place before could be better gained from articles reporting primary research data that
190 would encompass the data collection and analytic techniques utilised, a greater knowledge
191 of which was the primary aim of the scoping review. Review papers (for example Prosser &
192 Loxley, 2008) were excluded as they were not specific to analytical techniques and beyond
193 the remit of this review (n=5). Similarly to the discussion papers, articles that were
194 focussed purely on methods were excluded (for example Schnettler & Raab, 2008) as
195 authors were not describing primary research thus no focus on analytical technique (n=11).
196 The methods papers that were excluded focused on the history of visual methods and how
197 methods have evolved, generally due to the digital era, rather than specific techniques to
198 collect, analyse and disseminate visual data. Finally, one article was specific to the ethical
199 considerations involved when using visual methods but excluded as no primary data was
200 described for review (n=1).

201

202 After exclusions had been applied, 29 articles were identified for full review. All reviewed
203 articles were classified by the analytic technique employed in the study design. The
204 information in Table 1 illustrates the reviewed articles which were charted to include
205 specific information regarding methodological techniques in combination with more general
206 information about the study as described above.

207

208 (Insert Figure 1 about here)

209 (Insert Table 1 about here)

210

211 **Results**

212 All 29 reviewed articles described a study design although 20 omitted to state research
213 questions. However, of this 20, 7 did report specific aims and objectives of the research (for
214 example, Galman, 2009; Liu, Manias, & Gerdtz, 2012). All 29 articles reported specific
215 techniques for data collection and general findings. Of these 29 papers, 22 went on to
216 discuss clear data analysis techniques. The remaining 7 articles alluded to certain techniques
217 without mentioning anything specific including coding, categorising or themes (Avraamidou
218 & Zembal-Saul, 2010; Häggman-Laitila, Pietilä, Friis, & Vehviläinen-Julkunen, 2003; Hurdley,
219 2007) or they omitted to discuss any analytical processes (Capstick, 2011; Cook, 2003; Noy,
220 2011; Trierweiler, Nagata, & Banks, 2000). Of the 22 articles that described a specific
221 analytic technique, the most common method used was conversation analysis (5) which
222 requires the close scrutiny of the minutiae of talk and action to be transcribed into text and
223 analysed. A clear example is provided by Tiitinen & Ruusuvoori (2012) who undertook an
224 Ethnomethodology of three-party interactions in maternity clinics using conversation
225 analysis to analyse collated video data. Findings indicated that the professional had a
226 tendency to direct questions towards the mother as principal client rather than the father. A
227 further two articles utilised qualitative content analysis as one method of analysing their
228 data. For example, Maatta, Jarvenoja, & Jarvela (2012) transcribed video footage of
229 collaborative learning situations into text. Using content analysis, codes were identified and
230 three triggers were categorised as influencing the efficacy of student activity.

231

232 Of the 29 articles included in the review, 11 discussed the ethical issues involved with the
233 use of visual methods in detail. For example, Capstick (2011) explored the ethical
234 considerations of adapting a Participatory Video approach to enhance usability with people

235 with dementia living in a residential care setting. The author provides clear reflections
236 concerning the ethical decisions and rationale involved when utilising visual methods as well
237 as considering how existing methods should be modified when researching with different
238 groups. A further 11 articles used a standard sentence that appears to be the accepted
239 norm in academic research papers, for example '*ethical approval was gained from the local*
240 *research ethics committee*' or something similar. The remaining 7 articles omitted to
241 mention ethical concerns regarding the use of visual research methods.

242

243 A related issue when designing research, considering the ethical implications of visual
244 methods including confidentiality and anonymity for example, is to defend the use of the
245 visual when traditional 'non-visual' methods may have been more appropriate. Of the 29
246 articles included in this review, 21 gave a clear explanation of why video recordings appear
247 to supersede alternative data collection methods (for example, Bartlett, 2011; Cabassa et al.,
248 2013; Capstick, 2011; Galman, 2009; Hostgaard and Bertelsen, 2012). Of these 21 articles,
249 eight involved a population that may be considered vulnerable which heightens the
250 importance of stating a clear rationale for using visual methods. Of the remaining eight
251 articles that omitted to provide a clear rationale for the use of visual methods, three articles
252 involved sensitive topics or participants under the age of 18 (Chivanon, Wacharasin,
253 Homchampa & Phuphaibul, 2011; Parry, 2005; Treloar et al., 2008) which highlights the
254 under-reporting of methods in general found in this review.

255

256 Of the 29 studies reviewed, 12 clearly stated a chosen methodology. For example, two
257 studies utilised a methodology referred to as Photovoice (Cabassa et al., 2013; Drew et al.,
258 2010). The methodology behind Photovoice is focussed on participatory methods, providing

259 certain groups, who may either be marginalised or disadvantaged in society, with a voice in
260 a research context. A further 10 articles were unclear but alluded to or inferred certain
261 methodologies including Phenomenology or Ethnomethodology. The remaining seven
262 articles omitted to state a specific methodology highlighting an under-description of
263 methods overall in this review. The inclusion of reflexive accounts in study reporting were
264 provided by 15 authors, 10 of which could be considered to be researching sensitive topics
265 with populations considered as vulnerable (for example, Capstick, 2011; Drew et al., 2010;
266 Häggman-Laitila et al., 2003).

267

268 Of the 29 articles reviewed, only one comprehensively described the 8 point checklist for
269 assessing the quality of qualitative studies (Kmet et al 2004) that was referred to and
270 extended upon during this review process. This comprehensive account was given in a PhD
271 thesis (Persaud, 2009) which realistically allowed the time and word count for such detail.
272 Of the remaining 28 articles, 7 only omitted one criteria from the checklist, the most
273 common being the statement of research questions. For example, Bartlett (2012) carried
274 out a Sensory Ethnography using participatory photos and audio diaries to research the lives
275 of people with dementia. Equal importance was given to the methods for data collection
276 and analysis as well as a clear methodology and detailed ethical considerations concerning
277 the use of visual methods in research. In addition, Mcnaughton (2009) focused purely on
278 analysing interactions in video recordings by providing a detailed step by step process for
279 data analysis. This enabled clarity and transparency for the reader but equally the detailed
280 focus on data analysis did not detract from the importance of discussing the chosen
281 methodology and the ethical considerations of the research. Finally, O'Toole (2013) sought
282 to capture the experience of undergraduates using Participant-Generated Video. The

283 methods of data collection and analysis were clear and given equal weighting in the article.
284 The rationale for the chosen methodology was explained appropriately. There was excellent
285 reflection on the ethics of human participation using visual methods taken from the
286 perspective of the undergraduates as participants. Of the remaining 21 articles included in
287 this scoping review, 8 omitted to include 4 or more criteria from the checklist (for example,
288 Avraamidou & Zembal-Saul, 2010; Chivanon, Wacharasin, Homchampa, & Phuphaibul,
289 2011).

290

291 **Discussion**

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

306 this review is focused on qualitative visual methods it should be acknowledged that the
307 results of the search yield were a product of the specific journals included in the scope.

308

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

320

321 *Data analysis techniques*

322 In addition to the under reporting of visual methods, the difficulties encountered when
323 analysing visual data may be one of the reasons for its limited use (Prosser, 1998). The
324 results of this review have highlighted limited evidence focusing directly with the techniques
325 and processes involved in video analysis. Some have argued that '*analysis, by definition, is a*
326 *contextual issue, so general prescriptions on how to organise or process data are of limited*
327 *use*' (Gibson, Webb, & vom Lehn, 2011, p208). In addition to the lack of specific techniques,

328 there was limited and vague detail concerning the practicalities and processes involved
329 when analysing visual data. Nevertheless, some authors have aligned themselves with
330 particular techniques, the most popular being conversation analysis (n=5/29) which is
331 closely aligned with Ethnomethodology. Ethnomethodology and conversation analysis
332 explore the organisation of 'segments of action' by representing the nuances of
333 conversation through features including pauses, intonations, eye gaze, objects, gesture.
334 These segments are transcribed verbatim and the resulting text is analysed thematically
335 then broken down to the minutiae of speech, pause etc. Using sequences of still images
336 aligned with text illustrates how the verbal and non-verbal are united. Researchers using
337 these techniques stress the importance of translating what is 'seen' verbatim into text and
338 extracting meaning from the written words (Rose 2000). The qualitative analysis of video
339 data from an ethnomethodological tradition has been primarily influence by academics
340 including Heath, Hindmarsh and Luff, (2010) as well as Knoblauch & Schnettler (2012).

341

342 However, the advent of video recorders as a data collection technique has successfully
343 shifted the emphasis from purely text based analysis to include the complexity of all that is
344 non-verbal as well as what may be going on contextually. Thus non-verbal behaviours
345 including eye gaze, posture and gesture can be equally meaningful when aligned with verbal
346 behaviour that has been transcribed into text. Nevertheless, all the reviewed articles that
347 did define a specific technique for analysing visual data, described a process of transcribing
348 the visual into text based transcripts. Of course, not all visual researchers will use their data
349 once the analysis stage has passed and many will not require it to be disseminated. Yet,
350 given the complex ethical considerations required and the time intensive nature of

351 analysing visual data this may question the appropriateness of using such methods over
352 field notes or audio recordings if the visual output is ultimately to be transformed into text?
353 Visual data can be powerful when disseminated to the right audiences as it can provide
354 opportunities to 'see' the potential of an intervention, for example, rather than 'read' about
355 it.

356

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

373 this will come at the expense of another resulting in an end product that will be incoherent
374 and methodologically weak.

375

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

383

384 *Ethical considerations in research*

385 This review found limited evidence regarding the appropriateness of capturing visual data in
386 general or the rationale for using visual data when audio or field notes may have sufficed.
387 This is concerning, certainly from an ethical perspective. Ethical considerations are
388 heightened when utilising visual methods in all research involving human participants as
389 capturing behaviour via video or still cameras could be seen as an intrusion into a person's
390 privacy. Thus, issues of confidentiality and anonymity come to the fore requiring sensitive
391 and detailed consent procedures. Yet, given the obvious importance of such procedures
392 there is limited evidence in the literature that ethical concerns were at the forefront of the
393 design, implementation and dissemination of research results. The results of this review
394 highlight that many articles omitted to address any ethical issues involved when using visual

395 methods; this was mainly the concern of dedicated papers wholly focussed on the topic of
396 visual ethics, Wiles et al (2012) for example. From the 29 articles reviewed only eight
397 authors reported on the possible ethical implications of their research and understandably
398 these studies involved participants that were under the age of 18 or considered as
399 vulnerable. A further thirteen have assumed that a general sentence in the methods section
400 of an academic article is sufficient clarification for the reader that the complexities involved
401 in research ethics have been thought through. Finally, eight authors omitted to mention any
402 ethical considerations of using visual methods in research.

403

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

410

411 Certainly, in the UK, regulating the ethical implications involved in social research requires the
412 constant and consistent review of existing and emerging ethical issues. In consequence
413 numerous ethical frameworks have become a popular source of reference for researchers
414 including the ESRC Research Ethics Framework for example (Wiles et al., 2008). As the
415 popularity and incidence of visual methods in particular increases, in accordance with the
416 'digital age', the corresponding ethical guidelines are becoming more stringent and visually

417 specific. These now include the BSA's Visual Sociology Group's statement of ethical practice
418 (BSA, 2006) and the International Visual Sociology Association Code of Research Ethics and
419 Guidelines (Papademas, 2009).

420

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

432

433 *Rationale when using visual methods*

434 Limited articles included justification for using video based methods. Unquestionably,
435 certain populations will be considered as vulnerable which will necessarily require
436 heightened and detailed rationale for using visual methods. Nevertheless, utilising visual
437 methods should always be regarded as an intrusion into the persons privacy thus justified
438 accordingly. Questions need to be asked whether traditional audio or field notes would

439 have been sufficient in many of these circumstances. A recent literature review to evaluate
440 researcher choices involved in the use of visual methods also suggests clear messages need
441 to be conveyed regarding methods selection (Pain, 2012). Many of these choices will no
442 doubt be ethically driven and should require detailed consideration by the researcher and
443 the ethical review board involved.

444

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

458

459

460

461 *Statement of a chosen methodology*

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

483

484 **Conclusions**

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

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

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Table 1: Charting of articles for review

Author & Title	Statement of Methodology	Rationale for visual methods	Study design & questions	Ethics for use of visual methods	Data collection technique	Data analysis technique	General findings	Reflexivity
Astell et al (2010) UK Using a touch screen computer to support relationships between people with dementia and caregivers	None mentioned	To capture non-verbal behaviour	User-centred design and explicit research questions	None mentioned	Video recorded reminiscence sessions	Computer assisted quantitative coding and categorizing of verbal and non-verbal behaviours	Interacting with a touch screen is engaging for people with dementia	No reflexive account given
Avraamidou & Zembal-Saul (2010) Cyprus/USA In Search of Well-Started Beginning Science Teachers: Insights From Two First-Year Elementary Teachers	Unclear, inquiry based approach	Not provided	Qualitative case study design and explicit research questions	Not mentioned	Audio-recorded interviews, video-recorded classroom observations, lesson plans and samples of students work	Unclear – categorising and coding mentioned	Participants perceived specific learning experiences as being critical to development	No reflexive account given
Bartlett (2012) UK Modifying the Diary Interview Method to Research the Lives of People with Dementia	Sensory ethnography	Researching with participants with possible language impairments	Modification of diary interview. No specific research questions stated	Detailed considerations	Participatory photo and audio diaries	Combination of content, thematic and interpretive analysis techniques	Sensory ethnography mediates an equal relationship and makes visible the 'whole person' including the environment in which that person lives	Reflexive account throughout
Cabassa et al (2012) USA Health and Wellness Photovoice Project: Engaging Consumers With Serious Mental Illness in Health Care Interventions	Photo-Voice methodology	Photovoice method empowers participants to communicate their life experiences	Study design explicit. No specific research questions stated	Appropriate review boards approved procedures. Ethics of video in research not mentioned	Photovoice method including images, interviews and group sessions	Qualitative pile sorting techniques and constant comparative method	Participatory research methods can foster engagement and social action amongst overlooked populations	No reflexive account given
Capstick (2011) UK Travels with a Flipcam: bringing the community to people with dementia in a day care setting through visual technology	Participatory Video (PV) methodology	Groups at risk of marginalisation become involved in making their own films	Study design of 3 phases, phase 2 being the focus of the article. No specific research questions stated	Detailed and comprehensive ethical considerations of using video in research	Participatory Video	Video's not analysed but rather edited and combined with participants comments	Participatory approaches can be successful if modified when researching with people with dementia	Reflexive account throughout

Table 1: Charting of articles for review

Author & Title	Statement of Methodology	Rationale for visual methods	Study design & questions	Ethics for use of visual methods	Data collection technique	Data analysis technique	General findings	Reflexivity
Chivanon et al (2011) Thailand Parent/Grandparent-Child Interactions and their Influence on Child Development	Ethnography	Not provided	Detailed study design. No specific research questions stated	Approval sought from relevant Ethical Research Committee. Ethics of video in research not mentioned	Video recordings of observation and interview	Descriptive statistics, content analysis of transcripts and ethnographic analysis. Analysis of video data not mentioned	Improved Parents/Grandparents interactions with their children during 5 major daily activities	No reflexive account given
Cook (2003) UK Using Video to Include the Experiences of people with Dementia in Research	Ethnographic and inclusive	Video recordings played back to participants to elicit perspectives on the data	Study design and research aims included. No specific research questions stated	The ethical implications of using video in research is stated	Participant observation and informal interviewing using field notes and video	Eliciting views from participants was problematic. Technique used in data analysis not mentioned	Video is a useful tool for involving people with dementia in research	Detailed reflexive account
Drew et al (2010) Australia Visual Storytelling: A Beneficial But Challenging Method for Health Research With Young People	Photovoice and photo elicitation Methodology	Visual approaches can accommodate various elements including communication and promoting voice	Described as a self-management study design. No specific research questions stated	Approval sought from relevant Ethical Research Committee. Ethics of video in research not mentioned	Photovoice and Photo Elicitation using in-depth interviews	Thematic analysis using Nvivo of transcribed audio-recorded interviews. Data from visual storytelling approach coded and analysed thematically	Visual Storytelling can aid reflection and communication issues that are difficult to conceptualize	Reflexive account of key issues provided throughout
Galman (2009) USA The truthful messenger: visual methods and representation in qualitative research in education	Ethnography	Integrating the novel as a collaborative visual text provides a snapshot of participant experience	Study design and objectives described. No specific research questions stated	Detailed ethical considerations of participants expressing themselves artistically	The graphic novel as a visual method	Content analysis, frequency counts and participant interpretation of meaning	Integrating the graphic novel as a collaborative visual text may aid data collection, analysis and representation	Detailed reflexive account
Gibson et al (2011) UK Re-constituting social praxis: an ethnomethodological analysis of video data in optometry consultations	Ethnomethodology	Analysis from this perspective would not be possible without video recorded data.	Description of strategies of analysis taken from larger project. No specific research questions stated	Not mentioned	Video recordings of one-to-one optometrist an patient consultations	In-depth description of data analysis using conversation analysis	Highlights the importance of video as a mechanism to the microanalysis of social praxis	No reflexive account given

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Author & Title	Statement of Methodology	Rationale for visual methods	Study design & questions	Ethics for use of visual methods	Data collection technique	Data analysis technique	General findings	Reflexivity
Haggman-Laitila et al (2003) Finland Video home training as a method of supporting family life control	None mentioned	Video recordings allow detailed analysis of interaction	Study design described as video home training. Aims and research questions clearly stated	Ethical issues involving visual methods were discussed in depth	Video recorded episodes of family counselling	Using the general method of analysing photographs and video material developed by anthropologist-photographers	The method helped families gain better control over their lives	Detailed reflexive account
Hansebo & Kihlgren (2002) Sweden Carers' interactions with patients suffering from severe dementia: a difficult balance to facilitate mutual togetherness	Qualitative phenomenological – hermeneutic methodology	Video recording utilised to illuminate carers interactions with residents in a care context	Study design and aims described. No specific research questions stated	Approved by Regional Research Ethics Committee. Ethical considerations of using visual methods were mentioned	Video-recorded care sessions	Video data transcribed in to text and analysed using a 3 step approach	The intervention contributed to an improvement in carers skills in balancing their interactions	Reflexive account on methodological considerations
Hirsch et al (2011) Germany Reliability and validity of the German version of the OPTION scale	Quantitative no methodology stated	Assessment of the presence and characteristics of clinician's communication behaviour	Cross-sectional assessment design. No research questions stated	Approved by local ethics committee. Ethics of using visual methods not mentioned	Video recorded consultations	Statistical analysis of 12-item five-point OPTION scale	The German version of the OPTION scale is reliable at total score level.	No reflexive account given
Hostgaard & Bertelsen (2012) Denmark Video observation in HIT development: lessons learned on benefits and challenges	Hermeneutic Methodology clearly defined	Visual methods enable a thorough insight into complex clinical healthcare settings	Multiple case study design. Objectives clearly defined but no research questions stated	Ethics were discussed, visual images of patients were not used in dissemination	Non-participant video observation	Three step process including transcription, mapping and interpretation	Video observation is superior to other ethnographic methods when disclosing the complexity of clinical work practice	Reflection on strengths and weaknesses
Hurdley (2007) UK Focal points: framing material culture and visual data	No specific methodology specified	Photographs can be taken as non-verbal, non-textual frames of experience	Autophotography. No research questions stated	Not mentioned	Questionnaires, autophotography and interviews	Multimodal and interpretive but specific technique unclear	Multi-modal methods of presentation can illuminate the complex dimensions both of home lives and of enquiry into the domestic interior	Reflexive account given throughout

Table 1: Charting of articles for review

Author & Title	Statement of Methodology	Rationale for visual methods	Study design & questions	Ethics for use of visual methods	Data collection technique	Data analysis technique	General findings	Reflexivity
Liu et al (2012) Australia Medication communication between nurses and patients during nursing handovers on medical wards: A critical ethnographic study	Critical Ethnography	Video recordings provides useful insights into the complexities of nursing handover practices	A critical ethnographic design. Clear objectives but no research questions stated	Approved by hospital and university ethics committees. Ethics of using visual methods not mentioned	Participant observations, field interviews, video recordings and video reflexive focus groups	Transcription into text, coded using Nvivo and analysed using critical discourse analysis	Nurse co-ordinators should relinquish organisational control of handover and appreciate the contribution of bed-side nurses	Reflexive focus groups to offer participants feedback
Maatta et al (2012) Finland Triggers of Students' Efficacious Interaction in Collaborative Learning Situations	Small group interaction research	Not mentioned	Mixed methods case study. Clearly stated research questions	Not mentioned	Video recorded observations	Transcription into text. Qualitative content analysis. Crosstabulation	Efficacious interaction demanded collaboration between group members	No reflexive account given
McNaughton (2009) UK Closing in on the Picture: Analysing Interactions in Video Recordings	No specific methodology stated	Video recordings can provide rich data about the complex nature of human interaction	Qualitative multi-case approach. Research questions stated	Ethical approval obtained for visual data collection, analysis and dissemination, vital especially when the focus is non-verbal communication	Video recorded observation and interview	5 stages of analysis described including video data transcribed into text, interpreted using discourse analytical techniques	Analysing video based verbal and non-verbal behaviour is replicable if clear steps in the process are highlighted	Some reflections offered on using video recordings in qualitative research
Meeuwesen et al (2006) Netherlands Do Dutch doctors communicate differently with immigrant patients than with Dutch patients?	No specific methodology stated	Not mentioned	Study design outlined, specific research questions not stated but referred to differences in relational aspects of medical communication	Not mentioned	Video recordings of doctor-patient consultations	Statistical analysis using Roter's Interaction Analysis System (RIAS) (Roter, 1993)	Doctors invested more time understanding non-Western patients but illustrated more empathy with Dutch patients	No reflexive account given
Noy (2011) Israel The Aesthetics of Qualitative (Re)search: Performing Ethnography at a Heritage Museum	Ethnography	Not mentioned	Unclear study design and no research questions stated	Not mentioned	Video-based observation, field notes	Unclear	Visual images tell and conceal stories concerning the production of knowledge in social science research	Reflexive account throughout

Table 1: Charting of articles for review

Author & Title	Statement of Methodology	Rationale for visual methods	Study design & questions	Ethics for use of visual methods	Data collection technique	Data analysis technique	General findings	Reflexivity
O'Toole (2013) Australia Capturing Undergraduate Experience through Participant-Generated Video	Phenomenology	Required for development of specific method referred to as 'video-voice'. No specific research questions stated	Video Voices, similar to Photovoice but with video. No research questions stated	Detailed considerations included use of visual methods	Participant-generated visual images	Interpretative Phenomenological Analysis (IPA)	The method of participant-generated visual images enabled education, reflection and insight	Reflection given on methodological strength
Parry (2005) UK A video analysis of how physiotherapists communicate with patients about errors of performance: insights for practice and policy	Ethnomethodology	Not mentioned	Video recordings of physiotherapy sessions. Aims clearly defined but no specific research questions stated	Approval was gained from the local REC committee. Ethics of using visual methods not mentioned	Video recorded observations	Conversation analysis, transcription of videos into text	Additional research is required in physiotherapy communication	No reflexive account given
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	Draws from various methodologies including ethnography, grounded theory and phenomenology	Video recording offers more detailed observational records than traditional methods and essential for capturing facial expression. Research questions stated	Collective case study research design. Research questions stated	Extensive due to thesis requirements	Video recorded observations and interviews	Thematic analysis	Some sources of pleasure were lost, some maintained and new ones developed	Reflective writing throughout
Rhodes et al (2008) UK Electronic Medical Records in Diabetes Consultations: Participants' Gaze as an Interactional Resource	Not stated but Ethnomethodology inferred	To illustrate different styles of interaction	Study design discussed but no research questions stated	Approval was gained from the local REC committee. Ethics of using visual methods not mentioned	Video recorded medical consultations	Conversation analysis, close scrutiny of minutiae of talk and action	The development of EMR's in context is required	No reflexive account given
Rostvall & West (2005) Sweden Theoretical and Methodological Perspectives on Designing Video Studies of Interaction	Unclear	Video recordings essential for capturing multimodal data including speech, gestures and music	Study design detailed and research questions clearly stated	Approved by Swedish Research Council. Ethics of visual methods not mentioned	Video recorded lessons	Transcription of multimodal communication into text using the Analysing and Reporting Transcription Tool (ARTT)	Multidisciplinary theoretical framework enables the general understanding of teaching and learning in terms of interaction can be widened	Reflexive writing throughout

Table 1: Charting of articles for review

Author & Title	Statement of Methodology	Rationale for visual methods	Study design & questions	Ethics for use of visual methods	Data collection technique	Data analysis technique	General findings	Reflexivity
Tiitinen & Ruusuvaori (2012) Finland Engaging parents through gaze: Speaker selection in three-party interactions in maternity clinics	Ethnomethodology	Not mentioned	Study design described and research questions referred to but not clearly stated	The collection of data was approved by the ethical board of the city administering the clinics. Ethics of using visual methods not mentioned	Video recorded encounters in maternity clinics	Two phases:- crosstabulation and conversation analysis	Tendency to direct questions towards the mother as principle client in the clinic rather than the father	Implications for practice provided but no reflective account
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	No specific methodology stated	Not mentioned	Study design discussed but no research questions stated	Ethical approval gained from Area Health Service committee. Ethics of using visual methods not mentioned	Video recording injecting processes & in-depth interviews	Videos transcribed into text, themes generated and described	Broadening discussion on 'safer' injecting can engage experienced patients in prevention	No reflexive account given
Trierweiler et al (2000) USA The Structure of Interpretations in Family Therapy: A Video-Enhanced Exploration	Video reconnaissance	Video operationalises the multiple experiences, descriptions and explanations of events	Multiple case study but no research questions stated	Reviewed and approved by a standard human subjects review board. Ethics of using visual methods not mentioned	Video recorded family therapy sessions	Video footage was transcribed and entered into a database for organisation and analysis	Video reconnaissance offers a much needed perspective on the meaning of sessions and psychotherapeutic interactions	Reflective interpretation by participants
Vom Lehn et al (2001) UK Exhibiting Interaction: Conduct and Collaboration in Museums and Galleries	Ethnomethodology	Visual methods enable the capture of action and interaction	General description of study design but no research questions stated	Ethics of visual methods considered	Audio-visual recordings, field observations, interviews	Video footage transcribed into text, conversation analysis	Video based data collection and analysis enable the detailed examination of social interaction in action	No reflexive account given

Figure 1: A diagram depicting the search yield



