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Virtual Fieldwork Using Access Grid

Nigel Fielding, Department of Sociology,
University of Surrey

Abstract

This article discusses the use of Access Grid (AG)—a form of video teleconferencing delivered over computer networks—to perform fieldwork. Interviews and group discussions were conducted with students and criminal court judges at sites remote from the fieldworker. A concept of “engagement” was used to identify distinctive interactional features and provide a first insight into the AG as a fieldwork medium.

Technology is increasingly affecting social research methods and a prime current site of innovation is fieldwork and qualitative data analysis. This article discusses the world’s first “fieldwork” using Access Grid (AG) technology. The research explored the use of devices called Access Grid Nodes (AGNs; see www.accessgrid.org) as a medium for interviews and group discussions with participants at sites remote from the fieldworker.

Interviews and group discussions were conducted with computer science and social science students at British universities by me and Maria Macintyre. The topic was attitudes toward acting as a criminal trial witness (linked to research reported in Fielding 2006). Subsequently, we conducted group discussions between judges at British and U.S. courts. The criminal justice topic was a vehicle to explore issues relating Access Grid fieldwork to computer-mediated communication (CMC) and video teleconferencing and to mode effects in field methods. The research was, to our knowledge, the first to use AG for virtual fieldwork.¹

Interviews and discussions do not, of course, exhaust the range of field methods. We chose them because they are widely used, but consequently, issues associated with other field methods were not covered (e.g., immersion during participant observation). As a first account of AG-mediated fieldwork, this article, like the research, has focused and limited objectives. It explores situations in which the technology’s affordances might make it attractive relative to physically co-present fieldwork. It relates AG-mediated interaction to that of physically co-present fieldwork, drawing on features of interview/discussion interaction such as rapport, engagement, and paralin-

guistics, and on themes from the literature on CMC.

Among emergent issues were effects on interviewer/respondent power relations, involvement of elite respondents, respondent candor, self-disclosure, and paralinguistic communication. The article does not claim to give a definitive treatment of AG fieldwork, instead confining itself to a “proof-of-concept” approach and a provisional airing of considerations. It discusses practical, procedural, and methodological concerns in parallel but notes some emergent analytic issues and some perspectives that were helpful.

Grid computing is conventionally classified into data grid, computational grid, and AG technologies. Grid computing resources have received major investment from institutional sources in a number of countries, supporting what is called “e-science,” “e-research,” and “e-Social Science” in Europe and “cyber-research” in the United States. Much of the substantial infrastructure now in place is directed to quantitative applications, but this massive capacity for high-performance computing can also support qualitative work (Fielding and Lee 2008), including using AG for field research.

AG services are delivered via nodes. AGNs enable images and sound to be exchanged in real time between computers over networks. Multiple cameras, projectors, and microphones at each AGN site relay participants’ images and utterances to other sites. There is no technical limit on how many sites can be linked. Limits on participant numbers at each site depend on room size and node configuration.

Visual output is projected onto a wall or screen (see Figure 1). Users can vary image display size. Each image “tile” can be rearranged on the projection wall. Images from a given site will often show the whole room, the current speaker (from different angles), and a computer-generated document like a PowerPoint slide. Like images, AGNs can dynamically display any material that can be shown on a computer screen, such as text or graphical/tabular output. A good installation will ensure all aspects of the room are covered for sound and vision. AGNs provide audiovisual signals without the lag of video teleconferencing, and because participants can be displayed life size or larger, paralinguistic cues are more visible than with video teleconferencing.

To enable comparison to conventional interviews/discussions, I draw on a basic conceptualization of participants’ experience of the AG medium using the concept of “engagement,” a set of features gauging whether participants are interacting in a way that is not preoccupied with the medium of their interaction. There is a further point regarding conceptualization. No research technology, from pen and paper through to AG, is a neutral “carrier” to the field. All research technologies reconfigure the field (see,

e.g., Hine 2008). There is a rich vein to be mined concerning the point that AG is not a neutral tool but distinctively and substantially mediates between fieldworker and field. That important work is only a modest sub-text in this first foray into AG fieldwork. As a proof-of-concept study, it largely leaves

the unpacking of the “black box” to subsequent work, while sketching one possible analytic line via a preliminary conceptualization of what constitutes engagement and its observable signs. The idea is that before exploring the more sophisticated nuances of AG-mediated research, it is sensible to be clear about its fundamentals.

Figure 1. University of Melbourne access grid node (AGN).

AGNs were originally developed by the Argonne National Laboratory, Chicago, and were initially used for virtual meetings among dispersed participants in international scientific communities, the first being in 1999. Another use is to deliver teaching in educational consortia. By pooling students, specialist material can be delivered more economically than having instructors visit each site. There is a major network in South America, and New Zealand’s universities are all linked via AG. In Britain, specialized physics seminars are run via AG between Birmingham and Wolverhampton universities, and Hull University and University of East Anglia have a joint AG seminar in politics. Dance students at De Montfort University conduct rehearsals via AG. An 18-university consortium led by Sheffield University delivers advanced mathematics teaching via AG to schools as well as universities.

Full AGN installations grew from about 220 in 2004 to over 550 in 2005. Inexpensive AG software can also be installed on a standard personal computer equipped with a webcam, providing personal access to the grid (PAG).²

Positioning the Research

Our research explored using AGNs to conduct semistandardized interviews and moderator-led group discussions using conventional offline comparator methods, asynchronous online interviews, and conventional video teleconferencing. I selected these fieldwork modes because they are widely used. The substantive topic was deliberately drawn from my previous research to enhance authenticity and comparative analysis, add value to earlier data, and, regarding the “elite respondent” element, facilitate access via existing contacts.

Methodological research indicates difficulties in obtaining elite respondent participation in group discussions (Zuckerman 1972; Ostrander 1993). Factors include busy schedules, legal/professional constraints on participation, and reluctance to travel to participate alongside less-elevated respondents. These constraints are not all addressed using AG, but the logistical problems may be. We therefore tested whether AG-mediated group discussions could be convened between U.S. and British judges, as it would be unlikely they could be assembled at a common location.

All methods and modes of administering methods have advantages and disadvantages. This article notes both promising and problematic aspects of AG-mediated fieldwork. The primary research question was whether it was feasible to conduct interviews and group discussions via AG. Tied to this were issues like “Would informed consent be forthcoming?” “Would we achieve a sample?” “Of students?” “Of judges?” and “Would the system deliver at a technically adequate level?” These issues raised corollary concerns relevant to preliminary evaluation of an AG-mediated fieldwork environment and process, including facilitators and barriers to communication, rapport, the effect of technical glitches, and the role of paralinguistics. Rather than being exhaustive, this work is provisional and tentative. I refer to AG’s “potential utility,” not to its utility as accomplished fact.

As the principal comparator, we took the physically co-present (conventional) face-to-face interview or group discussion, frequently applying this to particular interactional features of AG-mediated communication. Moreover, in the participant debriefings that form an important part of our data, we explicitly asked participants to compare AG-mediated interviews/discussions to face-to-face ones (after checking they had indeed experienced face-to-face interviews/discussions).

It should be noted that among the constraints applicable to AG-mediated fieldwork there are topical constraints. This would probably not be an appropriate medium for research on highly sensitive topics. As discussed later, self-disclosure does not work as one might predict in AG fieldwork (briefly, for some respondents, the AG had a disinhibiting effect that was the opposite of what we expected). Standard ethical procedures, like having a counselor on call if participants become emotionally upset, are impractical because one is interacting with participants at remote sites.

AG's potential fieldwork utility must be weighed against investment in facilities (2008 full installation was about \$38,000), technicians, maintenance, and participant expenses for attending at an AG site (one cannot expect participants to commit to more than local travel even if compensated). However, installation and participant travel costs will decline as the technology spreads (and with availability of laptop/desktop AG software), and conventional focus groups also rely on participants' willingness to travel.

Procedures and Ethics

Participants received an information pack about AGNs, our project, and their session. Interviews took a semistandardized format (freeform probes were allowed after standard main questions). The initial interview explanation prompted completion of consent forms if not already done at the information pack stage and noted that there were questions on a criminal justice topic and about being interviewed via AG.

To test the value of AG's ability to display contextual material, we compared response in interviews with and without display of the interview schedule. The display screen was positioned next to the screen showing the interviewer and sized slightly larger than the interviewer screen. Respondents indicated modest benefits, thus meriting further investigation with more complex response stimuli. For instance, background statistics or vignettes (textual or video) may be more valuable than displaying schedules.

Following the criminal justice section, we invited comments on the AG as a research medium. We asked for impressions of audiovisual and technical quality and whether participants found the technology distracting. We asked them to compare the AG interview with a physically co-present interview, and which, given the choice, they would prefer, assuming similar travel distance. Participants then completed online questionnaires with items on gender, age, education, and experience of information technologies. The latter asked about use of computers and virtual communication (online message boards, video conferencing, and video phones) and experience of research participation.

In AG fieldwork, one must allow for the possible presence of third parties—technicians—and agreements are needed with bodies like the AGSC (AG Support Centre) when recordings reside elsewhere than one's own institution. Regarding technicians, basic operation can be learned in a few minutes and, unless there are network problems, researchers can operate the AGN solo during fieldwork; but one should assume that technicians may be present at remote sites. Consent forms should accommodate these points. An alternative is encryption, which also prevents access by AG users at sites not involved in the research. We assured participants that access to AG footage would be confined to legitimate researchers and that they could optionally restrict it to the immediate research team. Anonymity and confidentiality rights were otherwise standard.

Sample

Fieldwork interaction is often studied for methodological purposes using small-sample studies. Gobo (2001) used conversation analysis to examine different ways of building rapport in the introduction stage of standardized survey interviews. Small-sample qualitative work is customarily regarded as appropriate for exploratory research.

For the individual interviews and most group discussions, we used student samples. Students are a large, easily accessed group; many AGNs are located in universities; and generations of researchers have found student samples a sensible choice for exploratory work. As we do not claim generalizability, the distinctive characteristics of student populations do not undermine the kinds of analysis we performed. In discussing findings, we note where there may be analytically important differences between student and judge samples and the general population.

The fieldwork comprised 15 interviews, 7 student group discussions, and 2 international group discussions involving judges. All sessions linked two AG sites (14 AGN-to-AGN and 10 PAG-to-AGN). Computing or social science students were recruited from five U.K. universities, with judges recruited from southern England and the eastern United States. For seven respondents, the AG session was the first time they had seen the fieldworker. In other cases, there was either a preliminary exchange via AG or workplace acquaintanceship.

There were 33 academic participants (15 interviews and 18 group discussions), comprising 28 students and 5 staff (university 1: $n = 21$, university 2: $n = 4$, university 3: $n = 1$, university 4: $n = 3$, university 5: $n = 4$; see Table 1). Eight interviews were conducted AGN-to-AGN, with the remaining seven conducted PAG-to-AGN. For the AGN-to-AGN sessions, respondents used an AGN at their location and the fieldworker

the Surrey AGN. Respondents in PAG-to-AGN sessions used an AGN and the fieldworker used a PAG. Discussion groups had two to four respondents each. Four student discussions and both international discussions were conducted AGN-to-AGN; the rest were PAG-to-AGN. For the AGN-to-AGN group discussions, the fieldworker was in the same room as at least one respondent. For the PAG-to-AGN group discussions, all respondents were in the same room and the fieldworker in a remote location.

There were 18 female and 15 male student respondents. One respondent was between 18 and 20 years old; 22 were between 21 and 30; 8 were between 31 and 40; and 2 were between 51 and 60. The nine international students came to British universities from Algeria, India, Iran, Ireland, and Nigeria. Seven respondents' first language was not English.

The student sample was quite familiar with social research. Over half had been qualitative research respondents (n ¼ 22, comprising observation n ¼ 2, interviews n ¼ 9, group discussions n ¼ 11). Ten of these cases had been via computer. All respondents felt they were computer literate, rating themselves between 6 and 10 on a 10-point confidence scale (10 being highest). Modal self-rated confidence was nine (n ¼ 10). Table 2 presents familiarity with virtual communication.

Table 1. Fieldwork Modes and Media

	Number	Respondents	AGN-AGN	AGN-PAG
Interviews	15	15	8	7
Student discussion groups	7	18	4	3
Judicial discussion groups	2	9	2	0

Note: AGN ¼ access grid node; PAG ¼ personal access to the grid.

Respondents were familiar with a range of communications media. All used cell phones, and text messaging was familiar (n¼31), but none used cell phones for video messaging. Over half used online text-based communication ranging from e-mail discussion lists to message boards. Thus, audio- and text-based technologies were familiar, video technologies much less so. Five respondents had encountered AGNs; all of them were computing students.

Among judicial respondents, four of the five English judges were Caucasian, four were male, all were of middle-class origin, and four were aged 51 or older. The four U.S. judges had class and age profiles similar to their English counterparts but were more diverse in gender and ethnicity.³ All judges routinely used cell phones. All but one routinely used a computer. One U.S. judge had used video teleconferencing. None had previously heard of AG.

Student respondents were snowball sampled following an initial opportunity sample through contacts at British universities. British judges were recruited through previous research and U.S. judges through contacts at law schools and via my daughter’s internship. Student participants received an incentive payment of a £15 postal order or retail voucher. Judicial respondents were offered a £100 honorarium (or dollar equivalent). These respondents all donated their honoraria to criminal justice charities. Both student and judicial invitations elicited more response than anticipated, including many would-be participants overseas. For student respondents, incentive payments were a factor, whereas for judges it was the medium’s novelty and a desire to promote public understanding of their work. Although judicial access was affected by hard-pressed schedules and proximity to an AGN (U.S. judges participated during lunch breaks so courthouses near AGNs were needed), judges were willing respondents who gave full responses.

Technicians were usually present when participants arrived (at the Surrey node) or appeared via AG (remote nodes), but none were present during student sessions. With participants’ agreement, technicians were present at the U.S. and U.K. nodes during judicial sessions but took no part in the discussion.

Table 2. Familiarity with Virtual Communication

	Video Conferencing	AGNs	Online Forums	Mobile Telephones
Interview respondents	5	4	11	15
Discussion group respondents	5	1	8	18
Total	10	5	19	33

Note: AGN ¼ access grid node. Table excludes judicial discussion group respondents.

Interaction in a Remote Fieldwork Environment

CMC has been cautiously received as a means of qualitative research. Bampton and Cowton (2002) implicate the displacement of time and space in creating a sense of “dislocation” between respondents and researchers. Remote fieldwork obliges us to reappraise established understandings of “field” research (LeCompte 2002). Although the issues of dislocation and redefinition of field emerged from experience with the research use of text- based asynchronous or synchronous media like e-mail or real-time chat rooms, they are important starting points in understanding communication in camera-mediated remote fieldwork.

Some further consider that the lack of physical copresence has ethical implications (Allen 1996; King 1996). However, we focus on matters relating to the rapport that is generally regarded as critical in interviews and group discussions (Arksey and Knight 1999). Establishing rapport without physical copresence is essential in virtual communication and effective remote fieldwork techniques (Mann and Stewart 2000).

Commentators on text-based CMC like Rutter (2002) have emphasized the disjunction between “being there” and “being absent” arising from the lack of audiovisual channels, but other contributions show that rapport can be achieved. Personality and tone can be conveyed by format, using devices such as abbreviations, emoticons, and punctuation. Interpersonal devices that work in offline rapport-building, such as self-disclosure, can be effective. O’Connor and Madge (2001) uploaded a Web site with their biographical information and photographs ahead of convening virtual focus groups. Kivits (2005) found it useful to tailor the style and content of messages to individuals in a text-based research environment. Folkman and Curasi (2001) found that sending undifferentiated “job lots” of questions with minimal probes was counterproductive.

Users of text-based CMC can point to cases where lack of visual identification has benefits. Anonymity can encourage response on sensitive topics (Campbell et al. 2001; Bampton and Cowton 2002), and people who are shy, have disabling conditions, or are concerned about their physical appearance may participate in computer-mediated fieldwork but not conventional fieldwork (Shaw et al. 2000). Campbell et al. (2001) found that similar information was gained in face-to-face and online focus groups, but participants were more comfortable in the latter and more likely to volunteer personal health information.

Useful parallels can be drawn from telephone interviewing (Ibsen and Ballweg 1974), the principal medium for synchronous remote interviewing. Telephone interviewers have also found the anonymity arising from lack of visual cues useful when researching sensitive topics (Marin and Marin Van Oss 1989), but effects vary by ethnicity (Aquilino 1994). Like text-based interviewing, telephone interviewers use rapport-building devices tailored to the medium such as a courteous manner, using personal titles, upbeat, and welcoming vocal tone, and encouragement that what respondents say is relevant (Davis et al. 2002).

These observations reflect the robustness of the interview/group discussion format, suggesting that question/answer sequences, turn-taking, and other conversational devices are “hard-wired” into social actors (their cultural specificity only being revealed when encountering those from other cultures bearing different conventions). Given a recognizable format and a

little encouragement, people are highly adaptive to new communications media. Examples include shuffle-and-sort screen manipulation in personal digital devices and heads-up displays for military pilots. These examples also show the importance of intuitive applications. Shuffle-and-sort is highly intuitive because it taps the way we use the analogous older technology (paper). Heads-up displays impose high cognitive load because they require pilots to focus not only on the view from the cockpit but on instrumentation “superimposed” on the windscreen—an exacting task. The point is that, if users configure technology, technology also configures users.

Thus, Heath and Luff (1991:102) report asymmetries in video teleconference interaction making it a “curious hybrid of face to face interaction and talk on the telephone,” and Patrick (2001) notes challenges to interactional norms including eye-contact asymmetries. A “user focus” necessitates sensitivity to participants’ experience (Schneiderman 2003). But another aspect of human adaptability is that communicative forms adapt to the medium’s affordances. The turn toward a user focus in sociotechnology studies provides rich illustrations of how users consume, modify, domesticate, design, reconfigure, and resist technological development (Oudshoorn and Pinch 2005).

Ruhleder’s (2000:12) experience of “virtual ethnography” led her to question how researchers gauge participants’ experience and the signs by which engagement is recognized, raising questions about “what it means to be engaged, to be paying attention, and to participate in settings such as these.” We construed engagement along a continuum from full engagement to complete disengagement. We indexed it against conventional research interviews or discussions—a practitioner’s empirical yardstick rather than one grounded in axiom. Engagement construed as “paying attention” is obviously a basic conceptualization but was sufficient to give initial purchase on interactional and communication features of the data. It could be developed considerably further; some indicative lines can be read off from Figure 2. Extensions could include measuring time spent looking at AG screens (and different tiles) and comparing variations in response patterns in physically co-present versus AG sessions.

It is always possible to debate what “full engagement” looks like. However, most who have done more than one interview or group discussion can testify that some seem more successful than others and indeed that some sessions are more successful in some respects than others while being less so in other respects. It is not just the fieldworker’s impression that counts. Participants often volunteer that a discussion was “really interesting,” “went well,” and so on. Our rule of thumb was that full engagement was being indifferent to the lack of physical copresence. As well as looking for signs of this in AG footage, we asked respondents about it. Similarly, dis-

engagement was taken as being noticeably attentive to the AG environment rather than the topic at hand. Given these rules of thumb, we could begin identifying facilitators of, and barriers to, engagement.

It helped that engagement features were often sufficiently gross to be apparent to participants as well as ourselves, eliciting either spontaneous verbal articulations (from grunts and sighs to substantial asides) or emphatic responses to our experience-of-AGN questions. It was easy enough to discern expressions indicating bewilderment or keen gazes inspecting the equipment. Indeed, we found that the cameras and the appearance on screen of the participant's image along with that of the fieldworker and other participants were initial preoccupations. Some played to the camera; others had stage fright and showed second thoughts about their images being broadcast. In practical terms, this is a question of installation design; in ethical terms, it is a question of having turnback points for the diffident (although no one withdrew during the session stage). In procedural terms, when encountering camera awareness, we knew to use rapport-building and reassurance. For most who were affected by camera shyness, the effect subsided and some participants were confident from the outset.

Indicators of rapport such as humor, self-disclosure, or willingness to articulate controversial views or sensitive experiences were apparent in nearly all sessions, with some respondents readily volunteering that rapport had been established. The medium did not inhibit respondents spontaneously elaborating points or producing their own facilitators. They interjected facilitative responses ("yes," "mm," etc.) when the fieldworker was speaking or during pauses. When rapport was problematic, deficits in visual or paralinguistic cues, most often from technical problems, were responsible. The learning curve includes participant positioning, display positioning, camera and microphone adjustment, and stable delivery of the technical platform, but also fieldwork technique, for example, signaling breaks in the topic.

Despite some respondents initially feeling "under surveillance," even those who began diffidently testified to feeling they had more control over proceedings than in a physically co-present session. Some respondents were enough at ease to break face-to-face interactional conventions. Most experienced what we, and they, regarded as full engagement, only becoming alert to the lack of physical copresence when technical problems or interruptions broke the bubble. Here, participants were almost universally inclined to "carry on regardless," saving their reaction to disruptions for the debriefing. I now consider selected features in more detail.

NB Some indicators appear in more than one communication state and require additional indicators to reach a conclusion. Judgments of communication ease/problems will normally require more than one indicator.

Signs of embarrassment/self-consciousness: eye rolls; gaze averted; head down; wiping brow; nervous laugh; self-deprecating tone and phrasing; flicking hair; busy hands; preemptive negations of initial response when challenged by interviewer; speaking quietly.

Signs of evasiveness, deception: hesitation; rephrases; terse responses; lack of personal anecdotes and personal beliefs in giving responses; overelaboration of responses with the giving of reasons for doing things that otherwise raise questions or reflect badly on the respondent; relating tangential or irrelevant stories as the principal part of question responses.

Signs of frustration, irritation, anger: cold stare at interviewer; anticipating questions; terse responses; sharp/raised tone of voice.

Signs of need for encouragement by interviewer: extended gaze at interviewer; raised eyebrows accompanied by gaze; statements like "If you see what I mean," "If that makes any sense at all," "I'm not sure if I know anything about that," "I don't know enough to answer," "I feel very stupid"; use of stock answers like "I'm a Catholic because I was brought up a Catholic"; a doubtful tone of voice; speaking quietly; inserting statements demurring from a previous response while interviewer is posing next question ("preemptive yes/noes").

Indicators of rapport: using each other's terminology; mutually displaying interest in the topic at hand; lack of requests for clarification; lack of requests for further explanation of what interview is to be used for or other queries relating to the conditions of the interview; frequent smiles; listening with eye contact; relaxed but attentive posture; turn-taking (important because it allows people to ask each other the same kind of questions); abbreviated statements (indicates that rapport is strong enough to leave some things implicit or only partly verbalized).

Figure 2. Access grid (AG) interview/discussion communication.

Awareness of Setting

Initial apprehensiveness related to an unfamiliar environment. AG facilities do look "a bit Star Trek-ish," as one respondent put it. Computing students were more indifferent to the environment, although most respondents commented about the cameras. The principal prompt to playing to camera was participants seeing themselves on screen (standard practice is to display one's own AG room in a small tile, remote venues in larger ones). "[S]ometimes I was distracted by my own image and so I would think 'What was I saying?' [and] 'Oh, look at me, I'm there,' and I'd kind of lose my thread" (R04, female, computer confidence 9). The main response was to present as attentive. For instance, one participant who fixed his gaze on the display of

the fieldworker's image said that in physical copresence he would have felt it acceptable to look away.

However, attentive display related to session format as well as technology, because a distinct change of posture occurred in debriefings when participants commented on the experience. An attentive, upright posture, with body orientation to the display wall was generally apparent during the criminal justice first part. In debriefings, posture was relaxed, demeanor was informal, and verbal response was more conversational. Such transitions when the formal business is (apparently) concluded are widely remarked on in the methodological literature.

Although most participants were only initially affected, several were self-conscious throughout. We noted that the small number seriously affected (the effect being visually obvious) were nevertheless not inhibited from saying so in the debriefing. Such concerns can be addressed by offering reassurance, reiterating ethical guarantees including the right to restrict viewing of the recording, and unobtrusive camera positioning, but they must also be taken into account in interpreting responses.

Fieldwork Relationships and Practical Considerations

We found that the AG environment altered the power balance between fieldworker and respondent. It is widely remarked that in most interview/discussion fieldwork, fieldworkers hold the cards once consent is given, raising concerns about data quality as well as ethics. This may be moderated in AG fieldwork, as suggested by participants' (unexpected) willingness to discuss quite sensitive issues. A number reported feeling in control of the interaction and the content of the discussion.

An instance was volunteering statements of unwillingness to appear as witnesses in the hypothetical case of observing an illegal act, sometimes accompanied by accounts from their own experience. Citizens are legally obliged to be a witness if called, and expressing refusal represents the opposite of the "social desirability" effect that dogs validity in survey research. One respondent had seen a protracted and brutal "honor crime" attack, resulting in the victim's death. He had not reported it to the police because he knew the families involved and was frightened for his own and his family's safety. He stated that, despite some years in the United Kingdom, he still felt the same, that he would feel even more reluctant if he were married, and that, although the perpetrator eventually confessed, even without this he would still not come forward. This dramatic story suggests that, despite interacting remotely with a stranger via an unfamiliar medium, participants felt able to discuss sensitive matters. Other instances of self-

disclosure included two participants who referred to being victim of sexual assaults, one who offered an anecdote about a research respondent who had propositioned her, and several disclosures of substance abuse.

We tagged a less extreme but related feature “breaking the rules,” the breach of conventions of face-to-face communication, such as breaking eye contact with and orientation to the fieldworker. As AGNs display images from other AGNs, attention can fix on participants elsewhere rather than on the fieldworker. Instances often coincided with the “answer” turn of a question/answer sequence, where eye contact was apparently broken to facilitate cogitation, a feature possibly associated with careful reflection on response. Participants reported feeling it was permissible to do this because the eye contact was with an image on the wall rather than a fieldworker in the room.

This forms an interesting set with the observation that initially respondents felt it necessary to signal attentiveness. Here, breaking eye contact could be taken as attentive engagement, not disinterest or embarrassment. Relevant data included a respondent’s explanation that removing the fieldworker’s physical presence enabled a more relaxed interaction, allowing her to consider her thoughts before answering, levelling the power balance of fieldworker/respondent. Others said that meeting a stranger (the fieldworker) had been less stressful via AG than in physical copresence.

There is another side of the coin, though. One respondent who felt more in control of the session also felt she could be more evasive, attributing this to not being physically co-present. Others felt that being alone in the AGN while the fieldworker’s image appeared from elsewhere made silences more apparent. Two said they repeated themselves to fill awkward silences. However, they also said this helped them feel they had made their point emphatically.

Respondents compared AG interviews favorably with telephone interviews, rating AG communication as a “middle ground,” closer to conventional interaction than telephone communication and video teleconferencing but less immediate than physical copresence. Cues like nodding of the head were readily perceived, while more subtle cues like drawing breath to signal a desire to speak were not always apparent. This principally affected turn-taking, resulting in overlap or hesitation. Refining room layout and microphone/camera positioning can help, but the engagement concept is also useful. Despite the inhibitors, the data suggest that, when respondents have something to say, few barriers are insurmountable. What may be inhibiting, if a topic is without salience, is simply ignored when the topic is right and the respondent keen to speak. Moreover, the setting became less important as sessions proceeded. One said that once one was in the “guts of the interview,” the lack of physical copresence

was not an issue because it was no longer his main object of attention.

Nevertheless, not sharing the same location can generate “dislocation.” During one session, a colleague entered the fieldworker’s office and the fieldworker went out of view to speak to her. The participant could not see or hear what was happening for 90 seconds. The interruption bewildered the participant (“because we’re sharing a space and therefore sharing a level of experience, i.e., when the door opens we’re both experiencing it. And we both respond to it. And I’m kind of left ‘What’s going on?’”; R04, female, computer confidence 9). In one of the 15 interviews, such difficulties effectively rendered the data unusable.

Some respondents had their attention diverted by their own gestural display (“I keep getting distracted by my hand movements”; R01, female, computer confidence 8). Interpreting such data required us to determine whether effusive gesturing indicated full engagement or intermittent preoccupation with one’s paralinguistic display on screen. Participants’ gesture use seemed to be received as appropriate by other participants, albeit with indications that it was somewhat exaggerated to facilitate communication.

The gesture issue also arose in the judicial group discussions. Judges generally maintained what one might call a “judicial bearing,” their demeanor being somewhat formal, with upright posture. It therefore seems noteworthy that they made efforts to not only maintain eye contact with (the image of) their fellow judges but to show that they were doing so. This was apparent by their periodically turning to the fieldworker who was physically co-present (there was a fieldworker at each site, one in the United States and one in the United Kingdom), establishing eye contact, and then directing their gaze back to the eye position of the judge at the other site, as if to “drag” the fieldworker’s attention to the intent nature of their gaze exchange with the remote participant. Other paralinguistic signs were less subtle, as where an American judge emphasized cuts in his court’s budget by raising both hands in a “stop” gesture with palms at 90 degrees to the wrist and then repeatedly “pushing” the air in front of his hands (AG1: Judge 10).

People use a lot of gestures in telephone calls, when they clearly have no purpose as regards the recipient. This suggests that paralinguistics have a function directed at the person performing the gesture as well as the person receiving it. Data like these prompted us to develop a protocol to relate proxemics and verbalizations to inferences about the participant’s inner state. The protocol shown in Figure 2 should be treated as a rough and ready guide. We used it as a first tentative indicator before repeatedly viewing data to pursue given inferences.

Several interactional features merit further investigation, including systematically examining how participants perform requests for further information. Functional communications media enable these; when a medium is not functioning well, interactants inhibit requests beyond those that are utterly necessary. As their commitment falls in ratio to communication problems, they do not bother to query even points that are very unclear. Eye contact is also an issue. In a visually complex environment, participants may be challenged to maintain eye-to-eye contact. For example, in one session, the fieldworker appeared to the respondent to be looking up at the screen displaying his image rather than directly into his eyes. The respondent himself took pains to gaze directly at the fieldworker's eye level, having initially been unsure where he should be looking. He nevertheless found the medium "very lifelike" and compared AG favorably to video teleconferencing, rating the visual element of various media thus: videoconferencing 40%, AGN 70%, 3D headset 90%, and actual copresence 100%.

For analysis of eye contact, it would be relatively straightforward to measure what proportion of sessions involved researcher and participant seeing "eye to eye." It would also be possible to time pauses and count instances of overlapping talk and of repair procedures when that occurs. This could be scaled, from "um hm" facilitators to gross statements like "Go ahead" or "You speak first." Facial expressions helped us infer whether pauses were due to genuine reflection or difficulty with cues. One respondent attributed a deficit of rapport to lack of paralinguistic cues when the display showed only a poor-quality headshot of the fieldworker.

Getting good results from AG sessions requires the cooperation of technicians at remote sites. The issues we needed to negotiate indicate the kind of problems on which remote technician help is needed. For instance, the camera showing the respondent's right profile at one remote site was not fully trained on him; it picked up only the front half of his profile. Both side profile cameras offered a quite distant view, which would be of limited use in analyzing paralinguistics. We also found it useful to have a side profile camera on the interviewer.

A rather wider issue concerns cross-cultural interaction. Our sessions were all conducted in English with highly educated individuals. Questions arise as to respondents who are educationally disadvantaged, technologically limited, or speak English as a second language. AG technology cannot remove such problems, although audiovisual CMC affords more channels to resolve misunderstandings than purely text-based CMC.

Conclusion and Further Research

Overall, we found that physical reminders that sessions were being conducted remotely—the cameras, awareness of own image, and technical problems—were principal inhibitors of engagement. The main benefits, apart from direct costs and logistics, were a more equitable balance of power between fieldworker and respondents, encouragement to give considered responses, the high-quality audiovisual record of proceedings, the excitement participants felt in encountering new technology (which may, Hawthorne Effect–like, diminish with familiarity), and disinhibition of responses regarded as too sensitive to offer in physical copresence.

Although there were few judicial group discussions, they would be hard to characterize as other than successful. We hazard no more than that this suggests that AG may be helpful in accessing elite respondents. AG fieldwork comes into its own when accessing a wider range of respondents for comparative analysis, particularly internationally. To conventionally access U.K.-based student respondents, we would have had to travel to five sites across Britain, and for the judicial group discussions, to three U.S. cities. In fact, I planned for the fieldworker to travel to the United States because I thought we should have someone on the ground when trying something so new with elite respondents. However, there was a full-scale terrorist alert the day of the flight, which was then delayed for 3 days. In addition to carbon footprint savings, using AG affords a way around such unpredictable problems and the associated stress.

Our research focused on AG's visual and audio channels, but AG offers platforms for interaction beyond these, by way of shared workspaces and various tools. These other channels of communication may address some of the communication issues we encountered. A Wii-like "mouse" can, for example, be used to "point" to features of shared scenes, negotiate turn-taking, manipulate virtual tokens, and interact in a jointly drawn diagram or electronic blackboard. Suitably equipped participants can perform physical actions whose results are enacted remotely using servo-mechanisms.

The engagement concept was useful in helping us isolate some basic interactional and communication features and to address gains and deficits when comparing AG-mediated and conventional fieldwork. We found that rapport was generally achieved and fieldwork proceeded to its conclusion. Neither were effortless accomplishments, but fieldwork seldom is. Of course, both students and judges are highly articulate groups. We do not discount the sample's special nature, but in this initial study, AG fieldwork produced data consonant with what we customarily expect from inter-

view/discussion fieldwork. We believe this demonstrates the strength of fieldwork methodology as much as the merits of a new technology. Earlier I noted that people are highly adaptive to new technology provided they have means of relating it to a format with which they are familiar. The interview/discussion format is grounded in implicit rules of everyday communication (e.g., turn-taking conventions). Researchers using CMC technologies benefit from the robustness of the conversational communicative form, of which interviews/discussions are special types.

This study demonstrated proof of concept and developed techniques and procedures. Other research applications merit evaluation. One example would be where service users report their experiences via AG to policy officials elsewhere. AGNs may also be useful for longitudinal studies, with an initial field session in physical copresence being followed up via AG. A Nigerian respondent saw potential for AG technology in Africa, noting that, by connecting several experts simultaneously, the social value in research on issues like HIV would outweigh the cost of an AGN. The medium may also be particularly appropriate for research in the sociotechnology field.

This article explored practical and interactional features in parallel with methodological considerations, but we close with Ruhleder's (2000) argument that the proliferation of new online media for social research argues for a methodological subfield of "virtual ethnography." Later user generations will likely treat as commonplace what today we see as novel. In time, virtual ethnography may disappear back into ethnography. Indeed, if technologies like AG deliver real and full support for ethnography, such disappearance would be inevitable. Apart from temporary novelty, the only justification for an enduring field of virtual ethnography would be if it differed importantly from ethnography or had advantages over it. Currently, though, the proportion of time that people spend in digitally mediated copresence keeps growing, and, if we want to generate ethnographic understandings of lives that are increasingly intertwined with digital media, it seems sensible to develop understandings of interaction via technologies like AG's "virtual venues."

Like Ruhleder, we found ourselves rethinking our understanding of presence and colocation as a result of our encounter with AG technology. "[T]hese hybrid environments, where the physical and the virtual overlap and interact, require us to rethink the nature of a field site" (2000:4). Ruhleder's observation was prompted by research combining conventional ethnography and video teleconferencing. Although concurring with Ruhleder's perspective that what constitutes the field is further problematized by new technologies, the conception of virtual ethnography needs to be widened to include research where there is no physically co-present encounter between researcher and participant, only electronically mediated

contact. Within such “born digital” encounters, distinctions need to be made between technologies offering modest interactional support (e.g., asynchronous text-based e-mail interviewing) and technologies with affordances similar to physical copresence.

Notes

1. Some may prefer the term “remote fieldwork” to “virtual fieldwork.” We use virtual fieldwork because AG sites are called “virtual venues.”
2. The minimum broadband connection for PC access is 512 kb. The IG PixTM program can be used to connect users without AG software. They receive video input via the Internet and participate using a webcam and netphone. Configuration considerations for fieldwork relate to data recording/segmentation. Our AGN was supplied with inSORS software, which includes a tool called IG Recorder. For U.K. academic users, support for this tool is provided by the AG Support Centre at the University of Manchester. Recordings are held on the AGSC server. AGSC replays recordings on request but retains data for a limited period and recordings can be accessed by others. In addition, the IG Recorder offers playback, fast forward, and rewind, but it does not support division of data into segments for categorization based on shared features (i.e., coding, as in grounded theory). So, we made recordings with a digital handycam to export to TRANSANA, a qualitative software package with good visual analysis facilities.
3. Access agreement precludes an exact breakdown.

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The author(s) declared no conflicts of interest with respect to the authorship and/or publication of this article.

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