USES OF NUDIST SOFTWARE IN EDUCATIONAL RESEARCH:
THE LITERATURE, THE HARD QUESTIONS AND SOME
SPECIFIC RESEARCH APPLICATIONS

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ABSTRACT

This paper explores the ways NUDIST software is being used in different educational research contexts. It includes a review of the literature pertaining to NUDIST use in particular, and qualitative software generally and examines the nature of the 'debate' on Qualitative Data Analysis Software (QDAS) use. The paper focuses on the hard questions that emerge with respect to the employment of such software, especially its role in shaping qualitative research designs. In addition the implications of such software use for validity are discussed within the context of the validity debates in qualitative research. The areas that the published literature seems to have missed or avoided are the emotion, the politics, and the economics associated with the phenomenon of QDAS. The authors, rather than relying solely on their own impressions and experiences of the above, have drawn on discussions on the Net and a taped session at a recent phenomenology conference to draw attention to, and frame questions around, such aspects of the debate. Finally, specific research applications are examined. The researchers are engaged in very different research projects, one involving hundreds of oral history transcripts and historical documents, and the other involving extensive observational data based on one year's observations of one class in each of two schools. Illustrative examples from their experience are employed as a means of exploring and addressing the issues identified in the literature, particularly why they are using NUDIST.

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USES OF NUDIST SOFTWARE IN EDUCATIONAL RESEARCH: THE LITERATURE, THE HARD QUESTIONS AND SOME SPECIFIC RESEARCH APPLICATIONS.

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And so we cobble. We cobble together stories that we may tell each other, some to share our profoundest links with those whom we studied; some to help us see how we can right a wrong or relieve oppression; some to help us and others to understand how and why we did what we did, and how it all went very wrong; and some simply to sing of difference. (Lincoln and Denzin, 1994, p.584)

Introduction

In 1984, and then again in 1991, the journal Qualitative Sociology, devoted issues to computer use in qualitative research. The atmosphere evoked by the articles at both times
was one of optimism. While acknowledging that qualitative research in all its guises was difficult to translate into software, the message was that the problems were being tackled innovatively and effectively by academic (as opposed to commercial) programmers. The main concern of the optimists was to improve the range of choice and effectiveness of Qualitative Data Analysis Software (QDAS). Renata Tesch concluded her introduction to the 1991 special issue by expressing the hope’ that within the near future we will at least be able to read [orally] our data to the computer’. She believed that future developments in the programming field would almost surely have changed’ the way in which researchers conducted qualitative research (Tesch 1991a, p.242). For some Tesch's vision is unthinkable and not qualitative'. Throughout the literature there is a smattering of deep unease about the spread of this facet of technology, and indignation about the way qualitative data analysis is conceived by software producers and users. Whereas epistemological discussions have blossomed in the area since 1991, the bewilderment (Wolcott 1995, p.74), bitterness, frustration and anger (Glassner 1986, p.214) unleashed by the penetration of QDAS into qualitative research territory is rarely conveyed. Defence of territory, the outright rejection of the possibility of computer assisted theory generation, and ignorance, or partly informed ideas, about the different types of software have become common elements in the QDAS dialogue occurring in many places at many levels (eg, conferences, seminar rooms, research committees). QDAS has become an issue that is generating conflict within the qualitative researcher community roughly along the lines of users versus non-users and real qualitativists versus closet quantitativists perceptions all too easily fuelled by some of the published claims of QDAS producers and commentators. Few who buy into the debate would disagree that specialised software can assist in basic data management the equivalent of paper shuffling, but opinion becomes sharply divided with respect to how a program can assist in the interpretation of text. It would seem the more extensive the
functions', ie, the further removed from simple clerical tasks the functions become, then the greater the suspicion they excite.

The point has been reached whereby QDAS exhibits sufficient variety, sophistication and availability to allow for general categorisation with respect to functions and features. Tesch (1990, 1991b) and others (eg, Richards and Richards 1994, Stanley and Temple, 1995) make forays into categorisation and evaluation of packages, but the most comprehensive to date is by Weitzman and Miles (1995). Their easy to follow presentation of family groups' of text retrievers', textbase managers', code and retrieve programs', code-based theory builders' (NUDIST falls within this group) and conceptual network builders' is supplemented by helpful evaluation of most commercially available software packages. However, it is still too early to determine the impact of QDAS in terms of completed qualitative research. If literature searches can be used as a guide then it seems only a minute proportion of such research has involved its use.

Nonetheless, anecdotal evidence suggests that in Australia a great many qualitative researchers have had some contact with QDAS. New qualitative methods texts treat QDAS as a well entrenched option (Mason 1996, p.112). Even so, there are still academic institutions in Australia and other developed nations where staff do not have direct access to qualitative software. The authors would also venture that very few institutions would offer a range of QDAS, let alone expert support for users.

Over the past ten years there have been many introductory texts, books of readings and two very substantial handbooks produced in the area of qualitative research (LeCompte, Millroy and Preissle 1992, Denzin and Lincoln 1994). Even more recently attention has turned to analysis in qualitative research, and this occurs at a time when QDAS has also developed a high profile. The two may or may not be related. The desire to render visible how qualitative research is done, and the associated debate on validity in
qualitative research are certainly connected to the growth of
qualitative research projects,
increasing competitiveness in the academic sector, and an emphasis on
accountability,
productivity and ethical practice. Equally certainly the rise of QDAS
is an inevitable
outcome of the computer revolution and the ready market for that
technology in
Academe. The independent explosive growth of the computer industry is
legendary, as is
the potential for skilfully marketed software to polarise computer user
opinion. The
influence of computing is felt in every aspect of academic life.
Computers are connected
to all modes of academic discussion from marking to internal memos;
research ideas to
research defense. The eighties saw the proliferation of word
processing use (Brent et. al,
1987). The latter has since profoundly influenced research writing and
publication. A
further spin-off has been its support for text data base development
and management.
Even though forms of QDAS did exist during the eighties they were
hardly the
phenomenon they are now. The pace of change is driven home when
discussions about
QDAS contain references to using word-processing for data base
management as the 'old
way'.

To return to the abovementioned point about polarisation of
opinion, the
competition and territoriality evinced in relation to methods made
possible by the use of
computers in quantitative research signals a warning to qualitative
researchers. The
availability of certain forms of software (eg LISREL) for quantitative
research has shaped
methods of analysis whose adherents can be totally dismissive of
others. In a case known
to the authors one such opponent' was styled the 'Darth Vader of
multivariate analysis'
because of his non-adherence to LISREL. In short, software use has a
strong political
side, as has research in general (Bessant and Holbrook 1995).

There may be the feeling among some established academics that
QDAS will result
in loss of territory. One of the authors had a very clear experience
of this. On revealing
she was using NUDIST the rapid fire response of an academic powerfully
placed in
administration and with a fine research record went something like: I
am not using and
have never used QDAS. The software distances you from your data. I read every transcript. I immerse myself in the data. I have a predisposition for using X method of doing the analysis and it works. I have seen demonstrations of NUDIST but firmly reject it for my own work, including the 'unthinkable' dollar cost of full interview transcription. The real pointer to protection of territory emerged in the final comments, namely, the software was not provided by their institution, but could be soon and then that individual would reconsider their position. No researcher likes to feel vulnerable in their area of expertise. Many researchers are quite understandably threatened by change, and sensitive to being overtaken. Threats to territory were a feature of the paradigm wars in education research (Eisner 1988).

In this transitional period when the software is available but still not common there is also ignorance. It is but a short route from ignorance to dismissal, hence the user of QDAS is likely to hear from the floor at any education research conference, for example, that X software is hard to use, wastes time, and is eternally frustrating. On seeking more information they might discover that the dismissive doomsayer has heard it all from someone else. Such ignorant positioning is not at all helpful and far too prevalent. Given the expansion of the QDAS literature it must be assumed that sort of contribution will soon be less common and less tolerated.

Since the beginning of this decade several books have been published which address the use of QDAS. They fall into three broad categories. There are those with an emphasis on qualitative data analysis that include some or many segments on computer use (e.g., Tesch 1990, Dey 1993, Bryman and Burgess 1994, Coffey and Atkinson, 1996); others, Weitzman and Miles specifically (1995), which concentrate on QDAS products and their comparison, and lastly those with an emphasis on qualitative software use but which also aim to contribute to the debate (Fielding and Lee 1991, Kelle 1995, Burgess 1995). However, the way in which the debate is shaping up indicates just how many...
hard questions have yet to be grappled with. As indicated above the areas that the published literature seems to have missed or avoided examining in depth include the emotion, the politics, and the economics associated with the phenomenon of QDAS what Lee and Fielding call the 'social environment' in which research takes place (1995, p.30., see also Fielding and Lee 1995a). To ignore such factors is to ignore the potential for unproductive schism in the research community.

It is possible to gain some purchase on these topics by recourse to personal experience, but rather than rely solely on this the authors have also drawn on discussions posted on the Net and a taped session at a recent phenomenology conference. Such discussions help illustrate researchers' opinions about, and

experiences with, QDAS.

Interestingly NUDIST (Nonnumerical Unstructured Data Indexing, Searching and Theorising) software marketing has recently provided the catalyst for some fundamentally frank exchanges on the Net, and it certainly seems that NUDIST has become the sounding-board for many personal feelings and opinions about QDAS.

Hence, this paper covers some virtually untouched territory as well as visiting some key issues that many QDAS commentators raise in the literature at one time or another. The discussion reflects the very different discipline backgrounds and different levels of expertise of the authors (different not only from each other, but also from the backgrounds of the usual authors of QDAS literature). Furthermore, as one contented user and one wavering potential user of NUDIST the authors outline their 'connection' with the software.

Revisiting and promoting the notion of a QDAS debate

Is there yet a published debate? Despite good intentions by editors of books of readings and special issues of journals focussing on QDAS the result is still very lop-sided. Although the majority of writers advocate a critical and informed approach to the software, they are also either developers of QDAS, or 'users' and 'pushers' (Tallerman 1991, p.276, see also Weaver and Atkinson 1995, p.143), having at least
a predisposition
toward using such software (the authors included). Moreover, the
discipline most
represented is sociology. One might ask where are the others the
historians, social
geographers and social psychologists? From the viewpoint of history
the first author can
say with some confidence that there is not much going on with respect
to discussion of
software use, even with relation to word processing. In their writing
historians generally
do not discuss, debate or render visible their method, unless they are
quantitative
historians or oral historians (Holbrook 1995). Given that a vast
number of academics
undertake research based on text analysis in some form, it follows that
if some disciplines
and fields are pioneering the way, they are also dominating the debate
and establishing
the traditions.
In the QDAS literature so far writers are quick to point out the
weaknesses as well
as the strengths of particular software, and particular methods
facilitated by software use,
but we are faced with the situation that those authors are reacting to
criticisms they
anticipate, or have encountered personally. Hence the substance of
those criticisms is
missing. So, with rare exceptions (Lee and Fielding 1995, Wall 1995
and the response of
Basset et.al 1995) criticisms emanate from outside the literature.
QDAS users also
critically examine weaknesses they have discovered in their own
applications of computer-
assisted analysis or contribute reflections on the application of
technology to their
1995, Weaver and
Atkinson 1995). Yet, those who have no inclination toward using the
software may be
destined to play a very minor role in the QDAS debate and they may well
represent
specific traditions or schools of thought in qualitative research.
Furthermore, the most
prominent critical voices may come from dissatisfied users of
particular software.
Finally, as mentioned above, criticisms may emanate from unacknowledged
personal or
political concerns. Pfafffenberger claims the use of computers in
qualitative research
should be the specific subject of empirical research in its own right, namely, the whole problematic matter of what happens when something inherently social lands in the middle of social research' (1988, p.10. see also Lyman 1984). This is a challenge that has yet to be taken up. Richards and Richards suggest that there is something about the combination of qualitative research and software development culture that tends to retard debate on the role of QDAS (1987, pp.24-5,1991a, pp.238-9). In the meantime committed QDAS users and non-users should aim for a debate as reflective, ongoing, serious, inclusive and balanced as the validity debate in qualitative research has now become (see Eisner and Peshkin 1990, Mishler 1990, Maxwell 1992, Eisenhart and Howe 1992, Altheide and Johnson 1994).

Further difficult questions about QDAS One set of questions that is taken up very frequently by commentators refers to the impact of QDAS on the research process. How true is it that the interest is increasingly shifting toward the generation of neat data' that can be 'plugged into a computer'(Wolcott 1995, p.74)? Agar (1991) muses on a worst case scenario in which ethnography will become indistinguishable from software. How much will software impact on the questions asked and the approaches used by qualitative researchers? Given each software package in existence is based on assumptions about how to undertake qualitative research, does a package become a straight-jacket? Furthermore, will one type of software become the gold-standard'? Will NUDIST, for example, have its Darth Vaders on research grant panels, pushing qualitative researchers toward politically pragmatic choices about other software?

Most user-authors are at pains to point out that responsible, informed, and capable qualitative researchers will not encounter methodological limitations of the straight-jacket' variety. Developers, are also very likely to emphasise the flexibility' of the assumptions underlying the development of their software. NUDIST is a clear case
in point. The fact that software developed for a grounded theory approach can be used for other approaches is seen as a plus an argument to counter the notion of software as straight-jacket (Richards and Richards, 1991b, 1994). The authors note that that another postulated strength, the capacity of the software to facilitate comparative studies (different case, same sort of data) is weakened by association. The findings of one study using NUDIST are not to be uncritically compared with another. For those who are fearful that QDAS can only tip the balance of research into the quantitative camp, the latter point must be reassuring.

Another question raised but generally judged too premature to answer by most commentators is, will research be improved by the software? So far the most typical approach to a positive answer is to focus on improvements to validity, particularly what might be described as interpretative and theoretical validity as well as generalizability (Maxwell 1992), although such claims would have very little appeal to those qualitative researchers who reject the notion of validity outright. Generally speaking, the improvements acknowledged by most users are the interrelated facets of analytical rigour and visibility (Gerson 1989, Kelle and Laurie 1995). A sophisticated computer analysis package can provide an audit trail for other researchers to explore and critique. This can encompass details on assigning codes through to the very paths by which the researcher explored the material. The flaws and omissions can be identified, even be demonstrated by the researcher him/herself as one researcher put it, fulfilling: the qualitative Popperian dream by repeatedly trying to prove myself wrong’ (Agar 1991, p.186).

Some users also postulate more fundamental changes. It needs to be pointed out that some ethnographers already believe changes in qualitative research questions and approaches are well overdue and that even more fundamental innovations should be sought with the help of technology (Coffey, Holbrook and Atkinson 1996). The authors for their part believe that in the medium term at least, QDAS will shape the processes involved in framing questions and possibly encourage conformity more
than innovation.
On the pragmatic economic and political side, the original research focus could easily become a function of the analysis framework offered by the best marketed, easiest to use, software. On the methodological side, we are concerned the ongoing questions asked of the data may be less carefully considered simply because of the ease with which new ones can be substituted. Hence, the freedom of playing with the data can have its darker side.

Speaking of the darker side, the creator of the Ethnograph software is forthcoming about the downside of applying technology to QDA. Most of the benefits can be, or are at least regarded as, two-edged. While the software can allow you to expand the scope of a study, explore the text thoroughly and play with ideas, it can bog you down in detail, require an inordinate amount of time in entering the text in the first place and string a project out. Seidel (1991) speaks of infatuation with volume of data simply because it is possible to analyse large amounts, and reification of the relationship between the researcher and the data, particularly referring to the emphasis placed on coding. Tallerico (1991, p.281) refers to a false sense of accomplishment and productivity engendered during the coding process. Richards has admitted coding can become an overblown activity leading to far too many coding categories and delayed advanced analysis (Richards 1995, 126-7). Dey warns of over fragmentation and hence under exploitation of the potential to link data (1995).

While users express both excitement and reservations about the sheer capacity of, and the potential for systematising (Fielding and Lee, 1991, p.73), analysis using QDAS, what about the role of quirky, individual research traits, including personal engagement with the data? Will computers plus quirkiness result in different research? Better? For some individuals computers facilitate creativity, or are intrinsically motivating. The same can extend to QDAS. Others find computers cold, intimidating, distancing. Indeed, one of the most common criticisms of QDAS by users and non-users
is that it can distance the researcher from the data. Seidel expresses concern that data reduction may in time become the analytical norm for those using QDAS (1991, p.115). Most committed users point out the flaws in this argument although, once again, seem to refer to examples of experienced researchers who would not lose touch with the basic tenets of ethnography. Most users will also quickly accede that the software, despite its powerful management properties, can keep one from getting to the data by simply requiring certain forms of preparation, although Pfaffenberger (1988, p.12) points out that qualitative data is formidable anyway and the enormous amount of notes keeps one at arm's length whether one is using software or not. Yet, we all have our own ways (and times) of connecting with data. Some like to be surrounded by the physical manifestations of it in the form of printout, or documents, or need to map or draw ideas. Agar, a QDAS user, has written about the need to be in a large classroom surrounded by blackboards for his ideas to take shape (1991, p.193). The physical act of cutting and pasting for some is the seedbed of insights. The computer is for such people, an intervening medium. It may have a place some time, but not always. What will we lose by using QDAS? Some serious research is required to find out.

Despite high hopes (eg, Gerson 1984) one of the disappointments connected with QDAS is that it has not made team projects any easier. The software does seem to open the way for geographically unbounded teamwork, and for flexible engagement of team members with the data (including individual input into analysis at any point in time). Audit trails can also keep track of members' comings and goings to name a few benefits. The down side is that people are not equally flexible, nor equally engaged (eg, Sprokkereef et. al 1995). In sum, without a clear set of team understandings, and across-the-board competence in using the technology, the team nature of the research can be as uneven with the software as without.

Some of the key QDAS producers and users make the point that their software
enables connections to be made with quantitative research (Padilla 1991 p.272). Some have misjudged the climate in qualitative research enough to claim that some kind of rapprochement has already been forged between the two. Many qualitative researchers would vehemently disagree. QDAS users are perhaps on more solid ground when they make the point that to get the grants from bodies often dominated by the quantitative paradigm that the QDAS provides a point of entree (Fielding, 1993). For others sick of being treated as if their research is not in any way robust, QDAS provides a line of attack, rather than having to retreat to defense. Certainly the glamour and hype associated with high tech can assist qualitative researchers to gain grants, but, on the other hand, they may have to make uneasy compromises too, such as presenting findings in a certain form. Researchers are already playing the politics of what has been called grantsmanship', but the costs might escalate if QDAS becomes too rigid a part of the plot. Budgeting is already a key problem for any qualitative research project, it is hard to argue for the cost of assistance to enable full tape transcriptions for example. The use of QDAS may strengthen the budget justification, but be a real ball and chain if the project is approved with a drastically cut budget. In times of competitiveness for the research dollar and cuts in Federal funding to universities in Australia, there is much emphasis on productivity. As others have pointed out, misinformed research managers may see QDAS as a quick solution (Lee and Fielding 1995, p.32) As many users and developers point out, QDAS rarely speeds up a project. The data management phase is intensive and extremely time-consuming, but after all the data is entered and coded/indexed the remaining time can be characterised by intensive, expansive and multi-faceted engagement with that data over a much shorter period than possible using manual' means. The authors muse that in a world where we are pressed for time to complete research, QDAS does provide the opportunity to maintain the integrity of analysis (in terms of depth,
checks and attention to detail) once only possible when there was time
to spare, and thus
make it possible for them not to succumb to the 'quick and dirty'.
However, for that to
be true users must realise that the data entry phase will be
time-consuming and
mechanical, and plan accordingly.

Further directions for discussion in Education

We are now poised to train the first generation of qualitative
researchers on whom
issues relating to computerisation may weigh as heavily as topics
such as
fieldwork, ethics and analytic reflexivity. (Lee and Fielding
1991, p.2)

What is the impact of the availability of QDAS, the recent QDAS
literature and other
dialogues about QDAS (eg, on the Net), on neophyte researchers? How
are supervisors
and examiners reacting? An important insight into this will become
clear when we know
more about how QDAS features in postgraduate research methods classes.

An important concern for research supervisors should be, when is a
student ready
for QDAS? The authors believe familiarity with one's field or
discipline is a great asset
because without it you are more likely to be straight-jacketed than
not. This flags a
crucial problem concerning neophyte researchers in Education at this
time. Education is a
melting pot for the disciplines, and while this is liberating for
established researchers, it
confounds many research students. So far the QDAS literature is
generated by
researchers who all seem to be at home within a discipline. In
Education we have many

postgraduate researchers working in a discipline different to their
original degree; a
substantial number with no initial degree, and a further group who did
their initial degree
so long ago, that when they revisit it, it has become strange new land.
Often education
students do a research methods course (a growing number in external
mode) before they
ever meet their thesis supervisor. Thus they are extraordinarily
vulnerable to the 'here is
the QDAS package for you' message. They think the software will do the
research. It
seems naive but it is an important problem which needs to be addressed from the perspective of postgraduate research management, within the QDAS literature, and by the writers of software manuals. Some implicit recognition of the problem of inadequate background, would seem to be evident in the move by one software development company to provide workshop sessions devoted to practical introductions to qualitative method (NUDIST Newsletter, 1996, (8), p.3).

Some have cautioned supervisors of the risks involved in introducing a neophyte researcher to QDAS (Tallerico 1991). The authors believe the concerns are well-founded. Those who claim that relentless critical awareness’ is the key to informed use (Pfaffenberger, p.20) forget the realities of postgraduate experience.

Other dialogues
A valuable source of data that reveals researchers’ candid opinions about the use of computers in qualitative data analysis is the Internet. It is now possible for a community of research scholars and interested onlookers to participate in, or monitor discussion as it takes place, or to retrace its earlier paths. So far in this article the authors have discussed the literature on QDAS, yet formal publication inflicts a time lag on journal articles and books that in most cases have undergone stringent peer review. The scholars who are published are generally established. The reviewed publications understandably present a considered and reflective perspective. By contrast list postings often tend to be reactionary, are often openly provocative or confronting and contain much raw, emotive sentiment. Moreover, implicit to this dynamic are the relative interests and concerns of a wide ranging group of people, from ‘guru’ through to neophyte research status.

Professional gatherings such as conferences, seminars and workshops facilitate scholarly interaction, but these are infrequent occurrences in the professional life of many neophyte researchers. The Internet provides an alternative way for them to monitor research developments. As one list subscriber put it, loitering with intent.
A plethora of mailing lists represent some of the alternative opportunities for discussion. The second author commenced monitoring QUALRS-L earlier this year. This electronic discussion group was commenced in 1991 for those interested in using qualitative research. Two further mailing lists were monitored, the NUDIST discussion group QSR-Forum and the CAQDAS/Qual-software list which discusses computer software for qualitative research.1

The Australian based QSR-Forum was established by the developers of NUDIST to provide shared support for NUDIST users. So far the postings are mostly of a technical nature (eg, how to transfer documents between Macintosh and PCs). The CAQDAS/Qual-software list was formed as an ongoing project that was set up in the UK to increase awareness of, and provide a forum for discussion about, computer-aided QDAS and the variety of packages available. The list aims to facilitate the best match between software and research design and encourages researchers to share their experiences (eg, Fielding 1993, 1994, 1995b, 1995c).

In June 1996 the QUALRS-L discussion group engaged in an extended discussion about QDAS in general and NUDIST in particular.2 The interchange followed a five page commercial message (laced with superlatives) posted on the list advertising a two day NUDIST workshop at Columbia University. It included a registration form and detailed information about NUDIST software. The message was posted several times for maximum circulation. This post evoked strident responses from several annoyed list subscribers. At least two things really upset Internet list subscribers. One is spam which includes hoax messages and get rich quick schemes. The other is commercialisation in the guise of scholarly legitimacy. It was the latter concern that seemed to precipitate the discussion. Around the same time discussion about the efficacy of using computers in qualitative research was raised during a workshop attended by the second author at a phenomenology conference held at the University of Newcastle.3 While other computer-assisted qualitative data analysis software packages were
mentioned, NUDIST provided the platform for most of the discussion. The discussion included input from some experienced qualitative researchers who did not use computer software for their analyses and resented its intrusion. Others spoke glowingly of the value of QDAS. Such discussions shed light on the understandings of, and attitudes toward, the role and qualities of QDAS and while not all those who discuss QDAS might know much about specific packages, the manner in which the dialogue develops and participants express their opinions is illuminating.

The initial analysis (undertaken manually) revealed that list subscribers and conference attendees were polarised in their perceptions of QDAS positive or negative. In addition four overlapping themes emerged: commercialism, role and capability, negotiating the mechanical interface, and making meaning. Embedded within these themes colourful metaphor conveyed stances the most prominent of which related to territory, for example:

Literacy in the latest software will not by itself adequately carve out a place for the qualitative tent in the academic jungle (QUALRS-L 00059)

Commercialism
It is inevitable that different QDAS packages will vie for market share, and it was concerns about commercialism that sparked the NUDIST debate in the QUALRS-L discussion list. Some subscribers found the abovementioned advertising of NUDIST workshops reprehensible shameless commercial pandering. Telling metaphors such as used car lot' and department store' indicated the depth of rejection. Others indicated they thought such postings were necessary on the grounds of scholarly legitimacy, ie, research developments had to be communicated. Further, some newcomers to qualitative research welcomed postings because of their information value. These issues were discussed briefly, but it became evident that there was a still deeper objection, namely NUDIST was soliciting for customers and gaining market dominance. It all seemed to
imply that NUDIST software was becoming the new gold standard.

Role and capability
On the Net, this theme was flagged in the form of a mischievous taunt by one subscriber to the advocates and users of NUDIST. Those wooed and wowed’ by the software were invited to run Ulysses [the novel by James Joyce] through the Nudist program which should be duck soup for the experts and the themes should just come screaming out of the work’. At the heart of the challenge, and much of the response to it, were fundamental concerns about the role of NUDIST and its capacity to contribute to research. The concerns were as simple as what could it do, through to were the claims for it true? The misconception that NUDIST software provides a substitute for the conceptual hard work in qualitative analysis was voiced, as were fears about losing the feel, flavour and connectedness of the data, ie, distancing.

The challenge led to exchanges that clarified that NUDIST can not extract themes from the data or reconcile and juxtapose them, with users emphasising the computer was but a tool’. Such points were also raised in the workshop (and can be found in the literature). As one list subscriber and QDAS user explained:

All that any of these programs and all the users I’ve encountered claim for their software is that it helps you organise...But what I could not ask the program was whether it were a useful, interesting or meaningful question to have asked...such programs help you manage your data in much the same way writing things down does - in so doing they help you extract INFORMATION you might need for you to reach an understanding. They don’t claim to perform any kind of analysis, so why ask them to? (QUALRS-L 00058)

List members and participants of the aforementioned conference also raised the straight-jacket concern, eg, that NUDIST ties you in to a certain way of doing qualitative research. The major concern was that the software was inflexible, and
even though protagonists disagreed and stressed the opposite, the antagonists believed such claims excessive. One notion was that NUDIST drives the analytic process like a very big dog with strong positivistic and mechanistic overtones. That QDAS users were already, or in danger of, becoming reductionist was very evident in the exchanges. The very fact that protagonists claimed that QDAS improved research effectiveness suggested positivism, or as one claimed wryly, positivism isn't dead - it just smells funny'. Another side to this concern was is that in a qualitative research climate that expects more rigorous analysis and claims to possess the technology to assist in this regard, it would be foolish not to consider software like NUDIST, ie, there was a perceived, unwelcome pressure, to use QDAS. Throughout the discussions the reactions and overreactions strongly suggested a group of academics resisting invasion.

Negotiating the mechanical interface
Much discussion about QDAS does tend to get tied up with the technical aspects of using the software. At the heart of using QDAS for some is love of computers and of tinkering with command files. While they do not find this a waste of time or as a block to qualitative analysis, others most certainly do. This suggests the question how do researchers connect' into the process of using QDAS generally and specific packages in particular? One researcher who admitted that she feared the software urged researchers not to become fascinated by the mechanics of the process. She compared the dilemma to producing fancy swatches on a knitting machine without ever producing a garment. Tallerico (1991) warns of becoming more involved with the hardware and software (bells and whistles') than getting on with the analysis. Confidence and competence with respect to using QDAS, even computers and word-processing, was a theme evident on the Net and in the workshop in one form or another. Those with confidence and interest in the technological were in their element, others were bedazzled, bewildered, frustrated or
angry. The more confident and committed users generally indicated they found NUDIST a usable tool and seemed sanguine about the role of computer software in qualitative data analysis, including its restrictions. Non-users and neophyte users perceived NUDIST as very complex and off-putting (some had had experience with an earlier version with a poor interface and the memory was strong). Some rejected NUDIST in favour of other packages, yet for others QDAS use was a great burden:

I'm so friggin' tired of the program and I feel so stifled and restricted that I end up just going back to the print-out of the interview and marking it up with colours and arrows... (QUALRS-L 00059)

It seems QDAS ‘burn out’ and return to other familiar methods is not unusual (see Lee and Fielding 1995). Several proclaimed the virtues of the old-fashioned way, stating that their word processors provided more than adequate assistance in the analytic process. The word processor was at least ‘quick’ if ‘clunky’.

Making meaning
Qualitative researchers continually discuss meaning. Where is the meaning with respect to the data? How can it be located and identified? Are our interpretations trustworthy?

These discussions are frequent on the Net as in other academic forums, but QDAS adds an edge because the software not only privileges certain theoretical positions (Huberman and Miles 1994, p.434) it dictates ways of setting out data. It does not work the way I do is a familiar cry:

[I discovered] If I wanted to use a software program I would lose not only an understanding of the context but many of the specifics such as bolding (for emphasis) would be lost in the transfer. I totally freaked and then, after my heart stopped beating and my temperature and inner heat flashes subsided, I calmly decided to forget about the software programs and go the old-fashioned way...I
would think for some purposes the software may be wonderful but I had a lot more fun playing in the sandbox and mud piles, forming my sand castles and mud pies, and letting all that sand get all over the place and getting mud between the toes. Gooey, but a heck of a lot more interesting. (QUALRS-L 00058)

NUDIST clearly encourages an hierarchical organisation of data (see Richards and Richards, 1991c, 1995). When this is framed as a criticism the typical rejoinder is that you do not have to structure your data in this manner, but other associated concerns press heavily on non-users and users alike, not least of which are 'meaning mining' and 'meaning shifting'. The computer may allow many riches to be uncovered but also there is equally great potential to contribute to trite analysis making meaning willy nilly simply because the software enables us to do so. The concerns bubbling at the surface of the discussion query - can all the playing and digging around and the computer procedures and possibilities for finer and finer analysis divert the researcher from holistic, intuitive, or even common-sense understanding of a phenomenon?

Finally how do the authors stand in relation to QDAS, namely one established historian and one neophyte researcher with purely education studies to draw on? As well as making our own attitudes toward the software understandable and visible, the next section provides some quite specific information on why one would choose to use software in research, in this case NUDIST. In the examination of what we have identified as the connection' some pointers emerge that can contribute to the development and expansion of the QDAS debate, particularly as regards postgraduate students.

An Historian's connection' with NUDIST software Historians are very often fossickers or if blessed with the availability of rich sources, miners of, the fractured seams of past events past existents. Unlike many of their research colleagues in allied disciplines they do not stay out in the field until they are learning nothing new. They stay in the field until they feel they have uncovered all that they can, have exhausted all possible search avenues - for that time,
knowing full well that the seam of historical evidence is fickle. The subsequent unearthing of a file, a book, a diary, a set of minutes could terminally challenge their developing or developed interpretations. Historians work at piecing together the past with an

often cheerful fatalism. To discover one was mistaken is embarrassing, but is no great shame and often a great excitement, as the first author's experience of several venerable colleagues attesting that their earlier published work needs updating and re-visiting in the light of vital new information. Historians can work at re-analysing and inserting new data over a lifetime - and not just an employed lifetime. The book that was read twenty years ago, those documents one discovered fifty years ago, all can come back and play a critical role as analysis proceeds. Nothing is discarded, because while a fragment of evidence of the past may have no importance immediately, it may be the lynch pin in connecting many such fragments later. Excepting those who have reached complete closure in their research, historians live for new evidence, new clues and great happiness accompanies long stints of uninterrupted archival work. They end up with an incredible breadth of information and develop an uncanny capacity for following hunches in their work, because immersion in their area of study leads to both. Furthermore they rarely change their area of interest but go through periods of exploration where they might trek into a different topic, but what they discover there is automatically compared and explored in the light of the great corpus of information already collected. In history such connections can be smooth and seamless.

Many of my colleagues have vast libraries of historically pertinent materials that span centuries. Retrieval and contextualisation of collected data for an education historian can dwarf the requirements of many a fine ethnographer in the education field. So temporal flexibility is inherent in the very nature of their field tasks, is called for by the nature of their subject matter, and is a fundamental aspect of their thinking. Imagine then
the potential of the simple word processor with a search facility for any historian, let alone specialised data-base software. Such software will not necessarily revolutionise their tasks, but can certainly complement their research temper and temporality.

So, can the new generation of qualitative software help them even more? A qualified yes must be followed by, if their research questions and methodological predisposition require it. The greater significance now being placed on oral history as a source provides a case in point. Conventional historiography is lacking when it comes to oral sources. There are so many questions about their value as sources because their reliability is suspect. Many texts are now devoted to this, and methods are presented which will allow the researcher to gather good oral history, but rather less on how to most meaningfully analyse such material. As shown above, one thing that has galvanised qualitative researchers recently is the analysis of textual data, and this is one angle where QDAS becomes a key aspect of that debate. Questions of interpretation, not organisation, were at the heart of the first author's connection with NUDIST, and what follows is a brief description of that connection.

The connection
The first author has been interested in youth unemployment, and the history of childhood and education since a second year Australian history subject taken during her undergraduate days as a student majoring in economics. This has led to a twenty-four year involvement in researching those allied areas. For twelve of those years she used a word processor to assist with the writing, and with the storage and retrieval of information. From the late eighties her research focus narrowed to two complementary subjects youth transition and school life 1930s-1950s. A university post allowed her to also pursue and expand her interests in historiography and qualitative research methods and methodologies. From the late eighties to the early nineties she explored, with the assistance of post-graduate coursework students, ways to improve and
develop approaches
to an oral history of classrooms and the transition of youth through school and into work.
She used that pilot work to gain her first national competitive grant. But at that time she had still expected to do much of the work using a computer together with manual paper shuffling. The one software package she had been able to access, the Ethnograph, did not promise more than she felt she was already able to do with methods at hand and more sophisticated use of existing word processing. Then, essentially because she wanted to be up-to-date for her qualitative methods students, she attended a NUDIST beginners workshop organised by another Faculty. The connection was immediate. The approach of those who developed the software was instantly familiar the connectedness of like minds.

On reflection, after playing with the demonstration and most especially after tenacious multiple readings of both the manual and user's guide, it was clear that the software could assist in the pursuit of some particularly intricate and intensive avenues of analysis in the youth transition project. This was in 1993, before NUDIST version 3.0 became available and the NUDIST software was extremely unfriendly, and also only available to the researcher on a mainframe computer using another unfriendly system of access. During the summer she struggled with the software simply because it was the tool she needed to answer her particular research needs. Bear in mind these needs had been identified over a long period of time, and the researcher was not only well versed in her field, but had been expressly working on the method for some time. The relevance of like-minds and expert (as opposed to novice) status will be revisited in the next section written by the second author.

Even before the first author's exposure to NUDIST, she planned to obtain several hundred in-depth oral history interviews for her project. The researcher had found that for many of the more than one hundred pilot study informants, memories of childhood were thin, especially about specifics of schooling and
training. On the other hand the variety of experience of transition was enormous. To ensure the integrity of the project, and the usefulness of these precious, never-to-be-available-again recollections, it seemed especially crucial to tap into the variety and so try to gain some meaningful idea of the scope of childhood experience.

When the author began her project, historians on the whole, were extremely suspicious of the trustworthiness and credibility of oral testimony. The researcher too felt that the method could be improved, but not so much during the data gathering, as with the analysis. Moreover, rather than shying away from the dilemmas associated with the interview as constructed between informant and interviewer, and with elements of fantasy, imagination and myth, the researcher wanted to see if recognition and subsequent analysis of those elements could in some way strengthen or at least inform the historical narrative (Holbrook, 1995). In her combined research roles as historian, futurist and methodologist she recognised the importance of pursuing oral history (and other new technology records such as video, email) in a world where traditional documentary records were in jeopardy (Holbrook, 1994).

Tentative coding frameworks were discussed with the interviewing team: codes for the content, codes that would encapsulate the performance/input/relational aspects of the interview, and codes that reflected deeper structures of meaning, ones that might identify commonalities and contrasts in the ‘telling’. But the latter aspects would probably not have been pursued innovatively or very rigorously if the researcher had not found the software to facilitate such a design.

The transcripts are on-line, the autobiographies and all other documents are off-line (ie, the off-line documents are still in filing cabinets, but codes pertaining to them are entered into NUDIST). There was never any intention to look at the oral histories on their own. They were to be a major source among other sources. It follows that several codes relate to source of historical information.

The software is a boon given the amount of data collected (close to
three hundred interviews, over one hundred published and unpublished autobiographies and extensive historical documentation), as well as allowing for a complicated multi-layered analysis of the oral history material (Holbrook 1995, p.36-8). Although the software can make very fine grained text analysis possible, the researcher soon recognised that large numbers of codes are not necessarily better. Demographic information about the informants became the most densely coded single category of information in the thirteen major categories that became the core (root node) categories for the interview content analysis phase of the project.

To sum up, several points need to be made. The software has allowed this researcher to do what she had already deemed best methodologically. It suits her methodological predisposition and the way she has interpreted the requirements of her discipline. It has acted on the design in functional ways, eg, requiring full transcripts, coding by text line, developing codes to allow for combined use of a range of historical sources. There is also an element of feeding-back. The software has made her more attuned to what historians say they do, and what she did before without much conscious thought. It can enable greater self-reflexivity, just as surely as it might dampen it.

A postgraduate student is connected to NUDIST software and wavers. The second author's perspectives on NUDIST are a lot like his children's perspectives on television. It was already here when they arrived and is a familiar part of their cultural environment. When television was introduced there seemed to be a lot more discussion about the possible ill effects, but these discussions, some of them outrageous, have subsided and few of us could imagine contemporary life without TV.

The recent research interests of the second author have lead him into the qualitative camp. His research questions explore how students really feel about designing and making things as part of their school-based learning, how they organise their design projects and work through them. Observation and interview techniques were deemed the most appropriate strategies for exploring and understanding the chosen
research questions. The project required entry into schools that offered design and technology programs at the middle school level, where students had taken these classes as an elective choice and would be mature enough to reflect on the experience.

Qualitative methodology for the second author was surrounded by mystique which had been reinforced while undertaking Masters studies in industrial technology. We were advised not to consider qualitative research projects because they are messy and we ought to be aiming for something that is quick and clean (a quantitative study). Consequently for his doctoral studies the second author had to start afresh. He audited a qualitative methods subject offered by the first author and was introduced to NUDIST software. In that subject students were encouraged to practice the skills relevant to the data gathering techniques that they proposed to use for their research projects. Generating field notes from field observation and practising depth interviewing techniques became the focal techniques. Both of these tasks looked far easier in text books than they turned out to be in reality. One of the well known analytical difficulties that data gathering techniques like observation and interviewing create is the large volume of field text that has to be managed somehow. The first author had found the NUDIST software excellent in regard to managing and categorising her large data set and her enthusiasm was communicated to her students, who throughout the course, received substantial laboratory experience with the software on a mainframe computer network. Unfortunately the second author found the mainframe NUDIST user interface complicated and he therefore struggled to make sense of what was going on and how all this cutting and coding facilitated qualitative data analysis. When he was introduced to the demonstration version of NUDIST 3.0 he resolved to purchase that version, because as a Windows user he felt more confident about the software. Moreover, the user interface for that version proved to be so much more friendly. The tutorials that were supplied
with the software provided a general sense of reassurance that at least interview data might be easily managed.

As the research project evolved, three days a week observations in the field became all consuming. Getting the notes into the required form for NUDIST became of secondary importance to negotiating an ethics committee and keeping up a consistent observational regime in two research sites, presenting a seminar paper, attending workshops and presenting a conference paper all the things that the research methodology textbooks do not give a realistic indication concerning the time involved.

So, the second author expected to using NUDIST by now but not only is he putting off further connection, he is waverering, for the reasons that follow. NUDIST requires raw files to be thoroughly prepared prior to coding because it does not have the editing functions of the word processor. This means that corrections and alterations become problematic once a file is loaded. In order to realistically prioritise the available time it became necessary to postpone the final preparation of field note documents for NUDIST in order to maximise his presence the field.

Initially the software had intuitive appeal because of the claims that the developers made in favour of it and the supporting experience of his supervisor. The connection to NUDIST came about by birth in a manner of speaking, because computers were being used in QDA for ten years prior to the second author's arrival on the scene and his course work methods experience included them. An awareness of the potential analytical constraints associated with the software developed with a growing understanding of qualitative research and the journey within this field. Unlike his mentor who came upon NUDIST at just the right time in her analysis to find that it clearly provided the organisational help she needed, the second author has grown increasingly anxious about the suitability of the software for his own research data. This anxiety is partially driven by his personality but also by the transient nature of the neophyte's journey. The neophyte has no territory, no fixed address and is reliant upon the
hospitality of more experienced others to point the way. NUDIST initially seemed like an excellent map of the terrain, but not necessarily his terrain. Weitzman and Miles (1995) road testing of twenty four QDA software programs would have been useful had it been available at the time. Furthermore, the second author’s exposure to robust discussion at the abovementioned phenomenology workshop in Newcastle where NUDIST came under scrutiny at one point, and the subsequent monitoring of several discussion lists, have raised doubts about it. These doubts may well prove to be as vacuous as some of the arguments that seeded the doubts in the first place, but such is the nature of neophyte insecurity. It is easy to listen too carefully to some and not carefully enough to others, and to ascribe excessive worth to everything that appears in print. You can spend a lot of time wondering, rightly or wrongly, if you are doing the right thing. To say that this kind of despair can be counter-productive is to understate a critical phase in beginner researchers development.

Conclusion
The literature on QDAS is growing rapidly. The main foci so far have been the comparison and evaluation of software types, epistemological questions about the role of QDAS and information about specific applications of QDAS. Much of the literature emphasises that it wants to contribute to the debate on QDAS. The authors question the existence of anything like a debate at this point, and caution that what discussion does exist is not only lop-sided but potentially divisive. The current research climate is not conducive to a measured debate and researchers are connecting with the software at many different levels of readiness. Marketing is contributing tension to the dialogue, and the extreme vulnerability of the neophyte researcher figures here, especially in the field of Education. Unlike the debate on validity which has progressed to a point whereby a researcher can identify their position within a broad spectrum, QDAS is
a phenomenon that intrudes into the research community and the research process, in a way it would appear that word-processing did not. Moreover, the configuration of elements connected with this intrusion seems to be polarising opinion. Territory, economics, politics are significant threads in the non-mainstream discussions on QDAS. They give a sharper edge to both the expressions of fear and concern about, and happy dealings with, the software, and extend into mechanical and epistemological discussions. Such factors contribute to polarisation of opinion and tend to subvert the debate.

As a phenomenon in itself, QDAS requires study, as a subject of debate it requires monitoring to be sure that the input is balanced. To make the best of QDAS and to conceptualise its role most meaningfully, it is essential that qualitative researchers do not sublimate their own dynamic research culture. We must closely observe the social environment of research and the contrary, contradictory, human behaviour within it, especially during this period of technological innovation. Therein must lie many an interesting and illuminating story.

NOTES

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