Reflecting on the Impact of Qualitative Software on Teaching

Clare Tagg

Abstract: When teaching people how to use qualitative software, a number of factors influence what functions in the software are covered. This paper will discuss the teaching of short intensive small group courses on qualitative software and identify the features in the software that influence the structure of the course and the material covered.

I have taught QSR software (N4, N5, N6, NVivo2, NVivo7 and NVivo8) to small groups of researchers in universities and research organisations for 15 years. Participants have had various levels of research experience including members of faculty with extensive qualitative experience and Masters and first year PhD students. Participants have come from a wide range of disciplines.

The design of each course is generally different to meet the needs of the group, their experience, the practical facilities and when known, the requirements of their project. But how significant is the software in the design of a course? This paper will use records of past courses to identify the elements taught and the reasons for the selection of topics and ordering. The paper will compare the impact of the software user interface, structure, and features by comparing the teaching of similar courses in N6 and NVivo7. The paper will conclude by reflecting on the impact of course design on the use that participants make of qualitative software.

Table of Contents

1. Introduction

This paper explores how the nature of a qualitative software package impacts on the way it is taught by examining one course that has been run several times a year by the author to similar groups of students over five years. For the first three years the software used in the course was N6 and in the following two years, NVivo7. Feedback from each course meant that the structure of the course gradually evolved but when NVivo7 was introduced at the University, the course was redesigned. Contemporaneous notes from each delivery of the course allow the structure of each to be examined and compared to evaluate the impact of the software on delivery. [1]

The author was already an experienced lecturer in qualitative software at the start of the courses and while each group of students has been different, the mix of disciplines and levels of experience have remained fairly constant. The structure and even the room used for delivery have remained the same. So, while the delivery of each course is influenced by the particular circumstances, this series of courses provides a good opportunity to compare the effect of the differences between N6 and NVivo7 on teaching. Although both N6 and NVivo7 are produced by QSR and are no longer marketed, they are useful for this comparison because they provide similar functionality but the significant differences in their interface and features might indicate that they would need to be taught quite differently. [2]

Section 2 provides some detail on the context of the course, the students attending and the physical arrangements for delivery. Section 3 compares the two software packages, N6 and NVivo7, identifying aspects of the software that might be expected to impact on design and delivery of a course. Section 4 uses records of the workshops (PowerPoint slides, course notes, exercises and notes about the participants) to compare the material covered. The final section reflects on the impact the software had on the design, delivery and outcomes of the course. [3]

2. Course Context

The course is a two day practical workshop organised by Leicester University as part of their Professional Researcher Programme. The course is organised and advertised as two separate days, run about 3 weeks apart ("Introduction to NVivo7" and "Intermediate NVivo7"), with participants booking to come on one or both days. The course is repeated about once a term with dates for the whole year advertised in advance so while many participants attend both days, some will come to the second course later in the year. [4]

The course is open to PhD students, research staff and faculty from any discipline with the numbers on any day limited to 11. In practice, for most courses, a majority of the participants are full-time PhD students in their first or second year, often with English as a second language. Many disciplines are represented but most participants come from Museum Studies, Health, Education or Management. [5]

Participants are encouraged to bring their own data to use on the course (particularly for the second day) and some do this. Occasionally, participants repeat the workshop when they have collected their data. Two sets of sample data are provided for those without data and generally this data is used for demonstrations. "Eating Habits" is an exploratory research project using short diaries which the participants download from a web archive. It is used for the introductory course. "Bishopston" is an analysis of open-ended questionnaire data produced from a customer survey of a small chain of fair trade shops in the Bristol area. It is used for the intermediate course. [6]

The course presents a number of challenges to teach because of the varied backgrounds of the participants and the short duration. As there is generally no

contact with the participants before the course, there is scant time to adjust the course to match the needs of the particular cohort. The challenges that the participants face when learning the software are concerned with their skills, knowledge and experience of: IT, qualitative research, their discipline and its research traditions, previous knowledge of qualitative software and their knowledge of English. [7]

The participants' capabilities with IT are the most variable and have a significant impact on their attitude to the course and progress during it. It is still true that some older researchers describe themselves as "computer phobic" and as a consequence do struggle with IT. However, the actual ability and speed of all participants to do simple tasks such as find a file on the computer, use context sensitive menus on a right click, select groups of records using shift or ctrl, varies tremendously. A participant's capability with IT has a significant impact on their ability to undertake practical sessions as they are both slower and are having to learn new IT skills at the same time as learning the qualitative software package. [8]

Received wisdom amongst trainers in qualitative software is that it is important that participants know about qualitative research before trying to learn about using software in qualitative research and generally advise they undertake a course in qualitative analysis before taking a course in software (e.g., DI GREGORIO & DAVIDSON, 2008). In practice the overwhelming majority of participants attending these courses have already decided to undertake qualitative research and although they may not know about the nuances of particular methods or epistemologies, this does not seem to impact on their capability to learn how to use the software although it may mean that some discussions within the course (for example on validity) are not understood. Participants who have not yet collected any qualitative data, do find it more difficult to visualize how they might use the software and if their English is poor, struggle using the data provided. For example, the analysis of the sample data used for the first day of the course considers eating habits and some students find it hard to identify relevant passages or understand the distinction between what a meal is called and when it is eaten. [9]

The course uses two techniques to overcome the variety within the participants. The workshop is structured so that when participants are working on the computer they can go at their own pace. This is achieved by having a room where the computers are arranged around the edge of the room with a work desk in the centre of the room. This allows the course to be delivered by short lectures with demonstrations where the participants are not sitting at their computers followed by practical sessions. When participants are working at the computers there is plenty of room to help individuals. During the practical sessions, participants work on a series of tasks using a set of summary notes. With only a maximum of 11 students, it is possible to help those who have difficulties with IT. [10]

To help those with little experience of qualitative research and no data, the course is positioned around a research question which the course aims to

address by using the software. In the case of the "Eating Habits" project, participants select their own sample of diaries from the web. [11]

The next section compares the two software packages taught on these courses (N6 and NVivo7) with the aim of identifying areas of difference that might be important in teaching the software to this audience. [12]

3. Comparison of N6 and NVivo7

QSR International (WWW.QSRINTERNATIONAL.COM) produced both N6 and NVivo7. N6 was released in 2002 and derives from the original NUD*IST software developed by Lyn and Tom Richards (RICHARDS, 2002). NVivo7, released in 2006, resulted from combining the features of N6 and the second version of NVivo software (NVivo was first released by QSR in 1999). Although N6 and NVivo7 were both produced by QSR and share the same concepts they were developed separately and have completely different interfaces. [13]

The user interface of N6 is bespoke as illustrated in Figure 1 although it provides all the normal methods of interaction (menus, buttons on a toolbar, right click context sensitive menus and shortcut keys). In contrast, NVivo7 adopts a standard Microsoft interface (of the same style as Outlook) so much so that it was used as a reference project at Microsoft conference, TechEd, in Boston (see Figure 2).
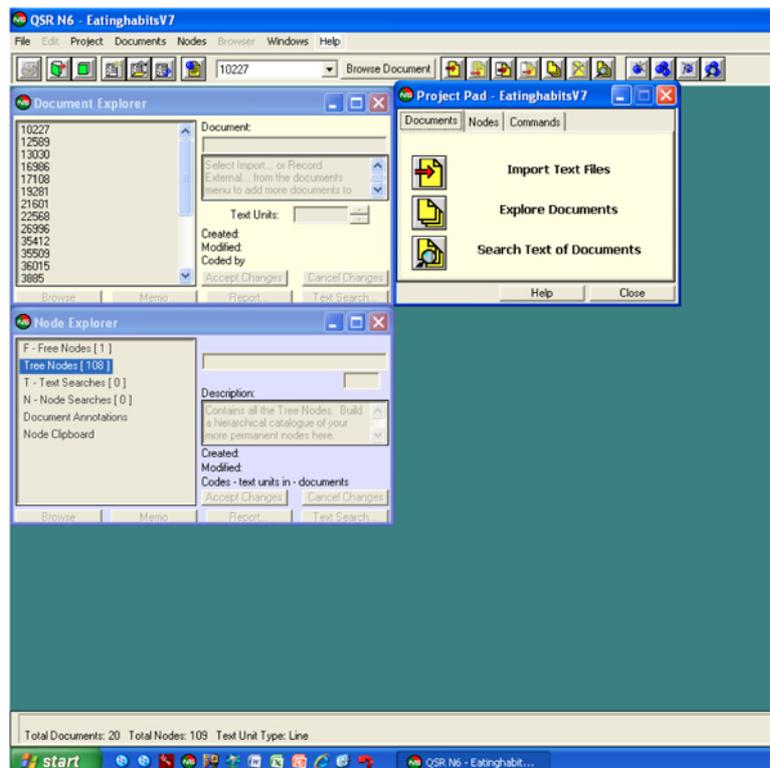

Figure 1: N6 user interface
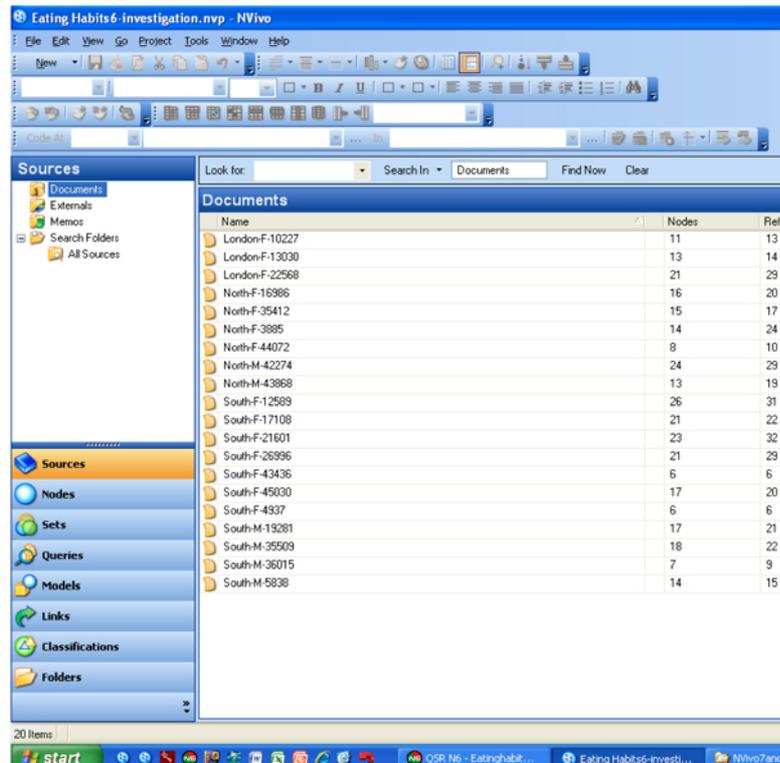
Figure 2: Nvivo7 user interface [14]

For moving data, N6 uses the copy and paste metaphor while NVivo7 additionally includes drag and drop. NVivo7 also includes undo functionality. With N6 the whole structure of the project is revealed on load and a project pad provides a novice introduction to the functionality. With NVivo7, access to the project elements is via the navigation view so a user needs to know where to look to find elements of the project and there is no equivalent of the project pad. [15]

In summary, the N6 interface was designed specifically for the application and in consequence provided immediate access to the key structural elements of the project (nodes and documents). NVivo7 adopts a standard Microsoft-based interface which does not provide such immediate access to the structure of the project but will be familiar to many users. While NVivo7 is a more modern piece of software, the differences in interface are due to essentially different design decisions rather than the technology available. [16]

The specific design of the N6 interface makes it very effective to use for qualitative research (for example, documents and nodes are immediately visible with descriptions automatically displayed, frequent operations such as coding require the minimum of mouse clicks or key strokes). With NVivo7, the use of a standard interface may make the software less efficient to use for qualitative research but the interface will be more predictable to many users. [17]

Structurally, N6 really only consists of documents and nodes which are used for multiple purposes in a typical research project. In addition to documents and nodes, NVivo7 has more specialised elements. For example, in N6 you would use a node to represent a characteristic such as gender of an interviewee but in NVivo7 you would use a case node and an attribute. This means that when teaching the software, there are fewer functions to learn in N6 but more techniques. [18]

In addition to greater structural elements, NVivo7 also has a much more extensive tool set than N6. Source documents can be richer and writing within the software is fully supported, there are more options for organising objects and several ways of changing the display. The query tool is more flexible and has more options and there is a completely new modelling tool. Overall, NVivo7 is a more sophisticated piece of software than N6 with substantially more elements and functions. However, unlike later versions of NVivo, the overall capabilities of NVivo7 for a qualitative researcher are not that much greater than N6. [19]

This comparison of N6 and NVivo7 highlights significant differences which could influence course design for this diverse target audience. As a simpler package, N6 might be easier for the less IT literate to learn unless the unfamiliarity of the interface is seen as a barrier. Both packages require users to navigate through their hard disks to find files to import (a task that many IT novices find difficult). With N6, data has to be prepared as text documents using the "*" symbol to indicate headings, in NVivo7 source documents can be imported as Word documents but Word styles need to be used for headings. NVivo has much greater functionality to master but N6 requires the user to learn techniques to compensate for inadequacies in functionality. The next section compares deliveries of the course to identify differences in course design. [20]

4. Comparison of Courses

Over the time that the courses have been running the content of each day has evolved following user feedback. When Leicester University switched to NVivo7 the course was redesigned. The content of each course has been largely left up to the author—the brief from Leicester University has been open-ended given the satisfactory user feedback from the courses. [21]

The timetable for the delivery of each course has been saved and these have been used to compare the content of the final version of the N6 and NVivo7 courses. The content delivered in the introductory course and intermediate courses are shown in Tables 1 and 2.

N6 introductory course	NVivo7 introductory course
Overview of N6	Overview of NVivo7
Preparing documents for N6, Creating the N6 project, Importing documents	Creating a project and housekeeping, Getting data into NVivo7
	Memos & annotation
Open coding	Open coding
Lunch	Lunch
Developing & entering a coding tree	Developing and entering a coding tree
Coding	Coding
Housekeeping	Modelling
Surgery session	Introduction to querying

Table 1: Comparison of content of introductory course for N6 and NVivo7

N6 intermediate course	NVivo7 intermediate course
Review	Review of introductory techniques
Text searching (both for autocoding & searching for concepts)	Autocoding & Coding On
	Cases & attributes
Lunch	Lunch
Automating tedious tasks (command files & import of descriptive coding)	Querying nodes
Coding tables & node searching	Querying text
Exporting quantitative results	Searching & sets
Merging if required	Merging if required

Table 2: Comparison of content of intermediate course for N6 and NVivo7 [22]

The tables show that despite the differences in the software, the courses are remarkably similar. The main difference in the introductory course is that extra functionality in NVivo7 is accommodated by two additional sessions in the introductory workshop (on memos & annotations and modelling). This is possible because preparation of documents is simpler in NVivo7 and in practice most participants seem to find the standard interface of NVivo7 easier to learn. In the intermediate course, text searching is introduced earlier in the N6 course to allow autocoding. The N6 session on exporting quantitative results is included in the NVivo7 session on querying nodes. An additional session is added to the intermediate NVivo7 course to cover the extra searching and set functionality. [23]

The software does not really seem to impact on the teaching order (the only difference is that of text searching in N6). This may either reflect the emphasis in

course design on the needs of the participants or that there is a "natural" order to using qualitative software. The standard interface of NVivo7 allows more topics to be covered. [24]

An extra session introducing querying has been added to the introductory NVivo7 day. This was in response to the author's concern that participants were over-focused on coding. This concern was based on observing PhD students who were either taking the intermediate course after a break of up to a year or returning for a repeat of the intermediate course. In all cases, students were still struggling to structure their coding. In practice, the session on querying is either dropped or the practical exercises are only undertaken by the most enthusiastic participants. [25]

5. Reflections

Despite the significant differences between N6 and NVivo7 the courses have evolved to be remarkably similar which suggests that course design does not need to be dictated by software but can be governed by the needs of the audience and practical considerations such as time and room facilities. [26]

Although the NVivo7 workshops contain more concepts most of the participants seem to cope and this is largely due to the familiarity of the user interface. Even participants who describe themselves as "computer phobic" recognise the user interface metaphors. Strangely it is the layout of the screen with the navigation section on the left that participants seem to find most helpful although this is precisely the structure which makes NVivo7 less effective for qualitative research by limiting easy simultaneous access to multiple types of elements. [27]

In each group there are some participants who struggle with the number of concepts in NVivo7 and a lack of capability or confidence with IT is a factor. This can affect both experienced and inexperienced qualitative researchers and seems to result from the extra intellectual effort they expend on coping with IT. The other group of participants who have difficulty with the number of concepts are those PhD students near the beginning of their research who have not yet planned their data collection. [28]

Most participants do seem able to imagine how they might use the software in their own research and those that bring their own data to subsequent courses are using the software. However, many students seem to react to the ever-increasing choice of tools by using a very small proportion of the topics covered with an emphasis on coding. Elsewhere with workshops for specific research projects it is possible to overcome this tool overload by tailoring the workshop to include the most useful options (based on an assessment of the research and researchers). [29]

This paper has illustrated that provided the software has a well-designed interface the actual software taught need not determine the structure of the course. In both of these courses the order of topics taught is largely dependent on the needs of the two sample research questions. This is mostly possible in the

QSR range of software because each tools is essentially independent, so it does not matter in what order they are introduced. However, the IT capabilities of the participants does have a major impact on the delivery. These findings are consistent with other courses taught by the author which are designed for a specific research project. In this case the order of topics can be determined by the needs of the research project but it is difficult to allow for variations in IT skills in advance of meeting the participants. In one extreme example several years ago, the participants were on a British Council funded research project and had to use dictionaries to translate terms into a shared language (Russian) but the feature of the audience that most prevented them from learning N6 was that they all had little knowledge of using a computer. [30]

This has useful consequences for teachers of Qualitative Data Analyis software. We can safely concentrate on designing a course to meet the needs of the audience and other practical considerations (such as the length of the course and size of the group) rather than the software. In considering the needs of the audience, their IT skills are paramount. [31]

The number of tools in qualitative software and ways of using them is growing. For example, the release of NVivo9 includes several completely new tools in addition to extensions to existing functionality. With the competition between software suppliers this increase in functionality is likely to continue. In moving from N6 to NVivo7, the extra functionality was accommodated by a change to a familiar user interface. NVivo9 sees another change to the user interface using ribbons but this is unlikely to allow all of NVivo9's functionality to be included in a similarly designed two day course. Moreover, even if topics can be covered in the course, there is no evidence that participants will even use them. But, by choosing to only include certain tools in a course, there is a danger that the use of software in qualitative research will stagnate and the over-emphasis on use of coding will be perpetuated. [32]

There are a number of possible solutions to the course design dilemma of ever-increasing functionality in qualitative software packages. The option of simply increasing the length of the course is often not feasible. Following the first presentation of this paper, the author and Leicester University are experimenting with changing the aims of the two courses (whilst still teaching NVivo7). The first course will now aim to introduce all the tools and show how they contribute to qualitative research but will not aim to teach competence in any tool. It is designed for those about to start their research and those wanting an overview of the use of qualitative software. The second course will be for those researchers with data and will allow them to design their project in NVivo and decide which tools they will use. Participants will be expected to use notes from both courses and other resources to actually learn how to use the selected tools. There is the possibility of a third day operating as a master class if funds permit. The objective of this redesign is to allow new functionality to be included when the software version is upgraded and to encourage researchers to actually use a wider range of tools. [33]

References

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Author

The Tagg Oram Partnership has been using QSR software since 1993 and has worked closely with QSR as a recognised independent supplier of training and consultancy in the use of all versions of their qualitative research software. Dr *Clare TAGG* was on the organising committee for the successful series of conferences in the UK, Strategies in Qualitative Research, and co-edited a special issue on the use of QSR software of the *International Journal of Social Research Methodology (Theory & Practice)*, *5*(3), July—September 2002. The Tagg Oram Partnership specialises in teaching people how to use NVivo through project startup so all courses involve aspects of project design. Clare has worked on the development of an orthogonal approach to coding to maximise the effective use of NVivo searching. This approach is embedded in her teaching and consultancy support for NVivo. She has also developed a series of options for projects involving multiple users and regular use of the project merge functionality.

Contact:

Dr Clare Tagg

Tagg Oram Partnership
The Chequers, Whitehorse Street, Baldock, Herts SG7 6QQ

Tel.: 01462 896600
Fax: 01462 895777

E-mail: clare@taggoram.co.uk
URL: http://www.taggoram.co.uk/

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