**Discovering the value in using Leximancer for complex qualitative data analysis**

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INTRODUCTION

Advocates of qualitative research are often challenged to justify their choice of method both as a consequence of history and the inherent nature of qualifying as opposed to quantifying. Verifying qualitative research is seen as a way of removing some of the angst by promoting completeness, trustworthiness and reliability. Computer programmes are widely used in quantitative research and less so by qualitative researchers because of the complexity of analysis required. Recent improvements in Computer-Assisted Qualitative Data Analysis (CAQDAS) software design, if used correctly, has the “ability to support the research process” ([Corbin and Strauss, 2008](#_ENREF_2)). A critical aspect that must be addressed by those working with qualitative software tools is rigour of process rather than seeing technology as a short cut or quick fix. If this approach is not held true than the outcome of an incomplete process is a threat to the field of qualitative research itself. This experiential workshop advocates the use of Leximancer to provide a ‘fresh set of eyes’ that assists in issues of human preconceptions, and aids in building verification and trustworthiness into qualitative research.

WHAT IS LEXIMANCER and HOW DOES IT WORK?

Leximancer is an analysis tool that takes text documents and creates a visual lexical map creating a ‘helicopter’ view of the data. This map contains representative themes and concepts that are drawn from the text in addition to how they are related to each other. Of greater importance, the interactive map allows the researcher to further explore the concepts and their connectivity by linking the software findings back to the site in the original text. It can be seen as placing the research at the end of the process by providing themes and concepts that will remain meaningless if not backtracked through the process to attach value and relevance. In some cases this will lead to removing concepts that the software has highlighted but in validation are not relevant. Alternatively new and undiscovered meanings can be found from this process that may not occur in the original manual analysis.

The initial phases of the analysis process is setup through an uncomplicated operator interface ([Martin and Rice, 2007](#_ENREF_8)). Leximancer groups words by concepts to identify the underlying themes and concepts ([Stewart and Gapp, In press](#_ENREF_9)). The non-selective process explores the text document to group words by synonyms, relationships and frequencies. This process elicits emergent concepts from the data with themes clustered by conceptual words (Cretchley, Gallois, et al., 2010; Martschinke, Waugh, Beamish, & Davies, 2004). Each clustering process is based on 1000 interations of the data. Leximancer generates a two-dimensional map displaying the relationships between the themes and concepts as well as assisting the researcher in the interpretation. Several runs (reclustering) stabilises the map to show frequently occurring words along with their relationships as concepts, then clusters of concepts grouped into themes. These themes are summarised into circles that are named after the prevailing concept within that group. The theme is also identified by the largest ‘dot’ within that group. Hot colours (i.e. red, orange) depict stronger themes with subsequent themes and their strength shown through cooler colours (i.e. blue, green). Theme size also denotes the frequency of concepts. Visual demonstration of the concepts is displayed by their strengths, along with the semantic formation of the data (Cretchley, Rooney, et al., 2010).

WHY LEXIMANCER?

The primary benefit of Leximancer over most other qualitative software packages is that it links complex algorithmic analysis with aspects of psychology and language when interpreting transcript data. To delve into the pros and cons of why to use Leximancer over other software packages is not the subject of this workshop, however users of other software will be able to compare Leximancer with their existing software experience. Insights into our choice of Leximancer will be provided and the workshop builds on this by providing an opportunity for those who would like to explore the possibilities of Leximancer in a collaborative environment. Participants may like to bring large data sets in an electronic MS word or PDF format and time permitting see how Leximancer works in the initial stages of the process of analysis and discuss this with their findings to the workshop group (internet access permitting).

WHEN TO USE LEXIMANCER

When to use Leximancer is generally the researcher’s choice and whether Leximancer fits the purpose. In recent research projects, Leximancer has been used to verify grounded theory research ([Harwood et al., under review](#_ENREF_7)), comparing risk management profiles of large computer organisations ([Martin and Rice, 2007](#_ENREF_8)), tracking the history of a journal by mapping 1416 articles ([Cretchley et al., 2010b](#_ENREF_4)), and a self analysis of a handbook to help clarify definitions in the emerging area of media psychology ([Dill, 2013](#_ENREF_5)). Increasing use of Leximancer is evident across a diverse range of research and practitioner based disciplines including business, education, politics, information technology, transport, psychology and health care ([Stewart and Gapp, In press](#_ENREF_9), [Gapp and Fisher, 2012](#_ENREF_6), [Cretchley et al., 2010a](#_ENREF_3), [Bell and Blashki, 2013](#_ENREF_1)). The one common thread of all these studies is the vast amounts of text that Leximancer is able to analyse consistently and reliably that is equal to a human analysing the text 1000 times over.

ISSUES OF SOFTWARE USE AND MISUSE IN QUALITATIVE RESEARCH

The researcher is still the primary agent when using software in qualitative research. Their understanding of the research, its context and subtleties such as aspects of language and linking across data such as text and observation cannot be replaced. Responsibility of the researcher includes the maintenance of method and analysis at a standard required of rigorous research. CAQDAS is a tool and not a replacement. A lack of training and development associated with the simple speed and visual output of Leximancer and other software can entice some researchers to short track the process and report on superficial or non-meaningful outcomes.

If the researcher does not critically adopt the output provided by CAQDAS systems or become completely familiar with the text and the reason for the concepts and themes then the outcome is compromised and threatens the credibility of qualitative research itself. Software may improve the critical thinking involved at this level yet critical thinking is still required along with the time and commitment of the researcher. At this point it is clear that software can aid the experienced researcher in crafting their work. In the hands of an inexperienced qualitative researcher though, it can detract not only from the research being undertaken but also from the field of qualitative research itself.

AIMS AND Structure of the workshop

The workshop aims to demonstrate the utility of Leximancer as a robust and efficient tool for analysing large quantities of qualitative data. The outline below highlights the interactive nature of the workshop, enabling participants to experience Leximancer first hand.

1. Introduction and background to the workshop (5 minutes)
2. An overview of Leximancer across 3 projects demonstrating different strengths of the program for different research reasons (30 minutes)
3. Group formation (5 minutes)
4. Group activity based on a well known piece of text (30 minutes)
5. Presenting back to the wider group (10 minutes)
6. Comparison of group work outcomes to lexical analysis (20 minutes) and analysis of participant’s data sets. (10 minutes)
7. Summary and moving forward (10 minutes)

The introduction, feedback, and summary sessions will be video recorded and made available to participants.

**Length:**

Two hours

**Requirements:**

A room where participants can breakout into small groups and reconvene to discuss findings, internet access for three laptops, data projection facilities and a whiteboard.

**Introduction:**

Opening of the workshop will include an overview of the proceedings, methodology to be applied by the workshop groups and the background to the research to date along with an introduction to the facilitators.

**An overview of Leximancer:**

Three different applications of Leximancer that have led to publications will be demonstrated. These range from the use of Leximancer as the primary source of analysis, to the use of Leximancer to identify hidden meaning and the path tool to show the links between different themes and concepts, and the use of Leximancer to triangulate a grounded theory.

**Group formation:**

Formation into groups will be of a voluntary nature with the facilitator’s assistance allowing for a short time for group members to introduce themselves to one another.

**Group activity** **based on a well-known piece of text:**

Groups will be given a simple, short and well known piece of text (approx one page) and asked to develop some key concepts and themes (this text can be made available in advance if participants are known). Groups will be able to undertake any acceptable method of analysis (such as the constant comparison method).

**Presenting back to the wider group**

The results from each group will be reported back to the wider group.

**Comparison of group work outcomes, lexical analysis and analysis of participant’s data sets.**

Leximancer will then be used to generate a number of outputs including a map and concept frequency. Also the logs that create meaning behind the concepts will be presented along with other Leximancer features such as identifying what maybe the best way to interpret the map (i.e. conceptually, pathways).

Time permitting, participants who have analysed large qualitative data sets and who are willing to share these with the group will be provided the opportunity to have these initially analysed in Leximancer. This data will need to be provided in MS Word or PDF form via a memory stick and be de-identified. At the end of the session these files will be deleted. The number of participants and the number of cases will inform this part of the process. If no examples are forthcoming a further example will be provided.

**Summary and moving forward:**

The workshop will conclude with a plenary discussion and reflection on the possibilities that software, such as Leximancer, might open up to the qualitative researcher.

**Workshop outcomes:**

The workshop will provide detailed insight through demonstration and participation in the use of Leximancer and more importantly the future of qualitative research through the appropriate use of CAQDAS systems. It will demonstrate that the researcher must be the master of the process if critical thinking and improvement of outcomes are to be achieved. The workshop will also emphasise the issues that arise with CAQDAS systems.

Drivers of the workshop

Dr Rod Gapp will lead the workshop with facilitators including Heather Stewart, Dr Ian Harwood and Phillip Woods. This team combines many years of experience covering management disciplines including methodology, CSR, organisational studies, performance management, leadership, supply chain management and education.

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