THE USE OF EXCEL IN QUALITATIVE PEDAGOGICAL RESEARCH

Irene Tempone
Swinburne University of Technology
Victoria
Australia

Abstract

This paper reports on the use of Microsoft Excel in a qualitative pedagogical doctoral thesis, a tool traditionally used in quantitative research. It tracks how the use of Excel, in particular the multiple sorting functions of Excel, refined and brought clarity to an extremely complex and dense literature chapter. The sorting led to two outcomes: first the creation of a succinct literature chapter and second and, unexpectedly, the mainstreaming of the literature on student learning in accounting into the student learning literature. This provided a serendipitous use of technology not usually found in qualitative research.

Background

In writing a doctoral dissertation, one of the most difficult tasks is to structure the literature chapter in such a way that it provides the central launching pad of an established body of knowledge from which the thesis can build. Very rarely is the literature chapter written in the order in which it finally appears, and very rarely can it be. The literature is the basis for the thesis, but in the early days of a candidate's journey, it is an exploration through a maze of authors, studies, models and reports in which the candidate has a keen interest — but minimal expertise. The chapter is often written in stages, and rewritten, as the candidate develops confidence and expertise and keeps discovering new perspectives in the wider literature to inform the study. This paper reports on the use of Microsoft Excel to work through what became a maze of 115 authors, 37 topics, 3 key factors of learning approaches and 2 separate but somehow intertwined strands of student learning literature; and how the doctoral candidate (the author) worked through this maze to create a structured, comprehensive and integrated literature chapter.

The thesis topic was "Variation in student learning in accounting" (Tempone, 2001). The literature was plentiful and robust in the area of student learning (Entwistle & Ramsden, 1983; Marton & Booth, 1997; Biggs, 1999; Ramsden, 2003) but much sparser and more fledging in nature in the area of student learning in accounting (Booth & Winzar, 1993; Auyeng & Sands, 1996; Sharma, 1997). The candidate had chosen to straddle both areas of literature in order to find linkages between the two, and to provide pertinent findings for the accounting profession and accounting academics within the body of the student learning literature.

The literature chapter was being written in two parts; student learning and student learning in accounting. The challenge was their integration. The student learning literature was presented first, the student learning in accounting literature second, with links made back to the former. The underlying student learning theories were Biggs' 3Ps (presage, process and product) and Marton and Saljo's deep and surface learning approaches (Biggs, 1993; Marton & Saljo, 1984). This led to a large, unwieldy and repetitive literature chapter, with some studies presented in full and others referred to only fleetingly, but much cross-referencing between the two to make the connections for the reader from one section to the other.

A suggestion was made during the final editing stage that a ranking of the authors in a 1, 2, 3 scale (with 1 representing an author of critical importance to the study, and 3 an author or study of lesser relevance) would clarify for the author the crucial studies. This would then enable the author to elaborate on these in the literature chapter, and make passing mention...
of the peripheral studies. This is where the discovery began: with the use of Excel (Langer, 2005), a software traditionally used for the analysis of quantitative research data for the analysis of literature for a qualitative thesis. Technology was being used to make the literature pertaining to a qualitative pedagogical thesis more navigable.

Method

The analysis of the thesis data, namely interviews with student cohorts after completion of an assignment on the analysis and interpretation of financial statements, was undertaken using phenomenographic methodology. Phenomenography was originally developed to explore how students make sense of academic learning in general (Marton & Saljo, 1984). Phenomenographic methodology has been used extensively in studying the learning of specific phenomena, for instance in studies of how students understand key concepts in economics (Dahlgren, 1984) and physics (Dahlgren, 1978; Bowden, Dall’Alba, Laurillard, Martin, Marton, Masters, Ramsden, Stephanou, & Walsh, 1992). It is now also being used in commercial, non-pedagogic settings such as organisational behaviour and supply chain management (Sandberg, 1994; Seifen, 2003).

The aim of a phenomenographic study is to map the variation in ways of seeing a phenomenon. Through seeing the range of ways of perceiving phenomena, a fuller understanding of how a particular phenomenon is experienced is developed and, as a result of these, salient teaching interventions can be planned (Tempone & Martin, 2003, p. 233).

Excel is traditionally used in the analysis of quantitative data. Excel identifies patterns, relationships, combinations in order to make some assumptions about the distribution of quantitative data and draw some conclusions from the data about the particular item being researched. In this context Excel worksheets were used for data management, in particular using lists to filter and sort data (Carlberg, 2004).

The Model

In trying to make sense of the literature, 115 authors, 37 topics, 2 complementary areas of student learning, 3 key factors of learning approaches and 2 separate but somehow intertwined strands of literature, the author kept the two significant strands of literature as the critical divide: namely student learning literature, and then student learning in accounting literature. The premise of the thesis was that much had been written about student learning, but little (at that stage) on student learning in accounting.

The literature chapter was in two parts, and quite dense with citations, studies, topics and factors which played a significant role in learning approaches to group work, to theory to practice and to understanding financial statements. The literature on student learning was presented as a range of studies, models and theories, with the literature on student learning in accounting presented in a manner which linked studies back to the student learning literature and then confirmed, expanded or rejected their application in the area of accounting. This led to a repetition of the earlier literature in order to establish the starting point from which to launch the sub-set of student learning literature, namely student learning in accounting.

In response to this complexity the doctoral candidate/author acted on the suggestion to rank the authors cited by level of importance and relevance to the study at hand, using a 1, 2, 3 grading system, ranging from most important (1) to least important (3). Authors and studies found to be of most importance and relevance to the study would be dealt with more thoroughly, giving details of the study, methodology and findings; those ranked 2 would
have minimal details of the findings; while those ranked 3 as least important (to this study),
would only be referred to by way of naming of the study at the appropriate part of the thesis
to support a particular theory or claim. The expected outcome was to present a succinct and
meaningful literature chapter by means of a substantial edit which stressed the most salient
previous research without getting the reader ‘bogged down’ in a morass of other relevant but
less critical studies.
After commencing this task in a Microsoft Word table, it was decided to export to Microsoft
Excel in order facilitate multiple sorting of the material. The spreadsheet was set up with the
following fields:

- **Rank**: the author ranked these 1, 2 or 3 from most to least important to this study. This
  was added last and deemed to be the primary focus of the exercise.
- **Author**: Alphabetical listing based on first author.
- **Topic**: the topic of the research study in the cited publication.
- **Relation to Biggs 3P model**: linking of paper/study under examination to one of Biggs’
  3Ps, namely presage, process and product, which was one of the key strands of
  literature, and the model around which the thesis was based.
- **Relation to Marton and Saljo’s Deep and Surface Learning**: linking of paper/study
  under examination to Marton and Saljo’s deep and surface approaches to learning;
  the second of the two key strands of literature.
- **Heading in the literature chapter**: the headings where these studies were located in
  the thesis, which by this stage was at the final editing stage.

Multiple Excel sorts were undertaken, with sorts by rank then by each of the five other fields
listed above. The sort that provided the greatest integration of the student learning with
the student learning in accounting literature was that by relation to the Biggs 3P model. A
selection of entries from this sort is included, for illustrative purposes, as Appendix 1.

**Results**

While it was anticipated that the exercise would simplify a complex literature chapter, it
was not anticipated that it would lead to a total restructure. As the Excel sorts were being
undertaken, it became apparent that the author’s observation that there was extensive
research in student learning and minimal and somewhat marginalised research in student
learning in accounting was being reinforced by the author’s own system of presenting the
latter as separate from, and secondary to the former. If research into student learning in
accounting was to become a major field of study, it had to be mainstreamed into the student
learning literature. This was quite a revelation to the author, and led to the total restructure of
the literature chapter.

What was initially student learning with the add-on of student learning in accounting literature,
became a comprehensive and inclusive literature chapter on student learning in accounting,
with two substantial improvements (Tempone, 2001, pp. 10–79). The foreseen effect was
to edit the chapter and make it more concise and compact by ranking the authors and only
giving full details of studies in those that were of most importance to the study. This honed
the chapter down considerably. One unforeseen development was the dominance of the
Biggs 3P Model as the key underpinning structural base of the thesis. The second was the
realisation that, when the author list was sorted by topics and headings, the student learning
in accounting literature mirrored the student learning literature and should therefore be
mainstreamed. By separating the two the author had been perpetuating the divide and the
marginalisation of the student learning in accounting literature. To combine them would be to
mainstream the literature — a revelation made possible by documenting the literature through
Excel and running multiple sorts till finally patterns, relationships and combinations emerged
that allowed the author to draw some conclusions about the development of the literature
surrounding student learning in accounting.

The Excel sorting showed the way — the work was still to be done. All 115 authors, 37 topics,
2 complementary areas of student learning, 3 key factors of learning approaches, Biggs
3P model and 2 separate but somehow intertwined strands of literature now became one
significant and not separated strand of literature. Considerable work was still required to
reform and restructure the chapter, both around Biggs 3P model and with the integration of
the two strands of literature. It was still a dense literature chapter so a table was constructed
at the commencement of the literature chapter to guide the reader through the Biggs 3P
model, against which the results of the study had been matched throughout the thesis
(Tempone, 2001, p. 37).

Conclusion

The use of Excel spreadsheets and in particular the multiple sorting of the literature by
the six fields in the spreadsheet provided the key to unlock the two areas of student
learning literature, and also the means whereby they could be interwoven to tell the story
of the research leading to the author's investigation into student learning in accounting.
The task was not complete until the literature chapter was reworked. Repetition was
eliminated. Excessive detail about non-critical studies was removed. Most importantly was
the emergence of the dominance of the Biggs 3P model as providing the structure of the
thesis as well as abandoning of the marginalisation of the literature on student learning
in accounting and mainstreaming it into the student learning literature. This provided an
unexpected and serendipitous use of technology in qualitative pedagogical research.

References

preferences. *Accounting and Finance, 33*(2), 109–120.


Author contact Information
Irene Tempone
Swinburne University of Technology
John Street, Hawthorn, Victoria
Australia, 3122
Telephone: +61 3 9214 8424
Fax: +61 39819 2117
E-mail: itempone@swin.edu.au
Appendix 1: Excel sort by Biggs’ 3P

<table>
<thead>
<tr>
<th>Rank</th>
<th>Author</th>
<th>Topic</th>
<th>Biggs 3P</th>
<th>Deep/surface</th>
<th>Heading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Biggs</td>
<td>3P</td>
<td></td>
<td></td>
<td>Biggs 3P model</td>
</tr>
<tr>
<td>2</td>
<td>Auyeng Sands</td>
<td>Culture in learning styles</td>
<td></td>
<td>Presage</td>
<td>Cultural: accounting students.</td>
</tr>
<tr>
<td>2</td>
<td>Booth Winzär</td>
<td>Accounting students styles MBTI</td>
<td></td>
<td>Presage</td>
<td>Personality types accounting</td>
</tr>
<tr>
<td>2</td>
<td>Jackling Wigg</td>
<td>Background</td>
<td></td>
<td>Presage</td>
<td>Approach</td>
</tr>
<tr>
<td>3</td>
<td>Jacoby</td>
<td>Personality profile</td>
<td></td>
<td>Presage</td>
<td>Personality types accounting</td>
</tr>
<tr>
<td>1</td>
<td>Ramsden</td>
<td>Teaching strategies</td>
<td></td>
<td>Presage</td>
<td>Approach</td>
</tr>
<tr>
<td>2</td>
<td>Sangster McCombie</td>
<td>Prior learning</td>
<td></td>
<td>Presage</td>
<td>Prior knowledge accounting</td>
</tr>
<tr>
<td>1</td>
<td>Biggs</td>
<td>Meaning of process</td>
<td></td>
<td>Process</td>
<td>Process</td>
</tr>
<tr>
<td>1</td>
<td>Candy</td>
<td>Lifelong learning</td>
<td></td>
<td>Process</td>
<td>Approach</td>
</tr>
<tr>
<td>2</td>
<td>Chan</td>
<td>Accounting students</td>
<td></td>
<td>Process</td>
<td>Approach</td>
</tr>
<tr>
<td>3</td>
<td>Johns</td>
<td>Generic skills/ profession</td>
<td></td>
<td>Process</td>
<td>Generic skills accounting</td>
</tr>
<tr>
<td>1</td>
<td>Marton &amp; Saljo</td>
<td>Deep/surface</td>
<td></td>
<td>Process</td>
<td>Approach</td>
</tr>
<tr>
<td>2</td>
<td>McKay Kember</td>
<td>Guide students — deep approach</td>
<td></td>
<td>Process</td>
<td>Process</td>
</tr>
<tr>
<td>2</td>
<td>Sharma</td>
<td>Learning approaches</td>
<td></td>
<td>Process</td>
<td>Approach</td>
</tr>
<tr>
<td>2</td>
<td>Biggs Collis</td>
<td>SOLO</td>
<td></td>
<td>Product</td>
<td>Product SOLO</td>
</tr>
<tr>
<td>2</td>
<td>Johnson</td>
<td>CEQ</td>
<td></td>
<td>Product</td>
<td>Approach</td>
</tr>
<tr>
<td>3</td>
<td>Nelson</td>
<td>Curriculum</td>
<td></td>
<td>Product</td>
<td>Accounting curriculum profession</td>
</tr>
<tr>
<td>2</td>
<td>Rouch Smith</td>
<td>Reforms in accounting education</td>
<td></td>
<td>Product</td>
<td>Accounting curriculum profession</td>
</tr>
<tr>
<td>1</td>
<td>Saljo</td>
<td>5 conceptions of learning</td>
<td></td>
<td>Product</td>
<td>Approach</td>
</tr>
</tbody>
</table>

102