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Writing up your findings

The general approach • The process of description, analysis and synthesis: an example

The general approach

The task of writing up your results is a necessary, if somewhat time-consuming and laborious, process. If you have worked out a way to analyse your results beforehand, then your job will be so much easier.

A common mistake by students

A common mistake by students is to write their chapter on research methods devoid of any reference to data analysis, with the result that when they eventually have the data in front of them they are not sure what to do with it!

Create a simple structure for your *findings* chapter. Have an uncomplicated title, such as 'Case Study Results' if you carried out a case study, or 'Survey Findings' if you implemented a survey, or the more generic 'Empirical Research Findings', or even 'Findings and Discussion'. The latter title captures the idea that you will describe and discuss your results. Better still, you could call your chapter 'Survey Findings: Description, Analysis and Synthesis', thus identifying the type of empirical research that you did – in this case, a survey – as well as informing the reader that you will partake in three main types of intellectual activity: a simple description of your results; discussion about what you found;

and, finally, an integrative analysis of your empirical data against your Literature Review findings (i.e. the synthesis bit). If you give your write-up chapter the minimalist title, as one student did and others still do, 'Chapter 4: Findings' – assuming it is the fourth chapter, after Introduction, Literature Review, or Systematic Review, if that is what you did, and Research Methods – then you will be missing an easy opportunity to signpost your work. Much better is the student who used her title to remind the reader of her main research strategy (a case study) and of the academic activities the reader would encounter in her write-up:

Chapter 4 Case Study Findings: Description, Analysis and Synthesis

Although your chapter title may give the impression that the content is purely about your empirical findings, this is not the case – yes, you are expected to report on the data that you collected but you are also expected to compare and contrast your empirical findings against what you discovered in your Literature Review, otherwise what was the point of initiating a Literature Review?

Give a brief introduction to your chapter – you should by now be well versed in writing an introduction to each of your chapters. Start by [a] reminding the reader of what you *set out to do*, followed by [b] a brief description of how you *intend approaching* the write-up of your empirical results. You should also [c] place your empirical research *in context*. For example, if your data were derived from a case study of an organization, then give some background information about that organization, as in the sample e-Learning case study:

[a] **This chapter reveals** the results of the case study described in Chapter 3 Research Methods . . . The research concentrates on two groups of stakeholders: academic staff within Division X, located in the Inverclyde Business School (IBS) at Inverclyde University (IU) and recently involved in preparing teaching and learning material on an e-Learning environment and senior staff in Division X, IBS and ICU who have an influence on the implementation of e-Learning in the university, i.e. *elite staff* . . . [b] **The case study is approached in a highly structured way.** First, a description is provided of academic staff results, theme by theme . . . The gathering of empirical data for this research is based on a case study, to allow an analysis of real problems in a **set context**. Prior to a description and analysis of the case study results, a profile of related aspects of ICU will now be made to **set the study in context** [c] . . . It is in the context of these developments, self-perceptions, and aspirations in which the context of this study is implemented. It should be appreciated that universities are complex organizations and that the above is not an attempt to *explain* ICU nor describe fully its operation or culture, but

merely to place the study in context . . . [d] The transcripts of the interviews for academic staff can be found in Appendix B; the transcripts from the senior staff interviews are in Appendix C.

Also, let the reader know [d] *in which Appendix* they will find evidence of your interviews, experiments, questionnaire responses, as in the example above: 'The transcripts of the interviews for academic staff can be found in Appendix B; the transcripts from the senior staff interviews are in Appendix C.'

The following is a student's effort at writing the introduction to his findings:

4.1 Chapter Introduction

This chapter will discuss the findings of this research. These findings will include views of managers and others in the field as well those affected by the policy decisions.

There are a number of deficiencies in this Introduction which you need to avoid. It is *too* brief, lacking basic information. There is no mention of his research strategy or his data collection techniques (a full description is not required – just a sentence or two to remind the reader of how the research was carried out). The purpose of the student's empirical work is not explained. There is no indication of how the student will approach his write-up. 'These findings will include the views of managers . . .' – which managers? Views related to what issues? Who are the 'others' and in which 'field'? What policy decisions? Also, there is no need for the word 'Chapter' to be included in the sub-section heading ('4.1 Introduction' will suffice).

The heart of the chapter on your empirical findings will revolve around the tasks of *description* (of your empirical data), *discussion/analysis* (of what you have described) and *synthesis* (of your discussed empirical results against your literature findings). Bogdan and Biklen (1982: 145) describe this process as 'working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others'. You cannot evaluate the worth of your research findings unless you have had an attempt at going through the intellectual exercise of description → analysis → synthesis.

If you recall Bloom's (1956) taxonomy of learning, you are being tested that you have the cognitive skills illustrated in his learning triangle (basic knowledge → comprehension → application → analysis → synthesis → evaluation); and the higher up his learning triangle you go, the more marks you get! Your ultimate goal is to show that you can *evaluate* what you are looking at with reference to your Literature Review + Empirical Findings. You need to describe your empirical data before you can discuss/analyse it; you need to have discussed/analysed your descriptions before you can synthesize your empirical

results with your Literature Review findings. Only then can you evaluate the worth of your findings and decide if you have met your specific research objectives and, in turn, your overall research aim. The actual evaluation of your overall research work should appear in your Conclusion Chapter, not this one. Figure 8.1 captures the cyclical nature of writing up your empirical findings, culminating at some stage (usually in your concluding chapter) in a self-evaluation of your overall findings:

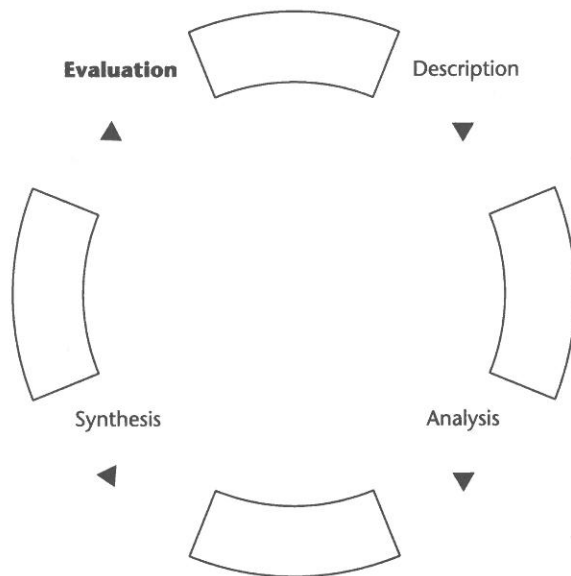


Figure 8.1 Process of description, analysis and synthesis leading to evaluation

Once you have carried out your description, analysis and synthesis (and leaving the overall evaluation to your final chapter, the Conclusion), it is good practice to provide a summary of your findings. Even here, if you are running short of words, you can make the alternative decision to summarize your findings in your Conclusion chapter. This makes sense because if you summarize your findings in this chapter, you will also find yourself having to repeat this summary, in whatever form, when you discuss your conclusions and recommendations in your final chapter. If you have plenty of words to spare, then there is no harm in doing both; if you are running close to your word count, then think strategically and put the summary of your findings in your Conclusion.

The process of description, analysis and synthesis: an example

To demonstrate data *description*, *analysis* and *synthesis* in practice, we will revisit the e-Learning case study, where two sets of university staff – academic staff and senior staff – were interviewed on aspects of e-Learning. The early stages of reporting on responses to questionnaires or interviews tend to yield basic information, with little to get your teeth into, as illustrated in the example interview question and answer:

Question 1A

The first question – Question 1A – was: *'The University's Strategic Planning Document makes reference to e-Learning targets and objectives. Do you know what these are?'*

Response

Seven of the eight members of the programme team replied 'No' and one member of staff answered 'Eh, to be honest with you, I don't. I know that there is some vague push for e-Learning but I'm not clear on the specifics.' Thus, no members of staff knew what the university's strategic objectives and associated targets were in relation to e-Learning.

It is only when you get deeper into your reporting that you can then begin to show cognitive skills beyond mere description. Suppose both sets of staff were asked the question: 'What, in your view, is the rationale behind the university's drive for e-Learning environments?' The early part of your empirical findings chapter will necessarily involve much basic description of your results, which you build up with cross-referencing of empirical data, as shown in the following example.

Question 3A

What, in your view, is the rationale behind the university's drive for e-Learning?

Response

Three members of staff viewed it as a cost-saving exercise. Two members of staff believed the university's interest in e-Learning was driven by their competitors and perhaps cosmetic. Two members of staff gave the combined reasons of efficient use of resources coupled with university image. One member of staff held a positive view, believing that the university management did not intend that e-Learning be seen as 'a replacement for traditional modes of delivery, but to complement traditional modes of delivery' and that there existed the potential for professional development initiatives for those 'who can't attend traditional face to face modes'.

Summarizing academic staff views as follows:

Of the eight respondents, only one viewed management intentions in a wholly positive light, with the majority suspicious that management were introducing e-Learning to make cost-savings or to 'look good' or a combination of both. Only one member of staff made any explicit reference to university management intentions as an attempt to 'enhance the student experience as well'.

Next, we could describe the responses from the senior staff to the same question. At this stage we might still only be engaged in simple description – the analysis and synthesis will come later. Note that the question number – labelled Question 3A for academic staff but Question 2X for senior staff – might be different because the number of questions, and type, might differ from one group to another. So, starting with:

Question 2X

What, in your view, is the rationale behind the university's drive for e-Learning environments?

Response

One respondent responded curtly: 'I don't know. But I know what the Business School's is.' Another did not answer the question directly other than to say that the university has 'a good rationale in terms of its vision for the future of where the University is to go and how e-Learning can support that', but added that 'what it hasn't considered is how it will embed e-Learning in the systems throughout the university'. One member of staff thought that 'there wasn't a big overall university picture' and that there were many perspectives on the subject. Emphasizing that he was presenting his own personal perspective, he conjectured that the rationale behind the university's drive for e-Learning was linked to student freedom of choice in terms of 'how, when, where, what to learn', in effect, issues related to flexibility of access and delivery.

Continuing with . . .

The above four senior staff then went on to suggest a university rationale for e-Learning. One member conjectured that he would like to think that it had reasons to do with 'effectiveness of learning', but suspected that the rationale was more to do with efficiency, specifically releasing staff from teaching duties to pursue research income and consultancy activities. A second member agreed that the rationale might be linked to efficiency – 'I can give you a rationale' – in making the university more cost-effective by enhancing quality and reducing costs at the same time.

However, he made it clear that he did not agree with this rationale and that, contrary to this rationale, the quality/cost trade-off remains the same: 'I think all the evidence so far is that the quality–cost trade-off stays the same, em, in other words if you use e-Learning, if you invest in e-Learning you push quality up but you also push costs up . . . I don't believe it actually.'

The two other staff members cited the same two reasons behind the university's push for e-Learning: to compete with other universities engaging in e-Learning ('that competitive element, a need to go for a wider global market'; 'maintaining some degree of presence relative to other universities') and to implement the university's objective of wider access ('wider access in terms of outreach to more remote communities'; 'widen our inclusiveness and accessibility').

Building up your descriptions and cross-referencing of the data . . .

One member of staff explained the IBS's e-Learning strategy:

' . . . we want to roll out Blackboard in a sequential way, year on year, eh, as the delivery mechanism, em, that we are now up to level 3 modules . . . So, level 3 modules will be rolled out next year . . . So that's part 1 of the strategy, to roll out with the, em, the framework. And secondly to broaden that, em, across all modules through a period of time. And thirdly, our strategy is to deepen our engagement with the VLE and with, with web-based learning, em, through, em, eh, further staff developments . . . '

In essence, the IBS plan is to, in the first instance, convert year 1 undergraduate modules onto the VLE software platform Blackboard; do the same with year 2 modules of the School framework, then years 3 (along with Master's programme modules) and 4. Currently, modules in years 1 and 2 of the undergraduate framework have been placed on Blackboard and year 3 and Master's (at the time of interview) was planned for Semester A of the academic year 2003–2004.

Another member of staff explained that Division X had no e-Learning strategy as such, but that the Division was implementing the university's Learning and Teaching Assessment Strategy (LTAS), 'and the LTAS plan has very clearly this kind of dimension of e-Learning within it, and that's quite implicit as well, you know this kind of moving responsibility to the student for learning etc.' He did add that although there was not an e-Learning strategy in Division X, the Divisional Plan had 'a number of objectives which relate specifically to e-Learning' and that he was in the process of creating an e-Learning Task Force. As well as the aforementioned activities, Division X was implementing the IBS's e-Learning strategy.

Although the descriptions above are quite prosaic, with no analysis, quotations have been included to colour and support the descriptive process. When you are describing raw data, particularly people's views on a topic, then it is also worthwhile to put together a summary of what you have described, particularly if there are salient points that you wish to highlight:

No member of staff stated that they knew the rationale behind the university's drive for e-Learning. One respondent said categorically that he did not know, another respondent offered a view on the rationale without saying what she thought it was, and five others made it clear that they had a personal view on what it might be. Two staff suggested that the rationale may be about efficient use of resources (with one member suspecting this to be the unstated university rationale, and the other disagreeing with the logic of that rationale); two staff thought that it might concern the twin elements of competitiveness and student access; with one member of staff suggesting that the rationale was connected to student freedom of choice. Even where the staff offered a suggested rationale, their suggestions were varied.

There are various tools and techniques that you can use to describe and analyse your empirical findings, ranging from simple descriptive graphs, such as bar charts and tables, to more complicated statistical analysis. It all depends on the type of data that you have and what you want to do with that data. If your research is essentially qualitative in nature, then using themes (as in the case study example) coupled with basic descriptive tools will suffice; if your research is mainly quantitative in nature, then you will exploit quantitative instruments for measurement and analysis.

Once you have assembled a certain level of description, you can then enrich your work by offering intelligent comment, i.e. analysis. You can now take the opportunity to show off your analytical skills by expressing an opinion on the views given by both sets of staff. In this case the analysis occurs through the vehicle of cross-referencing which, for the purpose of highlighting, appears in **bold**:

Academic staff were asked a similar question. Three academic staff members believed it to be a cost-saving exercise; two that the drive for e-Learning was driven by their competitors (and perhaps cosmetic); two that it was linked to efficient use of resources and university image; and one that it was to enhance the student learning experience. **The replies from the elite staff and the academic staff suggest that neither the senior staff nor the teaching staff had a consistent idea among their own group of the university's rationale for e-Learning. However, some staff produced suggestions that coincided in two similar groupings (competitiveness, cost-cutting/efficiency); but elite staff members also introduced the idea of accessibility (not mentioned by**

academic staff) and academic staff offered a less charitable gloss on the university's reasons for advancing e-Learning. Also of interest is that whereas five of the eight academic staff viewed cost-cutting/efficiency as a reason for the university wishing to engage e-Learning, only two elite staff believed the rationale was linked to cost-cutting/efficiency.

In effect, when you are *analysing* your empirical data, you are offering comment which you support with reference to your described data.

Finally, findings from the Literature Review on the forces driving e-Learning can then be recalled with a view to synthesizing theory with practice, adding another layer of understanding and depth:

The literature review highlighted a number of forces driving e-Learning, with the main drivers reflecting a desire to improve *quality, flexibility and effectiveness* of educational delivery (with the latter referring to value for money), all within the context of the Government's target of achieving substantial increases in the student population (Dearing 1997; Jung 2000; Farrell 2001; Epic 2002; Department of Education and Skills 2003). Only one member of staff interviewed (an academic) referred to enhanced quality as a driver, with the other staff, elite and academic, highlighting either flexibility of delivery (e.g. on and off campus) or cost-cutting/efficient use of resources as primary motivators for Inverclyde University adopting e-Learning. The primary focus for introducing new technologies in an educational environment ought to be to enhance the student learning experience, i.e. improve the quality of educational delivery. Indeed, SHEFC (2003) warn against introducing e-Learning as a way to cut costs, reflecting that it can cost six times as much to develop an e-Learning programme than a traditional programme. Similarly, a report for the CIPD (Sloman and Rolph 2003) echoed SHEFC's views by stating that if institutions believe that e-learning will automatically save them costs then they will be disappointed.

It is interesting to note that in the interviews above, it was mainly the academic staff that saw the rationale behind e-Learning as a cost-cutting/efficiency exercise, not the elite staff. Perhaps this reflects the earlier point that an e-Learning strategy is important, not only to convey an institution's direction in e-Learning, but also to explain the rationale behind its usage, and so removing misconceptions.

A student, who was carrying out research on the elderly and their views on social media (Facebook, Twitter, etc.), epitomized how to develop the findings chapter, progressively addressing the need to describe, analyse and synthesize. The chapter on her findings had a very simple structure:

CHAPTER 4 Case Study Findings: Description, Analysis and Synthesis

4.1 Introduction

4.2 Findings

4.2.1 Focus Group 1

4.2.2 Focus Group 2

4.2.3 Focus Group 3

4.3 Summary of Findings

The introduction to her findings recalled her research strategy and data collection techniques: a case study of three focus groups of elderly citizens living in a community centre. The reason for the study – to ascertain the elderly's views/uses of social media – was repeated for the benefit of the reader. She also provided some background information on the community centre. There was a sub-section for each focus group: Focus Group 1, Focus Group 2, and Focus Group 3. Within each of these sub-sections there was a further sub-division, reflecting the student's specific research objectives:

Theme 1 (Research Objective 1): clarification of the terms 'elderly' and 'social media'.

Theme 2 (Research Objective 2): elderly use/views of social media.

Theme 3 (Research Objective 3): barriers to use of social media.

The mini-write-up of the Focus Group 1 results were, as expected, mainly descriptive with some attempt at basic analysis. When the student wrote about her Focus Group 2 results, she once again began by describing the focus group discussions against each of her research themes. However, she was now in a position, because she could compare her results against those of Focus Group 1, to offer a more meaningful analysis. When she got to Focus Group 3, she described her results and then compared and contrasted her findings against those from Focus Group 1 and Focus Group 2. By the time the student completed the mini write-up of the Focus Group 3 sub-section, she had quite comprehensively and cumulatively described and analysed her case study findings. She then addressed the matter of synthesizing her empirical findings against her literature review findings, once again relative to her research themes/objectives. She also included a final sub-section in her write-up chapter in which she bullet-pointed her main findings. The type of academic activity that took place in this example is shown in Table 8.1.

The student could have taken a different approach to writing up her results: she could have made the comparison with her Literature Review findings as she encountered the results from each focus group (Table 8.2). When to compare your empirical results with your Literature Review findings is a matter of personal choice.

As you can see, at each stage of description/analysis/synthesis, you are building up a thick account of your results. It is a tedious process but one that is necessary if you want to do justice to your research.

Table 8.1 Academic activity in student's write-up

Section 4.2 Findings	Main academic activity		Cumulative activity
4.2.1 Focus Group 1	Reporting of Group 1 results	→	<i>Discussion</i>
4.2.2 Focus Group 2	Reporting of Group 2 results	→	<i>Discussion</i>
			+
	Comparison with Group 1 results	→	<i>Analysis</i>
4.2.3 Focus Group 3	Reporting of Group 3 results	→	<i>Discussion</i>
			+
	Comparison with Groups 1 and 2	→	<i>Analysis</i>
			+
	Comparison with Literature Review	→	<i>Synthesis</i>

Table 8.2 Alternative approach to write-up

Section 4.2 Findings	Main academic activity	Cumulative activity
4.2.1 Focus Group 1	Reporting of Group 1 results Comparison with Literature Review	Discussion + analysis + synthesis
4.2.2 Focus Group 2	Reporting of Group 2 results Comparison with Group 1 results Comparison with Literature Review	Discussion + analysis + synthesis
4.2.3 Focus Group 3	Reporting of Group 3 results Comparison with Groups 1 and 2 Comparison with Literature Review	Discussion + analysis + synthesis

Everything you do in your dissertation leads to your concluding chapter – Conclusions and Recommendations – wherein you collate your work in summary form, underline your main conclusions and, based on these, make pertinent recommendations. This means that your concluding chapter is a crucial one because it is there where you capture the essence of your research output, achieving what supervisors call 'cyclical closure'. So do not dismiss your final chapter lightly: it is an integral part of your dissertation.

Summary of key points

- Create an appropriate chapter heading: 'Case Study Results' or 'Survey Findings' or 'Empirical Research Findings' or 'Findings and Discussion' or 'Case Study Findings: Description, Analysis and Synthesis' or 'Survey Findings: Description, Analysis and Synthesis', etc.

- Write a brief introduction to your 'Findings and Discussion' chapter: (a) reminding the reader of the data that you set out to collect; (b) identifying how you will write up your findings (this should be based on the *framework for data analysis* you outlined in your research methods chapter); (c) placing your practical research in context; and (d) naming the appendix/appendices wherein you have placed your questionnaire(s)/responses, etc.
- Your empirical findings should be *described, analysed* and *synthesized*.
- *Description* is a simple process, entailing the basic reporting and chronicling of empirical results (who said what, etc.).
- *Analysis* is intelligent interpretation of the aforementioned descriptions.
- *Synthesis* occurs when you compare and contrast your empirical findings against your Literature Review findings.