6.1 Analysis and Results

This section of the Research Gateway is here to help you to determine what it is that you found out and how to present this data in a structured and coherent manner. By the time you get to this stage of your project, most of the hard work has been done: you have chosen a topic, decided what you need to know and collected the data. You now need to analyse and evaluate what you have discovered so that you can present it to the reader.

The Results section tells the reader what you have found and allows you to give some initial interpretations that you will go on to discuss in more detail. It provides the first opportunity to see what you have actually achieved and at this point the reader can begin to see how your research contributes to existing knowledge about the area. This section is also vitally important as it is the 'beginning of the end' of your project. The bits that follow from the Results section can only be as good as the results that you present.

There are three processes that you need to go through in order to analyse your results properly. First, you need to clean and organise your data. This means that you need to log the data as you collect it, check it for accuracy and organise it into a form that you can use for analysis (e.g. enter questionnaire results onto a computer or transcribe interviews). Second, you need to 'describe' the data. This is when you summarise what you have collected in its simplest form. This may be through descriptive statistics such as number of female correspondents or age categories or the identification of emerging patterns to be found in interviews. Finally, your analysis needs to go one step further and begin to test hypotheses or suggest significant findings. At this stage, you will start to be aware of how your research has contributed to knowledge about the topic.

It is important to remember that your project is only as good as the analysis that you carry out. If you remain at the superficial or descriptive level, you may be missing an opportunity to find out something really interesting about your project. Alternatively, it is usually not appropriate to run complex statistical analysis on a sample of 15 questionnaires. Thus, the analysis of your findings must be appropriate for your project in order to ensure that you present accurate results.

Presenting your results will require you to make some decisions. You are likely to have to make some decisions about the material that you want to include in this section as it is often difficult (and indeed unnecessary) to include everything that you find. You will also have to decide the best way of presenting your material. This may be by using tables, graphs, quotes, case studies or a combination of them all. The choices you make will have a significant impact on the success of your project.

The resources in this section of the Gateway will assist you with this. The information provided includes:

- the analytical approach – as outlined above the type and level of analysis needs to be appropriate for your research. In addition, there are a number of validity issues that need to be considered when carrying out analysis. As a result the way your analysis is structured and the methods chosen to do this need careful determination;
- elements of results reporting – guidance on the relationship between analysis, results and discussion and the most appropriate way of doing this;
- presentation of data – choosing the most effective way to present your data is important as this allows the reader to see what you have found.

The careful use of diagrams and tables will make your point clear, but needs to be appropriate.

As usual, we caution you to use the Gateway resources ***appropriately***. On the one hand, all of the resources here have been included because we believe they provide accessible, practical and helpful guidelines for analysing data. They will help you carry out this task, by giving you a clearer understanding of the analytical techniques that are most commonly used so that you can choose what is most appropriate for your research. On the other hand, you need to use these resources ***purposefully*** – to help you perform to your best in meeting ***the specific requirements of your own institution***. As ever, that is your starting point: all research needs to be analysed and reported, but what exactly does your institution require of you in this respect? What level of statistical analysis is required? Does qualitative analysis have to be carried out by computer or can you use highlighted transcripts and box cards? Are you required to present all results, or only those that are of interest? What are the expectations regarding tables and charts? Find out, and then use the Gateway accordingly.

6.2 What the Analysis and Results Links Cover

This section connects you to sources that can help you to find out what you have found out – or, in other words, analyse your research and then present it.

- There are a number of sources that outline the relationship between analysis, results and discussion. This relationship is important as first, it outlines what should be done for each of these processes, but there are also a number of ways of reporting these sections. Most of these sources also outline what should be contained within a Results section.
- There are a number of sources that outline how to organise the information that you have collected. This provides a starting point for the process and therefore it is important that this is done effectively.
- There are several lengthy sources that outline how to analyse and report quantitative data. These provide detailed descriptions of the type of statistics available, how they can be used and what their purpose is.
- There are a number of sources that deal with the analysis and reporting of qualitative research, including how to assist with the validity of your analysis. These cover techniques such as discourse analysis, the analysis and presentation of verbal data and grounded theory.

6.3 Using the Analysis and Results Section

Local context:

- Find out what is required of you!
- For quantitative work: What type and how many statistical tests are you required to run? What depth of analysis are you required to achieve? How are you expected to demonstrate validity and reliability?
- For qualitative work: How are you expected to analyse interviews or observations? Are you required to use a computer to analyse your material. Are you expected to demonstrate validity and reliability?
- How should your results section be presented? Should you discuss your results as you present them or should the results stand alone?
- Does the institution have expectations regarding the tables and graphs you should use? Should these be in colour?
- Are there written guidelines on what is required?
- Can you look at good examples of projects produced by previous students? Are you sure they were working to the same criteria as you?
- Do you now understand what you are aiming for? If not, can your supervisor clarify it for you?

Using the Gateway:

- Skim the contents and select those sources that are most relevant to your requirements. This section of the Gateway contains material relating to both qualitative and quantitative research and therefore some of the sources contained in this section are unlikely to be relevant.
- You may prefer to rely mainly on one source, but it is usually helpful to read a few. Analysis of data and the reporting of your findings can appear quite complicated and a particular turn of phrase used by one author may be what makes something ‘click’ for you so that you feel you have grasped a key point well. Don’t be frightened about learning too much!
- Remember that this original source material was NOT written specifically for you. Local requirements (e.g. a combined results and discussion section) overrule the Gateway (separate sections) every time!

And finally –

The accuracy and depth of analysis is often a distinguishing feature in deciding how good a project is and therefore it is important that you identify an objective and structured way of considering your data. In addition, as your results show what you have achieved it is important that they are presented in the best light, as the way you set out your results will make a significant impact on the reader. Therefore it is worthwhile spending time, not only thinking about what they mean, but how to communicate this in the best way possible. Many readers will give up on your research if you present irrelevant material, in a sloppy manner. Be clear about what you have found, what is new and what is interesting. This is your opportunity to sell your work!

6.4 Analysis and Results Checklist

This checklist is based on the typical requirements for carrying out analysis and reporting results. Some of the questions below may not be relevant, depending on the type of research that you have done and what your institution requires of you.

Local Requirements	
· should you have a separate results and analysis section?	
· how much interpretation are you required to include?	
· how much discussion of your results should you include in this section?	
· are you allowed to use appendices to present material? If so, what are the guidelines on using these? Is it appropriate for you to use them?	
· is there a word limit? If so, what is it?	
· have you looked at previous examples?	
· will your supervisor read a draft?	
General Requirements	
· have you used a structured approach for your analysis?	
· have you analysed the material in light of your research questions?	
· can you justify your analytical approach?	
· have you provided full details on the sample, you used for your research??	
· have you reported response rates?	
· have you used tables and graphs to good effect?	
· are you sure your graphs and tables show what you want them to?	
· are you REALLY sure that you haven't presented 'bad' tables?	
· have you used interview data to good effect?	
· have you triangulated your results in order to support your arguments?	
Academic Writing	
· have you written this section in the right tense?	
· have you proof read your results to ensure they make sense?	
· have you laid it out clearly so that (altogether now) it looks quite nice??!!	

6.5 Analysis and Results Resources

Source	Content and Use
6.5.1: analysis From Trochim http://www.socialresearchmethods.net/kb/analysis.htm	A huge site (if you work through it all) that covers the steps of data analysis, validity and a number of statistical tests. Worth a quick read of the first bits if you are doing qualitative research and a detailed read if you are doing quantitative research. It contains loads of stats!
6.5.2: data analysis From Ryerson Website link unavailable	This site deals specifically with questionnaire data. It provides useful hints on data coding and input, and suggests what to analyse initially. It also provides links to sites offering much greater detail on these topics. There are also links to material on frequency distribution, cross tabs and calculations of central tendency.
6.5.3: more stats From the Sports Science Organisation http://www.sportsci.org/resource/stats/	Yes, even more stats! This site provides information on statistical significance and confidence limits. If you are doing quantitative research we guess you will know whether you should visit this site or not!
6.5.4: qualitative analysis From Don Ratcliff http://don.ratcliffs.net/qual/	At last something for those of you who are not using statistical tests for analysis. This site provides an overview of the ways that qualitative data can be analysed. It is strangely written and you may find it difficult to follow; however, it does outline the possible analytical methods that you could subsequently follow up from other sources. The site also considers validity and reliability in qualitative research. (Go to the Home page to access this).
6.5.5: analysing qualitative data by computer From the Social Science Information Gateway http://www.soc.surrey.ac.uk/sru/SRU1.html	This link takes you to a paper written on the role of computers in qualitative analysis. It doesn't really tell you what to do, rather it reviews the programmes that are available for such analysis. It does, however, provide some good additional references.
6.5.6: analysing verbal data From the Social Science Information Gateway http://academic.brooklyn.cuny.edu/education/jlemke/papers/handbook.htm	A link to a very useful paper on the principles, methods and problems of analysing verbal data. This is a must for those who use interviews in their research or are carrying out case study research.
6.5.7: how to write up results	This site gives you some tips on how to write up

From the English Centre at the University of Hong Kong http://ec.hku.hk/acadgrammar/report/repProc/sections/results/two2-4.htm	a results section. It is pretty basic, but sometimes these are the things we forget!
6.5.8: results chapters From University of Wollongong Website link unavailable	This is an excellent site that covers much of the process of carrying out a project. This particular section highlights the number of ways that you can write up your results and outlines what hould be included.
6.5.9: presenting data I From Illinois State University http://lilt.ilstu.edu/gmklass/pos138/datadisplay/	A well written and easy to read site that outlines the principles of good data display. This site will be useful for both qualitative and quantitative research as it outlines what to do and what NOT to do in the construction of charts and graphs. It also provides tips on how to use MS Excel to create pictures.
6.5.10: presenting data II From Lancaster University http://www.cas.lancs.ac.uk/glossary_v1.1/presdata.html	This covers a substantial number of methods for presenting quantitative data. Of great value to those doing survey research, the site has a number of internal links that will help you to choose how you wish to present your material.