MSCI152: Introduction to Business Intelligence and Analytics

Report Writing Lecture

Lancaster University Management School

Writing in the Workplace

The Science of Strong Business Writing, Harvard Business Review

> *Strong writing skills are essential for anyone in business. You need them to effectively communicate with colleagues, employees, and bosses and to sell any ideas, products, or services you're offering.*

Writing As Thinking: Why Writing Is Still A Critical Skill In Business, Forbes

> *Writing is a vital skill and is crucial to your organization. No matter your field, role, industry or passion, effective writing can help sharpen critical thinking and position you to thrive in your environment.*

Communication

Good communication is vital to the successful running of any organisation

Report-writing is not the only means of communication

- but it's a very important one
- you will also be practicing other vitally important communication skills, that of giving presentations (but not in this module), working in teams, etc.

Report Writing Skills

Pick up tips from looking at published material

- books, newspaper and magazine articles
- company brochures and reports, etc.
- though many are not written particularly well
- try to see what makes something easy or hard to understand

Like all communication skills the best way to learn is to do it and learn from your mistakes

- so we are starting in the first year
- you will get further practice through subsequent modules in your degree

Writing Reports

A small project may result in a single report

A large project may have several reporting stages

- Proposal
- Project plan
- Interim report
- Final report

All require considerable report writing skills

- Usually need to follow a formal style

A poor report can completely ruin a good project

Key Principle: Consider the Reader

It is vital that you know who they are!

- and write your report accordingly

They are your customers and they need to be satisfied

They don't want to work hard

- the important messages have to come across loud and clear

Most reports have a short life

- and you probably won't get a second chance to explain

However, your report may have several readers

- rarely do all readers have identical needs
- need to keep them all happy

Main emphasis is on action needed

- advise them what they should do
- and what the consequences are likely to be

How they will use the report

- Implement your recommendations
- Just as a reference manual
- persuasion within the organisation
    - persuade somebody else to implement your recommendations

How much time they have

- which parts of the report will they read?

Key Principle: Consider the Reader

What do they already know about the issue?

- you don't want to spend a lot of time telling them things they already know
- waste of time for you and for them
- However, some context and positioning is vital for clarity
  - i.e. don't just jump straight into analysis without explaining **what** and **why**

What technical knowledge do they have?

- How should I phrase my report to aid understanding?

These are all important questions

- and answering them is made a lot harder if there are to be several readers, which is often the case

Different Types of Reader

They can differ in many ways

- education, intelligence, status, power, influence, numeracy, motivation to read it, need to read it, friendliness, expectations etc.

Most management reports have readers who are:

- Executives
  - who will make key decisions: they have very little time and need an easy way to receive the main message
- Middle management
  - who will be the ones carrying out any recommendations in practice
- Specialists
  - who will need to understand all the details: they need to understand the work sufficiently to use the findings in practice

The report needs to cater for **all potential readers**

- even ones you don't know about yet

So How Should a Report Be Written?

There is no single way that is always right

- though there are plenty of ways that are always wrong!

What a report is not

- a detective novel, an essay, an academic article, a discussion, a newspaper column, etc.
- an opportunity to show how clever you are, or how much you know

However, the structure we suggest is very widely accepted

- through all types of organisation all over the world
- so please use this structure!

Standard Report Structure

- Title
- Executive Summary
- Contents
- The Main Body (a combination of some or all of)
  - Introduction (background, project aims)
  - What was done (data, models, analysis, results etc.)
  - Conclusions
  - Recommendations
- Appendices
  - Additional detailed information

The Title

The point of a title

- (1) to make the reader think "I know what this is"
- (2) to make the reader want to turn over the page

It should describe briefly what the report is about

It should be accompanied by a name

- so that it is clear who is responsible for it

Common mistakes:

- too cryptic
- too bland and uninformative
- too long and all embracing
- only loosely linked to main content / message

A poor title may mean the reader goes no further

Poor titles

- "Scrumptious restaurants"
  - could be almost anything (food quality? pay rates? ideas for new sites? etc.)
- "Stepwise regression analysis of restaurant customers"
  - too baffling, this is no place to mention technical details
  - uninformative, it's not the customers you are analysing!
- "Why are some people more generous than others?"
  - could be a philosophical treatise
  - not obvious that this is a business report at all
- "Report for Samantha Jones"
  - yes, but which report? She may be expecting several

Good title?

- "An analysis of tipping rates at Scrumptious restaurants"
  - followed by your name, job title and date
- You may be able to think of a better title

The Executive Summary

Very important

- May be the only part of the report read by executives

An overview of the **whole** report

- Focus more on the outcomes (very brief summary of what was done is usually sufficient)
- Important to include all the recommendations

Keep it to a single page if possible

- or perhaps two pages if a really complex report
- yours should probably only need half a page

The Executive Summary

Common mistakes:

- Writing an introduction or discussion rather than a summary
  - the introduction comes later
- Failure to cover findings and recommendations
- Too long
- Missing altogether
- In the wrong place
  - it must be straight after the title
  - otherwise the important readers may never reach it

Contents Page

- Important, particularly for a large report
- Lists section headings with page numbers
- Enables readers to find specific information
- Provides a quick overview of what is in the report
- Common mistakes:
    - Missing (but it is not required for our short report)
    - In wrong place (should be after Executive Summary)
    - Page numbering is wrong!
    - Non-descriptive section headings

Main Body

Where the specialist reader can find out why you have reached the conclusions you have and why the recommendations are made

- What was the problem / opportunity?
- How was it approached?
- What methods / techniques were selected and why?
- Findings and results
- Usually split into several sections

Main Body: Structure

Introduction

- Background to the problem
- Aims of the project

Several sections explaining what was done, e.g.:

- Approach (overview of methods used with reasons)
- Data analysis
- Model
- Experiments / analysis and results

Conclusions

- The implications of the results

Recommendations

- What action should be taken
- Bullet points can be effective if several recommendations

Main Body

- Key aims
  - Explain clearly what was done
  - Provide a logical argument leading to the conclusions and recommendations
- Needs a logical structure to guide the argument
- Needs "signposts" from time to time (where we are, where we've been, where we're going)
- Needs clear and descriptive section headings
- In a large report sections need linking

Main Body

Common mistakes:

- Calling the section "The Main Body"
- Writing it as a story or a diary
- Not explaining sufficiently (e.g., where the numbers in the analysis come from)
- Poor presentation of the argument
- Lack of descriptive headings
- Not making **clear** conclusions / recommendations

Appendices

Material that is useful but would disrupt the flow of the main report. For example:

- Technical details of a computer model
- Detailed output from model / analysis
- User guide for the model
- Questionnaire used
- Interim reports for specific tasks
- additional background information

Many reports don't need an Appendix

Items that are a key part of the argument should be in the main body

Appendices

Common mistakes:

- Including too much (e.g. reams of computer output)
- Not including enough (such that it is not possible to ascertain exactly what you have done)
- Including key information, so the reader is forced backwards and forwards to other sections
- No structure
- Lack of explanation of what the information is
- No reference to it in the Main Body

Start each main section on a new page (**unless it is a very short report**)

Generally a good idea to number sections, a numerical digit based system is effective, e.g.:

- **1.   Introduction**
- **1.1   Background to the problem**
- Text. . .
- **1.1.1   History of the problem in our company**
- Text...

Try not to go beyond 3 levels of Sections/Subsections

Writing Style

Try to make it as easy and as pleasant as possible for the reader

- Simple and direct language where possible
- Correct grammar, spelling, vocabulary, punctuation, syntax
- Flowing style
- Logical argument
- Clear and concise
- Avoid technical material (except in an Appendix)
- Don't let your opinions show (unless they can be backed up by data)
- Avoid jargon (unless widely accepted in the organisation)
- Avoid super-long sentences or paragraphs
- Keep it fairly formal and respectful (can use the first person but do not be chatty)
- Read it through yourself
  - Can you understand what you have written?
  - (if not, what chance has anyone else got?!)

Writing Style: Grammar and Spelling

Grammar

- Does the sentence make sense?
- Is the punctuation correct?

Spelling: Bad spelling looks sloppy and may cause confusion

Use the spelling and grammar checker! (but don't rely on it to find all your mistakes)

- beware of the Microsoft grammar checker, it often picks up constructions that are perfectly correct (but it is getting better)

Use a dictionary if at all unsure

- affect / effect, accept / except, principal / principle

  Obviously, harder if English is not your first language

Writing Style: Punctuation

- Good punctuation makes your meaning clear
- Bad punctuation can make your words harder and slower to read
- Bad punctuation can convey a completely wrong meaning
- Bad punctuation can be very irritating
- Be especially careful with apostrophes
  - please don't use "it's" where it should be "its"
  - some of my colleagues are very pedantic about this!
  - if you don't know how to use apostrophes, check e.g. on Wikipedia
- And don't just put a comma where you pause for breath!

The first draft of a computer workshop included the line:

> *"It will probably automatically come up with 2 decimal places and a £ sign – if it doesn't use the drop-down menus to change it to these options."*

This would have been potentially confusing. In the second draft we inserted a comma after the word "doesn't":

> *"It will probably automatically come up with 2 decimal places and a £ sign – if it doesn't, use the drop-down menus to change it to these options."*

That would have been much clearer!

Another Example

> *"These computers must not be used by students, except for academic work purposes between 8 a.m. and 6 p.m."*

- this suggests that they may not be used by students at all before 8 or after 6
- and may never be used by students for non-work purposes

What was meant was:

> *"These computers must not be used by students, except for academic work purposes, between 8 a.m. and 6 p.m."*

- meaning that they may be used by students at any time for academic work purposes
- and they may also be used by students for non-work purposes before 8 a.m. and after 6 p.m.

Writing Style: Syntax and Vocabulary

Syntax

- use the different parts of the words properly
- "I went", "I have gone", not "I gone" or "I have went"

Vocabulary

- use clear words and use them properly
    - so often words are misused and confused, e.g. mitigate/militate, flout/flaunt, procrastinate/prevaricate, characterise/caricature, cohorts/cahoots, font/fount, loathe/loth, affect/effect, etc.
    - if you are unsure what a word means, either use a dictionary to check or don't use that word at all
    - use simple words where you can
        - you are more likely to get them right and your readers are more likely to understand them!
        - don't try to be clever and show that you have a large vocabulary
        - especially if you haven't

Writing Style

Poor grammar, spelling, punctuation, etc. makes your report appear **unprofessional**

If it looks unprofessional in the easy part (grammar), how can they trust you did a professional job with the hard part which requires attention to detail (statistics)?

Your report may simply be ignored!!!

(This is important for more than just business reports, e.g. job applications!!!)

Thousands of job applications get chucked in the bin because they are not written well enough

Diagrams and Charts

- A diagram, chart or graph can convey meaning much more effectively than words if done well
- Fully label
    - Title
    - Axes labels
    - Legend
- Explain and summarise **in the text** what it shows
    - but the diagram or chart should be comprehensible on its own
- Make sure that it gives added value
    - if it doesn't, leave it out

Charts/graphs, diagrams and pictures

Identify these as "figures". It is a good idea to number figures and provide a caption, a numerical digit based system is effective, e.g.:

- **Figure 1:** Histogram of sales at Store 1
- **Figure 2:** Arial photograph of Store 1
- **Figure 3:** Pie chart confectionary sales
- ...

Makes it much easier to identify and reference the figure in the report, e.g. "*Store 1 is pictured in Figure 2 on a snowy winter's day ...*"

Tables

- Some people don't like tables of many numbers
  - Very hard to find anything interesting
- However, sometimes can be very useful or even essential
  - Small tables (e.g., Summary, TOP3, TOP5)
  - Large tables with a few highlighted values
- Fully label
  - Title
  - Clear headings for rows and columns
- Explain in the text what it shows
- Make sure that it gives added value

Tables

Again, it is a good idea to number tables and provide a caption, a numerical digit based system is effective, e.g.:

- **Table 1:** Summary statistics of sales at Store 1
- ...
- **Table 3:** Percentage relative frequency of confectionary sales
- ...

Makes it much easier to identify and reference the table in the report, e.g. "*In Table 3, we see that luxury chocolate bars were the most popular product category in the last quarter...*"

Producing a Report

There are several stages and each takes **TIME**:

- Plan structure
- Organise content
- Write a draft (or several)
- Format carefully
- Get feedback on the draft
- Check contents page, references and cross-references
- Print & Distribute

Summary: Conclusion and Recommendations

Though few of us are natural writers, we can all learn to write good reports and there are a few simple rules to follow in doing so

- Write for your readers, not for yourself
- Organise the contents
- Strive for a simple and direct writing style and use good English to make yourself appear professional
- Learn to use a word processor properly.
- Use appendices carefully
- Make good use of diagrams - they can be very good communication devices
- Number the sections and pages
- Ask someone else to read your report before you issue it

So What Analysis Should You Do?

If you have been specifically asked to do something, make sure that you do it!

If you are given a rough idea, think about what might be possible and what might be valuable

- don't just do an analysis simply because you can
- it needs to have some relevance and value
- use your judgment!
- try out several different approaches
- and then be selective in what you choose to present

- You may need to collect/find/create extra data
- However, sometimes extra data may not be obtainable
  - so you have to make the best of what you have got
  - but you can still say what you would do with extra data
- Conversely, you may have lots of data that is of no use
- Look out for anything potentially interesting
  - feel free to add extra observations but only if they can be backed up by the data

Coursework Report Structure

Page limit **10 pages**
- Does not include:
  - Title Page

Your report structure should follow:
- Title Page
  - Title, Library card/Student number **ONLY**
  - **Anonymous marking**
- Executive Summary (Max. **1 page**, separate page)
- **No contents page required**
- Main body to follow guidelines
  - No need for these sections to begin on a new page
- Appendix – not really required for this short report
  - Make a judgement of what analyses, tables and charts are needed in the main body

End of the Module!

Well done and thanks for all your engagement during the module

- Please fill in the module evaluation (see email from the university)
- We do read and take onboard your comments and suggestions!

Enjoy the rest of your studies!!