

WRITING A RESEARCH PAPER FOR PUBLICATION

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Good Paper

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- Question
- Method
- Validity
- Relevant
- Well written
- Good illustration

Origins of RQ : (AEIOU)

3

- Alert (to new idea)
- Experience
- Imagination
- Observation
- Unsatisfactory

Good RQ (FINER)

4

- Feasible
- Interesting
- Novel
- Ethical
- Relevant

Scientific Paper

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- Logic
- Clarity
- Concise
- Precision

Composition

6

- Title
- Abstract
- Method
- Result
- Discussion
- Reference
- Acknowledgement
- Illustration & Legend

Title

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- Will be read most often
- Fewest possible words that can describe the content
- Avoid abbreviation, jargon, unusual terminology
- Common with RQ
- Concise & attractive
- Try several versions

Title (cont.)

8

- Subheading if needed
- Avoid superfluous words, question, exclamation point
- Avoid abbreviation (know by specialist)
- Well know abbreviation is OK : DNA, AIDS

Title (cont.)

9

- Simplified method for closed femoral nailing
- Soft-tissue interposition of femoral fractures : detection by ultrasonography during closed nailing
- Ultrasound of image intensified for closed femoral nailing
- Late reduction of elbow dislocation : need triceps be lengthened?
- Ultrasound-guided femoral nailing

Abstract

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- ... is a condensed version of manuscript
- ... highlights the major points
- ... concisely describes its content & scope
- ... reviews its material in abbreviated form
- ... must be concise & easy to read

Effective abstract → higher chance of being accepted, encourage reading, increase impact

Abstract (cont.)

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10 Steps:

1. Identify : major objectives & conclusion
2. Identify : keywords in method section
3. Identify : main result in discussion & result sections
4. Assemble 1-3 into a single paragraph
5. State the hypothesis / method in the first sentence

Abstract (cont.)

12

6. Omit : background, review & detailed description of method
7. Remove extra word & phrase
8. Revise into the only essential form
9. Check the format needed by the journal
10. Let other colleagues read & feed back

Introduction

13

- 2 main purpose:
 - to attract readers
 - to tell them what to expect

- 4 element:
 - background of research question
 - previous research in the area
 - problem with the research
 - what you did to fix the problems

Method

14

- Tell the reader 4 things:
 - what type of the study you did (design)
 - whom of what you studied (subjects)
 - what you measured (measurements)
 - how you analyzed the data (analysis)

Design

15

- Strength & weakness of different designs
- Basic designs
 - descriptive
 - case-control
 - cross-sectional
 - cohort
 - randomized trial
 - before-after
 - non-randomized (historical control)

Subject & Setting

16

- Where you did the study?
- Where you chose the subject?
- Provide the time period involved
- Explain how subjects were assigned to a group

Measure

17

- What to include?
 - predictor variables
 - outcome variables
- At what level of detail?
- Quality : blind, validity, reliability

Analysis

18

- Effect size
- Who was analyzed?
- Variable transformation
- Adjustment
- Power of the analysis

Result

19

- ... is to present the key result without interpreting
- ... should be presented in an orderly sequence following the method section
- Every result must have a described method
- Carefully plan the tables & figures

Result (cont.)

20

12 steps:

1. Determine which results to present
2. Organize the data in order : chronological, most to least important
3. Determine best form to present the data
4. Summarize the findings point out the relevant data without repetition to table / figure
5. Describe the results & data of the control

Result (cont.)

21

6. Provide a clear description of the magnitude of response / difference
7. Data should be accurate & consistent
8. Summarize the analysis
9. Use past tense for your results
10. Number figures & table consecutively
11. Proper heading for each figure & table
12. Write with accuracy, brevity, clarity

Visual Aids

22

When they provide:

- Evidence
- Efficiency:
 - family tree / relationship
 - flow chart / sequence
 - anatomical relation
- Emphasis :



Visual Aids (cont.)

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Table & chart :

➤ Table

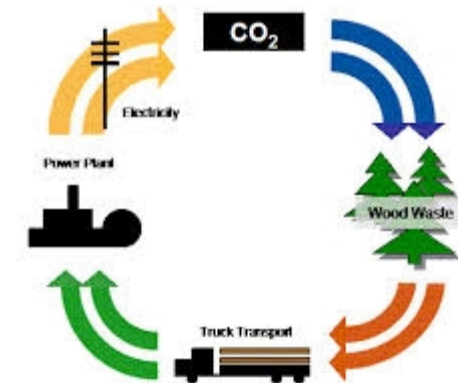
- exact comparison
- support evidences

➤ Chart

- communicate at a glance
- conviction & appeal
- disclose relation

Belt	Gates Length Tolerance (in.) (Approx.)	RMA Length Tolerance (in.)	Center Distance (in.)	Sag (in.)
3VX500	0.14	0.15	21.50	1.07
3VX750	0.28	0.30	32.80	1.86
5VX1600	0.42	0.45	67.40	3.27
5VX2500	0.42	0.45	105.00	4.07
5V3350	0.55	0.60	142.40	5.43
8V4000	0.70	0.75	179.30	6.87

Note: These calculations use a 1:1 speed ratio and are approximate.



Table

24

- 4 absolute rules:
 - must stand on its own
 - must be double-space
 - not repeat results in the text
 - each table should disclose whole number

Table (cont.)

25

Suggestions:

- Numbers easily compare in column > cross
- Round-off numbers
- Brief heading : column & row
- Minimum space between column (be consistent)

The chart shows the favourite pastimes in different countries.

Write a report for a university lecturer making comparisons where relevant and reporting the main features.

From 30-50 years old							
	TV	Sport	Reading	Hobbies	Music	Beach	Sleep
Canada	60	22	15	40	3		2
France			30	20	4		
England			30	21	4		20
Australia	60	30	15	45	5	30	4
Korea	22	21	60	45	2	2	4
China	15	25	60	50		5	5
USA	60	23	15	42	23	30	2
Japan			62				

Figure

26

- Diagrams / line drawing
- Photograph

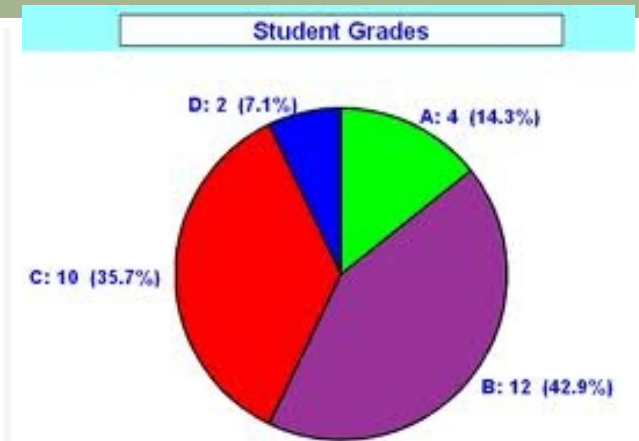


Pie chart

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- Nominal scale
- Show percentage
- Improve clarity by : shade, hatch, color

- Better for 3-10 items
- No good if one less than 2%
- 3-D pie chart (as volume)
- No good for ordinary data

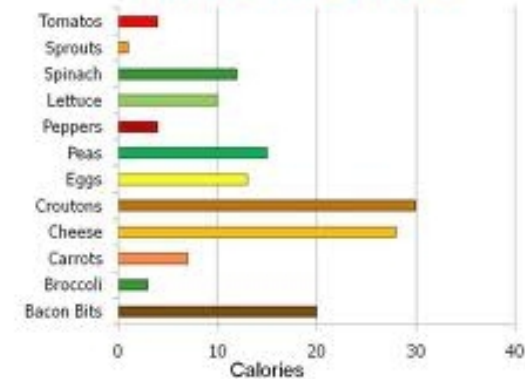


Bar & Column Charts

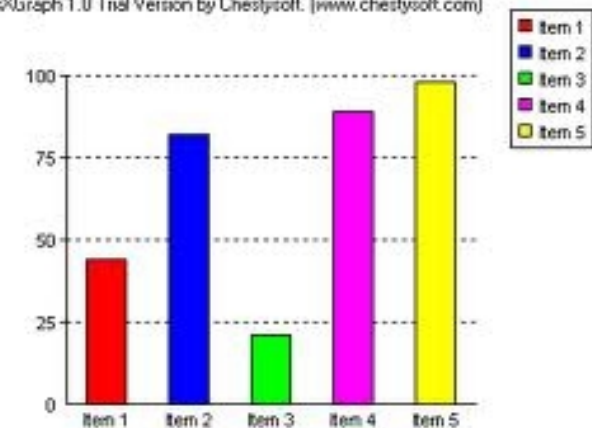
28

- Nominal / ordinal scale
- Display as rank order
- Vertical / horizontal
- Group bar / column chart

Salad Bar Chart



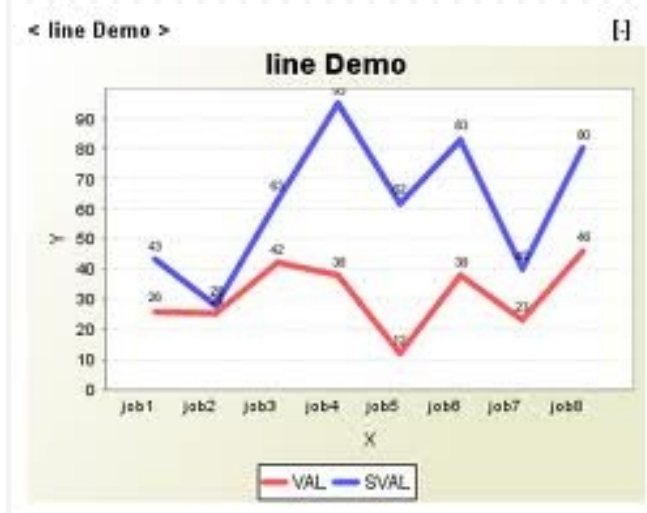
ca2Graph 1.0 Trial Version by Chestyssoft. (www.chestyssoft.com)



Frequency Polygon

29

- Line chart / graph (2-D chart)
- Variable on X axis against frequency on Y-axis
- Different frequencies within one chart



Discussion

30

- ... to state your interpretations & opinion
- ... to explain the implications of your finding
- ... to suggest future research
- Main function
 - to answer the research question
 - to explain how the result support
- ... is the hearth of the paper
- ... requires several writing attempts

Discussion (cont.)

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14 Steps:

1. Organize from specific to general: your finding → literature → theory → practice
2. Use the same key terms & tense (present) & point of view as posing in the question in introduction
3. Begin by re-station the hypothesis being testing
4. Support the answer with the results
5. Describe the pattern, principle & relationship of each finding / result

Discussion (cont.)

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6. Support your answer by explaining how the result related to expectations
7. Defend your answer if necessary
8. Discuss & evaluate conflicting explanation of the result
9. Discussion any unexpected findings
10. Identify potential limitation / weakness

Discussion (cont.)

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11. Summarize concisely the implication of the findings
12. Provide recommendations for further research
(avoid addressing within the study)
13. Explain how the results are important
14. Being concise, brief & specific

Reference

34

- Selective citations
- Journal requirements
- Making a reference list
- Background references : introduction
- Methodological references : methods
- Relevant studies : discussion

Prepare to write a Paper

35

- Decide what your hypothesis is
- Define the purpose and scope
- Familiarize with previous work
- Proper presentation of your work
- Assemble all the information & data

Before Stating the First Draft

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- Organize your results
- Prepare a sentence to focus your paper
- Prepare an outline to guide your writing
- Prepare a strong, decisive conclusion
- Determine what recommendation should be made
- Decide what audience you are trying to reach
- Consult the “Instruction to Authors”

Order of writing

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- Authorship & acknowledgment
- Title
- Figures & Table
- Material & method
- Result
- Discussion & conclusion
- Introduction
- References
- Abstract
- Keyword

Outline

38

- Important step to manuscript writing
- Act as a blueprint
- To divide the paper → various small tasks

Outline (cont.)

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8 Steps:

1. Develop a central message of manuscript
2. Define the material & method
3. Summarize the question & Problem
4. Define the principal finding & results
5. Describe the conclusion & implication
6. Organize & group relate together
7. Identify the references that pertain to each key point
8. Develop the introduction

Manuscript

40

12 Steps:

1. Consolidate all the information
2. Target a journal
3. Start writing
4. Writing quickly
5. Write in your own voice
6. Writing without editing

Manuscript (cont.)

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7. Keep to the plan of your outline
8. Write the paper part
9. Put the first draft aside
10. Revise it
11. Revise for clarity & brevity
12. Be consistent