

Lab Report Writing

Discussion Sections

- ✓ Points and Moves in Discussion Sections
- ✓ Analysis of a Sample Discussion Section
- ✓ Creating Flow
- ✓ Editing Worksheet

Discussion Sections

1. Points in Discussions

Points are:

- More abstract
- More connected to the real world
- More theoretical
- More concerned with implications or applications
- More general
- More integrated within the field

2. Moves in Discussions

Move 1: Points to consolidate your research area (obligatory)

Move 2: Points to indicate the limitations of your study (optional but common)

Move 3: Points to identify useful areas of further research (optional and only common in some disciplines)

3. Move One

- Restatement of significant results in a more general format, then:
 - Citing agreement or disagreement with theory
 - Citing agreement or disagreement with previous studies
 - Admitting difficulties in interpretation
 - Pointing out discrepancies
 - Conclusions that might be drawn about the phenomenon studied
 - Commentary on whether results are expected or unexpected
 - Commentary about the significance of the results

4. **Move One:** Options in opening a discussion section

General conclusion

Apparently, we are witness to the early phases of a classic population explosion.

Restatement of Original Purpose

The objective of the survey was to quantify the number ofwithin...

Summary

This report brings together all known records of since 1959.

Mention of Theory

The results obtained from this experiment would appear to support the theory which states that.....

5. **Move Two**

Limitations of Research Scope (typical wordings)

This experiment has tested....

The results of this experiment address only the question of

This analysis has concentrated on...

The results of this experiment are restricted to....

Limitations in Conclusions Drawn (typical wordings)

However, the findings do not imply....

The results of this study cannot be taken as evidence for...

It cannot be determined from these data whether or not...

The lack ofmeans that we cannot be certain....

SAMPLE DISCUSSION SECTION

(Note: Superscripts have been added and refer to line numbers, not to references.)

DISCUSSION

Load-Deformation Behavior

¹The load-deformation behavior of the two glass slides tested in 3-point bending remained linear up to the point of fracture. ²Thus no mechanism of deformation other than the elastic stretching of atomic bonds is evident. ³While the specimens were not unloaded, it would be expected that the induced strains (deflections) would be totally recovered on unloading.

⁴The calculated value of Young's modulus agreed well with published values. ⁵Thus it seems that the simple experiment performed in this laboratory provided an adequate method of determining that quantity. ⁶No difference in slope (and hence Young's modulus) was observed between the untreated and etched slides. ⁷This observation was expected because Young's modulus is a bulk property and not much affected by the presence of surface flaws.

Effect of Surface Treatment

⁸The etched specimens had a substantially greater fracture strength and a greater variability in fracture strength. ⁹The average strength of the etched specimens was roughly double that of the untreated specimens. ¹⁰From this observation it must be concluded that the etching treatment greatly reduced the number and size of surface flaws present. ¹¹This phenomenon was first described by Joffe, and indeed the increase of the fracture stress of specimens tested in solution as a consequence of the dissolution of their outer surface is known as the Joffe effect.

From: Lawrence, F.V. (2000). "The Fracture of Glass." Laboratory Report. University of Illinois at Urbana-Champaign. August. http://www.cee.ce.uiuc.edu/Courses/cee210/labs/lab_o_technical_report.pdf. Accessed Jan. 2002.

Characterize each sentence in the discussion section above as one of the following:

R = Restatement of significant results in a more general format

T = Citing agreement or disagreement with theory

St = Citing agreement or disagreement with previous studies

Diff = Admitting difficulties in interpretation

Dis = Pointing out discrepancies

Con = Conclusions that might be drawn about the phenomenon studied

Un = Commentary on whether results are expected or unexpected

S = Commentary about the significance of the results

O = other (specify)

Sentence Numbers:

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

Creating Flow

Given vs. New Information

Consider the paragraphs below regarding a plan for environmental research. Which of them seems to "flow" better. Why?

Version A

The 5-year plan does not indicate a clearly defined commitment to long-range environmental research. For instance, the development of techniques rather than the identification and definition of important long-range issues is the subject of the plan where it does address long-range research.

Version B

The 5-year plan does not indicate a clearly defined commitment to long-range environmental research. For instance, where the plan does address long-range research, it discusses the development of techniques rather than the identification of important long-range issues.

Huckin, T. and Olsen, L. (1991). Technical Writing and Professional Communication. Boston: McGraw-Hill. p. 440.

Creating Flow: Ways to Repeat Information

1. Full repetition

The flue dampers shall be tied with the inlet dampers of the fans located at the exit side of the electrostatic precipitators. These dampers will open automatically in the event of any failure in the electrostatic system. (negative example.)

2. Short-form repetition

Electric cars must be able to meet the same safety standards that gasoline cars must meet. These standards are derived from an established crash test, in which the car is propelled against a solid wall at 30 MPH.

Increasing Compression in Short-form repetition

The increased radiation dosages that would be experienced at sea level
The radiation dosages experienced at sea level
The radiation dose at sea level
Sea-level radiation

3. Pronoun repetition

A simple measure of the rate of increase of the output of the scientific community can be obtained by looking at *the Royal Society Catalogue of Scientific Literature*. This eventually covered all the scientific literature in all subject fields in the 19th century. It occupies about the same shelf space as last year's output in chemistry alone.

4. Synonymous noun phrase repetition

Because requesters desire medical information as soon as possible, hospital management feels that requests should be processed within two weeks. Since this standard is far from being met, management undertook a study of request processing procedures.

5. Associated noun phrase repetition

The thermal properties of glassy materials at low temperatures are still not completely understood. The thermal conductivity has a plateau which is usually in the range of 5 to 10K, and below this temperature..."

Adapted from: Huckin, T. and Olsen, L. (1991). Technical Writing and Professional Communication. Boston: McGraw-Hill. pp. 443-451

Creating Flow

"Old" vs. "New" Information: Noun Phrases Exercise

In the following paragraph about a new therapy for heart patients, the writer has made an effort to put "old" information before new. Underline the "old" information and identify the type of repetition that the author used in sentences 2-5. When possible, identify the information from the previous sentence that is repeated.

Now even some of the sickest heart patients with clogged coronary arteries can be considered for heart-saving balloon therapy, researchers say. That's important news for up to 60,000 older "high risk" patients with multiple coronary artery plugs, blocked grafts from previous bypass surgery, or massive congestive heart failure. Many have such weak hearts that they were considered too weak for balloon angioplasty. In that procedure, a tiny balloon is snaked through an artery and inflated to break up a clot. This works best for patients under 65 who have only a single blockage, according to just-issued guidelines to doctors.

Now there's hope for high-risk hearts: a new generation heart-lung machine that so far has helped 30 patients through balloon therapy - many of whom had almost no chance for survival otherwise, says Dr. James O'Toole, Doctor of Cardiology at Shadyside Hospital in Pittsburgh. Unlike conventional machines that require rib-spreading surgery, the Bard Cardiopulmonary Support system (CPS) requires only a small incision in the leg. Once it's connected, it takes over all the functions of the heart and lungs, so patients remain stable and doctors can take the time to do a more thorough job clearing arteries.

From: Huckin, T. and Olsen, L. (1991). Technical Writing and Professional Communication. Boston: McGraw-Hill. p. 453.

Editing Worksheet

Discussion Section

Area	Question	Y/ N	Comments
Content	1. Does the writer use points instead of facts (e.g., explanations, interpretations, conclusions) 2. Does the writer discuss the major limitations of the experiment? 3. Are all of the major trends/conclusions made?		
Organization	1. Is the organization of the section (minor conclusions to major conclusions or major to minor) logical? 2. Does the writer use enough informative headings?		
Language	1. Does the writer use concise but specific language? 2. Does the language "flow"; i.e., does the writer put old information before new? 2. Does the writer avoid grammatical and mechanical errors?		