

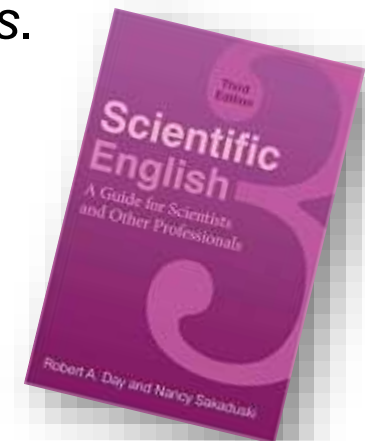
Improving Your Sentences

ENGR 361: Scientific Research Communication

<https://www.csulb.edu>

References

- Alred, G. J., Brusaw, C. T., & Oliu, W. E. (2009). *Handbook of technical writing*. Macmillan.
- Day, R. A., Sakaduski, N., & Day, N. (2011). *Scientific English: A guide for scientists and other professionals*. ABC-CLIO.



Improve Our Writing

- Focus on paragraph/sentence content & structure

Words

Clarity
Brevity
Specificity

Sentences

Simplicity
Positive construction
Active voice

Paragraphs

Readability
Logical flow of ideas
Persuasiveness

Choosing Your Words

- Lose the “dead weight” words & phrases
 - Do not *fall in love* with your words ... cut them when necessary

Instead of:

with regard to
by means of
in the event that
until such time
during such time
in respect of
in view of the fact
on the part of
subsequent to
under the provisions of
with a view to
it would appear that
it is probable that
notwithstanding the fact that

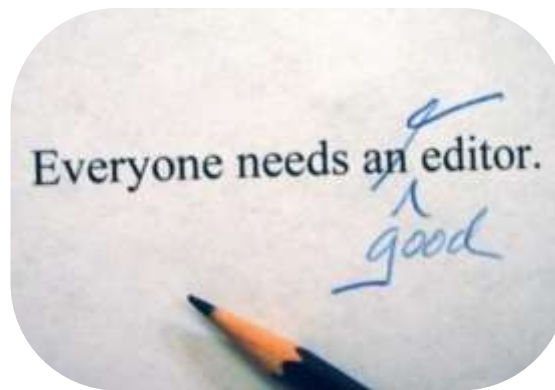
Use:

about
by
if
until
while
for
because
by
after
under
to
apparently
probably
although



Choosing Your Words

- More difficult to be brief than write at length!
- Effort is needed to EDIT and write concisely!
 - Tightly written text packs more punch than a rambling wandering meandering blithering confusing mind-numbing...(blah, blah, blah).



Choosing Your Words

You hear it all the time, "omit needless words," "tighten your writing," and maybe you're thinking, huh? What words? How? What don't I see? How do I learn? I'm going to ~~try and~~ point out ~~some~~ things to look for, but ~~I don't think~~ the knowledge won't ~~will really~~ soak in unless ~~you're willing to~~ you'll treat it as an exercise and get *into* it. So grab ~~a few~~ pages of your manuscript (double or triple spaced) and a ~~red~~ pen and ~~get ready to~~ wage war on extraneousness.

(source: caseylmccormick.blogspot.com)

Choosing Your Words

- Common issues ...

“the fact that”, “who is”, “which was”, “to be”, “there are”

NO

– “Because *of the fact that* the set of interview questions worked well in the first trial, I *decided to use* the same question set for trial 2.”

Better

– “Because the set of interview questions worked well in the first trial, I used the same question set for trial 2.”

Choosing Your Words

- Common issues ...

“the fact that”, “who is”, “which was”, “to be”, “there are”

NO

– “Dr. Boyer, *who is a biochemist and a professor at UCLA, is a very interesting person.*”

Better

– “Dr. Boyer, *a biochemist and a professor at UCLA, is a very interesting person.*”

Choosing Your Words

- Common issues ...

“the fact that”, “who is”, “which was”, “to be”, “there are”

NO

– “The article, *which was* written by Dr. Jones, was well received.”

Better

– “The article, *written by Dr. Jones*, was well received.”

Better Yet

– “Dr. Jones’ article was well received.”

Choosing Your Words

- Common issues ...

“the fact that”, “who is”, “which was”, “to be”, “there are”

NO

– Explosions are *to be expected* when distilling ether with a Bunsen burner.

Better

– Expect explosions when distilling ether with a Bunsen burner.

Choosing Your Words

- Common issues ...

“the fact that”, “who is”, “which was”, “to be”, “there are”

NO

– *There are many students who like mechanical engineering.*

Better

– *Many students like mechanical engineering.*

Choosing Your Words



very
really
quite
basically
generally
actually

***These words
seldom add
anything useful.
Try the sentence
without them and
see if it improves.***

NO

- “*Basically*, the wine was considered *to be* *generally* quite good by Bob who *actually* drained three bottles and got *really* hammered.”

Better

- “Bob thought the wine was good but got drunk after his third bottle.”

Choosing Your Words

- Be on the lookout for extraneous words
- Ask yourself:
 - “Is this word or phrase necessary?”
 - “What happens if I take it out?”



Say more with fewer words!

Choosing Your Words

- Dead Weight Phrases

- These phrase can be removed/eliminated
- Text strengthened without the use of these phrases



in the event that
in the nature of
it has been estimated that
it seems that
the point I'm trying to make is that
what I mean to say is
it may be argued that
for the most part
for the purpose of
in a manner of speaking
in a very real sense
in the case of
in the final analysis
in my opinion

Choosing Your Words

- Eliminate *Dead Weight* Phrases

NO

– “*It has been estimated that up to one-third of the population living in Santa Ana could be diagnosed with type-2 diabetes.*”

Better

– “*About one-third of Santa Ana residents may have type-2 diabetes.*”

Choosing Your Words

- Eliminate *Dead Weight* Phrases

NO

- *“The point I’m trying to make is that genetics and societal habits and influences have an effect on the prevalence of diabetes in some communities.”*

Better

- *“Genetics and societal habits and influences have an effect on the prevalence of diabetes in some communities.”*

Better
Yet

- *“Genetics and societal factors impact the prevalence of diabetes.”*

Choosing Your Words

■ *Clunky* Phrases

— Phrases that can be replaced with a single word

■ A majority of	■ most
■ A number of	■ many
■ Are of the same opinion	■ agree
■ At the present moment	■ now
■ By means of	■ by
■ Less frequently occurring	■ rare
■ All three in the	■ the three
■ Fewer in number	■ fewer
■ Give rise to	■ cause
■ in all cases	■ always
■ in a position to	■ can
■ in close proximity to	■ near
■ in order to	■ to



Choosing Your Words

Be careful!

Better

investigate

study

optimum

best

indicate

show

initiate

start

currently

now

facilitate

help

endeavor

try

ascertain

find out

Choosing Your Words

- Example

- *In this investigation, we endeavored to ascertain the optimum number of bottles of beer a person had to consume before initiating conversation with Sheldon.*

Better

- *In this study, we examined how many beers a person had to drink to lose his/her disgust of Sheldon.*

Choosing Your Words

- Wordy Phrases

- Words that qualify the obvious can be omitted



amous
nion
er

Choosing Your Words

- Writing Positively

- *“Prefer the specific to the general, the definite to the vague, the concrete to the abstract.”*

vague:

- *A period of unfavorable weather set in.*

specific:

- *It rained every day for a week.*

vague:

- *He showed satisfaction as he took possession of his well earned reward.*

specific:

- *He grinned as he pocketed the coin.*

(from Strunk & White)

Choosing Your Words

- Writing Positively

- Reducing the use of no, not, etc.

no ■ *He was not often on time.*

yes ■ *He usually arrived late.*

no ■ *She did not think that writing was a sensible use of her time.*

yes ■ *She thought writing was a misuse of time.*

Choosing Your Words

- Writing Positively

- Reducing the use of no, not, etc.

- Negative Forms

- not honest
 - not important
 - does not have
 - did not remember
 - did not pay attention to
 - did not have much confidence
 - did not succeed

- Positive Forms

- dishonest
 - trifling
 - lacks
 - forgot
 - ignored
 - distrusted
 - failed

Simple Sentence Structure

- **SVO** – Subject + Verb + Object
 - Active Voice Construction
 - Writing that uses simple SVO construction will be clear and direct
- *John connected the power source to the circuit.*
- *We distilled the water.*
- *Sarah purified the plasmid.*

Simple Sentence Structure

- Good sentences use **one main verb** to convey central action
 - Without this verb, the sentence collapses!
 - The verb is the engine that drives the sentence...keep it strong!



Simple Sentence Structure

- Use Action-Laden Verbs

- Put all the action of a sentence into the verb
- Don't bury the action in a noun or blur it across the entire sentence

no

- *The establishment of a different approach on the part of the committee has become a necessity.*

yes

- *The committee must approach the problem differently.*

Simple Sentence Structure

- Use Action-Laden Verbs

- Normalization

- Verbs made into nouns by adding “-tion”

no

- *An evaluation of the procedures needs to be done.*

yes

- *We need to evaluate the procedures.*

Simple Sentence Structure

- Reduce Wordy Verbs
 - Keep the action of a sentence clear by using concise, direct verbs
 - Instead of ...
 - has knowledge of
 - is aware of
 - is taking
 - are indications of
 - are suggestions of
 - Use ...
 - knows
 - knows
 - takes
 - indicates
 - suggests

Simple Sentence Structure

- **WEAK Verbs** (Active vs Passive Voice)
 - Good sentences have strong precise verbs
 - Converting passive to active forms
 - Watch out for “by” and “to be” verb forms...usually indicate passive voice



Simple Sentence Structure

■ WEAK Verbs (Active vs Passive Voice)

– Passive Voice

- **It is** believed **by** the candidate that a ceiling must **be** placed on the budget by Congress.
- **It was** earlier demonstrated that heart attacks can **be** caused **by** high stress.
- The man **was** bitten **by** the dog.

– Active Voice

- The candidate believes that Congress must place a ceiling on the budget.
- Researchers earlier showed that high stress can cause heart attacks.
- The dog bit the man.

Simple Sentence Structure

■ When to use Passive Voice

1. To emphasize action rather than actor

- After long debate, the proposal *was* endorsed by the planning committee.

2. To keep the subject and focus consistent throughout the passage

- The data processing department recently proposed to expand its staff. After long debate, the controversial proposal *was endorsed* by

Simple Sentence Structure

3. To be tactful by not naming the actor

- The procedures *were* somehow misinterpreted.

4. To create an authoritative tone

- Visitors *are not allowed* after 9:00 p.m.

Simple Sentence Structure

- Reduce Expletive Constructions

- Expletive constructions **obscure** main subject and action of sentence

<i>it is</i>	<i>it was</i>
<i>there is</i>	<i>this is</i>
<i>there are</i>	<i>there were</i>

- Expletive Constructions

- *It was* her last argument *that* finally persuaded me.
- There are likely to be many researchers raising questions about this methodological approach.

- A Solution...

- Her last argument finally persuaded me.
- Many researchers will question this methodological approach.

Simple Sentence Structure

■ Reduce Unnecessary Prepositional Phrases

- Prepositional phrases that denote possession of an object should be omitted → ■ Use apostrophe + s
- Avoid too many prepositional phrases in a single sentence → ■ Obscures main subject & action

NO

- The opinion of the manager
- It is a matter of the gravest possible importance to the health of anyone with a history of a problem with disease of the heart that he or she should avoid the sort of foods with a high percentage of saturated fats.

YES

- The manager's opinion
- It is crucial for anyone with a history of heart disease to avoid foods rich in saturated fats.

(from: writing.wisc.edu)

Simple Sentence Structure

■ Vague Verbs & Nouns

- Use specific nouns, specific verbs, and specific details in your writing

vague:

- Consumer demand **is rising** in the area of services.

specific:

- Consumers are demanding more services.

vague:

- Strong reading skills are **an important factor** in students' success in college.

specific:

- Student success in college depends on strong reading skills.

*Vague
all-purpose
nouns*

aspect

area

situation

consideration

degree

case

Simple Sentence Structure

- Nouns Strings

- Avoid using phrases with many consecutive nouns

No

- MHS has a hospital employee relations improvement program.

better

- MHS has a program to improve relations among employees.

No

- NASA continues to work on the International Space Station astronaut living-quarters module development project.

better

- NASA is still developing the module that will provide living quarters for the astronauts aboard the International Space Station.

Simple Sentence Structure

- Importance of Word Choice



(spotted in a toilet of a London office...)

Toilet out of Order
Please use floor below

(in a laundromat...)

Automatic washing machines:
please remove all your clothes
when the light goes out.

(in a London department store...)

Bargain Basement Upstairs



Simple Sentence Structure

- Count Nouns -vs- Mass Nouns
 - Count Nouns: Used for objects that can be counted
 - Singular -vs- plural
 - egg/eggs, apple/apples
 - Mass Nouns: Used for things that do not have a natural boundary
 - Considered “singular” regardless of how much is present
 - butter, milk, water

Simple Sentence Structure

- Count Nouns -vs- Mass Nouns – Fewer vs Less
 - “Fewer” refers to count nouns
 - “Less” refers to mass nouns
 - *“I have fewer apples than you, but you have less water than I.”*
- How many? -vs- How Much?
 - “How many” refers to count nouns
 - “How much” refers to mass nouns

Simple Sentence Structure

- Five Common Writing Mistakes

1. **The word “data” is plural.**

- We conclude from these data that gene expression is blocked by hypermethylation.
 - The data are important.
-
- Other alternatives to *datum/data*:
 - observation/observations
 - finding/findings
 - result/results

Simple Sentence Structure

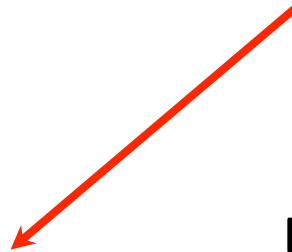
2. affect -vs- effect

Affect - verb: to influence



The drug *affected* the mice.
The drug had an *effect* on the mice.

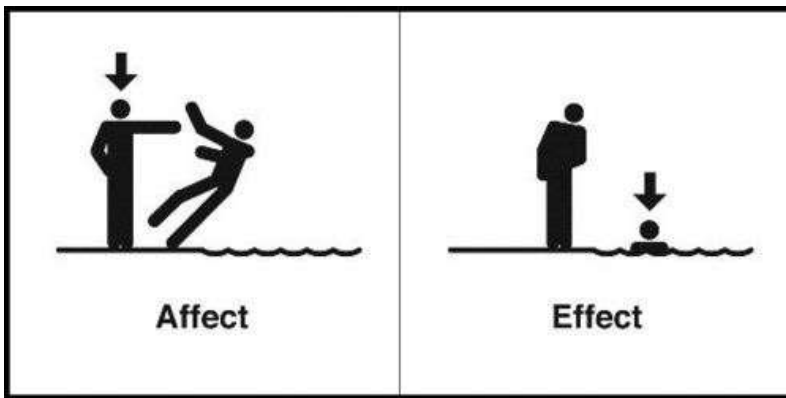
Effect - noun: a result
most common form



Effect - verb: to bring about
less common usage



The new drug *effected* a cure.
The new drug was *effective*.




Simple Sentence Structure

3. more than -vs- over

- Do not use “over” to describe relative amounts
 - **More than = greater than**
 - **Over = physically above**

 ▪ She added over 5 g of NaCl to the solution.

 ▪ She added more than 5 g of NaCl to the solution.

Simple Sentence Structure

4. compared to -vs- compared with

- **compare to** = point out similarities between different things
- **compare with** = to point out differences between similar things
 - The effects of acetaminophen on prostaglandin formation *compared to* those of aspirin.
 - (i.e., the effects are comparable or similar)
 - *Compared with* Advil, aspirin adversely affects blood clotting.
 - (i.e., the effects are different)

Simple Sentence Structure

5. **that -vs- which**

- that = restrictive defining pronoun
- which = non-restrictive (non-defining) pronoun

A ***restrictive*** clause is part of a sentence that cannot be omitted or defines some other part of the sentence.

- **THAT**: the essential clause cannot be eliminated without changing the meaning of the sentence.
- **WHICH**: the non-essential clause can be eliminated without altering the basic meaning of the sentence (must be set off by commas)

Simple Sentence Structure

- Stroke incidence data are obtained from sources, which use the ICD (International Code of Diseases) classification systems.

What information does the clause provide?

Remove the clause...does the sentence make sense?

- The sentence loses meaning without the clause
 - Clause is essential (restrictive)...defines the subject
- Stroke incidence data are obtained from sources that use the ICD (International Code of Diseases) classification systems.

Simple Sentence Structure

- The peacemaking meeting scheduled for today has been cancelled because of a conflict.
- For anyone who has children and doesn't know it, there is a day care on the first floor.
- Scouts are saving aluminum cans, bottles, and other items to be recycled. Proceeds will be used to disable children.
- Please indicate your donation in the envelope along with the deceased person you want remembered.
- The ladies of the church have cast off clothing of every kind. They may be seen in the basement on Friday afternoon.
- The Weight-Watchers group will meet Thursday at 7 pm. Please use the side double-door entrance.

Note: All sentences passed a spellchecker.

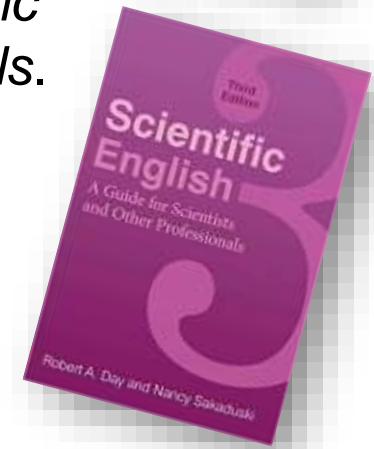
Peer Review of Assignment #4 Draft 2

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References

- Alred, G. J., Brusaw, C. T., & Oliu, W. E. (2009). *Handbook of technical writing*. Macmillan.
- Day, R. A., Sakaduski, N., & Day, N. (2011). *Scientific English: A guide for scientists and other professionals*. ABC-CLIO.



■ **Introduction**

1. Why is your research important?
2. What is known about the topic?
3. What are your hypotheses?
4. What are your objectives?

■ **Materials and Methods**

1. What materials did you use?
2. Who were the subjects of your study?
3. What was the design of your research?
4. What procedure did you follow?

■ **Results**

1. What are your most significant results?
2. What are your supporting results?

■ **Discussion and Conclusions**

1. What are the studies major findings?
2. What is the significance/implication of the results?

Research Paper

Introduction

- **1. Establish a research territory**
 - a) Show that the general research area is important, central, interesting, and problematic in some way
- **2. Find a niche**
 - a) Indicate a gap in the previous research, or extend previous knowledge in some way
- **3. Occupy the niche**
 - a) Outline purposes or state the nature of the present research
 - b) List research questions or hypotheses
 - c) Announce principle findings
 - d) State the value of the present research

Research Paper

Discussion & Conclusion

- **1. The study's major findings**
 - a) State the major findings
 - b) Explain the meaning and importance of your finding
 - c) Consider alternative explanations of the findings
- **2. Research Context**
 - a) Compare and contrast your findings with those of other published results
 - b) Explain any discrepancies and unexpected findings
 - c) State the limitations, weaknesses, and assumptions of your study
- **3. Closing the paper**
 - a) Summarize the answers to the research questions.
 - b) Indicate the importance of the work by stating applications recommendations, and implications

Research Paper

- Pay particular attention to the following features:
 - Is there a composition structure present?
 - Are the paragraphs connected effectively?
 - Is the topic sentence clear for each paragraph?
 - Are the sentences grammatically correct?
 - Are there any problems with word choice?
 - Do the sentences follow a logical sequence?
 - Are there unnecessary sentences?
 - Do the sentences flow well?
 - Is the composition effective?

Draft – Peer Review Form

Written Report Assessment (Rating 1-5)

See Rubric Matrix next page for details about Rating Levels	Level 1. Not at all	Level 2.	Level 3. Some- what	Level 4.	Level 5. Very much	N/A
A. Organization and Communication <i>Does the report have a logical flow from the background to the research question, methodology, results and implications?</i>						
B. Abstract <i>Is the abstract a clear, succinct, and comprehensive summary of the report?</i>						
C. Background of Research <i>Does the report demonstrate a clear understanding of relevant facts and theories</i>						
D. Research Question and/or Hypothesis <i>What is the research question or hypothesis? What is the purpose of the study?</i>						
E. Methodology <i>Are the essential elements of the experimental procedures clearly described?</i>						
F. Results (Data & Analysis) <i>Does the report describe what was found and how the research question was answered or hypothesis tested?</i>						
G. Discussion and Conclusion <i>Does the discussion integrate pertinent information and relate the results to the research question and/or hypothesis? Does it lead logically to the conclusion?</i>						
H. Language Usage <i>Is the report informative and easy to read? Is the writing clear and logical?</i>						
I. Other Criteria <i>Please add your suggestions</i>						

Draft – Peer Review Form

<i>Focus Question</i>	Level 1	Level 2	Level 3	Level 4	Level 5
A. Organization and Communication <i>Does the report have a logical flow from the background to the research question, methodology, results and implications?</i>	Report is incomplete or missing information in several essential sections. Logical flow between the sections is a problem. Information is presented in a disorganized fashion.	Report has essential sections, but some are incomplete. Several sections are not internally coherent.	Report has all the essential sections. Some of the sections are incomplete or not logically coherent.	Report has all the essential sections including an abstract, references and acknowledgements. Most of the sections are internally coherent. Sections generally follow each other logically.	Report has the following essential sections: an introduction describing the background, central question or hypothesis; methodology; results (data, analysis); discussion and conclusion. An abstract, references, and acknowledgements are included. There is a logical flow within and between each section.
B. Abstract <i>Is the abstract a clear, succinct, and comprehensive summary of the report?</i>	Abstract does not describe clearly and succinctly the important points of the report.	Abstract omits one or more sections of the report. Important elements of the research report are not emphasized.	One or more sections of the report are not clearly summarized. Some important aspects of the research are not emphasized.	Abstract adequately summarizes all the sections of the report without highlighting its important elements.	Abstract briefly describes and highlights all the important aspects of the research report, including background, research question and/or hypothesis, methodology, results and conclusions. Length of abstract within 200-250 words.

Draft – Peer Review Form

C. Background of Research <i>Does the report demonstrate a clear understanding of relevant facts and theories?</i>	Report does not show a clear understanding of the background and pertinent literature in relation to the research question.	Some major articles have been omitted. The introduction does not relate the literature to the research question.	Some current and relevant articles have been omitted. The introduction does not show a clear relationship between the literature and the research question.	Report has a summary of literature from primary sources. Literature is pertinent to the research question or hypothesis. Introductory information is presented logically.	Report cites relevant literature from current primary sources; synthesizes pertinent literature; presents introductory information in a logical progression leading to the research question and/or hypothesis.
D. Research Question and/or Hypothesis <i>What is the research question or hypothesis? What is the purpose of the study?</i>	Research question or hypothesis is not formulated. The purpose of the study is not apparent.	The research question or hypothesis is not clear and the purpose of the study seems vague.	The research question or hypothesis is not clearly stated. The importance of the study is not apparent.	The research question or hypothesis was clearly stated, but the significance of the problem in relation to the literature is not fully described.	The research question and/or hypothesis are clearly stated. The significance of the problem is stated in context of the background information. The approach chosen addresses the research question or tests the hypothesis.
E. Methodology <i>Are the essential elements of the experimental procedures clearly described?</i>	It is difficult to understand the research method described in this report.	Several essential elements of the experimental procedure are missing. It would be very difficult for another scientist to repeat the experiment using the information from the report.	Descriptions of some procedures lack sufficient detail for another scientist to repeat the experiment.	Most of the procedures are described in sufficient detail so that another scientist can repeat the experiment.	The basic elements of each procedure are described and in sufficient detail so that other scientists can repeat the experiment. Values of the approach are described.

Draft – Peer Review Form

Focus Question	Level 1	Level 2	Level 3	Level 4	Level 5
F. Results (Data & Analysis) <i>Does the report describe what was found and how the research question was answered or hypothesis tested?</i>	Presentation of the results is confusing and does not address the research question.	Data and analysis are not clearly presented. The importance of the results is not clearly stated.	Some results are not clearly described. The research question and/or hypothesis is not fully addressed.	Data, graphs, and images have descriptive legends and titles. Results addressed the research question.	Results (data, analysis, graphs, images and narrative) clearly address the research question and/or hypothesis. Representation of data and analysis (graphs and tables) is clear and effective. Graphs and tables have complete and descriptive legends and titles. Data analysis includes appropriate use of statistics.
G. Discussion and Conclusion <i>Does the discussion integrate pertinent information and relate the results to the research question and/or hypothesis? Does the discussion lead logically to the conclusion?</i>	The discussion has no clear focus and does not address the research question.	The discussion does not focus on the research question. There is no logical relationship between the results and the conclusion.	The discussion adequately addresses the research question or hypothesis. The significance of the study and its results are not clearly described.	Discussion of results clearly addresses the research question or hypothesis, arriving at a conclusion in a logical manner.	Discussion summarizes the results and relates them to pertinent literature. Places research question in the context of a "bigger picture" in the field. Presentation of results makes a compelling case for the conclusion. Report has a "take-home message".
H. Language Usage <i>Is the report informative and easy to read? Is the writing clear and logical?</i>	Report is disjointed and difficult to follow. Language usage does not always follow convention.	Report is disjointed. The writing sometimes lacks clarity.	Report is occasionally disjointed. It employs correct usage of language most of the time.	Report is clearly written, employing correct usage of language. The writing is logical and concise.	Report is clearly written with appropriate connections between ideas (transitions). The writing is logical and concise with correct usage of language. The writing is of professional quality.

