

## ZOOLOGY 690 Evolution

### How to Write Clearly, Concisely, and Effectively

Effective writing is hard work. If you wish to write clearly and effectively, as well as hold the reader's interest, you can produce written communication that you will be proud to call your own. The following information and tips will help you communicate scientific and technical topics effectively and avoid terminology, phrases, and sentence structure that can be confusing to the reader. If followed conscientiously, they will improve your writing skills and ability to communicate your ideas and those of others to the reader. This is by no means a comprehensive guide, but is based on writing encountered in the first writing assignment, and discussions at the University Writing Center, and with Margaret Moore and Anne Stork, whose comments and suggestions are gratefully acknowledged.

First things first. The stages in preparing a writing assignment.

Preparing a good written assignment can be divided into six stages, beginning with planning, and ending with sentence-level editing/proofreading.

(1) **Freewriting/Brainstorming.** This is the stage when you write about the main ideas you wish to present. Consider whether you will write from an outline, directly from literature sources or other information, or from notes on your information sources. Use what works best for you. Get all your thoughts and ideas down on paper.

(2) **Discuss ideas with peers.** During this stage, get comments from peers or anybody else that you think can comment on the ideas you will present. This will be very helpful in identifying the main themes of the paper and clarifying thoughts and ideas, or even expressing them in a different way or in a different order.

(3) **Compose the first draft.** For this stage, you do only ONE thing: WRITE, WRITE, WRITE. Don't worry about how it sounds or if the organization is good or everything spelled correctly, JUST WRITE!! Use your "writing brain" and keep your "revising/editing brain" turned off. Get it all down on paper. Don't try to edit while you write. It inhibits the creative process.

(4) **Revise for clear statement and flow of ideas.** Now, turn on your "revising brain" This is the "global" process of revision. You examine the paper as a whole, not its individual parts. Is the organization clear? Is your focus appropriate to the topic area? Have you included as many concepts as are required to adequately cover the assigned topic? How thorough is your presentation? Is more information needed to cover the topic well?

### Writing Tips

(5) **Paragraph-level organization and editing.** During this stage, examine each entire paragraph carefully. Does each paragraph deal with 1 idea and 1 idea only? If more than 1 idea is presented in a paragraph, it should be divided into 2 paragraphs. Does the first sentence of the paragraph introduce the idea clearly? Does the last sentence of the paragraph provide a "lead in" for the next paragraph? Does paragraph organization flow smoothly? Examine paragraph level ONLY.

(6) **Sentence-level editing and proofreading.** This is absolutely the last stage in the writing process. Now, you turn on your "editing brain" and look at sentence structure for the following (magic words): Positive, Precise and Concise. Here, you will check for misspelling, mixed use of singular and plural nouns and verbs, position of the "Agent of

Action" (see below) in the sentence, use of unnecessary or imprecise words and phrases, inappropriate use of the passive voice, use of conversational" language, and punctuation. You will maximize readability" and "clarity".

The following suggestions will assist you in this last process. Most examples are taken from the first writing assignment.

### **Proofreading**

You MUST proofread your writing carefully to avoid careless or inadvertent mistakes in spelling, grammar and style. Careful proofreading will ensure that your work is well-written and clear. It also indicates that you care about what you write. Here are 2 strategies I use to proofread the papers I write:

(1) Cover your text with a blank card or sheet of opaque paper and read one line at a time. Do not move to the next line until you have read EVERY word of the previous line and understand its meaning. Check for words or phrases that are not clear and correct them, or mark them for subsequent correction. Eyes have a tendency to skip over words, or even sentences, especially when you have read the material before. This will prevent skipping over words until the line has been read completely. This is "fine tuning".

(2) Read the text out loud or have a friend, roommate read it to you out loud. You will be amazed how different written material can sound when read aloud. It also helps you catch words or phrases that do not make sense or seem inappropriate.

### **Suggestions for concise writing**

- Eliminate the word "the" when it is not necessary to the meaning of the sentence. It is used far more often than necessary. Example: In the experiment the body size was manipulated..." "In the experiment body size was manipulated..." [Note: This is also a terrible example because (a) it is in the passive voice (see below), and (b) the sentence begins with a preposition (in)~ you should avoid both!!]

#### **Writing tips**

Avoid use of words and phrases that do not contribute to the meaning of sentences. This distracts the reader from the points you are making. This is called "wordiness"

- Notice how many of the following examples are used commonly in conversational speech or use the passive voice.

#### **Examples of wordiness and how to avoid it.**

##### WORDY

"in order to" / "in order for"  
"it was thought by some"  
"due to the fact that"  
"often times"  
"it is also believed"  
"so long as"  
"in terms of"

##### CONCISE

to, for  
some thought (but who is some?)  
because  
often  
\_\_\_\_\_ believes  
if  
in

"on the basis of"	by, based on
"is lacking in"	lacks
"sums up"	summarizes
"in support of"	to support
"in regard(s) to"	regarding
"utilized"	used
"was lacking in"	lacked
"Through Stephen Jay Gould, we are reminded"	Stephen Jay Gould reminds us
"in addition to this"	also, additionally, etc
"came into being"	originated
"within"	in
"as a result of"	from
"in an attempt to"	attempted to, attempts to
"on behalf of"	by, for
"in comparison to"	compared to (with)
"have to do with"	deal with, pertain to
"as seen in"	in
"it was believed by many"	many believed (but who is many?)
"almost all"	most
"backed up"	supported
"goes in direct conflict with"	conflicts with
"can be taken to be"	can be
"came about"	occurred
"how is it that"	how can
"in respect to"	regarding

### WORDY

"a total of"  
 "pretty much"  
 "keep in mind"  
 "to look more closely at"  
 "the thing that he watched for"  
 "that looked at"  
 "whether or not"  
 "they conducted the study by capturing"  
 "the inclusion of"  
 "had its foundations in"  
 "have come to be used"  
 "an effort is made here to"  
 "as it stands now"  
 "was born out of"  
 "is objected to"  
 "to further the advancement of"  
 "falls near the realm of"  
 "to back the conclusion up"  
 "the ways in which"  
 "in no way"  
 "a lot of"  
 "in the end"  
 "more and more"  
 "read into"  
 "at that moment"  
 "later on"

### CONCISE

unnecessary- give number  
 "nearly"  
 "remember"  
 "examine" [closely]  
 "he observed"  
 "examined"  
 if  
 they captured  
 include  
 "originated"  
 "are used"  
 "I attempt to"  
 "present"  
 "originated"  
 "is questioned, disputed"  
 "to advance"  
 "is related",  
 "close to"  
 "support the conclusion"  
 not  
 many  
 finally  
 "increasingly"  
 "interpret"  
 "then"  
 "later"

"point to"  
"somewhere on the order of"  
"caused there to be"

"use"  
"about" "approximately"  
"resulted in"

DO NOT USE THE FOLLOWING WORDY/MEANINGLESS WORDS/PHRASES:

"in other words"  
"overall"  
"for the most part"  
"along the same lines"  
"as previously stated"  
"in the process of"  
"as mentioned earlier"  
"it was found that"  
"on the other hand"  
"it is quickly noted"  
"as you can tell"  
"in a way"  
"countless"

### **Suggestions for precise writing**

Precise writing helps the reader understand your written work and minimizes confusion. It also allows the reader to read your entire work without pausing to puzzle out what you mean. The following examples deal with precision.

- Do not use "some" to refer to specific groups of individuals - it is too vague - identify the "some" more specifically. Same applies to "many", unless you specify who the "many" are.

- Beware when using the word "this". Its meaning can be vague - be sure you clearly indicate what "this" is and to what it refers.

- Beware of starting sentences with "in" (or other prepositions). It usually means your main idea is buried somewhere in the middle of the sentence. It can indicate use of the passive voice. Do not end sentences with prepositions, if possible (in, of, about). Example: "In Darwin on Trial, Johnson discusses this." "Johnson discusses this in Darwin on Trial. "

- Avoid using "conversational English" and "slang" whenever possible (see also examples under concise writing). It usually makes what you are trying to express more difficult to understand. What is commonly used and acceptable in conversation often is not appropriate in written communication or has a different meaning. For example, "on the other hand" means what? What and whose hand do you mean, left or right? How many hands are there? Another excellent example is "incredible". It is commonly used in conversation to mean "great" or "super" or "especially good" or "wonderful". But the written word actually means "not believable" or "not to be believed". If you are not "credible", you are not to be believed, so you are incredible!

- Always be CAREFUL about using the words "they", "it", "many", "some". Be sure to clearly link these words to the agents they represent, or better, avoid them when possible!

Examples of imprecision and how to fix them

IMPRECISE/VAGUE

CLEAR

"in depth"	"detailed"
"upon"	on
"as to"	about
"a lack of"	no, little, etc
"realize"	"understand"
"as opposed to"	rather than, instead of, in contrast to
"made up of"	composed of
"breaks down" or "broken down by"	"divides", "subdivides", "subdivided by"
"deal with"	"pertain to"
"pushed"	"supported"

### Other issues -

Beware of the "dangling" phrase! Example: "In order to obtain samples from Great Bay, a van was taken by the students". A less awkward and verbose way to express this is: "The students took a van to Great Bay to collect samples." [not an example from the writing exercises]. More about beginning and ending sentences with prepositions below. Another example: "Originally created as a model bill for California creationists, the Act made its way through fundamentalist channels and ended up in Arkansas, authored by Paul Ellwanger". Here, the AOA ("the Act") is in the middle of the sentence, and I don't think Paul Ellwanger authored Arkansas, but that is what the sentence says!!!

- Be careful with punctuation, especially commas. There were many examples of commas where they were not appropriate and no commas where they were required. Example: "In the experiment body size was manipulated" should be: "in the experiment, body size was manipulated" BUT this is passive voice and the sentence begins with "in" instead, use : \_\_\_\_ manipulated body size in the experiment". The University Writing Center can help you master punctuation. A good way to check on punctuation is to read the sentences aloud. You will notice natural breaks in sentence cadence. This often is a hint where commas should be.

- Do not mix singular and plural nouns and verbs in the same sentence. Example: "For extremist they do not need any scientific evidence..."

- The "I" word. Until recently, personal pronouns were considered to be "no-nos" in scientific writing. No more! It costs money to print journals, and editors encourage economy. If you did or thought or said, say "I did", "I said", "I thought", "I think", "I believe".

AVOID THE FOLLOWING:

"lastly" "and so on" "firstly", "secondly" "Because of this" "It is believed""last"

DO NOT USE

"first", "second" DO NOT begin a sentence this way Indicative of "passive voice disease"

### The personal touch

Does scientific or technical writing have to be (1) impersonal, (2) dry, (3) "objective" (whatever that is), (4) boring, (5) dull, (6) technical, (7) filled with specialized jargon? It certainly can be, but is not required. If you think so, why do Stephen Jay Gould, Edward O. Wilson and Stephen Hawking make so much money writing books? Easy. Lots of people buy these books. Why? Because they are interesting and personal. These (and other) authors put the personal in their writing, especially for a general audience. You should do

likewise when you write about scientific or technical topics. I guarantee that your writing will be far more interesting to read. This does not mean your writing should be imprecise or "colloquial" - but engage the reader! You'll be glad you did. And so will the reader!!