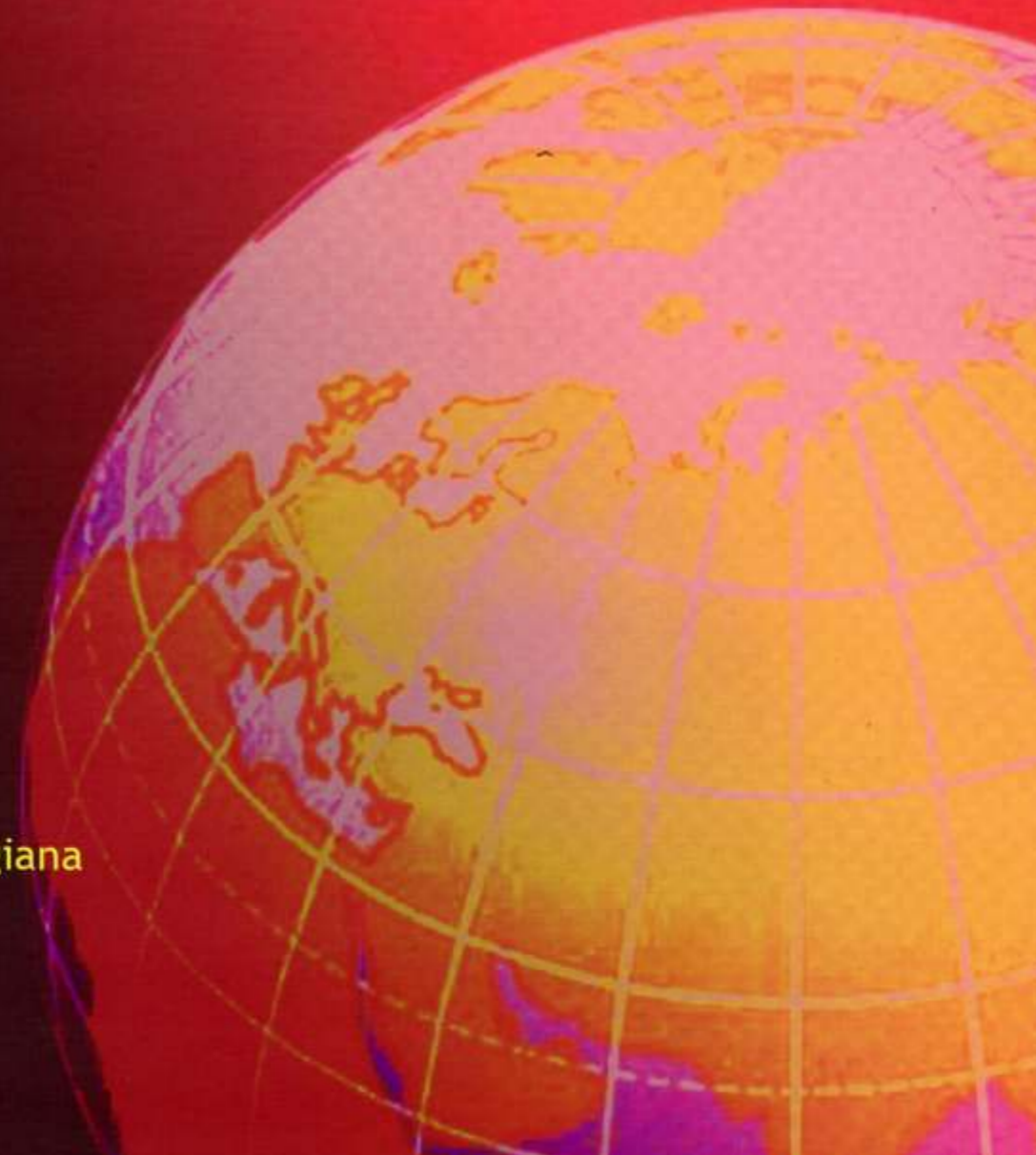**UNIVERSITAS BAKRIE**

Academic English

- Akhmad Nurjana
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- Rini Anggraini

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Preface

Academic English is a comprehensive introductory book designed for all disciplines.

The materials are based on current and general topics of interests and provide practice exercises for academic writing and presentations.

Readers are given detailed guidelines for creating clear, systematic, and legible writing. *Academic English* teaches the steps in the writing process and shows how to overcome problems involving the choice of diction and sentence formation.

The book also highlights reading techniques, including skimming and scanning, as well as it elucidates techniques used in academic presentation.

In addition, *Academic English* also provides directions and guidelines for writing conference papers and journal articles. The approach used is practical and easy to follow.

Welcome to the journey of scholSastic writing.

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CHAPTER 1

SENTENCES

A sentence is a group of words that you use to communicate your ideas. Every sentence is formed from one or more clauses and expresses a complete thought. The four basic kinds of sentences in English are simple, compound, complex, and compound-complex. The kind of sentence is determined by the kind of clauses used to form it.[21]

The Simple Sentence

The most basic type of sentence is the **simple sentence**, which contains only one clause. A simple sentence can be as short as one word:

Run!

Usually, however, the sentence has a <u>subject</u> as well as a <u>predicate</u>and both the subject and the predicate may have <u>modifiers</u>. All of the following are simple sentences, because each contains only one clause:

Melt!

Ice **melts**.

The ice **melts** quickly.

The ice on the river **melts** quickly under the warm March sun.

Lying exposed without its blanket of snow, the ice on the river**melts** quickly under the warm March sun.

As you can see, a simple sentence can be quite long -- it is a mistake to think that you can tell a simple sentence from a compound sentence or a complex sentence simply by its length.

The most natural sentence structure is the simple sentence: it is the first kind which children learn to speak, and it remains by far the most common sentence in the spoken language of people of all ages. In written work, simple sentences can be very effective for grabbing a reader's attention or for summing up an argument, but you have to use them with care: too many simple sentences can make your writing seem childish.

When you do use simple sentences, you should add transitional phrases to connect them to the surrounding sentences.[27]

The Compound Sentence

A **compound sentence** consists of two or more **independent clauses**(or simple sentences) joined by **coordinating conjunctions** like "and," "but," and "or":

Simple
> Canada is a rich country.

Simple
> Still, it has many poor people.

Compound
> Canada is a rich country, **but** still it has many poor people.

Compound sentences are very natural for English speakers -- small children learn to use them early on to connect their ideas and to avoid pausing (and allowing an adult to interrupt):

> Today at school Mr. Moore brought in his pet rabbit, and he showed it to the class, and I got to pet it, and Kate held it, and we colored pictures of it, and it ate part of my carrot at lunch, and ...

Of course, this is an extreme example, but if you over-use compound sentences in written work, your writing might seem immature.A compound sentence is most effective when you use it to create a sense of balance or contrast between two (or more) equally-important pieces of information:

> **Montréal has better clubs**, but **Toronto has better cinemas**.

Special Cases of Compound Sentences

There are two special types of compound sentences which you might want to note. First, rather than joining two simple sentences together, a coordinating conjunction sometimes joins two complex sentences, or one simple sentence and one complex sentence. In this case, the sentence is called a **compound-complex sentence**:

The Complex Sentence

A **complex sentence** contains one independent clause and at least one dependent clause. Unlike a compound sentence, however, a complex sentence contains clauses which are *not* equal. Consider the following examples:

Simple
> My friend invited me to a party. I do not want to go.

Compound
> My friend invited me to a party, but I do not want to go.

Complex
> Although my friend invited me to a party, I do not want to go.

In the first example, there are two separate simple sentences: "My friend invited me to a party" and "I do not want to go." The second example joins them together into a single sentence with the coordinating conjunction "but," but both parts could still stand as independent sentences -- they are entirely equal, and the reader cannot tell which is most important. In the third example, however, the sentence has changed quite a bit: the first clause, "Although my friend invited me to a party," has become incomplete, or a dependent clause.

A complex sentence is very different from a simple sentence or a compound sentence because it makes clear which ideas are most important. When you write

> My friend invited me to a party. I do not want to go.

or even

> My friend invited me to a party, but I do not want to go.

The reader will have trouble knowing which piece of information is most important to you. When you write the subordinating conjunction"although" at the beginning of the first clause, however, you make it clear that the fact that your friend invited you is less important than, or **subordinate**, to the fact that you do not want to go.

The Compound–Complex Sentence

A Compound-complex sentence has at least three clauses, at least two of which are independent. You can use almost any combination of dependent and independent clauses. Just be sure that there is at least one independent clause. In the following examples, independent clauses are underlined with a solid line and dependentclauses with a dotted line.

1. I wanted to travel after I graduated from college; however, I had to go to work immediately.
2. After I graduated from college,I wanted to travel, but I had to go to work immediately.
3. I wanted to travel after I graduated from college,but I had to go to work immediately because I had to support my family.
4. I could not decide where I should work or what I should do, so at first I did nothing.

Punctuate the compound part of a compound-complex sentence like a compoundsentence; that is, use a semicolon/comma combination (sentence 1), or put a commabefore a coordinator joining two independent clauses (sentences 2, 3, and 4). Punctuate the complex part like a complex sentence. With adverb clauses, put a comma after a dependent adverb clause (sentence 2) but not before it (sentence 3).With noun clauses (sentence 4), use no commas.[19]

The anatomy of a sentence

The Verb

The verb is the fundamental part of the sentence. The rest of the sentence, with the exception of the subject, depends very much on the verb. It is important to have a good knowledge of the forms used after each verb (verb patterns), for example: to tell [someone] TO DO [something]

Here we can see that the verb to tell is followed immediately by a person (the indirect object, explained later), an infinitive with 'to', and, possibly, an object for the verb you substitute for DO.

Verbs also show a state of being. Such verbs, called BE VERBS or LINKING VERBS, include words such as: **am, is, are, was, were, be, been, being, became, seem, appear, and sometimes verbs of the senses like tastes, feels, looks, hears, and smells.**

For example:

"Beer and wine are my favorite drinks." The verb "are" is a linking (be) verb.
Fortunately, there are only a limited number of different verb patterns. Verbs can describe the action (something the subject actually does) or state (something that is true of the subject) of the subject.

For example:

ACTION   : I play football twice a week.
STATE   : I've got a car.
Some verbs can represent both actions and states, depending on the context.

For example work:

ACTION   : Christine's working in the bank.
STATE   : Christine works in a bank.

Finding the Verb

When you analyze a sentence, first identify the verb. The verb names and asserts the action or state of the sentence.

For example:
"Working at the computer all day made David's head ache."
The main verb of the sentence is "made", not working.
Verbs identify our activity or state.

For example:
eat, sleep, run, jump, study, think, digest, shout, walk ....

The Subject

The subject is the person or thing the sentence is 'about'. Often (but not always) it will be the first part of the sentence. The subject will usually be a noun phrase (a noun and the words, such as adjectives, that modify it) followed by a verb.

Finding the Subject
Once you determine the verb, ask a wh...? question of the verb. This will locate the subject(s).

For example:
David works hard.
Who "works hard"? David does the subject.
Beer and wine are my favorite drinks.
What "are my favorite drinks"? Beer and wine are=the subjects.
The subject(s) of a sentence will answer the questions, "who or what."

The Predicate

Once you have identified the subject, the remainder of the sentence tells us what the subject does or did. This part of the sentence is the predicate of the sentence.

The predicate always includes the verb and the words which come after the verb. For example:
Michael Schumaker drove the race car.
"Michael Schumaker" is the subject; "drove the race car" is the predicate.

More Advanced Terminology

The Object
Some verbs have an object (always a noun or pronoun). The object is the person or thing affected by the action described in the verb.
Objects come in two types, direct and indirect.
The direct object refers to a person or thing affected by the action of the verb.

For example:
"He opened the door."-here the door is the direct object as it is the thing being affected by the verb to open.
The indirect object refers to a person or thing who receives the direct object.

For example:

"*I gave him the book.*" - here him (he) is the indirect object as he is the beneficiary of the action.

Transitive / Intransitive verbs

Verbs which don't have an object are called intransitive. Some verbs can only be intransitive (disagree). In addition they cannot be used in the Passive Voice e.g. smile, fall, come, go.

For example:
David disagreed. - intransitive.
Verbs that have an object are called transitive verbs e.g. eat, drive, give.

For example:
David gave her a present.
Some verbs can be transitive or intransitive e.g. sing

For example:
Akhmad sings. - intransitive.
Akhmad sings pop songs. - transitive.

Adverbials

An 'adverbial' or 'adverbial phrase' is a word or expression in the sentence that does the same job as an adverb; that is, it tells you something about how the action in the verb was done.

For example:
I sometimes have trouble with adverbs.
He spoke very quietly.
I've read that book three times.
She's gone to the bank.

The first tells us the frequency of the action (sometimes), the second how he carried out the action (quietly), and the third how many times the action has happened (three).

The fourth is a little different, as in this case the adverbial (gone to the bank) is more or less demanded by the verb (has).
To remember the form of such verbs use your notebooks to write down the different forms.

For example:
to go [somewhere]
to put [something][somewhere]

This information is also useful when deciding the order of adverbials in a sentence. Unlike the previous parts of the sentence, a sentence can contain an indefinite number of adverbials, although in practice it's a good idea to keep them few in number.

Complement

A complement is used with verbs like be, seem, look etc. Complements give more information about the subject or, in some structures, about the object.

There are various definitions of 'complement', which range from the very general (anything in the predicate except the verb, including the direct object and adverbs) to the much more restrictive one used here.

A complement is the part of the sentence that gives you more information about the subject (a subject complement) or the object (an object complement) of the sentence.
The complement to be used, if any, is dependent on the verb used in the sentence. Subject complements normally follow certain verbs.

For example:
He is Spanish.
She became an engineer.
That man looks like John.

Object complements follow the direct object of the verb-
For example:
They painted the house red.
She called him an idiot!
I saw her standing there.

The complement often consists of an adjective or noun phrase, but can also be a participle phrase, as in the last example. It is often not very clear whether a phrase is a complement or an adverbial.[19]

Exercises 1: Sentences
Identify the following sentences as simple, compound, complex or compound-complex.

1. Insurance cannot cover everything, but it does cover the big expenses accrued while giving birth.
2. Monarch butterflies, which migrate to Mexico each year, are guided by instinct.
3. Geese mate for life unlike humans who, according to the divorce rate, seem to have trouble committing to just one person.
4. The finals are on Saturday, but we'll have to compete without Paul, who will be in court all day arguing an important case.
5. Scientists are working on a cure for the common cold and, when they find one, think how remarkably it will change the profits of the Kleenex and drug industries.
6. The training rooms of these college athletes smell of grease and gasoline.
7. Their practice field is a stretch of asphalt, and their heroes make a living driving cars.
8. Their tools are screwdrivers and spanners rather than basketballs and footballs.
9. This new brand of college athlete is involved in the sport of auto racing.
10. Most of the students are engineering majors, and they devote every minute of their spare time to their sport.
11. Although the sport is new, it has already attracted six collegiate teams in the Southeast.
12. The students work on special cars designed for their sport.
13. The cars are called Legends cars, models of Fords and Chevys from 1932 to 1934, and they are refitted by the students with 1200 cc motorcycle engines.
14. Although their usual speed ranges from 50 to 90 miles an hour, Legends cars can move up to 100 miles an hour on a straightaway.
15. The Saturday morning races of the competing teams have attracted as many as 3,500 fans, but the students concede they are no threat to the nation's fastest growing sport of stock car racing.

Exercise 2: Dependent and Independent clause
Each sentence contains a clause in CAPITAL letters. Decide whether this clause is dependent or independent.

1. If you don't fix the car, IT WILL CONTINUE TO LEAK OIL.
2. WHILE THE CAR IS BEING FIXED, we will need to take the bus.
3. It isn't necessary to cram all night IF YOU HAVE STUDIED A LITTLE EACH DAY.
4. Before you begin studying for the exam, YOU WILL PROBABLY WANT TO REST.
5. I can't go to the movies SINCE I DON'T HAVE ANY MONEY.
6. WHETHER HE ATTENDS THE PARTY OR NOT, I have decided to go.
7. I WILL STOP PLAYING THE DRUMS when you go to sleep.
8. SINCE YOU'VE TAKEN YOUR EXAM IN BIOLOGY, you probably don't feel like studying for tomorrow's exam in math.
9. Until he apologizes to me for his rude behavior, I REFUSE TO SEE HIM.
10. I wore my boots BECAUSE IT LOOKED LIKE IT MIGHT SNOW.

Exercise 3: Adjective or Adverb Exercise

In the following sentences, cross out the incorrect words and write in the correct form in the blanks. If the sentence is correct as it is, write "correct" in the blank.

1. Terrence plays quarterback as well as Brian._____
2. The game hadn't hardly begun before it started to rain._____
3. This was sure a mild winter._____
4. Jane behaves more pleasant than Joan._____
5. When you are a parent, you will think different about children._____
6. I felt badly about not having done good on my final exams._____
7. Whether you win is not near as important as how you play._____
8. Asian music often sounds oddly to Western listeners._____
9. Does your car run well enough to enter the race?_____
10. I felt safely enough to go out at night on my own._____
11. You can see the distant mountains clear with these binoculars._____
12. Our team was real sharp last Saturday afternoon during the game._____ (24)

CHAPTER 2

PROBLEMS WITH SENTENCES

Once you understand how to select a topic, create an introduction, body, and conclusion for your paper, develop a strong thesis statement, work with an outline, provide transitions between your ideas, and write research papers, you are ready to address some more specific issues in regard to your writing. Sentence fragments, run-on sentences and comma splices, the passive voice, lack of subject-verb agreement, shifts in pronoun usage and tense, and lack of parallelism are all writing problems that need to be understood so that you can avoid them in your own writing.

Sentence fragments

A sentence fragment is a group of words that is incorrectly punctuated as a completesentence.

For example, "Because it was important to me." would be a sentence fragment. "Because it was important to me." is called a dependent clause - it is "dependent" on more information in order to be a complete thought. However, "I studied for the test for hours, because it was important to me." would be a complete sentence. The dependent clause has been hooked on to an independent clause (a group of words that can stand alone as a complete sentence) in order to make a complete thought.

Another type of sentence fragment is a phrase, which consists of a subject (who or what the sentence is about) without a predicate (a verb that shows tense and includes what the verb accomplishes, a word or group of words that describes or renames what the verb accomplishes, or a word modifying the verb in some way). A phrase can also consist of a predicate without a subject. For example, "To understand her point." would be a phrase, because it lacks a subject. However, "I tried very hard to understand her point." would be a complete sentence, because it includes both the subject (I) and the predicate (tried very hard to understand).[27]

An easy way to think about sentence fragments is to do the following: Try imagining yourself saying the sentence to a complete stranger who just walked into the room. If the stranger would be confused by the sentence you wrote, and would need more information to understand your point, you probably have a sentence fragment.

There are several easy ways to fix sentence fragments. The first is to connect your sentence fragment to the preceding complete sentence with a comma, if the meaning that is then created is what you are looking for.

Incorrect:

I studied for the test for hours. Because it was important to me.

Correct:

I studied for the test for hours, because it was important to me.

Another way to fix a sentence fragment is to add more information to the fragment to make it a complete thought.

Incorrect:

Because it was important to me.

Correct:

Because it was important to me, I studied for the test for hours.

A third way to fix sentence fragments is to add a predicate or a subject, if either one is missing.

Incorrect (missing a predicate):

Snow on the road.

Correct:

Snow was drifting on the road.

Incorrect (missing a subject):

Wanted to get to class on time.

Correct:

The students wanted to get to class on time.

Run-on sentences and comma splices

A run-on sentence combines two complete sentences (or independent clauses) without any punctuation. If two independent clauses are connected by a comma, then a comma splice has occurred. There are several ways to correct run-on sentences and comma splices:

Run-on sentence:

I felt awful about hitting this man today he didn't even seem to notice.

Comma splice:

I felt awful about hitting this man today, he didn't even seem to notice.

How to fix comma splices and run-on sentences:

Use a comma and a coordinating conjunction (and, but, or, nor, for, so, yet, either...or, neither...nor, both...and, not only...but also).

Ex: *I felt awful about hitting this man today, but he didn't even seem to notice.*

Use a semicolon.
Ex: *I felt awful about hitting this man today; he didn't even seem to notice.*

Make the clauses into separate sentences.
Ex: *I felt awful about hitting this man today. He didn't even seem to notice.*

Restructure the sentence, perhaps by subordinating one of the clauses.
Ex: *Even though he didn't seem to notice, I felt awful about hitting this man today.*

Passive voice

The passive voice occurs when the sentence explains what is done to the subject, instead of what the subject did. Using the passive voice de-emphasizes the actor in a sentence and usually makes the sentence vague. Therefore, try to use the active voice instead as much as possible.
Ex: Weak passive:
The exam was thought by us to be unfair because we were tested on material that was not covered in the course.
Strong active:
We thought the exam unfair because it tested us on material the course did not cover.

Ex: Weak passive:
The paper was written by a freshman.
Strong active:
A freshman wrote the paper.
All of these nouns act instead of someone/something acting upon them.
The passive voice is normally used only when the writer wants to emphasize the receiver of the action or doesn't know the identity of the subject, or when the subject doesn't provide important information.

Shifts in pronoun usage

When you are writing a paper, be consistent in your use of pronouns, and be sure to use the appropriate pronoun to match your noun.

Incorrect:
A person should be careful so that he or she doesn't fall behind in their classes.
Correct:
People should be careful so that they don't fall behind in their classes.
"A person" is a singular noun and "their" is a plural pronoun, so the writer needs to use the plural noun "people" with the plural pronoun "their".

Incorrect:
One often doesn't know what will happen to them next.
Correct:
One often doesn't know what will happen to one next.

Don't switch from "one" to "them;" if you begin by using one kind of pronoun, you must be consistent with the use of that pronoun to represent the noun in the rest of your sentence.

Subject-verb agreement

Within your sentences your subject (who or what the sentence is about) must agree with your verb (the action word in the sentence).
Example:

Incorrect:
The pattern of the stars in the Milky Way are analyzed by scientists around the world.
Correct:
The pattern of the stars in the Milky Way is analyzed by scientists around the world.
"The pattern" represents one subject, so the verb needs to be singular (is), not plural (are).

Shifts in tense

When you are writing a paper, use either the past tense or the present tense, but use whichever tense you choose consistently. Shift tenses only to signal a time before or after the tense you have chosen to use.
Example of shifting tense to signal a time change:
I felt silly for not understanding the plot of the novel, but I feel better after talking to some other students in the class about it. I feel badly for not doing the reading assignment, but I was sick all last week.

When you are referring to a work of fiction, a poem, a play, or a film, use the present tense consistently, even though the work was written in the past, and even if the author is no longer alive. When you write your own narrative, use the past tense to describe actions that already happened.

Lack of parallelism

Parallelism is just a fancy way of saying that each part of your sentence needs to match the other parts when you are listing items or actions, or when you are comparing or clarifying relationships between ideas. For example:

Incorrect:
I went to the store, bus stop, and to the train station. I like to walk, swimming, and read novels.
Correct:
I went to the store, to the bus stop, and to the train station. I went to the store, bus stop, and train station. I like to walk, swim, and read novels. I like to walk, to swim, and to read novels. I like walking, swimming, and reading novels.

Incorrect:
Many students try to take classes that interest them making their semester more enjoyable.
Correct:
Many students try to take classes that interest them to make their semester more enjoyable. [27]

Exercise 1: Sentence Fragments Exercise

The sentences below appeared in papers written by students. Act as their editor, marking a C if the sentences in the group are all complete and an F if any of the sentences in the group is a fragment. Could you tell these writers why the fragments are incomplete sentences?

____ 1. Then I attended Morris Junior High. A junior high that was a bad experience.

____ 2. The scene was filled with beauty. Such as the sun sending its brilliant rays to the earth and the leaves of various shades of red, yellow, and brown moving slowly in the wind.

____ 3. He talked for fifty minutes without taking his eyes off his notes. Like other teachers in that department, he did not encourage students' questions.

____ 4. Within each group, a wide range of features to choose from. It was difficult to distinguish between them.

____ 5. A few of the less serious fellows would go into a bar for a steak dinner and a few glasses of beer. After this meal, they were ready for anything.

____ 6. It can be really embarrassing to be so emotional. Especially when you are on your first date, you feel that you should be in control.

____ 7. The magazine has a reputation for a sophisticated, prestigious, and elite group of readers. Although that is a value judgment and in circumstances not a true premise.

____ 8. In the seventh grade every young boy goes out for football. To prove to himself and his parents that he is a man.

____ 9. She opened the door and let us into her home. Not realizing at the time that we would never enter that door in her home again.

____ 10. As Christmas grows near, I find myself looking back into my childhood days at fun-filled times of snowball fights. To think about this makes me happy.

____ 11. Making up his mind quickly. Jim ordered two dozen red roses for his wife. Hoping she would accept his apology.

____ 12. They were all having a good time. Until one of Joe's oldest and best friends had a little too much to drink.

____ 13. Although it only attained a speed of about twelve miles an hour. My old rowboat with its three-horsepower motor seemed like a high-speed job to me.

____ 14. With my brother standing by my side, I reached for the pot handle. Tilting the pot way too much caused the boiling water to spill.

____ 15. The small, one-story houses are all the same size and style. With no difference except the color.

Exercise 2: Run-ons, Comma Splices, and Fused Sentences

Join the two independent clauses with one of the coordinating conjunctions (and, but, for, or, nor, so, yet), and use a comma before the connecting word.

_____, and _____.

1. He enjoys walking through the country. He often goes backpacking on his vacations.

When you do not have a connecting word (or when you use a connecting word other than and, but, for, or nor, so, or yet between the two independent clauses) use a semicolon (;).

_____; _____.

2. He often watched TV when there were only reruns. She preferred to read instead.

or

_____; however, _____.

So, run-ons and fused sentences are terms describing two independent clauses that are joined together with no connecting word or punctuation to separate the clauses.

3. They weren't dangerous criminals they were detectives in disguise.

4. I didn't know which job I wanted I was too confused to decide.

Exercise 3: Tense Consistency
Recognizing Shifts in Sentences

Check the following sentences for confusing shifts in tense. If the tense of each underlined verb expresses the time relationship accurately, write S (satisfactory). If a shift in tense is not appropriate, write U (unsatisfactory) and make necessary changes. In most cases with an inappropriate shift, there is more than one way to correct the inconsistency. Reading the sentences aloud will help you recognize differences in time.

____ 1. If the club limited its membership, it will have to raise its dues.

____ 2. While Barbara puts in her contact lenses, the telephone rang.

____ 3. Thousands of people will see the art exhibit by the time it closes.

____ 4. By the time negotiations began, many pessimists have expressed doubt about them.

____ 5. After Capt. James Cook visited Alaska on his third voyage, he is killed by Hawaiian islanders in 1779.

_____ 6. I <u>was</u> terribly disappointed with my grade because I <u>studied</u> very hard.

_____ 7. The moderator <u>asks</u> for questions as soon as the speaker <u>has finished</u>.

_____ 8. Everyone <u>hopes</u> the plan <u>would work</u>.

_____ 9. Harry <u>wants</u> to show his friends the photos he <u>took</u> last summer.

_____ 10. Scientists <u>predict</u> that the sun <u>will die</u> in the distant future.

_____ 11. The boy <u>insisted</u> that he <u>has paid</u> for the candy bars.

_____ 12. The doctor <u>suggested</u> bed rest for the patient, who <u>suffers</u> from a bad cold.[24]

CHAPTER 3

FORMATION OF WORDS

The **Formation of Words** has few rules which determine the nature of the words formed. Words can be classified into four types as follows:

1. Primary Words.

2. Compound Words

3. Primary Derivatives

4. Secondary Derivatives

1. Primary Words:

Words which are not derived or compounded or developed from other words are called Primary Words.

They belong to the original stocks of the words.

Examples:

Most of the words in English language are only Primary Words. *Moon, sun, day, night, month, school, boy, girl, road, write, go sit, walk, net, dash, dot, book, pin, he, she, it etc...*

A Primary Word may be of the type of noun, verb, adjective, pronoun, adverb etc...

2. Compound Words:

The Compound Words are formed by joining two or more Primary Words.

Examples:
Moonlight, undertake, nevertheless, man-of-war, misunderstanding etc...

This way the Compound Words are formed.
A Compound Word may be a noun, verb, adjective, pronoun, adverb, conjunction, preposition etc...

An addition to the beginning of a word is a **Prefix**.
An addition to the end of word is a **Suffix**.

Compound Words are the most part Nouns, Adjectives and Verbs. Now let us see how the Compound Words of Nouns, Adjectives and Verbs are formed.[26][27]

Compound Words-Nouns:

Compound Words-Nouns may be formed:

1. **Noun + Noun:**
   Examples:
   - Moonlight
   - Armchair
   - Postman
   - Railway
   - Shoemaker
   - Windmill
   - Teaspoon
   - Haystack
   - Ringleader
   - Jailbird
   - Horse-power
   - Screwdriver
   - Tax-payer
   - Airman
   - Manservant
   - Fire-escape
   - Chess-board

2. **Adjective + Noun:**
   Examples:

   - Sweetheart
   - Nobleman
   - Shorthand
   - Blackboard
   - Quicksilver
   - Stronghold
   - Halfpenny

3. **Verb + Noun:**
   Examples:
   - Spendthrift
   - Makeshift
   - Breakfast
   - Telltale
   - Pick-packet
   - Cut-throat
   - Daredevil
   - Hangman
   - Scarecrow

4. **Gerund + Noun:**
   Examples:
   - Drawing-room
   - Writing-desk
   - Looking-glass
   - Walking-stick
   - Blotting-paper
   - Stepping-stone
   - Spelling-book

5. **Adverb (or Preposition)+ Noun:**
   Examples:
   - Outlaw
   - Afternoon
   - Forethought
   - Oresight
   - Overcoat
   - Downfall
   - Afternoon
   - Bypass
   - Inmate
   - Inside

6. **Verb + Adverb:**
   Examples:
   - Drawback
   - Lock-up
   - Go-between
   - Die-hard
   - Send-off

7. **Adverb + Verb:**
   Examples:
   - Outset
   - Upkeep
   - Outcry
   - Income
   - Outcome

Compound Words-Adjectives:

1. **Noun + Adjectives (or Participle):**
   Examples:
   - Blood-red
   - Sky-blue
   - Snow-white
   - Pitch-dark
   - Breast-high
   - Skin-deep
   - Lifelong
   - World-wide
   - Headstrong
   - Homesick
   - Stone-blind
   - Seasick
   - Love-lorn
   - Hand-made
   - Bed-ridden
   - Heart-broken
   - Moth-eaten
   - Note-worthy

2. **Adjective + Adjective:**
   Examples:
   - Red-hot
   - Blue-black
   - White-hot
   - Dull-grey
   - Lukewarm

3. **Adverb + Participle:**
   Examples:
   - Longsuffering
   - Everlasting
   - Never-ending
   - Thorough-bred
   - Well-deserved
   - Outspoken
   - Down-hearted
   - Inborn
   - Far-seen

4. **Noun + Verb:**
   Examples:
   - Waylay
   - Backbite
   - Typewrite
   - Browbeat
   - Earmark

5. **Adjective + Verb:**
   Examples:
   - Safeguard
   - Whitewash
   - Fulfill

6. **Adverb + Verb:**
   Examples:
   - Overthrow
   - Overtake
   - Foretell
   - Undertake
   - Undergo
   - Overhear
   - Overdo
   - Outbid
   - Outdo
   - Upset

NOTE:

In most Compound Words, it is the first word which modifies the meaning of the second word. The accent is placed upon the modifying word when the amalgamation is complete. When the two elements are only partially blended, a hyphen is put between the two words and the accent fall equally on both of them.

3. Primary Derivatives:

These words are formed by making some changes in the body of the Primary Words.

- Bond from bind
- Breach from break
- Wrong from wring

1. Formation of Nouns from Verbs:
Examples:

- Choice from choose
- Watch from wake
- Bliss from bless
- Seat from sit
- Chip from chop
- Grief from grieve
- Breach from break
- Dike from dig
- Fleet from float

2. Formation of Nouns from Ac
Examples:

- Heat from hot
- Pride from proud

3. Formation of Adjectives from Verbs:
Examples:

- Fleet from float
- Low from lie

4. Formation of Adjectives from Nouns:
Examples:

- Wise from wit

5. Formation of Verbs from Nouns:
Examples:

- Bathe from bath
- Breed from brood
- Bleed from blood
- Clothe from cloth
- Believe from belief
- Drip from drop
- Breathe from breath
- Feed from food

6. Formation of Adjectives from Verbs:
Examples:

- Cool from chill

7. Formation of Nouns from Verbs:
Examples:

- Gold from gild
- Grass from graze
- Half from halve
- Knot from knit
- Sale from sell

4. Secondary Derivatives:

Secondary derivatives of a word are formed by adding either a prefix or a suffix to the word.
An addition to the beginning of a word is a **Prefix**.
An addition to the end of word is a **Suffix**.

Examples:

- Income is a secondary derivative of the word 'come'.
- Here the addition 'in' is a prefix.

- Undergo is a secondary derivative of the word 'go'.
- Here the addition 'under' is a prefix.

- Friendship is a secondary derivative of the word 'friend'.
- Here the addition 'ship' is a suffix.

- Darkness is a secondary derivative of the word 'dark'.
- Here the addition 'ness' is a suffix.

PREFIXES

Whatare prefixes?

Consider this sentence.

• *He is understood by all of us.*

In this sentence, it has been stated that he is properly understood by us.

Consider the following sentence.

• *He is misunderstood by all of us.*

In this sentence, it has been stated that he is not properly understood by us.

That means that he is misunderstood.

The addition 'mis' has been added to the word 'understood' and thus a new word 'misunderstood' has been created.

The addition 'mis' is called a prefix.

Such an addition when added to the beginning of a word is called **PREFIX**.

Such an addition, when added to the end of a word, is called **SUFFIX**.

The origins of **Prefixes** which are used in English are Latin, Greek andEnglish languages.

ENGLISH PREFIXES

Let us see the prefixes of English origin.

Here for your reference, the prefixes are listed below with examples for every prefix.

A- on, in

abed, aboard, ashore, ajar, asleep

A-out, from

Arise, awake, alight

Be- by (sometimes intensive)

Beside, betimes, besmear, bedaub

For- thoroughly

Forbear, forgive

Gain- against

Gainsay

In-in

Income, inland, inlay

Mis- wrong, wrongly

Misdeed, misunderstanding, mislead, misjudge

Over- above, beyond

Overflow, overcharge

To- this

To-day, to-night, to-morrow

Un-not

Untrue, unkind, unholy

Un-to reverse an action

Untie, undo, unfold

Under-beneath, below

Undersell, undercharge, undergo, underground

With-back, against

Withdraw, withhold, withstand

LATIN PREFIXES

Ab (a, abs)-From, away

Abuse, assign, attach, abstract

Ad (ac, af, al, an, ap, ag, as, ar, at, a)-to

Adjoin, accord, affect, aggressive, allege, announce, appoint, arrest, assign, attach, avail

Ambi (amb, am) - on both sides, around

Ambiguous, amputate, ambition, amphitheatre etc...

Ante (anti, an)-before

Antedate, anticipate, ancestor

Bene-well

Benediction, benefit

Bis (bi, bin)-twice, two

Binoculars, biscuit, bisect

Circum (circu) - around

Circumnavigate, circumference, circuit

Con (col, com, cor) – with, together

Contend, collect, combine, correct

Contra (counter) – against

Contradict, counteract, counterfeit

De-down

Descend, dethrone, depose etc...

Dis (dif, di) –

Disjoin, differ, divide etc...

Demi-half

Demigod

Ex (ef, e) - out of

Extract, effect

Extra-beyond, outside of

Extraordinary, extravagant

In (il, im, ir, en, em) –in, into

Invade, illustrate, immerse, irrigate, enact, embrace

In (il, im, ir) –not

Insecure, illegal, imprudent, irregular etc...

Inter (Intro, enter) – among, within

Intervene, introduce, entertain etc...

Male (mal) –ill

Malevolent, malcontent

Non-not

Nonsense

Ob (oc) –in the way of

Object, occupy etc

Of – against

Offend

Pen – almost

Penultimate, peninsula etc...

Per (pel) – through

Pervade, pellucid

Post – after

Postscript, postdate, postpone

Pre – before

Prefix, prevent, predict

Preter –beyond

Preternatural

Pro (por, pur) –for

Pronoun, portray, pursue

Re – back, again

Reclaim, refund, renew, return

Retro –backwards

Retrospect, retrograde

Se (sed) – apart

Secede, separate, seduce, sedition

Semi – half

Semicircle, semicolon

Sine – without

Sinecure

Sub (suc, suf, sug, sum, sup, sur, sus) – under

Subdue, succeed, suffer, suggest, summon, support, surmount, sustain

Subter – beneath

Subterfuge

Super –above

Superfine, superfluous

Trans (tra, tres) –across

Transmit, traverse, trespass etc...

Vice – in the place of

Viceroy, vice-president

GREEK PREFIXES

A (an) – without
Atheist, apathy, anarchy
Amphi – around, on both sides
Amphitheatre, amphibious
Ana – up, back
Analysis, anachronism
Anti (ant) – against
Antipathy, apology
Apo(ap) – from
Apostate, apology
Arch (archu) – chief
Arch-bishop, arch angel, architect
Auto – self
Autobiography, autograph
Cata – down
Cataract, catastrophe, catalogue
Di – twice
Dilemma
Dia – through
Diameter, diagonal
Dys –badly
Dysentery, dyspepsia
En (em) – in
Encyclopedia, emblem
Epi – upon
Epilogue, epitaph
Eu – well
Eulogy, euphony, eugenics
Ex (ec) – out of
Exodus, eccentric
Hemi – half,
Hemisphere
Homo (hom) – like
Homogeneous, homonym
Hyper – over, beyond
Hyperbole, hypercritical
Hypo – under
Hypocrite, hypothesis
Meta (met) – implying change
Metaphor, metonymy

Mono – alone, single
Monopoly, monophony, monoplane
Pan – all
Panacea, panorama, pantheism
Para – beside, by the side of,
Parallel, paradox, parasite
Peri – round
Period, perimeter, periscope
Philo (phil)– love
Philosophy, philanthropy
Pro – before
Prophesy, programme
Syn (sym, syl, sy) – with, together
Synonym, sympathy, syllable, system

SUFFIXES

What are **Suffixes**?
Consider this sentence.
My friend has given me a book as a gift for my birthday.
In this sentence, the word 'friend' has been used as a noun to denote a person.

Consider this sentence:

My friendship with Clinton is growing like a banyan tree.
Here, the word 'friendship' has been used to mention the relationship between Clinton and me.

But the word friendship is a derivative of the word 'friend'. Such a derivative is created by adding 'ship' at the end of the word.
The 'ship' is called Suffix.
The addition, which is added at the end of the word, is called 'Suffix'.

Examples:
Man and manhood
Here, 'hood' is a suffix.
Free and freedom
Here, 'dom' is a suffix.
The origin of Suffixes is the languages of Latin, Greek and English itself.
   The Suffixes can be categorized as follows:
1. Suffixes of Nouns of English origin
2. Suffixes of Adjectives of English origin
3. Suffixes of Verbs of English origin
4. Suffixes of Adverbs of English origin
5. Suffixes of Nouns of Latin origin
6. Suffixes of Adjectives of Latin origin
7. Suffixes of Verbs of Latin origin
8. Suffixes of Greek origin

1. **Suffixes of Nouns of English origin:**
a. **Denoting the doer:**

   er –Painter, baker
   ar – beggar
   or – sailor
   yer - lawyer
   ster– spinster, punster, songster
   er – daughter, sister
   ther – father, mother, brother,

b. Denoting state, action, condition, being, etc...

dom – freedom, martyrdom, wisdom
hood – manhood, childhood,
head - godhead
lock – wedlock,
ledge - knowledge
ness – darkness, boldness, goodness, sweetness
red – hatred, kindred
ship – friendship, hardship, lordship
th – health, stealth, growth

c. Denoting diminutives:

el – satchel, kernel,
le - girdle, handle
en – maiden, kitten, chicken
ie – dearie, birdie, lassie
kin – lambkin, napkin
tet – leaflet
ling – ducking, darling, stripling, weakling
ock – hillock, bullock

2. Suffixes of Adjectives of English origin:

ed – having
examples: Gifted, talented, wretched, learn
en – made of
examples: Wooden, golden, woolen, earthen
ful – full of
examples: Hopeful, fruitful, joyful
ish – somewhat like
examples: Boorish, reddish, girlish
less – free from
examples: Fearless, shameless, hopeless, senseless, boundless
ly – like
examples: Manly, godly, sprightly
some – with the quality of
examples: Wholesome, meddlesome, gladsome, quarrelsome
y – with the quality of
examples: Wealthy, healthy, windy, slimy, greedy, needy, thirsty, dirty

3. Suffixes of Verbs of English origin:

en – causative, forming transitive verbs
examples: Weaken, sweeten, gladden, deaden, strengthen etc...
se – to make
examples: Rinse, cleanse
er – intensive
examples: Chatter, glitter, glimmer, fritter, flutter

4. Suffixes of Adverbs of English origin:

ly – like
examples: Boldly, wisely
long – towards
examples: Headlong, sidelong
ward – turning to
examples: Homeward, backward, upwards
way – to wards
examples: Straight a way, anyway, always
wise – manner
examples: Likewise, otherwise

5. Suffixes of Nouns of Latin origin:
a. Denoting chiefly the agents or doer of a thing

ain – chieftain	ate – advocate
an –artisan	ee – trustee
en – citizen	ey – attorney
on – surgeon	y – Deputy
ar – scholar	or –emperor
er – preacher	our –saviour
eer – engineer	eur –Amateur
ier – financier	er – interpreter
ary – missionary	

b. Denoting state, action or the result of an action

age – bondage, marriage, breakage, leakage
ance – abundance, brilliance, assistance, excellence, innocence
cy – fancy, accuracy, lunacy, bankruptcy
ion – action, option, union
ice – service, cowardice
ise – exercise
ment – improvement, judgment, punishment

mony – parsimony, matrimony, testimony
tude – attitude, altitude, magnitude, servitude, fortitude
ty – cruelty, frailty, credulity
ure – pleasure, forfeiture, verdure
y – Misery, victory

c. Denoting Diminutives:

cule (ule, cel, sel, el, le) – animalcule, globule, parcel, damsel, chapel, circle
et – owlet, lancet, trumpet
ette – cigarette, coquette

d. Denoting places:

ary (ery, ry) – dispensary, library, nunnery, treasury
ter (tre) – cloister, theatre

6. Suffixes of Adjectives of Latin origin

al – national, regal, mortal, fatal
an –human
ane- humane, mundane
ar – regular, familiar
ary – customary, contrary, necessary,
ordinary, honorary
ate – fortunate, temperate, obstinate
ble – feeble, Laughable
able- Laughable
ible – sensible
esque – picturesque, grotesque

id – humid, vivid, lucid
ile – servile, fragile, juvenile
ine – feminine, canine, feline, divine
ive – active, attentive, sportive
lent – corpulent, indolent, turbulent,
virulent
ose – verbose,
ous – dangerous, onerous, copious

7. Suffixes of Verbs of Latin origin

ate – assassinate, captivate, exterminate
esce – acquiesce, effervesce
fy – simplify, purify, fortify, sanctify, terrify
ish – publish, nourish, punish, banish

8. Suffixes of Greek origin :

ic – angelic, cynic, phonemic, phonetic,
ique – unique
ist – artist, chemist
isk – asterisk, obelisk

ize – civilize, sympathize, criticize etc...
sis – crisis, analysis, heresy, poesy
sy - heresy, poesy
e – Catastrophe

ism – patriotism, despotism, enthusiasm   y – Monarchy, philosophy
asm - enthusiasm

There are few more Suffixes of French origin:

ee – This suffix is added to nouns to denote the person who takes a passive share in an action.

examples :Employee, payee, legatee, trustee, referee

or, ar, er, eer, ier – denoting a person who performs a certain act or function

examples: Emperor, scholar, officer, engineer, gondolier

ist – denoting a person who follows a certain trade or pursuit

examples: Chemist, theosophist, artist, nihilist

ism – forming abstract noun

example: Patriotism

ize or ise – forming verbs from nouns and adjectives

examples: Crystallize, moralize, baptize[26][27]

Exercise 1

Fill in the blanks with appropriate words derived from the ones given in brackets.

1. We have known each other since our .... (child)

2. His hard work .... him to pass his examination. (able)

3. The manager asked the board members to .... his earlier proposal. (consider)

4. Only a fool will .... his net worth. (estimate)

5. He is a stupid and often talks .... (sense)

6. The Government of China has .... its currency. (value)

7. Parents should not .... their children's mistakes. (look)

8. He was absent because he was .... (well)

9. The judgment .... in our favor. (go)

10. The judge ordered that the accused be .... (behead)

11. The minister wants to .... the capital. (beauty)

12. Only monosyllabic words were .... by her. (utter)

Exercises 2

PREFIXES and SUFFIXES create new words, usually by modifying or changing the meaning of a ROOT WORD. If we take a root word like EMPLOY (verb) or HAPPY (adjective), we can see how their meaning changes.

*UN + employ + ED = UNEMPLOYED (the verb becomes an adjective with a negative meaning)

* happy + NESS = HAPPINESS (the adjective becomes a noun)

Pay attention to changes in SPELLING: – "y" often becomes "i" / final "e" often disappears (...)

1. PREFIXES like DIS/IN/IM/IR/UN/IL/MIS are used to give an opposite/negative meaning to a word.

Task: Find the opposites of the words on the right and write them down.

POSSIBLE
LOYAL
HONEST
REGULAR
LEGAL
COMPLETE

REPLACEABLE
EFFECTIVE
POPULAR
FORTUNE
DIFFERENT
KIND

2. SUFFIXES can be used to form a verb, a noun, an adjective and an adverb.

Example:
*dark (adjective) + ness = darkness (noun)
*strength (noun) + en = strengthen (verb)
*probable (adjective) + (l)y = probably (adverb)
*glory (noun) + ous = glorious (adjective)

Task: Link the verbs with their correct suffix to form NOUNS and write them down. Follow the example and be careful with the spelling.

a)	IMAGINE	1. -ance	g	ASSISTANCE
b)	WEAK	2. -ity	___	_____
c)	TEACH	3. -ation	___	_____
d)	INFECT	4. -sion	___	_____
e)	DECIDE	5. -ence	___	_____
f)	ARGUE	6. -er	___	_____
g)	ASSIST	7. -al	___	_____
h)	SECURE	8. -ance	___	_____
i)	REFUSE	9. -ment	___	_____
j)	OCCUR	10. - ion	___	_____
k)	RESIST	11. -ness	___	_____

3. PREFIXES and SUFFIXES

Task: Add a PREFIX and/or SUFFIX to the words below and put them in the correct sentence. In brackets you'll find some information on the parts of speech to use.

PROBABLE COMMUNICATE AGREE CURIOUS ANGER HEALTH RESPONSIBLE FAME HELP LIKE CAREFUL CONCLUDE

a) The lights are green, but nobody is moving. He is so .... (adjective)

b) Don't you know that saying "......... killed the cat?" (noun)

c) I think you should drive more .... You're scaring me. (adverb)

d) She is a very............TV star. (adjective)

e) They have different opinions on the subject. Their .... will last forever. (noun with a negative meaning)

f) Brian is always late for work. He is so .... (adjective with a negative meaning)

g) This Math problem is very difficult. Mary didn't come to any .... (noun)

h) He can't see the banana peel. He will .... slip and fall. (adverb)

i) You shouldn't eat so much junk food. It's very .... (adjective with a negative meaning)

j) Thanks for finding my cat. You're a very .... young man. (adjective)

k) My parents are always fighting. There is no .... between them anymore. (noun)

l) I really ....my packed lunch. It doesn't smell so nice. (verb with a negative meaning) [25]

CHAPTER 4
PROBLEMS WITH WRITING

C.o.S.

Commonly Misused world

We often depend on spell check to make sure that they do not have any spelling errors in their papers. However, spell check does not catch everything, most notably words that are spelled correctly but do not mean what you want them to mean. The following is a list of words that are commonly misused in our writing:[27]

affect--to have an influence on

(My studying is really affected by all the noise in the dorms.)

effect--result

(What was the effect of studying with a partner for that last test?)

there--opposite of here (standing over there)

or an expletive (There are too many mice.)

their--possessive of they (their house)

they're--contraction of "they are"

(They're gone for the weekend.)

except--to leave out or take out

(I wanted all of the classes I got except English.)

accept--to receive willingly

(I would accept an offer from that company.)

then--time organization (one thing happened, then another)

than--difference in amount (He is more popular than she is.)

two--number (one, two, three)

to--preposition (to the store)

too--also (I wanted to go, too.) or degree

(He ate too much.)

who--if question is about a subject (about the person or people who performed the action in the sentence) (Who was speaking?)

whom--if question is about an object (about the person or people who receive the action in the sentence)

(To whom was he speaking?)

who's--contraction of who is (Who's that stranger?)

whose--possessive of who (Whose bike is it?)

your--possessive of you (your problem, not mine)

you're--contraction of you are (You're the most insufferable person I know.)

Correcting wordiness

We've all been guilty of being too wordy. Sometimes we do it to make a paper longer. Other times, we are not even aware that we have done it. However, cutting out unnecessary words from your writing focuses the reader's attention on your most important points and gives the reader a clearer idea of your meaning. The following list includes 28 common wordy expressions and corrections for them.

Expression	Correction
absolutely essential	essential
at this point in time	at this time, now
audible to the ear	audible
combine together	combine
commute back and forth	commute
completely eliminate	eliminate
completely unanimous	unanimous
in the vicinity of	near
in the modern world of today	today
in this day and age	today

in view of the fact that	because, since
large in size	large
personally, I believe	I believe
red in color	red
due to the fact that	because, since
final outcome	outcome
four different times	four times
four in number	four
important essentials	essentials
in my opinion, I believe	I believe
in the event that	if
repeat again	repeat
round in shape	round
true facts	facts
usual custom	custom
very unique	unique
visible to the eye	visible
with the exception of	except for

Finding typos

When checking your paper for typos, remember the following tips:

1. Try to give yourself at least several hours away from your paper so that you can go back and check for proofreading errors and typos with a fresh eye. If you can give yourself at least 24 hours, that is ideal.
2. Do not rely on spell check or grammar check programs as your only form of proofreading.
3. Check for spacing between words and after punctuation marks.
4. Check for accidentally repeated words (He read the the book).

Pre-writing Techniques

Your professor has just given you an assignment. You are required to write a paper about a specific topic, or to come up with a topic of your own. You begin to panic. "Where do I start?" you may ask yourself. "How do I begin?"

First of all, take a deep breath and relax. You can do this! Aside from maintaining a positive attitude, here are a couple of ideas you can use to get yourself organized. Keep in mind that the following techniques and advice can be useful for both research papers and regular essays.

Pre-writing techniques

The following procedures help you to unlock your memory and to associate your ideas with other experiences and recollections in order to come up with a workable and interesting paper topic. Three such activities involve directed questioning, freewriting, and brainstorming. You may not need to use all three, but you should acquaint yourself with each activity to find one that is most productive for you.

Directed Questioning

If you already have a topic that interests you but are not sure how to approach it, try directed questioning. Rather than encouraging you to expand your thinking, this method helps you to narrow your broad ideas. These questions may prove helpful:

How can I describe the topic? How can I define the topic? How does the topic resemble or differ from other topics? How does the topic work? How does the topic affect other things? Can I argue for or against the topic? Why does this topic interest me? What ideas are generally associated with the topic?

Freewriting

Many people find that they can bring ideas for developing a topic to the surface through freewriting, a strategy designed to "free" ideas from your subconscious mind and get them down on paper. This kind of writing is "free" in another sense; you don't need to worry about punctuation, correct grammar usage, etc. Your main objective is to write for a sustained period of time (ten to fifteen minutes) without stopping.

Freewriting can be open or focused. If you really do not have any idea what to write about, just begin to write down your impressions and thoughts in an "open" freewrite. Filling the page with words may coax something from your mind. Once you have done this, choose an idea or two from your open freewrite to explore in a more "focused" freewrite. Writing down your thoughts about a more specific idea that came up in your open freewrite will narrow down your topic even more, and hopefully will lead to the idea that will be the basis for your paper.

If you get stuck while you are freewriting and cannot think of anything else to write, write the same word over and over again until you can think of something to write. This way you will not break your train of thought.

Brainstorming

Another way to get ideas down on paper quickly is through brainstorming Start with a significant word or phrase, and try to record everything that comes to your mind. If you reach a point where you can no longer come up with any new ideas, ask a friend to help you brainstorm some fresh topics.

After you have finished brainstorming, take a look at the material you have generated. What items seem to go together? What further connections can you see? What ideas and terms do you want to develop? What idea or concept seems to dominate your list? What material is surprising? You may decide to use most of the items you produced, or you may

find only a few fragments to keep. However, one of these fragments may point the way to a good paper.

Audience

As you prepare to write about your topic, it is important to consider the audience for whom you are writing. If your audience is only your professor, for example, he or she may not require as much background information about a topic as would be required for a more general audience of your peers. Knowing who your audience is will help you decide how much information to present, and in what manner to present it. Be sure to ask your professor if you are unsure about the audience your paper should be intended for.

Organizing your topic

Whether you have come up with a topic on your own or whether you are given a specific question to answer, after you determine your audience, the next step is often to consider the order in which you will present information about your topic. An essay usually follows this structured format: introduction, body, and conclusion.

Note: Some writers are not comfortable thinking about the order of their ideas before they write them. They may prefer to write a rough draft of their paper by letting their ideas flow freely and then crafting a structure for their thoughts. This can produce excellent writing. However, keep in mind that whether you start your paper by working from a specific structure or whether you start by writing freely and then restructuring your ideas to follow a certain order, it is still important to have a strong sense of organization in your paper that works to support your main idea. In your final draft your ideas should not just flow randomly; the reader should sense that there is a reason why you have chosen to structure your ideas the way you have.

1. Your introduction will begin with a broad general statement related to your thesis. An introduction gets the reader's attention and gives the reader enough background information to understand your thesis, which is usually the last sentence in your introduction. A good introduction does not depend on the reader being too familiar with the topic or assigned question. It also avoids being too general or obvious, and defines key words or terms that are important to the reader's understanding of the topic. In addition, it sets the overall tone of the paper, whether it be informative, persuasive, personal, formal, etc.

Think of your introduction as a way to prepare the reader for your main idea - start off general (but not boring), and lead up to what you want the reader to believe by the end of your paper.

What is a thesis statement?

A thesis statement is a sentence that communicates the main idea of your paper to the reader. Your thesis tells the reader what point you are going to make about your topic. If someone were to ask you, "What is the main idea you want people to believe after reading your paper?", the sentence you would give in reply is your thesis statement. Remember that a thesis statement does more than simply introduce the reader to the topic of your paper; a thesis statement takes a stand on a topic.[16]

Example:

Topic: Researching information on the internet

Thesis: Researching information on the internet has many disadvantages, including unreliable web sites, the large amount of time it takes to find valuable information, and the difficulty of verifying the truth of the information found.

Why is a thesis statement necessary?

Aside from making a paper more organized, a thesis causes you to focus your thoughts as you write. Knowing what the main point of your essay is allows you to narrow down your information. You are then able to include information that is relevant to your paper and weed out any unnecessary data.

Examples of how a thesis statement can be written:

A good thesis statement can be written in four different ways (or a combination of these styles may be used).

1. A strong controversial statement--
   Bilingual education has not fulfilled its early promise.

2. A call to action--
   All inner-city schools should set up bilingual programs.

3. A question that will be answered in the essay--
   What can bilingual education accomplish for a child? It can lead to academic and personal development.

4. A preview or forecast of the structure of the essay--Bilingual education suffers from two main problems: the shortage of trained teachers and the lack of parental involvement.

A thesis statement in a persuasive essay:

A thesis in a persuasive essay demonstrates where you stand on the issue. Although you consider alternative and opposing arguments, you state your opinion clearly. Here is an example of a weak thesis statement in a persuasive essay and its revision.

Needs Revision:

Bilingual education has advantages and disadvantages.

(This is a statement of fact; it does not express a conclusion or take a stand on the issue. This statement is too vague.)

Revision:

A bilingual program is more effective than an immersion program in helping students to succeed academically.

(This thesis is not a simple statement of fact, but rather an opinion that will be supported with evidence in the paper.)

Final thesis tips:

Once you have developed a good thesis, write it on an index card and prop it up next to your computer so you will stick to the main point of your paper as you write.

Also, remember that you may want to change your thesis statement as you discover new views and information, and that's okay. It's easier to change your thesis to fit the information in your paper than it is to go back and try to fit your information to your thesis.

1. The paragraphs in the body of your paper following the introduction can include concrete details, examples/incidents, facts and statistics, and supporting arguments.

The number of paragraphs in the body of your paper will be determined by the content of your paper. Remember, it is a good idea to stick to one main idea per paragraph, without switching to new topics or digressing.

Each sentence within your paragraphs should relate to the main topic sentence of that paragraph (the sentence that states what the paragraph is going to be about - usually located at the beginning of each new paragraph). In addition, each paragraph in your essay should support or relate in some way to your thesis statement.

To check whether you are sticking to one topic per paragraph and whether your paragraphs are related closely enough to your thesis, try doing a backwards outline. After you have finished writing your draft, count the number of paragraphs in your essay, writing the numbers on a separate sheet of paper. Then skim your draft and write down enough words next to each number to represent what is in each paragraph.

If you find that you have a lot of words with little relationship to each other next to your numbers, you should probably go back to your draft and rework your paragraphs so that they each cover only one main idea. Also, if you find that you have paragraphs which cover information unrelated to your thesis, you might want to consider either cutting or modifying those paragraphs in some way. Finally, doing a backwards outline like this will show you whether or not you have followed a consistent outline in the organization of your ideas, and it will assist you in reorganizing your ideas if necessary so that you are following a consistent outline.

2. Your conclusion will summarize the main points in your essay.

Your concluding paragraph should also include (usually at the very beginning or the very end of your paragraph) a restatement of your thesis using different words. You should end your conclusion on a strong note, without apologizing for anything in your paper and without introducing completely new ideas that were not covered in your paper. It is often a good idea to end your conclusion with a call to action or a comment regarding the future as related to your topic.

Working from an outline

Once you have a general idea of what will go in the introduction, body, and conclusion of your paper, the next step can be to develop a more specific outline in which you break down what specifically will be in each paragraph of your essay. Although some students find it more effective to create an outline based on a draft that they have already written, creating an outline ahead of time can help keep your writing more focused than inventing paragraphs as you go. Either method can create great writing - you might want to experiment with both methods to see which one works best for you.

The purpose of an outline:

An outline helps organize your ideas. An outline presents your material in a logical form. An outline shows the relationship between the ideas in your writing. An outline constructs an ordered overview of your writing. An outline defines boundaries and groups within your paper.

An important part of outlining your ideas is to remain consistent. For example, if you are presenting information or ideas in a certain order at the beginning of your paper, don't switch that order half way through your paper. This may confuse your reader. Try to make it obvious to your readers why and how you are presenting your information so that they don't have to work at figuring out your organization as they are reading your paper.

Here is an example of an outline covering the topic of rain forest preservation.[10]

OUTLINE

I. Introduction
A. Square miles
B. Location
C. Thesis:
Because of the valuable characteristics rain forests possess, the rapid destruction of the forests is creating negative effects on the environment.

II. Characteristics of rain forests
A. Variety of species
B. Value of rain forests
1. Medicinal values
2. Food values

III. The destruction of rain forests
A. Rate at which rain forests are destroyed
B. Reasons why rain forests are destroyed
1. Poverty
2. Large company projects

IV. Effects on environment
A. Extinction of species
B. Global warming

V. Reactions

VI. Conclusion
A. Restate thesis
B. Key role
C. Consequences

Transitions

Once you understand how to organize the ideas in your paper, the next step is to figure out how to create logical transitions between those ideas. A transition serves as a bridge connecting one paragraph, sentence, or word with another. Not only does a transition signal a connection, it also identifies the kind of connection by indicating to readers how the item preceding the transition relates to that which follows. Transitions help readers anticipate how the next paragraph or sentence will affect the meaning of what they have just read. Transitional words and phrases showing logical relations:

To introduce another item in a series: first, second, in the second place; for one thing...for another; next; then; furthermore; moreover; in addition; finally; last; also; similarly; besides; and; as well as.

To introduce an illustration or other specification: in particular; specifically; for instance; for example; that is; namely.

To introduce a result or a cause: consequently; as a result; hence; accordingly; thus; so; therefore; then; because; since; for.

To introduce a restatement: that is; in other words; in simpler terms; to put it differently.

To introduce a conclusion or summary: in conclusion; finally; all in all; evidently; clearly; actually; to sum up; altogether; of course.

To introduce an opposing point: but; however; yet; nevertheless; on the contrary; on the other hand; in contrast; still; neither...nor.

To introduce a concession to an opposing view: certainly; naturally; of course; it is true; to be sure; granted.

To resume the original line of reasoning after a concession: nonetheless; all the same; even though; still; nevertheless.

An easy way to go about making transitions between paragraphs is to use the 1/2 and 1/2 method. When you begin a new paragraph, the first sentence of that paragraph should be half of what you just said and half of what you are now going to say. However, the trick is that you need to find the connecting idea between the two paragraphs.

Example:

Cats are the greatest pets to have. They are friendly, cuddly, and intelligent companions. Many people value their cats so much that the cats seem like members of their family. Cats also do not need to be walked, or otherwise exercised, very much. A ball of string is enough to keep them busy for hours.

In addition to cats being great pets, dogs are also wonderful pets to have. They provide protection in addition to companionship, and they also help their owners get exercise through taking walks. Dogs are great for cheering people up if they are in bad moods, and they are extremely loyal pets to have.

The connecting idea between these two paragraphs is that both cats and dogs make great pets.

Final tips:

Before you become overwhelmed by the entire writing process, here are a couple of final tips that may alleviate some stress and tension.

Instead of just turning on the computer, writing until you have the number of pages required for the assignment, then doing a spell check and turning the paper in, break the writing process down into small chunks. For example, set aside a specific block of time in your day (20 minutes or so) to brainstorm ideas for your paper. When you have completed this step, take a short break. Next, develop an outline that summarizes the main points you want to cover in your paper. After this step is finished, you may then begin to jot down some ideas that could be considered for a thesis statement. This whole process could take place within an hour, or you could spread it out over a day or two if you prefer.

Next, begin writing a rough draft of your paper (it is helpful to start writing the day after you have completed the steps above to give yourself time to think about your paper a

little more). Proofread the paper yourself, and then give it to a friend. He or she may be able to find errors that you overlooked the first time and offer other helpful suggestions. Rewrite and revise until you come up with an end product that you can be proud of. This process can take one day or more than a week, depending on the amount of time you have and the amount of work you are willing to put forth to produce a strong piece of writing.

Remember, the writing process is a procedure that takes time, time, and more time. Do not expect yourself to sit down the night before a paper is due and create a masterpiece. Give yourself ample time to organize, structure, and edit your paper. In addition, it is important to go back and revise your draft several times. Try not to think of your papers as being "done," however tempting that may be; strong writers recognize that writing is a constant process of revisions to improve not only content but sentence structure and style as well.

Finally, remember that if you would like additional help with a paper, free assistance is available at the Hawley Academic Resource Center. Just call us at 961-1524 to make an appointment.

Types of writing
Papers

Professors will require you to write papers that have different purposes, depending on the discipline and the subject of the paper. They may require expository writing, in which you provide information or explain an idea. They may also require persuasive writing or argumentation, in which you persuade readers to take your point of view on a certain topic. These types of writing could require research to support your points, although doing outside research may not be necessary. In some circumstances you may be asked to demonstrate creative writing, in which you produce an original piece of art such as a poem, a play, or a short story. Finally, you may be asked to record and comment upon your own experiences in expressive, autobiographical, or personal writing, or to explore ideas and experiences in reflective writing. Keep in mind that there may be some overlapping between different types of writing. For example, you may use expository writing within a persuasive paper, or you may use personal writing within a reflective essay.

Lab reports

If you are taking a science course that has a laboratory component, you may be required to describe the experiments you conduct in laboratory reports. Your professor may have a specific format that he/she would like you to use in your lab report, but if not, the Publication Manual of the American Psychological Association describes a format that is generally acceptable. This format includes a title page, an abstract (a short summary of the report), an introduction, a section describing materials and methods, your data and results, a discussion or conclusion based on your results, and a list of works cited (if necessary). If you have any questions about how to format your lab report, be sure to ask your professor.

Journals

Some professors may require you to turn in journal entries in which you comment upon readings or lectures, reflect on class discussion, or relate issues discussed in class to

your own experiences. Make sure that you understand what your professors are looking for in each journal assignment, and don't forget that, although this may seem like a less formal writing assignment, you still need to pay attention to spelling, grammar, sentence structure, and neatness (unless your professor has indicated otherwise).

Portfolios

Some professors may require that you submit a portfolio of your writing (a collection of pieces you have written) for a grade in a certain course. If you have a choice as to what to include in your portfolio, try to include papers that demonstrate a range regarding both topics covered and the style of writing used. Also, if your professor allows you the opportunity to edit papers again after they have been graded but before you submit them in a portfolio, take advantage of this and make your papers as clean and error-free as possible. Finally, it is often advantageous to include a cover letter or a reflective essay with your papers to give the professor your own perception of the writing included.

At Simpson, individual professors may require that you submit portfolios for their classes; however, in addition to this, before you graduate you are required to submit a portfolio of writing to be reviewed by professors drawn from across campus (this is Simpson's Writing Competency II requirement). [10]

Common Punctuation Problems

In addition to having problems with sentence fragments, run-ons, etc., students often become confused about punctuation rules that they may have forgotten. Therefore, we have provided some basic punctuation rules to help strengthen your writing. [19]

Commas: 6 Rules

1. Put a comma between two complete independent clauses separated by a coordinating conjunction (separating two complete sentences and using and, but, etc.)
   I went home. He went to the store. I went home, but he went to the store.
2. Put a comma after a phrase occurring before the subject and the independent clause.
   (setting up time, if/then, cause and effect) After the class, the teacher graded the papers. If *I go home, then I can get my books. Whenever I study too late, I always get a bad grade on the test.*
   All of these things happened or will happen before the second part of the sentence, so a comma separates the two pieces of information.
3. Around non-essential information.
   (around material that interrupts the main flow of information in the sentence)
   My mother, a scientist, works in Ames. My mother works in Ames.
4. Between three or more items in a series.
   I ordered pancakes, eggs, and bacon. I went to the store, to the bank, and to the post office.
5. To set off transitional expressions.
   Consequently, I want to go to Disneyland this summer, not next summer. I thought, therefore, that the movie was excellent.

6. Between an introductory verb and a quotation.
   She said, "I want to go home." Jones states, "The war began with a single shot" (20).

Semicolons

1. Use a semicolon between two independent clauses (two complete sentences) when the two sentences are closely related. Think of a semicolon as a "soft period."
   I didn't want to go to the party; I was tired. I want to take the class; however, I don't have time.
2. Use a semicolon to separate items in a list that already includes information separated by commas.
   I have a million things in my purse, including a brush; a lipstick, which comes with a case; a wallet, with little money in it; and lots of old receipts, most of which I should throw away.

Colons

1. Use a colon after an independent clause to introduce a list. Do not use a colon after a phrase or a dependent clause to introduce a list.
   Example:
Incorrect:
   The prizes include: a boat, a car, and a house.
Correct:
   I realized I had everything: money, fame, and a glamorous lifestyle.
2. Use a colon after an independent clause to introduce an elaboration or an explanation.
   I have done the impossible: I have gotten both of the jobs I was hoping for.
3. Use a colon after an independent clause to express a rule (begin the rule with a capital letter).

Apostrophes for possession

1. Single possessive
   Mike's paper was perfect.
2. Plural possessive
   All the girls' toys were left under the tree on Christmas Eve.
3. Words that end in "s"
   The James' house was sold last week. (ends in "z" sound, so no extra "s") Thomas's car got stolen. (ends in "s" sound, so add extra "s")
4. Use an apostrophe between "it" and "s" only to represent "it is" or "it has".
   The dog wagged its tail. (possessive, so no apostrophe) It's cold outside. ("It is" can be substituted, so apostrophe is correct)

Quotation marks

1. Use quotation marks only around the exact words that were written by the author or that were spoken by the original speaker.
2. Remember to always use closing quotation marks when you use opening quotation marks to avoid confusion.

3. When you are using outside sources in a paper, put the ending punctuation (except for question marks and exclamation points, if they are a part of the original quote) outside the quotation mark and the parenthetical documentation.

". . . Senator Roberts does not support gun control, however" (Jones 111).

4. When the quotation is incorporated into your own sentence and you are not documenting the quote in a works cited page, place periods and commas within the quotation marks. However, place question marks and exclamation points outside the quotation in this case.

She said that she wanted to go someplace "more fun," but I thought that bowling was a great way to spend the evening. Who are "the new business elite"?

Dashes

1. Use dashes to set off material that is inserted in the sentence when the inserted material includes commas.

I didn't know that three other things--computer skills, typing skills, and phone skills--were needed for the job.

2. Use a dash to indicate that something unusual or unexpected is going to be inserted.

I knew that there were two ways to go with the situation--straight ahead or up in flames.

Ellipsis dots

1. Use three ellipsis dots to indicate omitted material within a quote.

Brown said, "They both have strong feelings about this . . . and about each other" (18).

2. Use four ellipsis dots (three dots and a period) when the omitted material falls at the end of a quoted sentence and another quoted sentence follows.

Jones stated, "I think that the trial was affected from the beginning . . . . It was lost from the start" (22).

3. Use three ellipsis dots when you are omitting material at the end of a quoted sentence that ends your own sentence.

Jones stated, "I think that the trial was affected from the beginning . . . " (22).

Exercise 1: Apostrophes

Punctuate the following sentences with apostrophes according to the rules for using the apostrophe.

1. Whos the partys candidate for vice president this year?

2. The fox had its right foreleg caught securely in the traps jaws.

3. Our neighbors car is an old Chrysler, and its just about to fall apart.

4. In three weeks time well have to begin school again.

5. Didnt you hear that theyre leaving tomorrow?

6. Whenever I think of the stories I read as a child, I remember Cinderellas glass slipper and Snow Whites wicked stepmother.

7. We claimed the picnic table was ours, but the Smiths children looked so disappointed that we found another spot.

8. Its important that the kitten learns to find its way home.

9. She did not hear her childrens cries.

10. My address has three 7s, and Tims phone number has four 2s.

11. Didnt he say when he would arrive at Arnies house?

12. Its such a beautiful day that Ive decided to take a sun bath.

13. She said the watch Jack found was hers, but she couldnt identify the manufacturers name on it.

14. Little girls clothing is on the first floor, and the mens department is on the second.

15. The dogs bark was far worse than its bite.

16. The moons rays shone feebly on the path, and I heard the insects chirpings and whistlings.

17. Theyre not afraid to go ahead with the plans, though the choice is not theirs.

18. The man whose face was tan said that he had spent his two weeks vacation in the mountains.

19. I found myself constantly putting two cs in the word process.

20. Johns 69 Ford is his proudest possession.

Exercise 2: Commas vs. Semicolons - Compound Sentences

Each of the following sentences needs either a comma or a semicolon. Put in the necessary punctuation.

1. Many companies make sugar-free soft drinks, which are flavored by synthetic chemicals the drinks usually contain only one or two calories per serving.

2. Mr. Leyland played the viola professionally for many years and he now conducts a community orchestra.

3. The crab grass was flourishing but the rest of the lawn, unfortunately, was dying.

4. The hill was covered with wildflowers it was a beautiful sight.

5. As I turned around, I heard a loud thump for the cat had upset the goldfish bowl.

6. The artist preferred to paint in oils he did not like watercolors.

7. The house was clean, the table set, and the porch light on everything was ready for the guests' arrival.

8. He looked carefully in the underbrush but he failed to notice the pair of green eyes staring at him.

9. The foundations of the house had been poured but, to his disappointment, nothing else had been done because of the carpenters' strike.

10. The computer could perform millions of operations in a split second however, it could not think spontaneously.

11. I thought registration day would be tiring but I didn't know I'd have to stand in so many lines.

12. The dog, growling and snarling, snapped at me I was so frightened that I ran.

13. The snowstorm dumped twelve inches of snow on the interstate subsequently, the state police closed the road.

14. Professors are supposed to be absent-minded and I've seen plenty of evidence to support that claim since I've been in college.

15. The suspect said that he had never met the victim however, the detective knew that he was lying.

16. In the first place, it was snowing too hard to see the road in the second place, we had no chains.

17. I have read *Soul on Ice* but I have not read *The Invisible Man.*

18. San Francisco is my favorite city in fact, I plan to spend two weeks there this summer.

19. The quarterback made a brilliant pass and the end crossed the goal line for the winning touchdown.

20. Large supermarkets fascinate me I can find everything from frozen chow me into soybean flour in one place.

Exercise 3: Accept/Except

Fill in the blank with either *accept* or *except*.

1. The whole army is out of step _____ Fred.

2. I'll _____ no money from that cheapskate.

3. Please _____ this pot of Mama's chicken soup.

4. It will cure anything _____ flat feet.

5. Rip could do anything _____ make money.

6. I had to _____ their negative evaluation.

7. All the girls went to the game _____ Mary.

8. Howard could not _____ the job.

9. _____ when there's a classic movie playing, Pete seldom watches TV.

10. I will _____ your gift if you let me pay for my lunch.[24]

CHAPTER 5

READING ACADEMICALLY

1.0 Introduction

Reading for academic and research purposes is very different from leisure reading. It is important that you develop and improve your skills for reading academically so that you are more efficient and can pick out relevant information more effectively. All your tutors will emphasise the need to READ CRITICALLY. In other words they want you to consider what you are reading and weigh up what is being said with what other people have written.[26]

1.1 Am I an interactive reader?

This is a self auditof how you tackle your reading.
Answer the following questions:

		yes/no
1	I tend to read very little beyond what is actually required to pass the assignment	
2	I concentrate on memorising a good deal of what I read	
3	I try to relate ideas I come across in other topics to what I read	
4	When I read an article or book, I try to find out exactly what the author means	
5	Often I find myself questioning what I read	
6	When I read I concentrate on learning just those bits of information I need to pass the assignment.	
7	When I am reading, I stop from time to time to reflect on what I'm trying to learn from it	
8	When I read, I examine the details carefully to see how they fit in with what's being said	
9	I like books which challenge me and provide explanations which go beyond the lectures and seminars	
10	I like books which give definite facts and information which can be easily understood	
11	I read an article straight through from start to finish	
12	I note down all the facts and figures	
13	I note the author's main arguments	
14	I think about whether the facts supported these arguments	
15	I make summary notes to use later	

Based upon the *ASSIST Approaches to Studying Inventory* by Noel Entwistle.

If you have answered 'yes' to all or most of questions: **1,2,6,10,11,12,15** you are adopting a SURFACE APPROACH to your learning. You are organising your learning in order to be able to remember facts and figures to use in written assignments or dissertation work.

If you have answered 'yes' to all or most of questions: 3, 4, 5, 7, 8, 9, 13, 14 you are adopting a DEEP APPROACH to your learning. You are thinking critically about the information you read and trying to make sense of it in the wider context of your studies. This approach to learning and studying shows initiative and understanding.

1.2 Characteristics of surface and deep approaches to reading

Can you see the difference between the two approaches?

Surface approach   MEMORISATION
Deep approach   UNDERSTANDING

All students use both approaches at some time. If you understand your subject material fully you will be able to apply it successfully in your reading approach and your written work.

Characteristics of a **Surface Approach to Reading**

- Intention to complete task requirements
- Memorise information needed for assessments
- Failure to distinguish principles from examples
- Treats task as an external imposition
- Focus on discrete elements without integration
- Un-reflectiveness about purpose or strategies

Characteristics of a **Deep Approach to Reading**

- Intention to understand
- Vigorous interaction with content
- Relate new ideas to previous knowledge
- Relate concepts to everyday experience
- Relate evidence to conclusions
- Examine the logic of the argument

Undergraduate as well as postgraduate students are expected to become *critical* readers and develop a 'deep' approach to reading.

If you want to become a 'deep' reader or improve these skills you might like to look at Section 4.0 to find out how to improve interactivity with text and Section 5.0 to find out how to improve your critical reading skills

2.0   Reflecting on your Reading Style Now

You are expected to do a considerable amount of reading at University. No one questions your ability to read at University but you may be using techniques and strategies that, although they have been successful in the past, are not the most appropriate or the most efficient for reading now.

In this section you will be asked to reflect on how efficient you are when reading and the degree of interactivity you have with the text you read. You can then find out more about improving these aspects of your reading by consulting the other sections.

2.1   Find out if you need to improve your efficiency.

Look at these questions to find out more about the way you tackle background reading, reading for assignments, reading for literature reviews and reading to increase knowledge and understanding. Tick those questions to which you answer *Yes*.

		tick
1	Do you read a chapter or journal article from start to finish and have a fuzzy idea of what was said?	
2	Does it take you a long time to do the necessary reading for your course?	
3	Do you find that the chapters or books or articles seem to go above your head?	
4	Do you read word by word?	
5	Do you 'say' the words silently to yourself in your head as you read?	
6	Do you have to read and re-read sections?	
7	Do you read advanced texts and journal articles infrequently?	
8	Do you vary the pace of your reading?	

If you have ticked four or more of these boxes, you need to improve your reading efficiency. Go to Section 3.0 *Being an efficient reader.*

2.2   Find out if you need to improve how you are interacting with text

Tick the boxes which apply to you:

		tick
1	Do you know exactly what you are looking for?	
2	Can you select important and/or relevant information for your purpose?	
3	Can you pick out key words and/or information?	
4	Do you vary your style of reading depending on the nature of the task?	
5	When you absorb information do you know what to do with it?	
6	Do you regularly monitor your own understanding of the texts you are reading?	
7	Do you know how to improve your reading comprehension?	
8	Do you try to anticipate what is coming next?	

If you have ticked four or less of these boxes, you need to be a more active reader. Go to Section 4.0 *Being an Active Reader* and/or section 3.0 *Being an Efficient Reader.*

2.3   Find out if you need to improve your critical reading skills

Tick the boxes which apply to you:

		tick
1	Do you think about what you are reading and question what the author has written?	
2	Do you try to assess the stance of the author?	
3	Do you challenge the ideas as you are reading?	
4	Are you able to distinguish different kinds of reasoning used?	
5	Are you able to synthesise the key information and make connections between what one author and others are saying?	
6	Can you make judgements about how the text is argued?	
7	Can you evaluate how the information could be better or differently supported?	
8	Can you spot assumptions which have not been well argued?	

If you have ticked four or less of these boxes, you need to improve your critical reading skills. *Go to Section 5.0 Critical Reading.*

3.0 Efficient Reading

To help you to be more efficient and effective as an academic reader, you might need to consider one or all of the following:

1. Increasing your reading speed
2. Finding your way around texts – i.e. gaining knowledge of how the text for your subject is put together – the hidden rules for writing in your subject
3. Making decisions about suitability of text

URBAN MYTHS ABOUT READING

"If I read more slowly it will help me to understand difficult concepts and texts which seem inaccessible because of the way they are written."
Sometimes reading slowly can impair your understanding. Slow readers are more likely to miss the point or get bogged down with minute detail.[8]

"If I read a chapter/article/section of text over and over again I will be able to understand the concepts."
Perhaps you are tackling a text which is too difficult initially for you or that you have no clear idea of what it is that you want to get out of the text and are simply reading as a large sponge!

3.1 How fast do I read?

The Speed Test
- Choose a passage to read which is unfamiliar to you.
- Time yourself for ten minutes.
- Count how many words you have read in this time.
- Divide your total by 10.
- Your answer will tell you how many words per minute you can read comfortably.

IF IT IS LESS THAN 200 WORDS PER MINUTE YOU NEED TO WORK ON THIS SKILL.

Increasing Reading Speed
- If you are determined and prepared to practise, then you should be able to train yourself to read faster and improve your concentration and level of comprehension.
- Our eyes move, pause and recognise characters. Every time the eye stops it is called a fixation. (The period in which reading matter is recognised, understood and stored in memory.) The size and length of the fixation is the important factor.
- The slower reader reads the text word by word. The average reader links together unimportant words with key words so that there are fewer fixations – this increases reading speed. The fast reader is the most efficient and reads whole phrases at a time.
- You can train yourself to read larger chunks of text at each fixation but you will need to practise this skill.
- Avoid **backtracking** when reading. Backtracking is when you read a few words and then go back over them because you have not understood the point properly. By doing

this you are interrupting the flow of reading and confusing your understanding rather than clarifying it. It is far better to get to the end of a section by reading it straight through and then re-reading it if necessary. A difficult section is often better read quickly twice than once slowly!
- Avoid 'sounding out' words in your head as you read. This slows you down.
- You need to vary your reading style and speed according to the material you are reading.
- Remember reading improves with practice, and the more you are familiar with advanced reading texts the more quickly you will be able to get access to the information.

3.2 Getting information from text

Skimming is a particular style of reading. It is a way of gathering as much information as possible from text in the shortest time possible. Skimming is a visual activity and is used for getting the gist or impression of a chapter/section of text. You are not reading the whole page and your eyes do not move from left to right along the line as they do when reading a whole text.

Scanning is another style of reading. This is most useful when you are searching for something specific in the text – like a word or phrase. An example of use is when you are looking in a telephone directory for a particular person's name or when you look in the index of a book to see which page contains the information you want.

3.3 Finding your way around texts

You can increase your reading speed and improve your comprehension by being familiar with the way text is written for your subject. This is called 'genre' or the style of the text. You might also examine how the text is **organized**; and how the author has analysed (broken down) the material in order to set up an argument. Be aware that different disciplines (e.g., sociology, philosophy, psychology, neurology etc.) will have different ways of arguing so the text may be set out in a different format and adhere to different 'conventions'.

Here are some things for you to think about when examining text to find your way around more efficiently. Finding the answers to the above points will mean that you have to examine the way text is put together for your subject, and this will help with comprehension and speed of access to information.

- Where are chapter summaries usually found – at the beginning or the end of a chapter?
- Are the chapters broken down into appropriate sub-headings?

- Do the sub-headings give me an overview of the structure of the chapter?
- Is there are revision section at the end of a chapter?
- How is key terminology presented – bold, underlined, separate glossary?
- Does each section contain a summary statement at the beginning or the end?
- Does each section have subsidiary and supporting material or evidence or examples after summary statements?

- Are diagrammatic features used to explain prose text?
- Are tables and graphs used to explain prose text?
- Is the sequencing of the information obvious in the text layout
- Does the text rely upon fairly simple or complex sentences? (If the latter you will need to practise un-picking these to make sense of them quickly).

3.4 Is this text suitable for my purposes?

Is this suitable for ME?

Suitability of text is not just about choosing the right book for the assignment; it is also about choosing the right book *for you* at your stage in the learning process or your conceptualisation of ideas. Books placed by your tutor in the Reserve Collection or on Short Term Loan are clearly important for your studies, but make sure that you are ready to access that particular reading resource before doing so. Some students forget that one of the elements of successful reading is the knack of matching your level of understanding with the relevant resources for the activity in which you are involved.

Some students become disheartened when they cannot understand a text on the 'book list'. This may be because you are still grappling at an early stage of understanding, both of the new concepts and the new terminology. Some books are, therefore, at too high a level **at this stage** and are more like reading a second language where you have to look up all the new terminology to help you link the vocabulary with the meaning! If this applies to you, you should begin with a text which gives you more help and briefer, more broad-stroke, explanations. If the subject is new to you, the Idiot's Guides on the market are a 'must'! However, there may be some excellent 'A' level text books which serve this purpose as a bridge to exploring more complex journal articles, for example. It is important that you seek advice from your departments, tutors, post-graduate students about what is available.

Is this text suitable for my studies?

The question you need to ask yourself is 'Does this book or chapter or article contain the information or evidence I need for my assignment or task?' If it does then it is worth using; if some of it is useful, use those sections in particular; if not, then it may not be what you need for your particular work and may be useful only for background information or interest or developing your concepts.

Remember the books or chapters or articles have not been written especially so that you can answer the question posed by your tutor. They may go into a lot of complicated depth which is not relevant to your current needs. (See Section 4.0 Being an Active Reader)

Is it suitable and credible?

You should consider the date when the book or article was written and ask yourself if this is the latest information and research or is it now out-of-date. That said, books published many years ago can still be extremely valuable. Ultimately, it is the content not the date of publication which is crucial.

3.0 Active Reading

It is very important to be an ACTIVE reader as this will help you retain information in a text and help you make the right kind of notes – it is essentially reading for a purpose rather than just browsing.

4.1 Being an active reader

Have you ever considered *doing* things to ensure that your reading is effective and that you become more efficient in the process?

BEFORE READING *Ask yourself some questions.*

Before you launch into reading a chapter or section or journal article, you may need to ask yourself to **Preview and Predict.** Do this by asking yourself the following:

- Why Am I Reading This?
- What do I Want to Find?
- What information do I already know and will the text 'fill in the gaps' for me?
- Is this the most appropriate text for my purpose?

When you start to read you should be asking yourself what *type* of information you need/want. This can fall into three categories: Literal, Inferential or Critical.

- **Literal** For example:-
  o Who was responsible for making Laws?
- **Inferential** For example:-
  o Can you find evidence in your reading that a specific Law is effective?
  o What do different people say? Whose arguments are stronger?
- **Critical** For example:-
  o Has the author given enough evidence to be convincing? (think of your own reading of a topic)
  o Are the results reliable and valid?
  o Is the author's interpretation sound?

DURING READING *Use colour effectively*

Many students find that it is useful *to colour code information*. To do this most effectively you will need to photocopy sections of text which you think are most relevant and crucial to your work. As you are reading you will have to make decisions about what sort of information it is in order to code it. This means that you will be interacting more with the text rather than being a surface reader.

Decisions about colour coding can only be made effectively if you know your purpose for reading and what it is that you are looking for. For example, you may want to code the main ideas in one colour in a section or paragraph and the evidence or examples or subsidiary information in another colour.

- You may want to pick out key references and names and use codes to categorise these.
- Some students find that they like to code the author's opinions in one colour and the inferred information in another.
- As you can see there are many ways in which you can be creative to make you question what you are reading and to help you make more effective notes.

You will need a range of coloured highlighters and photocopies of the texts.

4.2 Developing reading strategies – the SQ3R Method

Some of you may have heard of this but are not sure what it is or how it works.
SQ3R stands for:

- **SURVEY** the text
  Skim the text to see if it is suitable for your needs and to get a general idea of what it is about.
- **QUESTION**
  Ask yourself why you are reading the text and what you want to get out of it so that you read with a specific focus. Your comprehension improves if your mind is actively searching for answers to questions.
- **READ**
  Read carefully, breaking up your reading into small sections, looking for main ideas.
- **RECALL**
  Mentally go through the ideas you have just read and pick out the main points. Check that you can answer your initial questions. Check that you have assimilated and gathered the information you need.
- **REVIEW**
  Look back to see if the passage has answered everything you wanted. How much can you remember?

4.3 Reading journal articles

Many students find reading journal articles more difficult than text books and are daunted by the fact that journal articles are written by current experts in their field of study and sometimes their own lecturers.

It is useful to adopt a two-fold approach to reading an article:
Get a quick overview

- Read the **abstract** which contains a summary of the article and should contain the rationale for the study as well as the main results and an interpretation of the results.
- Read the **summary** and **conclusions**. If the article does not have a summary, skim through the discussion section of the article. As you read ask yourself whether the information is relevant to your own reading purpose or research. Will it be useful for your assignment?

Go back and get the details

- Ask yourself questions and search for the answers in order to focus your reading.
- Read the article critically and analyse and evaluate the findings.

5.0 Being a Critical Reader

Critical approaches to study at University are vital. Much of this is to do with the way you interact with text – your own and others'. It is also about the sort of questions you ask yourself. Reading Critically is usually achieved when students have a working knowledge and understanding of the issues or theories or topics which they are studying.

Critical Reading: What is it?

To read critically is to make judgements about *how* a text is argued. This is a highly reflective skill requiring you to "stand back" and gain some distance from the text you are reading. You might have to read a text through once to get a basic grasp of content before you launch into an intensive critical reading.

These are the keys:

- Don't read only for **information** (Surface Approach)
- **Do read forways of thinking** about subject matter (Deep Approach)

Getting Started - *Ask yourself the following:*

- Can I believe everything I read?
- Are experts always right?
- What makes me take more notice of one academic writer and less of another?
- What makes a scholarly, rigorous piece of research, and what makes research findings weak or strong?

Try this for yourself

Choose a chapter or an article and find out answers to the following questions?

- Who is the author's audience?
- What are the central claims of the text?
- What is the main evidence?
- How has the author analyzed the material to set up an argument?
- How is this substantiated?
- What assumptions lie behind the evidence or arguments?
- Do you think the assumptions are founded on adequate proof?
- What methodology was used?
- What are the general weaknesses or strengths?
- What do other leading thinkers or writers have to say about this?

The kinds of evidence used

You ought to be considering the kinds of evidence used:

- Primary or Secondary sources – these could be different for different subject disciplines

- Is the evidence statistical?
- Is it anecdotal?
- How does the author use this evidence to develop the argument?
- How is it connected with central ideas and themes?

Exercise 1: -ible and -able Spelling

In the following paragraph there are fourteen words ending with -ible or -able, some of which are misspelled. Read the paragraph, locate the misspelled words and write the correct spellings in the space provided below the paragraph.

Most people thought that Michael, an eligable bachelor, was an adorable, personible man. Mattie, however, found him detestable. Some time ago, Michael promised to take Mattie to a fashionible restaurant for a remarkible dinner. As horrable as it sounds, Michael took Mattie to the local McDonald's. Most of the food there was either inedable or undigestable. Mattie was as irritable as possable when she told her roommates about her terrible date. "Whoever finally marries that contemptable Michael," Mattie said, "is certainly not going to be in an enviable position."

Write the correct spellings below:

Exercise 2: -ible and -able Spelling

In the following sentences, the final four letters are omitted from each -ible or -able word. Complete each word with the appropriate ending.

1. Last night's movie about the invis_____ man was so incred_____ that it was laugh_____.

2. My irrespons_____ little brother is usually kept away from anything break_____.

3. Are these new clothes really comfort_____, or do people only wear them because they are fashion_____?

4. I think I would be less irrit_____ if my professors were more flex_____.

5. I don't think voting twice in national elections is permiss_____.

6. It's always valu_____ to have a friend who is depend_____.

7. My employer said that it isn't suit_____ to have a secretary whose handwriting is illeg_____ [24]

CHAPTER 6

QUOTING, PARAPHRASING, AND SUMMARIZING

They are important tools for reshaping information to suit the many writing tasks that will be required of you. They also require the analytical and writing skills which are crucial to success at university.[19)(21)]

What are the Differences?

Paraphrasing

- does not match the source word for word
- involves putting a passage from a source into your own words
- changes the words or phrasing of a passage, but retains and fully communicates the original meaning
- must be attributed to the original source

Summarizing

- does not match the source word for word
- involves putting the main idea(s) into your own words, but including only the main point(s)
- presents a broad overview, so is usually much shorter than the original text
- must be attributed to the original source

Quotations

- match the source word for word
- are usually a brief segment of the text
- appear between quotation marks
- must be attributed to the original source

The examples used on this page refer to an interpretation of a literary text (Sophocles' Antigone) but the same principles apply to any sources you might use in an essay.

The following passage is from pages 14 to 15 of Elements of Tragedy, by Dorothea Krook (New Haven: Yale UP, 1969).

- In the greatest tragedy, I suggest, what is in the end affirmed is something more than the dignity of man and the value of human life. We are made to feel that, through the affirmation of man and the life of man, there is at the same time being affirmed an order of values transcending the values of the human order. This order of values is not,

or is not felt to be, a mere projection of the human mind: it is felt to have a real, objective existence—an existence independent of, other than, and antecedent to man. At the same time, however, it has the closest bearing on the life of man, in particular on the conduct of men; therefore, it is properly described as moral--a moral order, in the most inclusive sense of the term. An objective moral order which at once incorporates the human and transcends it: this, I am suggesting, is what is finally affirmed in great tragedy. That this is true of classical Greek tragedy can hardly be contested. There the transcendent is most often palpably manifest in the shape of the gods and goddesses, the oracles and prophecies, which play a vital part in the tragic action. And even when the supernatural powers are not present as *dramatis personae* (as in Sophocles' Antigone or Electra or Philoctetes), the transcendent order is nevertheless openly and explicitly evoked through the direct reference to a moral law—the moral law that in Antigone is violated by Creon and affirmed by Antigone—presented as eternal, immutable, and absolutely binding.

Citing and Documenting Sources

When using another person's ideas, information, or exact words in your own paper, you must properly cite and document your source in accordance with a standard system of documentation. Failure to document a source constitutes plagiarism. In this course, you should use the MLA (Modern Language Association) style of documentation for your research paper, not the APA style.

To cite a source, whether the material is paraphrased, summarized, or quoted, you must cite in parentheses the last name of the author and the page number(s) of the source where the material originally appears. If you mention the author's name in your sentence, you should not repeat it in parentheses, but you still must cite the page number(s). For online sources, though, cite the page or paragraph number(s) only if you see the number(s) on the web page as it appears on your computer screen. Do not cite the page or paragraph number(s) for online sources if the numbers appear only on printouts of the web pages but not on the screen.

If an author for your source is not given, use the title of the source in place of the author's   name. This parenthetical citation should be placed just before the final punctuation in your sentence where the material appears (examples follow).

Quoting

A quotation is an exact reproduction of spoken or written words. Direct quotes can provide strong evidence, act as an authoritative voice, or support a writer's statements.

When quoting material from a sources, make sure to copy that material exactly as it appears in the original. You may, however, use an ellipsis (. . .) to delete material within the quotation that you feel is unnecessary and that, if deleted, does not change the meaning of the original passage. You may also use [brackets] to clarify the meaning of the passage, not to offer an interpretation of the quotation but to clarify the meaning. For example, you

could use brackets to clarify the antecedents of pronouns in the quotation if the antecedents are unclear. Both ellipses and brackets should be used sparingly, and you must be careful not to alter the meaning of the original when you do use them.

Quotations of four typed lines or less should be placed in quotation marks within your text. Quotations longer than four typed lines should be offset and indented an additional 10 spaces, or two tabs, from the left margin (right margins remain the same). Indented quotations, like the rest of your paper, should be double spaced, with no extra spacing before or after the offset and indented quotations. Avoid using long quotes.

How to Quote

Make sure that you have a good reason to use a direct quotation. Quoting should be done sparingly and should support your own work, not replace it. For example, make a point in your own words, then support it with an authoritative quote.

- Every direct quotation should appear between quotation marks (" ") and exactly reproduce text, including punctuation and capital letters.
- A short quotation often works well integrated into a sentence.
- Longer quotations (more than 3 lines of text) should start on a new line, be indented and in italics.

When to Quote

- when the author's words convey a powerful meaning.
- when you want to use the author as an authoritative voice in your own writing.
- to introduce an author's position you may wish to discuss.
- to support claims in, or provide evidence for, your writing.

Examples

- What is affirmed in the greatest tragedies is "an objective moral order which at once incorporates the human and transcends it" (Krook 15).
- Dorothea Krook suggests that "an objective moral order which at once incorporates the human and transcends it" is affirmed in the greatest tragedies (15).
- "The transcendent order," as Krook points out, is "openly and explicitly evoked through the direct reference to a moral law" in a play such as Sophocles' Antigone (15).

Note: When you quote from sources, be careful not to take the quotations out of context. That is, be careful not to change the meaning of the original by using a quotation without giving consideration to its context (what is said before and after the quotation in the original source). For example, the following quotation is taken out of context:

- According to Dorothea Krook, the greatest tragedies affirm "the dignity of man and the value of human life" (14).

In what way is this quote taken out of context? In the original, Krook suggests that the greatest tragedies affirm "something more than the dignity of man and the values of human life" (emphasis added). By leaving out "something more than," the writer has changed Krook's original meaning.

Paraphrasing

Paraphrasing is a way of presenting a text, keeping the same meaning, but using different words and phrasing. Paraphrasing is used with short sections of text, such as phrases and sentences.

To paraphrase, you use your own words to convey ideas or information you have found in your sources. In general, paraphrases use approximately the same number of words as the original. When paraphrasing, make sure that your paraphrase really is in your own words. Changing two or three words in a sentence and then putting that sentence into your own paper is not a paraphrase. You should use your own words and your own sentence structure when you paragraph, not the sentence structure of the original source. Also, be careful to preserve the meaning of the original. If you copy phrases from the original in your paraphrase, make sure to put those words in quotation marks. If the words in your paraphrase are your own, though, you should not use quotation marks.

How to Paraphrase

- Read the source carefully. It is essential that you understand it fully.
- Identify the main point(s) and key words.
- Cover the original text and rewrite it in your own words. Check that you have included the main points and essential information.
- Write the paraphrase in your own style. Consider each point; how could you rephrase it?
  - Meaning: ensure that you keep the original meaning and maintain the same relationship between main ideas and supporting points.
  - Words: Use synonyms (words or expression which have a similar meaning) where appropriate. Key words that are specialized subject vocabulary do not need to be changed.
  - If you want to retain unique or specialist phrases, use quotation marks (" ").
  - Change the grammar and sentence structure. Break up a long sentence into two shorter ones or combine two short sentences into one. Change the voice (active/passive) or change word forms (e.g. nouns, adjectives).

- o Change the <u>order</u> in which information/ ideas are presented (as long as they still make sense in a different order).
- o <u>Identify the attitude</u> of the authors to their subject (i.e. certain, uncertain, critical etc) and make sure your paraphrase reflects this. Use the appropriate .
- Review your paraphrase checking that it accurately reflects the original text but is in your words and style.
- Record the original source (including the page number) so that you can provide a reference.

When to Paraphrase

Paraphrase short sections of work only; a sentence or two or a short paragraph.
- As an alternative to a direct quotation.
- To rewrite someone else's ideas without changing the meaning.
- To express someone else's ideas in your own words.
- To support claims in, or provide evidence for, your writing.

Examples

- While great tragedy affirms human dignity and human values, it also affirms a set of values that transcend the human level (Krook 14-15).
- As Dorothea Krook suggests, the transcendent values affirmed in great tragedy exist independent of, and prior to, human beings, yet these values are intimately associated with human behavior and conduct (14-15).

Note: The most common error students make when paraphrasing a source is copying too much of the original without putting it into their own words. Most likely, you will have to use a few of the words from the original, but the sentence structure and the majority of words should be your own. The following is not a good example of a paraphrase:

- According to Dorothea Krook, in the greatest tragedy what is affirmed is something more than man's dignity and values of human life (14).

Notice how the writer uses several phrases exactly as they appear in the original (and changing "dignity of man" to "man's dignity" is more a case of "word shuffling' than of using original language).Notice, as well, how the structure of the writer's sentence is even similar to that of the original.

Summarizing

Summarizing is how we take larger selections of text and reduce them to their bare essentials: the gist, the key ideas, the main points that are worth noting and remembering. Webster's calls a summary the "general idea in brief form"; it's the distillation, condensation, or reduction of a larger work into its primary notions.

To summarize, you condense information or ideas from a source and put the information or ideas into your own words. A summary differs from a paraphrase in that a summary may condense a paragraph or even a page or two from a source into just a few sentences. Summaries are particularly useful when you feel that a writer makes a significant point that you want to use in your paper, but the writer develops his or her ideas over several paragraphs or pages. Such passages, obviously, are too long to quote or to paraphrase.

How to Summarize

The amount of detail you include in a summary will vary according to the length of the original text, how much information you need and how selective you are:

- Start by reading a short text and highlighting the main points as you read.
- Reread the text and make notes of the main points, leaving out examples, evidence etc.
- Without the text, rewrite your notes in your own words; restate the main idea at the beginning plus all major points.

When to Summarize

Summarize long sections of work, like a long paragraph, page or chapter.

- To outline the main points of someone else's work in your own words, without the details or examples.
- To include an author's ideas using fewer words than the original text.
- To briefly give examples of several differing points of view on a topic.
- To support claims in, or provide evidence for, your writing.

Example

- Great tragedy affirms a moral order both at the human level and at an objective level that transcends human existence yet at the same time intimately participates in it. While this transcendent level is most often represented in classical Greek literature through the presence of gods or through some indication of divine intervention, it is manifested in a play such as Sophocles' <u>Antigone</u> through repeated and direct references to divine moral laws (Krook 14-15).

The preceding summary tries to capture the essence of Krook's two paragraphs. There is, of course, some material that must be left out, but the writer has tried to condense the most important ideas in the passage and to present them as accurately as possible, putting the ideas into the writer's own words while avoiding the use of phrases from Krook's passage.

Things to Notice

Notice that the documentation (author's name and page number[s]) remains the same for quotations, paraphrases and summaries. When you mention the author in your sentence, use the full name only the first time you refer to him or her. All other references to the same author should mention only his or her last name. Use only the last name of the author when putting the name in parentheses, even if it is the first time you refer to that author.

Note: Some writers tend to overuse quotations from sources instead of using paraphrases or summaries along with the quotations. Direct quotes are the easiest to use, but they are best reserved for one purpose: when you not only like what an author has to say but also think that it is said particularly well, with just the right words and just the right phrasing. Because every writer has his or her own unique writing style, filling your paper with quotations often keeps readers "jumping" from one writing style to another, and this can sometimes make for confusion and can diminish the overall "style" of the writing in the paper. When you paraphrase or summarize, though, you are bringing in the ideas of other writers while still retaining your own unique writing style. Also, paraphrases and summaries usually reflect better on the intellect and understanding of the writer than quotations do. Putting someone else's ideas into your own words reveals to readers that you understand the ideas well enough to express them in your own way; it shows that you have consulted the experts and have assimilated the knowledge they have to offer.

Determining What to Document

Most likely, you will find that your sources touch upon many of the ideas you discuss in your own paper; however, this does not mean that you have to document a source every time this occurs. The general rule is that information or ideas that could be considered "common knowledge" do not need to be documented. Common knowledge is information that is commonly known or ideas that are so well established that they appear in several different sources. For example, that Antigone was first performed around 440 B.C. is a well-established fact and therefore does not need to be documented (even if you were unaware of this fact before finding it in your sources). Likewise, the idea that Antigone involves some type of conflict between human and divine laws can be found in many different sources and therefore does not need to be documented. (Notice that the examples from Krook go beyond simply stating that this conflict exists.)

You must document your source, however, if it presents a fact that is probably not well known or presents a unique or insightful comment about the play that you have not

seen repeated in several of your sources. For example, Dorothea Krook's idea that great tragedy affirms a set of moral laws that transcend human existence but also participate in it shows this scholar's insight into the purpose of tragedy. While you may be able to find a few similar statements in other sources, Krook's passage shows her own insights and must be documented.

If in doubt as to whether or not you should cite and document a source, you should cite and document it. If your citation and documentation is unnecessary, I may note this fact as I evaluate the paper. However, if you fail to cite and document a source when the citation and documentation are needed, the paper will contain plagiarism, and papers with plagiarism are supposed to receive a failing grade.

Note: You always must document your source if it is quoted, no matter how short the quotation is.

Using Sources Properly

At the "heart" of a paper using sources should be your ideas, your insights into the subject, with an original thesis and original topic sentences. You should use material from sources to help you support and develop your thesis, but don't allow material from the sources to take over your paper. You should support your interpretation or argument by "appealing to authority," that is, by using the comments and insights of experts or authorities. Appealing to authority demonstrates to readers that experts have also recognized some of the same ideas you are discussing (the experts "agree with you"). This helps add strength and validity to your interpretation or argument.

When using sources, make sure you do so to support some claim you are making in your paper. Your sources offer evidence you can use to back up your interpretation or argument.

How much of your paper should be composed of quotations, paraphrases or summaries from sources? To some extent, this depends on the individual writer and on the paper's thesis. In general, though, material from sources should make up around 20 to 30 percent of your paper.

Exercise 1: Paraphrasing Exercise

Directions: On a separate piece of paper, write a paraphrase of each of the following passages. Try not to look back at the original passage.

1. "The Antarctic is the vast source of cold on our planet, just as the sun is the source of our heat, and it exerts tremendous control on our climate," [Jacques] Cousteau told the camera. "The cold ocean water around Antarctica flows north to mix with warmer water from the tropics, and its upwellings help to cool both the surface water and our atmosphere. Yet the fragility of this regulating system is now threatened by human activity." From "Captain Cousteau," *Audubon* (May 1990):17.

2. "The twenties were the years when drinking was against the law, and the law was a bad joke because everyone knew of a local bar where liquor could be had. They were the years when organized crime ruled the cities, and the police seemed powerless to do anything against it. Classical music was forgotten while jazz spread throughout the land, and men like Bix Beiderbecke, Louis Armstrong, and Count Basie became the heroes of the young. The flapper was born in the twenties, and with her bobbed hair and short skirts, she symbolized, perhaps more than anyone or anything else, America's break with the past." From Kathleen Yancey, *English 102 Supplemental Guide* (1989): 25.

3. "Of the more than 1000 bicycling deaths each year, three-fourths are caused by head injuries. Half of those killed are school-age children. One study concluded that wearing a bike helmet can reduce the risk of head injury by 85 percent. In an accident, a bike helmet absorbs the shock and cushions the head." From "Bike Helmets: Unused Lifesavers,"*Consumer Reports* (May 1990): 348.

4. "Matisse is the best painter ever at putting the viewer at the scene. He's the most realistic of all modern artists, if you admit the feel of the breeze as necessary to a landscape and the smell of oranges as essential to a still life. "The Casbah Gate" depicts the well-known gateway Bab el Aassa, which pierces the southern wall of the city near the sultan's palace. With scrubby coats of ivory, aqua, blue, and rose delicately fenced by the liveliest gray outline in art history, Matisse gets the essence of a Tangier afternoon, including the subtle presence of the bowaab, the sentry who sits and surveys those who pass through the gate." From Peter Plagens, "Bright Lights." *Newsweek* (26 March 1990): 50.

5. "While the Sears Tower is arguably the greatest achievement in skyscraper engineering so far, it's unlikely that architects and engineers have abandoned the quest for the world's tallest building. The question is: Just how high can a building go? Structural engineer William LeMessurier has designed a skyscraper nearly one-half mile high, twice as tall as the Sears Tower. And architect Robert Sobel claims that existing technology could produce a 500-story building." From Ron Bachman, "Reaching for the Sky." *Dial* (May 1990): 15.[24]

Exercise 2: Quotation Marks Exercise

In the following sentences put in quotation marks wherever they are needed, and underline words where italics are needed.

1. Mary is trying hard in school this semester, her father said.

2. No, the taxi driver said curtly, I cannot get you to the airport in fifteen minutes.

3. I believe, Jack remarked, that the best time of year to visit Europe is in the spring. At least that's what I read in a book entitled Guide to Europe.

4. My French professor told me that my accent is abominable.

5. She asked, Is Time a magazine you read regularly?

6. Flannery O'Connor probably got the title of one of her stories from the words of the old popular song, A Good Man Is Hard to Find.

7. When did Roosevelt say, We have nothing to fear but fear itself?

8. It seems to me that hip and cool are words that are going out of style.

9. Yesterday, John said, This afternoon I'll bring back your book Conflict in the Middle East; however, he did not return it.

10. Can you believe, Dot asked me, that it has been almost five years since we've seen each other?

11. A Perfect Day for Bananafish is, I believe, J. D. Salinger's best short story.

12. Certainly, Mr. Martin said, I shall explain the whole situation to him. I know that he will understand.[24]

CHAPTER 7

SKIMMING AND SCANNING SCIENTIFIC MATERIALS

Skimming involves searching for the main ideas by reading the first and last paragraphs, noting other organizational cues, such as summaries, used by the author.

Scanning involves running your eyes down the page looking for specific facts or key words and phrases.

Skimming and scanning are particularly valuable techniques for studying scientific textbooks. Science writers pack many facts and details closely together, and students react by shifting their reading speeds to the lowest gear and crawling through the material. Notwithstanding the fact that science textbooks are usually well-organized, with main points and sub-topics clearly delineated, the typical student ignores these clues and plods through the chapter word-by-word, trying to cram it all in.

It is precisely these characteristics, organization and density of facts per page, that make it so vital that you employ skimming and scanning techniques. To successfully master a science test, you must understand thoroughly the major ideas and concepts presented.

Without such a conceptual framework, you will find yourself faced with the impossible task of trying to cram hundreds of isolated facts into your memory. Thus, a preliminary skimming for the main ideas by using the author's organization cues (topic headings, italics, summaries, etc.) is a vital preliminary step to more intensive reading and maximum retention. It will provide a logical framework in which to fit the details.

Similarly, scanning skills are valuable for several purposes in studying science.

First, they are an aid in locating new terms, which are introduced in the chapter. Unless you understand the new terms, it is impossible to follow the author's reasoning without dictionary or glossary. Thus a preliminary scanning of the chapters will alert you to the new terms and concepts and their sequence. When you locate a new term, try to find its definition. If you are not able to figure out the meaning, then look it up in the glossary or dictionary. (Note: usually new terms are defined as they are introduced in science texts. If your text does not have a glossary, it is a good idea to keep a glossary of your own in the front page of the book. Record the terms and their definition or the page number where the definition is located. This is an excellent aid to refer to when you are reviewing for an examination, as it provides a convenient outline of the course).

Secondly, scanning is useful in locating statements, definitions, formulas, etc. which you must remember completely and precisely. Scan to find the exact and complete statement of a chemical law., the formula of a particular compound in chemistry, or the stages of cell division. Also, scan the charts and figures, for they usually summarize in graphic form the major ideas and facts of the chapter.

If you practice these skimming and scanning techniques prior to reading a science chapter, you will find that not only will your intensive reading take much less time, but that your retention of the important course details will greatly improve.

You are expected to do much more reading at university than at school or college; it's not called 'reading for a degree' for nothing.[2][7]

Evaluate Your Reading Habits
Analyze your present reading habits so that you know where to improve your skills.

- *Do you use your lips, throat, or mind to "vocalize" words?*
  You are probably still using the childhood habit of sounding out each word.

- *Do strange words constantly stop your progress?*
  Your vocabulary needs improving.

- *Do you read every single word?*
  You should train your eyes to span phrases or "thought units" instead of individual words.

Improving Your Reading Skills
Reading is the most important learning skill you can acquire for success and enjoyment throughout your life. It is an integral part of our personal and working lives. Consider how much time you spend every day reading newspapers, letters, books, menus, directions, or signs. Eighty-five percent of college work, for example, involves reading. The better you read, the more you will succeed in study or work and the more you will enjoy the time you spend with books. [25]

- **Reading is basically the understanding or words and the associations between them.**
  To improve your reading skills you must increase your ability to see and understand the grouping of words, or ideas, at a speed and in a manner that is comfortable for you.

- **To be a good reader, concentrate on what you are doing and learn to use your eyes to the best of your ability.**
  Move them at a rate that allows your brain to absorb the main ideas printed on a page. Poor readers are usually distracted and read each word without grasping the relationships between them. This causes them to retrace or reread the material.

- **Reading is a skill that requires practice.**
  Most people do not perfect their reading after the fifth grade. High school and college students are often poor readers. They overlook the need to continually use and improve good reading habits. Your eyes, like fingers for the piano or legs for skiing, must be trained to be skillful.

Here are five tips to help you improve your reading:
1. Styles of reading
2. Active reading
3. A tip for speeding up your active reading
4. Spotting authors' navigation aids
5. Words and vocabulary

1. Styles of reading

There are three styles of reading which we use in different situations:

Scanning: for a specific focus

The technique you use when you're looking up a name in the phone book: you move your eye quickly over the page to find particular words or phrases that are relevant to the task you're doing.

It's useful to scan parts of texts to see if they're going to be useful to you:

- the introduction or preface of a book

- the first or last paragraphs of chapters

- the concluding chapter of a book.

Skimming: for getting the gist of something

The technique you use when you're going through a newspaper or magazine: you read quickly to get the main points, and skip over the detail. It's useful to skim:
- to preview a passage before you read it in detail
- to refresh your understand of a passage after you've read it in detail.

Use skimming when you're trying to decide if a book in the library or bookshop is right for you.

Detailed reading: for extracting information accurately

Where you read every word, and work to learn from the text.

In this careful reading, you may find it helpful to skim first, to get a general idea, but then go back to read in detail. Use a dictionary to make sure you understand all the words used.

2. Active reading

When you're reading for your course, you need to make sure you're actively involved with the text. It's a waste of your time to just passively read, the way you'd read a thriller on holiday.

Always make notes to keep up your concentration and understanding.

Here are four tips for active reading.

- **Underlining and highlighting**

Pick out what you think are the most important parts of what you are reading. Do this with your own copy of texts or on photocopies, not with borrowed books.

If you are a visual learner, you'll find it helpful to use different colors to highlight different aspects of what you're reading.

- **Note key words**

Record the main headings as you read. Use one or two keywords for each point. When you don't want to mark the text, keep a folder of notes you make while reading.

- **Questions**

Before you start reading something like an article, a chapter or a whole book, prepare for your reading by noting down questions you want the material to answer. While you're reading, note down questions which the author raises.

- **Summaries**

Pause after you've read a section of text.

Then put what you've read into your own words; skim through the text and check how accurate your summary is and fill in any gaps.

3. A tip for speeding up your active reading

You should learn a huge amount from your reading. If you read passively, without learning, you're wasting your time. So train your mind to learn.

Try the SQ3R technique. SQ3R stands for Survey, Question, Read, Recall and Review.

Survey

Gather the information you need to focus on the work and set goals:

- Read the title to help prepare for the subject

- Read the introduction or summary to see what the author thinks are the key points

- Notice the boldface headings to see what the structure is

- Notice any maps, graphs or charts. They are there for a purpose

- Notice the reading aids, italics, bold face, questions at the end of the chapter. They are all there to help you understand and remember.

Question

Help your mind to engage and concentrate. Your mind is engaged in learning when it is actively looking for answers to questions.

Try turning the boldface headings into questions you think the section should answer.

Read

Read the first section with your questions in mind. Look for the answers, and make up new questions if necessary.

Recall

After each section, stop and think back to your questions. See if you can answer them from memory. If not, take a look back at the text. Do this as often as you need to.

Review

Once you have finished the whole chapter, go back over all the questions from all the headings. See you if can still answer them. If not, look back and refresh your memory.

Se4. Spotting authors' navigation aids

Learn to recognize sequence signals, for example:

"Three advantages of..." or "A number of methods are available..." leads you to expect several points to follow.

The first sentence of a paragraph will often indicate a sequence: "One important cause of..." followed by "Another important factor..." and so on, until "The final cause of..."

General points are often illustrated by particular examples, for example:

General: Birds' beaks are appropriately shaped for feeding.

Particular: Sparrows and other seed-eating birds have short, stubby beaks; wrens and other insect eaters have thin pointed beaks; herons and other fish hunters have long, sharp beaks for spearing their prey.

Whatever you are reading, be aware of the author's background. It is important to recognize the bias given to writing by a writer's political, religious, social background. Learn which newspapers and journals represent a particular stand point. e also: Taking notes, Gathering information

5. Words and vocabulary

When you're a graduate people expect you to use a vocabulary which is wider than a school-leaver's. To expand your vocabulary:

Choose a large dictionary rather than one which is 'compact' or 'concise'. You want one which is big enough to define words clearly and helpfully (around 1,500 pages is a good size).

Avoid dictionaries which send you round in circles by just giving synonyms. A pocket dictionary might suggest: 'impetuous = rash'.

A more comprehensive dictionary will tell you that impetuous means 'rushing with force and violence', while another gives 'liable to act without consideration', and add to your understanding by giving the derivation '14th century, from late Latin impetuous = violent'.
It will tell you that rash means 'acting without due consideration or thought', and is derived from Old High German rasc = hurried.
So underlying these two similar words is the difference between violence and hurrying.
There are over 600,000 words in the Oxford English Dictionary; most of them have different meanings, (only a small proportion are synonyms).

Avoid dictionaries which send you round in circles by using very complicated language to define the term you're looking up, leaving you struggling to understand half a dozen new words. Keep your dictionary at hand when you're studying. Look up unfamiliar words and work to understand what they mean. Improve your vocabulary by reading widely. If you haven't got your dictionary with you, note down words which you don't understand and look them up later.

Exercises on Skimming and Scanning

Pulp Friction

Every second, 1 hectare of the world's rainforest is destroyed. That's equivalent to two football fields. An area the size of New York City is lost every day. In a year, that adds up to 31 million hectares -- more than the land area of Poland. This alarming rate of destruction has serious consequences for the environment; scientists estimate, for example, that 137 species of plant, insect or animal become extinct every day due to logging. In British Columbia, where, since 1990, thirteen rainforest valleys have been clearcut, 142 species of salmon have already become extinct, and the habitats of grizzly bears, wolves and many other creatures are threatened. Logging, however, provides jobs, profits, taxes for the government and cheap products of all kinds for consumers, so the government is reluctant to restrict or control it.

Much of Canada's forestry production goes towards making pulp and paper. According to the Canadian Pulp and Paper Association, Canada supplies 34% of the world's wood pulp and 49% of its newsprint paper. If these paper products could be produced in some other way, Canadian forests could be preserved. Recently, a possible alternative way of producing paper has been suggested by agriculturalists and environmentalists: a plant called hemp.

Hemp has been cultivated by many cultures for thousands of years. It produces fibre which can be made into paper, fuel, oils, textiles, food, and rope. For centuries, it was essential to the economies of many countries because it was used to make the ropes and cables used on sailing ships; colonial expansion and the establishment of a world-wide trading network would not have been feasible without hemp. Nowadays, ships' cables are usually made from wire or synthetic fibres, but scientists are now suggesting that the cultivation of hemp should be revived for the production of paper and pulp. According to its proponents, four times as much paper can be produced from land using hemp rather than trees, and many environmentalists believe that the large-scale cultivation of hemp could reduce the pressure on Canada's forests.

However, there is a problem: hemp is illegal in many countries of the world. This plant, so useful for fibre, rope, oil, fuel and textiles, is a species of cannabis, related to the plant from which marijuana is produced. In the late 1930s, a movement to ban the drug marijuana began to gather force, resulting in the eventual banning of the cultivation not only of the plant used to produce the drug, but also of the commercial fibre-producing hemp plant. Although both George Washington and Thomas Jefferson grew hemp in large quantities on their own land, any American growing the plant today would soon find himself in prison -- despite the fact that marijuana cannot be produced from the hemp plant, since it contains almost no THC (the active ingredient in the drug).

In recent years, two major movements for legalization have been gathering strength. One group of activists believes that ALL cannabis should be legal -- both the hemp plant and the marijuana plant -- and that the use of the drug marijuana should not be an offense. They argue that marijuana is not dangerous or addictive, and that it is used by large numbers of people who are not criminals but productive members of society. They also point out that marijuana is less toxic than alcohol or tobacco. The other legalization movement is concerned only with the hemp plant used to produce fibre; this group wants to make it legal to cultivate the plant and sell the fibre for paper and pulp production. This second group has had a major triumph recently: in 1997, Canada legalized the farming of hemp for fibre. For the first time since 1938, hundreds of farmers are planting this crop, and soon we can expect to see pulp and paper produced from this new source.[26]

Exercise 1 : Skimming

Select the answer you think is correct.

1. **The main idea of paragraph one is:**
   a. Scientists are worried about New York City
   b. Logging is destroying the rainforests
   c. Governments make money from logging
   d. Salmon are an endangered species

2. **The main idea of paragraph two is:**
   a. Canadian forests are especially under threat
   b. Hemp is a kind of plant
   c. Canada is a major supplier of paper and pulp
   d. Canada produces a lot of hemp

3. **The main idea of paragraph three is:**
   a. Paper could be made from hemp instead of trees
   b. Hemp is useful for fuel
   c. Hemp has been cultivated throughout history
   d. Hemp is essential for building large ships

4. **The main idea of paragraph four is:**
   a. Hemp is used to produce drugs
   b. Many famous people used to grow hemp
   c. It is illegal to grow hemp
   d. Hemp is useful for producing many things

5. **The main idea of paragraph five is:**
   a. Hemp should be illegal because it is dangerous
   b. Recently, many people have been working to legalize hemp
   c. Hemp was made illegal in 1938
   d. Marijuana is not a dangerous drug

Exercise 2 : Scanning

1. **How many species of salmon have become extinct in BC?**
   a. 27
   b. 31
   c. 137
   d. 142

2. **How much of the world's newsprint paper is supplied by Canada?**
   a. 31%
   b. 49%
   c. 34%
   d. 19%

3. **What equipment on a ship was made from hemp?**
   a. Ropes
   b. waterproof cloth
   c. engine fuel
   d. life rafts

4. **What drug can be obtained from a relative of hemp?**
   a. cocaine
   b. heroin
   c. amphetamine
   d. marijuana

5. **Where was hemp farming recently legalized?**
   a. the USA
   b. Canada
   c. Singapore
   d. the Netherlands[26]

CHAPTER 8

HOW TO CONDUCT A GOOD PRESENTATION

Introduction
What do I define as a presentation?

In the broadest sense, it's every encounter you have with every person you ever meet. It's when you sit squirming in an interviewer's chair trying to be eloquent when you are asked why you left your last job. More specifically, however, I'm going to talk about the *business presentation*. Whenever you are asked to appear in front of one or more people for the purpose of explaining, educating, convincing, or otherwise conveying information to them, you have a presentation.

Compressed to its essence, a presentation consists of four basic elements: *you, your audience, your message and your tools.*

In this series, we'll look at each one, starting off with planning for your visuals and support materials. Later, we'll look at presentation and speaking techniques, attitudes, travel disasters and other problems faced by both the professional and the occasional presenter.

Visual Presentations - General Guidelines *(Your Tools)*

The central purpose of any presentation, written, oral or visual, is communication. To communicate effectively, you must state your facts in a simple, concise and interesting

manner. It is proven that the people learn more readily and retain more information when learning is reinforced by visualization. You can entertain, inform, excite and even shock an audience by the proper integration of visual images into virtually any exchange of information. Meetings which might normally be considered dull, or a chore to be avoided, can be transformed into exciting productions that grab the attention of the viewers.

This kind of presentation maximizes the audience retention of the subject matter. The phrase *"a picture is worth a thousand words"* has existed since the New York Post discovered the value of visuals in the news business. This remains true to this day. Simple, clear, concise visual images, briskly paced and sprinkled with attention-grabbing graphics will lend support to your spoken words. This leaves your audience with a positive attitude toward you and your product, service or proposal.

Visuals in business should be used in support of the spoken or written word, and not in lieu of it. A well-developed concept and effective script are the essential elements of any presentation. Regardless of their form, they should be the first and most important phase of its development. When the concept begins to take final form, the visuals are developed around it.

This is not to imply that A-V design should be placed near the end of the project. You must begin mentally planning your visuals at the beginning of the design process. Hastily designed and produced visuals can doom a presentation (and a presenter,) where well planned and executed images add tremendous strength. Concepts that are difficult to grasp can be communicated quickly and easily through the intelligent use of professionally produced visuals. This allows you the freedom to communicate more complex subject matter in a more efficient manner, adding support and impact to your script.

Finally, your presentation should be entertaining. Leave the audience feeling better and more relaxed when they leave and that impression will carry over to both your subject matter and yourself. There is no logical reason that the presentation of routine sales figures and financial reports should not be as exciting as the unveiling of a new product or a first rate service proposal.[26]

The Key Steps

1. KNOW YOUR SUBJECT MATTER

While this first point may seem obvious, it is very important that you research every nuance of your subject. Read reports and look up information about the subject with the specific purpose of writing a presentation script. When examined in this light, new ideas and alternative ways of thinking often develop. The ability to present a subject with confidence directly affects your audience's impressions and will help keep their attention.

This is especially important when giving a design presentation or proposal since you are in effect selling" your ideas to the audience. This applies whether the audience is a potential client or your own board of directors.

2. KNOW YOUR AUDIENCE

A small amount of research into the makeup of your audience will reap large benefits on presentation day.

If you were traveling about speaking on behalf of a new construction project you would tailor vastly different presentations to an audience of engineers and a city council. You'd should also have a couple of other versions for local community activist groups. *(depending on whether they're for or against the project)*

Before you 're-purpose' your *Teamsters* speech for use at the *Baptist Building Fund* make the obvious adjustments and then carefully review your content from the 'philosophical' viewpoint of your audience. (related to Know Your Limits Below)

If a small amount of research will help you, imagine what a moderate amount will do!

3. KNOW YOURSELF (and your limits)

We all must push our limits and willingly bite off more than we may be comfortable swallowing on occasion -- this is how we learn and grow. Knowing a few of your limits, however, might avert disaster, or at least embarrassment.

Intimately related to *Know Your Audience* above, your 'limits' are just where you may or may not tread, depending on the makeup of your audience and your relationship with them.

Just because the Mormons laughed when Whoopee Goldberg said or did something doesn't mean *you* can pull it off. The Presbyterians might think it amusing while the Baptists call it blasphemy. In fact, I'm certain the mere mention of specific 'denominations' here will generate angry E-mail.*(See also, the Devil is in the Details later on)*

George Carlin, Tom Peters, Billy Graham, Al Sharpton and a host of others can get away with, and even receive praise and applause for saying or doing things that would get you or me tarred, feathered, sued or booed by *our* respective audiences.

4. DEVELOP A THEME

All presentations, regardless of their complexity, are designed with a single purpose. Whether that purpose is to sell, educate, or for pure entertainment, state that purpose to yourself at the beginning of the development process. Keep this purpose in mind always.

5. PREPARE YOUR SCRIPT

The script does not necessarily have to be a work of literary excellence. For some, simple notes on 3 x 5 file cards are sufficient. Other presenters and presentations require a carefully composed, professionally developed script. The exact form of the script depends on the formality of the presentation, the makeup of the audience and who will be presenting it. Any presentation script, regardless of complexity is like any other business correspondence. It should consist of the same four basic parts, an opening, body, summary and closing.

• THE OPENING

The opening of the presentation sets the stage for what is to follow. Participants are introduced and the purpose of the presentation is stated. You should also present a VERY BRIEF summary or outline of the points to be covered. This helps keep your audience oriented properly within the framework of your script.

• BODY

This is the part of the script in which the bulk of the subject matter is presented. The body of a long presentation should be separated into smaller, easily assimilated modules. Each module or sub-section should make a single point or convey one idea. These sub-sections should each have their own simple opening, body and summary.

• SUMMARY

This portion should be *very brief and simple*. Here is your chance to reinforce the central theme and purpose of your presentation. Briefly emphasize the key points and main ideas of your script in this section.

There is an old axiom that says ... "Tell them what you are going to tell them, tell them, and then tell them what you told them." This pretty well sums it up. Question and answer sessions often follow a final summary and are very productive if managed properly. You should encourage questions from the audience if time or format permits, but be prepared to answer them. If you do not know the correct answer to a question, don't try to fake it. You should refer the question to someone who can answer it correctly or make a note to yourself to obtain the answer later. When you do, contact the person or persons who asked it as soon as possible. This makes an excellent door opener for follow up calls.

Old Speakers Trick: If you Don't want any questions, look the audience over and ask if there are any questions. This puts pressure on the audience and makes many of them choke, and therefore, not respond.

• CLOSING

In a well structured closing, points raised during the question and answer session (if any) are summarized and any handout material that was not required during the presentation is distributed. Handout material which emphasizes each key point or idea permits your audience to review the subject and assures that your words will remain fresh in their minds. *Handout material should not be distributed before a presentation unless it is critical to the theme since it invariably leads to audience distraction.*

6. SELECT THE PROPER VISUAL AIDS

With the script developed and the audience research completed, this decision should be simple. A five minute presentation to a three person audience is probably best made with handout material alone, or even simple flip charts. Larger audiences might be effectively reached by using a few simple overhead transparencies. (yes, they still have their purpose, though mostly with Government and Education.)

The 35mm Slide - R.I.P.

At a Management Graphics User group meeting around 1990 I gave the 35mm Color Slide about another ten years or so maximum as a viable profit center for most graphics productions companies. I didn't miss it by much.

The resolution, brightness and price of Computer/Video projectors means that home-brew laptop based video projector presentations are now the norm.

The design workstations of the 90's running suites of complex four and five-figure software on five and six-figure computers gave way to laptops with PowerPoint and the free software that came with your three-figure digital still/video camera.

If PowerPoint™ and similar charting and presentation software is a bit rich for your budget, you may find the free, open-source office suite, Open Office fits your bill perfectly. Distributed free of charge by Sun, the Open Office Suite includes a Word Processor, Spreadsheet, Database and a Presentation program. Open Office is largely compatible with Microsoft Office™, and again, you can't beat the price.

To help justify the purchase of your projector, keep in mind, most of these accept input from a TV, DVD or other video source. When not serving as a presentation tool you can have a huge-screen TV, limited only by the size of the wall onto which it's projected. (Can we say Super Super-Bowl Party?)

Major presentations at annual meetings, trade shows, sales conferences, and presentations to stockholders or client proposals might still dictate an all out effort with professionally produced special effects, video and all manner of glitz and expense.

Good presentation visuals, however, do not have to be expensive. When properly planned and produced, simple, well designed graphics add professionalism and impact to virtually any show. The proper use of text images, charts and graphs as well as the correct type of chart or graph to use in various circumstances is the subject of another article in this series. I will, however, touch on a few of the deadly design sins of presentation visuals a bit later.

7. PREPARE A STORY BOARD

A story board does not have to be complicated or time consuming to prepare. Its main purpose is to give a general view of the presentation and communicate the important items to the technicians and artists who are creating and assembling the images.

You can make your story board using file cards and post- it notes, or opt for a comprehensive color story board, prepared by professional designers. Changes at the story board level are relatively inexpensive since no images have been produced. During the story board phase you can rehearse the script and easily rearrange, revise, delete from and add to your presentation. When your story board reaches final form it becomes the finished draft for your presentation. This is one of the most important design tools used to produce your graphics.

The final story board should consist of a sketch of each individual image, in sufficient detail to convey its approximate finished appearance. If more detailed instructions are needed to create an image than can be clearly conveyed on the story board, individual layout sheets should be prepared. These sheets should specify colors, formats, fonts and values for graphs and charts.

If specific artwork or photographs must be used in an image, they should be clearly indicated on the story board or layout sheet for that image.

8. PRODUCE THE VISUALS

If the previous steps have been carefully followed, this can be the easiest part of preparing your presentation.

With careful, timely planning, the only task remaining is mechanical process of production. The complete and accurate planning that you have done to this point assures a smooth production cycle without the need for unnecessary last minute changes. This is true whether you use Magic Markers to prepare flip charts on a newsprint pad or require a nine projector slide presentation with live video.

Today's computer graphics products permit you to make changes and alterations that could not be accomplished using any other method of production. While last minute changes are possible, avoiding them can still help cut the cost of your presentation by eliminating revision and rush fees.

9. REHEARSE--REHEARSE--REHEARSE

Your final script and outline or story board permit you to rehearse your presentation even before the visuals are completed. This assures that when your final images are prepared and ready, you will be as well.

If you'd like to really test your mettle, drag out the camcorder and tape your rehearsal. Just keep in mind, no one expects you to be Winston Churchill.

10. PRESENTATION DAY

On the day of the presentation, arrive and set up early. Have spare projector bulbs and extra copies of the handout material close at hand.

You have your visuals, you are well rehearsed, the room is set up and the participants are all prepared. Speak clearly and with authority. A little humor if tastefully added can help break the tension of the moment. There should be no surprises. Make certain that the audience questions have been addressed, and of course, thank everyone for attending.

11. FOLLOW UP

Check back with the attendants and participants to assure that your presentation goals were met. A questionnaire distributed at the end of your presentation can be a source of critical information for follow up calls or future presentations. Encourage the attendants to call or write with any questions that they did not get answered during the presentation.

Tips and Suggestions

To give good presentations, you have to find a topic and be able to talk about it for a few minutes. Most *teachers or instructors have guidelines* that tell you how to present and what to present about, so be very careful and follow what your teacher says. The following **Tips and Suggestions** are general suggestions that can help you get a good mark for your presentation.

In your presentation you have to fulfill at least one of the following four (4) objectives:

1. **To Inform**
   - When you inform you are **sharing knowledge**. Talk only about the data that is relevant (necessary) to the audiences' needs. Too much information is boring.
2. **To Entertain**
   - Avoid jokes as **Personal anecdotes** (stories) are the most sincere way to win an audience. Always relate your humor directly to your presentation topic. Focus on energizing the audience in the first couple of minutes then get to the "meat" (body).
3. **To Touch Emotions**
   - Do not depress your listeners. **Never criticize** without offering constructive solutions. Offer ideas improve the situation.
4. **Move to Action**
   - What is the one thing you want the audience to do in reaction to your speech? **Be specific and direct!** You have to request a commitment.

Tips for a Good Presentation:

Introduction:

- When introducing your topic, **smile and look at the audience**, do not look down in fear.
- **Start slowly**, with your shoulders back and chin up and **then gradually speed up**.
- Use a **genuine opening** like: "I am glad to be here today"; "I am happy to be talking to you about …"; "I am delighted to share with you…"
- Recognize that **you are the expert** on the topic you are talking about.
- **Always Smile** and tell yourself how good you feel.
- **Dress nicely** in professional looking clothes.

Voice:

- **Be Heard**
  - ☐ Make sure your audience can hear you, so **practice projecting your voice** as there is *no excuse for not being loud enough.*
- **Air Intake**
  - ☐ Effective air intake (*breathe*) and appropriate pauses during your talk will help you **control the volume** of your voice.
- **Vary your voice**
  - ☐ Periodically **change your speed, pitch and volume** and *do not mumble in a monotone* (one tone). If you blank out, forget a word or choke, just smile! The audience will assume you know what you are doing.
- **How to improve your voice**
  - ☐ Learn to **listen to yourself talk** so you can control your voice more easily because you are conscious of how you sound before you speak.
- **Fluency**
  - ☐ **Avoid saying words when you stop**, such as: "Um", "Er", "Like", and "Totally".

Body Language:

- **Smile**
  - ☐ This is very important as your **positive attitude** rubs off on the audience.
- **Eye Contact**
  - ☐ This **builds trust** with the audience, so look at them and the instructor.
- **Gestures**
  - ☐ This means **speaking with your hands**. Try to make sure gestures are smooth and natural and do not use too many.
- **Keep your hands out of your pockets**
  - ☐ Keep them visible and feel comfortable using them.

- **Shoulders**
  - ☐ Can help convey confidence if straight, but if bent they can also make you appear tense and nervous. So, **keep your shoulders straight!**

Visual Aids:

Not necessary in all presentations, but if they are, follow these rules:

- **Keep them simple**
  - ☐ Put the **main points** on them only.
- **Minimize words**
  - ☐ The audience wants to hear your presentation, not read the paper.
- **Use large fonts**
  - ☐ Large fonts will let the back row of students see the presentation.
- **List key points**
  - ☐ Makes them easier to remember.
- **Use color**
  - ☐ The audience pays attention when they have to watch colorful images
- **Prepare Handouts**
  - ☐ This **helps the audience remember your topic** the next day, something they will thank you for, if they have to write a test or an exam.

What Not to do in a Presentation:

- Don't talk to your audience in a manner that creates unnecessary distance.
- Don't talk down to them by using sophisticated words, foreign expressions or obscure quotations, unless you are sure they will appreciate them. So no big, fancy words to sound smart! (You don't need them)
- Don't come across as arrogant (proud) in your knowledge of your subject and its terminology; communicate to listeners in words they can understand.

Things to avoid:

- Do not make excuses or comments about the fact that you have never presented before.
- Never speak if you do not know what to say. Remember that you are the expert!
- Learn how to control the use of "You know"
- Saying nothing is better than saying "Uh…uhhh….ummm"

Final Tips:

1. **Know your subject and your topic**
   - ☐ Do your **research** before beginning the presentation.
2. **Rehearse**
   - ☐ Usually the best place to do this **in front of your mirror**, because you can see your body language during the presentation.
3. **Maintain eye contact**
   - ☐ Do this not only with the instructor, but **with everyone**, in the audience.

4. **Remain Calm**
   □ Try to get a good night's sleep before the presentation, and remember to breathe deeply if you feel upset during the presentation.

5. **Smile**
   □ Smile at the audience until your cheeks hurt, this helps you feel confident and relaxed.

6. **Keep time for questions**
   □ Try to think of sample questions about your topic and come up with answers for them.

CHAPTER 9

THE STRUCTURE, FORMAT, CONTENT, AND STYLE OF A JOURNAL-STYLE SCIENTIFIC PAPER

Why a Scientific Format?

The scientific format may seem confusing for the beginning science writer due to its rigid structure which is so different from writing in the humanities. One reason for using this format is that it is a means of efficiently communicating scientific findings to the broad community of scientists in a uniform manner. Another reason, perhaps more important than the first, is that this format allows the paper to be read at several different levels. For example, many people skim Titles to find out what information is available on a subject. Others may read only titles and Abstracts. Those wanting to go deeper may look at the Tables and Figures in the Results, and so on. The take home point here is that the scientific format helps to insure that at whatever level a person reads your paper (beyond title skimming), they will likely get the key results and conclusions.[28]

The Sections of the Paper

Most journal-style scientific papers are subdivided into the following sections: Title, Authors,Affiliation, Abstract, Introduction, Methods, Results, Discussion, Acknowledgments, and Literature Cited, which parallel the experimental process. This is the system we will use. This website describes the style, content, and format associated with each section.

The sections appear in a journal style paper in the following prescribed order:

Experimental process	Section of Paper
What did I do in a nutshell?	Abstract
What is the problem?	Introduction
How did I solve the problem?	Materials and Methods
What did I find out?	Results
What does it mean?	Discussion
Who helped me out?	Acknowledgments (optional)
Whose work did I refer to?	Literature Cited
Extra Information	Appendices (optional)

Section Headings:

Main Section Headings: Each main section of the paper begins with a heading which should be *capitalized*, *centered* at the beginning of the section, and *double spaced* from the lines above and below. **Do not underline the section heading OR put a colon at the end.**

Example of a main section heading:

INTRODUCTION

Subheadings: When your paper reports on more than one experiment, use subheadings to help organize the presentation. Subheadings should be *capitalized* (first letter in each word), *left justified,* and either *bold italics* OR *underlined*.

Example of a subheading:

Effects of Light Intensity on the Rate of Electron Transport

Title, Authors' Names, and Institutional Affiliations

1. **Function:** Your paper should begin with a **Title** that succinctly describes the *contents* of the paper. Use descriptive words that you would associate strongly with the content of your paper: the molecule studied, the organism used or studied, the treatment, the location of a field site, the response measured, etc. A majority of readers will find your paper via electronic database searches and those search engines key on words found in the title.

2. **Title**

3. **Format:**

   - The **title** should be centered at the top of page 1 (DO NOT use a title page - it is a waste of paper for our purposes); the title is NOT underlined or italicized.
   - the **authors' names** (PI or primary author first) and **institutional affiliation** are *double-spaced from and centered below* the title. When more than two authors, the names are separated by commas except for the last which is separated from the previous name by the word "and".

For example:

Ducks Over-Winter in Colorado Barley Fields in Response to Increased Daily Mean Temperature

Ima Mallard, Ura Drake, and Woodruff Ducque

Department of Wildlife Biology, University of Colorado - Boulder

The title is not a section, but it is necessary and important. The title should be short and unambiguous, yet be an adequate description of the work. A general rule-of-thumb is that the title should contain the **key words describing the work** presented. Remember that the title becomes the basis for most on-line computer searches - if your title is insufficient, few people will find or read your paper. For example, in a paper reporting on an experiment involving dosing mice with the sex hormone estrogen and watching for a certain kind of courtship behavior, *a poor title would be:*

Mouse Behavior

Why? It is very general, and could be referring to any of a number of mouse behaviors. *A better title would be:*

The Effects of Estrogen on the Nose-Twitch Courtship Behavior in Mice

Why? Because the key words identify a specific behavior, a modifying agent, and the experimental organism. If possible, give the key result of the study in the title, as seen in the first example. Similarly, the above title could be restated as:

Estrogen Stimulates Intensity of Nose-Twitch Courtship Behavior in Mice

4. **Strategy for Writing Title.**

ABSTRACT

1. **Function:** An abstract summarizes, in one paragraph (usually), the major aspects of the entire paper in the following prescribed sequence:

   - the *question(s) you investigated* (or purpose), **(from Introduction)**
     o state the purpose very clearly in the first or second sentence.
   - the *experimental design and methods* used, **(from Methods)**
     o clearly express the basic design of the study.
     o Name or briefly describe the basic methodology used without going into excessive detail-be sure to indicate the key techniques used.
   - the *major findings* including *key quantitative results*, or *trends* **(from Results)**
     o report those results which answer the questions you were asking
     o identify trends, relative change or differences, etc.
   - a brief summary of your *interpretations* and *conclusions*. (from **Discussion**)
     o clearly state the implications of the answers your results gave you.

Whereas the Title can only make the simplest statement about the content of your article, the Abstract allows you to elaborate more on each major aspect of the paper. The length of your Abstract should be kept to about 200-300 words maximum (a typical standard length for journals.) Limit your statements concerning each segment of the paper (i.e. purpose, methods, results, etc.) to two or three sentences, if possible. The Abstract helps readers decide whether they want to read the rest of the paper, or it may be the only part they can obtain via electronic literature searches or in published abstracts. Therefore, enough key information (e.g., summary results, observations, trends, etc.) must be included to make the Abstract useful to someone who may to reference your work.

How do you know when you have enough information in your Abstract? A simple rule-of-thumb is to imagine that you are another researcher doing an study similar to the one you are

reporting. If your Abstract was the only part of the paper you could access, would you be happy with the information presented there?

2. **Style:** The Abstract is ONLY text. Use the active voice when possible, but much of it may require passive constructions. Write your Abstract using concise, but complete, sentences, and get to the point quickly. **Use past tense.** Maximum length should be 200-300 words, usually in a single paragraph.

The Abstract **SHOULD NOT** contain:

- lengthy background information,
- references to other literature,
- elliptical (i.e., ending with ...) or incomplete sentences,
- abbreviations or terms that may be confusing to readers,
- any sort of illustration, figure, or table, or references to them.

3. **Strategy:** Although it is the first section of your paper, the Abstract, by definition, must be written last since it will summarize the paper. To begin composing your Abstract, take whole sentences or key phrases from each section and put them in a sequence which summarizes the paper. Then set about revising or adding words to make it all cohesive and clear. As you become more proficient you will most likely compose the Abstract from scratch.

4. **Check your work:** *Once you have the completed abstract, check to make sure that the information in the abstract completely agrees with what is written in the paper. Confirm that all the information appearing the abstract actually appears in the body of the paper.*

INTRODUCTION

1. **Function:** The function of the Introduction is to:

- Establish the context of the work being reported. This is accomplished by discussing the relevant primary research literature (with citations) and summarizing our current understanding of the problem you are investigating;
- State the purpose of the work in the form of the hypothesis, question, or problem you investigated; and,
- Briefly explain your rationale and approach and, whenever possible, the possible outcomes your study can reveal.

Quite literally, the Introduction must answer the questions, "*What was I studying? Why was it an important question? What did we know about it before I did this study? How will this study advance our knowledge?*"

2. **Style:** Use the active voice as much as possible. Some use of first person is okay, but do not overdo it.

3. **Structure:** The structure of the Introduction can be thought of as an inverted triangle - the broadest part at the top representing the most general information and focusing down to the specific problem you studied. Organize the information to present the more general aspects of the topic early in the Introduction, then narrow toward the more specific topical information that provides context, finally arriving at your statement of purpose and rationale. A good way to get on track is to sketch out the Introduction *backwards*; start with the specific purpose and then decide what is the scientific context in which you are asking the question(s) your study addresses. Once the scientific context is decided, then you'll have a good sense of what level and type of general information with which the Introduction should begin.

Here is the information should flow in your Introduction:

- **Begin your Introduction by clearly identifying the subject area of interest.** Do this by using *key words* from your Title in the first few sentences of the Introduction to get it focused directly on topic at the appropriate level. This insures that you get to the primary subject matter quickly without losing focus, or discussing information that is too general. For example, in the mouse behavior paper, the words *hormones* and *behavior* would likely appear within the first one or two sentences of the Introduction.

- **Establish the *context* by providing a brief and balanced review of the pertinent published literature that is available on the subject.** The key is to summarize (for the reader) what we knew about the specific problem *before* you did your experiments or studies. This is accomplished with a general review of the *primary research literature* (with citations) but should not include very specific, lengthy explanations that you will probably discuss in greater detail later in the Discussion. The judgment of what is general or specific is difficult at first, but with practice and reading of the scientific literature you will develop e firmer sense of your audience. In the mouse behavior paper, for example, you would begin the Introduction at the level of mating behavior in general, then quickly focus to mouse mating behaviors and then hormonal regulation of behavior. Lead the reader to your statement of purpose/hypothesis by focusing your literature review from the more general context (the big picture e.g., hormonal modulation of behaviors) to the more specific topic of interest to you (e.g., role/effects of reproductive hormones, especially estrogen, in modulating specific sexual behaviors of mice.)

- **What literature should you look for in your review of what we know about the problem?** Focus your efforts on the *primary research journals* - the journals that publish original research articles. Although you may read some general background references (encyclopedias, textbooks, lab manuals, style manuals, etc.) to get yourself acquainted with the subject area, do not cite these, because, they contain information that is considered fundamental or "common" knowledge within the discipline. Cite, instead, articles that reported specific results relevant to your study. Learn, as soon as possible, how to find the *primary literature* (research journals) and *review articles* rather than depending on reference books. The articles listed in the Literature Cited of relevant papers you find are a good starting point to move *backwards* in a line of inquiry. Most academic libraries support the **Citation Index** - an index which is useful for tracking a line of inquiry *forward* in time. Some of the newer search engines will actually send you alerts of new papers that cite particular articles of interest to you. *Review articles* are particularly useful because they summarize all the

research done on a narrow subject area over a brief period of time (a year to a few years in most cases).

- **Be sure to clearly state the purpose and /or hypothesis that you investigated.** When you are first learning to write in this format it is okay, and actually preferable, to use a pat statement like, "The purpose of this study was to...." or "We investigated three possible mechanisms to explain the ... (1) blah, blah..(2) etc. It is most usual to place the statement of purpose near the end of the Introduction, often as the topic sentence of the final paragraph. It is not necessary (or even desirable) to use the words "hypothesis" or "null hypothesis", since these are usually implicit if you clearly state your purpose and expectations.

- **Provide a clear statement of the rationale for your approach to the problem studied.** For example: State briefly how you approached the problem (e.g., you studied oxidative respiration pathways in isolated mitochondria of cauliflower). This will usually follow your statement of purpose in the last paragraph of the Introduction. Why did you choose this kind of experiment or experimental design? What are the scientific merits of this particular *model* system? What advantages does it confer in answering the particular question(s) you are posing? Do not discuss here the actual *techniques* or *protocols* used in your study (this will be done in the Materials and Methods); your readers will be quite familiar with the usual techniques and approaches used in your field. If you are using a *novel* (new, revolutionary, never used before) technique or methodology, the merits of the new technique/method versus the previously used methods *should be* presented in the Introduction.

MATERIALS AND METHODS

This section is variously called **Methods** or **Methods and Materials**.

1. **Function**: In this section you explain *clearly* how you carried out your study in the following *general* structure and organization (details follow below):

   - **the organism(s) studied** (plant, animal, human, etc.) and, when relevant, their pre-experiment handling and care, and when and where the study was carried out (*only* if location and time are important factors); note that the term "subject" is used ONLY for human studies.
   - if you did a field study, provide a **description of the study site**, including the significant physical and biological features, and the precise location (latitude and longitude, map, etc);
   - **the experimental OR sampling design** (i.e., how the experiment or study was structured. For example, controls, treatments, what variable(s) were measured, how many samples were collected, replication, the final form of the data, etc.);
   - **the protocol for collecting data**, i.e., how the experimental procedures were carried out, and,
   - **how the data were analyzed** (qualitative analyses and/or statistical procedures used to determine significance, data transformations used, what probability was used to decide significance, etc).

Organize your presentation so your reader will understand the logical flow of the experiment(s); **subheadings** work well for this purpose. Each experiment or procedure

should be presented as a unit, even if it was broken up over time. The experimental design and procedure are sometimes most efficiently presented as an integrated unit, because otherwise it would be difficult to split them up. In general, provide enough quantitative detail (how much, how long, when, etc.) about your experimental protocol such that other scientists could reproduce your experiments. You should also indicate the statistical procedures used to analyze your results, including the probability level at which you determined significance (usually at 0.05 probability).

2. **Style**: The style in this section should read as if you were verbally describing the conduct of the experiment. You may use the active voice to a certain extent, although this section requires more use of third person, passive constructions than others. Avoid use of the first person in this section. Remember to use the **past tense** throughout - the work being reported is done, and was performed in the past, not the future. The Methods section *is not* a step-by-step, directive, protocol as you might see in your lab manual.

Describe the organism(s) used in the study. This includes giving the (1) *source* (supplier or where* and *how* the organisms were collected), (2) *typical size (weight, length, etc)*, (3) *how they were handled, fed, and housed* before the experiment, (4) *how they were handled, fed, and housed* during the experiment. In genetics studies include the strains or genetic stocks used. For some studies, age may be an important factor. For example, did you use mouse pups or adults? Seedlings or mature plants?

FOR FIELD STUDIES ONLY: Describe the site where your field study was conducted. The description must include both *physical* and *biological* characteristics of the site pertinent to the study aims. Include the date(s) of the study (e.g., 10-15 April 1994) and the exact location of the study area. Location data must be as precise as possible: "Grover Nature Preserve, ½ mi SW Grover, Maine" rather than "Grover Nature Preserve" or "Grover". When possible, give the actual latitude and longitude position of the site: these can be obtained using handheld GPS units, OR, from web resources such as Google Earth(TM) and MapQuest(TM). It is often a good idea to include a **map** (labeled as a Figure) showing the study location in relation to some larger more recognizable geographic area. Someone else should be able to go to the exact location of your study site if they want to repeat or check your work, or just visit your study area.

- **NOTE: For laboratory studies you need *not* report the date and location of the study *UNLESS* it is necessary information for someone to have who might wish to repeat your work or use the same facility. Most often it is *not*. If you have performed experiments at a particular location or lab because it is the only place to do it, or one of a few, then you should note that in your methods and identify the lab or facility.**

Describe your experimental design clearly. Be sure to include the *hypotheses* you tested, *controls*, *treatments*, *variables* measured, how many *replicates* you had, what you actually *measured*, what form the *data* take, etc. Always identify treatments by the variable or treatment name, NOT by an ambiguous, generic name or number (e.g., use "2.5% NaCl" rather than "test 1".) When your paper includes more than one experiment, use subheadings to help organize your presentation by experiment. A general experimental design worksheet is available to help plan your experiments in the core courses.

Describe the procedures for your study in sufficient detail that other scientists could repeat your work to verify your findings. Foremost in your description should be the "quantitative" aspects of your study - the masses, volumes, incubation times, concentrations, etc., that another scientist needs in order to duplicate your experiment. When using standard lab or field methods and instrumentation, it is not always necessary to explain the procedures (e.g., serial dilution) or equipment used (e.g., auto pipette) since other scientists will likely be familiar with them already.

You may want to identify certain types of equipment by vendor name and brand or category (e.g., ultracentrifuge vs. prep centrifuge), particularly if they are not commonly found in most labs. It is appropriate to report, parenthetically, the source (vendor) and catalog number for reagents used, e.g., "....poly-L-lysine (Sigma #1309)." When using a method described in another published source, you can save time and words by providing the relevant citation to the source. Always make sure to describe any modifications you have made of a standard or published method.

- **NOTE:** Very frequently the experimental design and data collection procedures for an experiment cannot be separated and must be integrated together. If you find yourself repeating lots of information about the experimental design when describing the data collection procedure(s), likely you can combine them and be more concise.
- **NOTE:** Although tempting, DO NOT say that you "*recorded the data,*" i.e., in your lab notebook, in the Methods description. *Of course you did,* because that is what all good scientists *do,* and it is a *given* that you recorded your measurements and observations.

Describe how the data were summarized and analyzed. Here you will indicate what types of descriptive statistics were used and which analyses (usually hypothesis tests) were employed to answer each of the questions or hypotheses tested and determine statistical significance.

The information should include:

- **Statistical software used:** Sometimes it is necessary to report which statistical software you used; this would be at the discretion of your instructor or the journal;
- how the data were **summarized** (Means, percent, etc) and how you are reporting **measures of variability** (SD, SEM, 95% CI, etc)
  - o this lets you avoid having to repeatedly indicate you are using mean ± SD or SEM.
- which **data transformations** were used(e.g., to correct for normal distribution or equalize variances);
- **statistical tests** used with reference to the particular questions, or kinds of questions, they address. For example,

"A Paired t-test was used to compare mean flight duration before and after applying stabilizers to the glider's wings."

"*One way ANOVA was used to compare mean weight gain in weight-matched calves fed the three different rations.*"

"*Comparisons among the three pH treatment groups for each variable were done using one way ANOVA (with Tukey's post hoc test) or a Kruskal-Wallis Test (with Dunn's post hoc test).*"

- any other **numerical** (e.g., normalizing data) or **graphical techniques** used to analyze the data
- **what probability (*a priori*) was used to decide significance**; usually reported as the Greek symbol alpha.
- NOTE: You *DO NOT* need to say that you made graphs and tables.

Here is some additional advice on particular problems common to new scientific writers.

Problem*: The Methods section is prone to being wordy or overly detailed.*

- *Avoid repeatedly using a single sentence to relate a single action*; this results in very lengthy, wordy passages. A related sequence of actions can be combined into one sentence to improve clarity and readability:

Problematic Example: This is a very long and wordy description of a common, simple procedure. It is characterized by single actions per sentence and lots of unnecessary details.

"*The petri dish was placed on the turntable. The lid was then raised slightly. An inoculating loop was used to transfer culture to the agar surface. The turntable was rotated 90 degrees by hand. The loop was moved lightly back and forth over the agar to spread the culture. The bacteria were then incubated at 37 C for 24 hr.*"

Improved Example: Same actions, but all the important information is given in a single, concise sentence. Note that superfluous detail and otherwise obvious information has been deleted while important missing information was added.

"*Each plate was placed on a turntable and streaked at opposing angles with fresh overnight E. coli culture using an inoculating loop. The bacteria were then incubated at 37 C for 24 hr.*"

Best: Here the author assumes the reader has basic knowledge of microbiological techniques and has deleted other superfluous information. The two sentences have been combined because they are related actions.

"*Each plate was streaked with fresh overnight E. coli culture and incubated at 37 C for 24 hr.*"

- **Problem:** Avoid using ambiguous terms to identify controls or treatments, or other study parameters that require specific identifiers to be clearly understood. Designators such as Tube 1, Tube 2, or Site 1 and Site 2 are completely meaningless out of context and difficult to follow in context.

Problematic example: In this example the reader will have no clue as to what the various tubes represent without having to constantly refer back to some previous point in the Methods.

"A Spec 20 was used to measure A600 of Tubes 1,2, and 3 immediately after chloroplasts were added (Time 0) and every 2 min. thereafter until the DCIP was completely reduced. Tube 4's A600 was measured only at Time 0 and at the end of the experiment."

Improved example: Notice how the substitution (in red) of treatment and control identifiers clarifies the passage both in the context of the paper, and if taken out of context.

"A Spec 20 was used to measure A600 of the reaction mixtures exposed to light intensities of 1500, 750, and 350 uE/m2/sec immediately after chloroplasts were added (Time 0) and every 2 min. thereafter until the DCIP was completely reduced. The A600 of the no-light control was measured only at Time 0 and at the end of the experiment."

RESULTS

1. **Function:** The function of the Results section is to objectively present your key results, *without* interpretation, in an orderly and logical sequence using both text and illustrative materials (Tables and Figures). The results section always begins with text, reporting the key results and referring to your figures and tables as you proceed. Summaries of the statistical analyses may appear either in the text (usually parenthetically) or in the relevant Tables or Figures (in the legend or as footnotes to the Table or Figure). The Results section should be organized around Tables and/or Figures that should be sequenced to present your key findings in a logical order. The text of the Results section should be crafted to follow this sequence and highlight the evidence needed to answer the questions/hypotheses you investigated. Important negative results should be reported, too. Authors usually write the text of the results section based upon the sequence of Tables and Figures.

2. **Style:** Write the text of the Results section concisely and objectively. The passive voice will likely dominate here, but use the active voice as much as possible. Use the **past tense.** Avoid repetitive paragraph structures. Do not interpret the data here. The transition into interpretive language can be a slippery slope. Consider the following two examples:

   - This example highlights the trend/difference that the author wants the reader to focus:

The duration of exposure to running water had a pronounced effect on cumulative seed germination percentages (Fig. 2). Seeds exposed to the 2-day treatment had the highest cumulative germination (84%), 1.25 times that of the 12-h or 5-day groups and 4 times that of controls.

   - In contrast, this example strays subtly into interpretation by referring to optimality (a conceptual model) and tieing the observed result to that idea:

The results of the germination experiment (Fig. 2) suggest that the optimal time for running-water treatment is 2 days. This group showed the highest cumulative germination (84%), with longer (5 d) or shorter (12 h) exposures producing smaller gains in germination when compared to the control group.

Things to consider as you write your Results section:

What are the "results"?: When you pose a testable hypothesis that can be answered experimentally, or ask a question that can be answered by collecting samples, you accumulate observations about those organisms or phenomena. Those observations are then analyzed to yield an answer to the question. In general, the answer is the " key result".

The above statements apply regardless of the complexity of the analysis you employ. So, in an introductory course your analysis may consist of visual inspection of figures and simple calculations of means and standard deviations; in a later course you may be expected to apply and interpret a variety of statistical tests. You instructor will tell you the level of analysis that is expected.

For example, suppose you asked the question, *"Is the average height of male students the same as female students in a pool of randomly selected Biology majors?"* You would first collect height data from large random samples of male and female students. You would then calculate the descriptive statistics for those samples (mean, SD, n, range, etc) and plot these numbers. In a course where statistical tests are not employed, you would visually inspect these plots. Suppose you found that male Biology majors are, on average, 12.5 cm taller than female majors; this is the answer to the question.

   - Notice that the outcome of a statistical analysis is not a key result, but rather an analytical *tool* that helps us understand *what is* our key result.

Differences, directionality, and magnitude: Report your results so as to provide as much information as possible to the reader about the nature of differences or relationships. For example, if you testing for differences among groups, and you find a significant difference, *it is not sufficient* to simply report that "groups A and B were significantly different". How are they different? How much are they different? It is much more informative to say something like, "Group A individuals were 23% larger than those in Group B", or, "Group B pups gained weight at twice the rate of Group A pups." Report the *direction* of differences (greater, larger, smaller, etc) and the *magnitude* of differences (% difference, how many times, etc.) whenever possible. See also below about use of the word "significant."

Organize the results section based on the sequence of Table and Figures you'll include. Prepare the Tables and Figures as soon as all the data are analyzed and arrange them in the sequence that best presents your findings in a logical way. A good strategy is to note, on a draft of each Table or Figure, the one or two key results you want to add in the text portion of the Results. Simple rules to follow related to Tables and Figures:

   - Tables and Figures are assigned numbers separately and in the sequence that you will refer to them from the text.
     o The first Table you refer to is Table 1, the next Table 2 and so forth.
     o Similarly, the first Figure is Figure 1, the next Figure 2, etc.

   - *Each* Table or Figure must include a brief description of the results being presented and other necessary information in a legend.
     o **Table legends go above the Table;** tables are read from top to bottom.
     o **Figure legends go below the figure;** figures are usually viewed from bottom to top.

   - When referring to a Figure *from the text*, "Figure" is abbreviated as Fig.,e.g., **Fig.** 1. Table is never abbreviated, e.g., **Table 1.**

The body of the Results section is a text-based presentation of the key findings which includes references to each of the Tables and Figures. The text should guide the reader through your results stressing the key results which provide the answers to the question(s) investigated. A major function of the text is to provide clarifying information. You must refer to each Table and/or Figure individually and in sequence (see numbering sequence), and clearly indicate for the reader the key results that each conveys. Key results depend on your questions, they might include obvious trends, important differences, similarities, correlations, maximums, minimums, etc.

Some problems to avoid:

- **Do not** reiterate each value from a Figure or Table - only the key result or trends that each conveys.
- **Do not** present the same data in both a Table and Figure - this is considered redundant and a waste of space and energy. Decide which format best shows the result and go with it.
- **Do not** report raw data values when they can be summarized as means, percent, etc.

Statistical test summaries (test name, *p*-value) are usually reported parenthetically in conjunction with the biological results they support. Always report your results with parenthetical reference to the statistical conclusion that supports your finding (if statistical tests are being used in your course). This parenthetical reference should include the statistical test used and the level of significance (test statistic and DF are optional). For example, if you found that the mean height of male Biology majors was significantly larger than that of female Biology majors, you might report this result (in blue) and your statistical conclusion (shown in red) as follows:

"Males (180.5 ± 5.1 cm; n=34) averaged 12.5 cm taller than females (168 ± 7.6 cm; n=34) in the AY 1995 pool of Biology majors (two-sample t-test, t = 5.78, 33 d.f., $p < 0.001$)."

If the summary statistics are shown in a figure, the sentence above need not report them specifically, but must include a reference to the figure where they may be seen:

"Males averaged 12.5 cm taller than females in the AY 1995 pool of Biology majors (two-sample t-test, t = 5.78, 33 d.f., $p < 0.001$; Fig. 1)."

Note that the report of the key result (shown in blue) would be identical in a paper written for a course in which statistical testing is not employed - the section shown in red would simply not appear except reference to the figure.

- **Avoid devoting whole sentences to report a statistical outcome alone.**
- **Use and over-use of the word "significant":** Your results will read much more cleanly if you avoid overuse of the word significant in any of its forms.
  - In scientific studies, the use of this word implies that a statistical test was employed to make a decision about the data; in this case the test indicated a larger difference in mean heights than you would expect to get by chance alone. Limit the use of the word "significant" to this purpose only.
  - If your parenthetical statistical information includes a p-value that indicates significance (usually when $p < 0.05$), it is *unnecessary* (and *redundant*) to use the word "significant" in the body of the sentence (see example above) because we all interpret the p-value the same way.
  - Likewise, when you report that one group mean is somehow different from another (larger, smaller, increased, decreased, etc), it will be understood by your reader that you have tested this and found the difference to be statistically significant, especially if you also report a p-value < 0.05.

Present the results of your experiment(s) in a sequence that will logically support (or provide evidence against) the hypothesis, or answer the question, stated in the Introduction. For example, in reporting a study of the effect of an experimental diet on the skeletal mass of the rat, consider first giving the data on skeletal mass for the rats fed the *control* diet and then give the data for the rats fed the *experimental* diet.

Report *negative* results - they are important! If you did not get the anticipated results, it may mean your hypothesis was incorrect and needs to be reformulated, or perhaps you have stumbled onto something unexpected that warrants further study. Moreover, the *absence* of an effect may be very telling in many situations. In any case, your results may be of importance to others even though they did not support your hypothesis. Do not fall into the trap of thinking that results contrary to what you expected are necessarily "bad data". If you carried out the work well, they are simply your results and need interpretation. Many important discoveries can be traced to "bad data".

Always enter the appropriate units when reporting data or summary statistics.

- for an *individual value* you would write, "the mean length was 10 m", or, "the maximum time was 140 min."
- When including a measure of variability, place the unit *after* the error value, e.g., "...was 10 ± 2.3 m".
- Likewise place the unit after the last in a *series of numbers* all having the same unit. For example: "lengths of 5, 10, 15, and 20 m", or "no differences were observed after 2, 4, 6, or 8 min. of incubation".

DISCUSSION

1. **Function**: The function of the Discussion is to interpret your results in light of what was already known about the subject of the investigation, and to explain our new understanding of the problem after taking your results into consideration. The Discussion will always connect to the Introduction by way of the question(s) or hypotheses you posed and the literature you cited, but it does not simply repeat or rearrange the Introduction. Instead, it tells how your study has moved us forward from the place you left us at the end of the Introduction.

Fundamental questions to answer here include:

- Do your results provide answers to your testable hypotheses? If so, how do you interpret your findings?
- Do your findings agree with what others have shown? If not, do they suggest an alternative explanation or perhaps a unforeseen design flaw in your experiment (or theirs?)

- Given your conclusions, what is our new understanding of the problem you investigated and outlined in the Introduction?
- If warranted, what would be the next step in your study, e.g., what experiments would you do next?

2. **Style**: Use the active voice whenever possible in this section. Watch out for wordy phrases; be concise and make your points clearly. Use of the first person is okay, but too much use of the first person may actually distract the reader from the main points.

3. **Approach**: Organize the Discussion to address each of the experiments or studies for which you presented results; discuss each in the same sequence as presented in the Results, providing your interpretation of what they mean in the larger context of the problem. Do not waste entire sentences restating your results; if you need to remind the reader of the result to be discussed, use "bridge sentences" that relate the result to the interpretation:

"The slow response of the lead-exposed neurons relative to controls suggests that...[interpretation]".

You will necessarily make reference to the findings of others in order to support your interpretations. Use subheadings, if need be, to help organize your presentation. Be wary of mistaking the reiteration of a result for an interpretation, and make sure that no new results are presented here that rightly belong in the results.

You must relate your work to the findings of other studies - including previous studies you may have done and those of other investigators. As stated previously, you may find crucial information in someone else's study that helps you interpret your own data, or perhaps you will be able to reinterpret others' findings in light of yours. In either case you should discuss reasons for similarities and differences between yours and others' findings. Consider how the results of other studies may be combined with yours to derive a new or perhaps better substantiated understanding of the problem. Be sure to state the conclusions that can be drawn from your results in light of these considerations. You may also choose to briefly mention further studies you would do to clarify your working hypotheses. Make sure to reference any outside sources as shown in the Introduction section.

Do not introduce new results in the Discussion. Although you might occasionally include in this section tables and figures which help explain something you are discussing, they must not contain new data (from your study) that should have been presented earlier. They might be flow diagrams, accumulation of data from the literature, or something that shows how one type of data leads to or correlates with another, etc. For example, if you were studying a membrane-bound transport channel and you discovered a new bit of information about its mechanism, you might present a diagram showing how your findings helps to explain the channel's mechanism.

ACKNOWLEDGMENTS (include as needed)

If, in your experiment, you received any significant help in thinking up, designing, or carrying out the work, or received materials from someone who did you a favor by supplying them, you must acknowledge their assistance and the service or material provided. Authors *always* acknowledge **outside reviewers** of their drafts (in PI courses, this would be

done *only* if an instructor or other individual critiqued the draft prior to evaluation) and any **sources of funding** that supported the research. Although usual style requirements (e.g., 1st person, objectivity) are relaxed somewhat here, Acknowledgments are always brief and never flowery.

- Place the **Acknowledgments** between the Discussion and the Literature Cited.

LITERATURE CITED

1. **Function**: The Literature Cited section gives an alphabetical listing (by first author's last name) of the references that you actually cited in the body of your paper. Instructions for writing full citations for various sources are given in on separate page. A complete format list for virtually all types of publication may be found in Huth and others(1994).

NOTE: *Do not* label this section "Bibliography". A bibliography contains references that you may have read but have not specifically cited in the text. Bibliography sections are found in books and other literary writing, but not scientific journal-style papers.

2. Format and Instructions for standard full citations of sources.
3. Literature Cited .

APPENDICES
Function: An Appendix contains information that is non-essential to understanding of the paper, but may present information that further clarifies a point without burdening the body of the presentation. An appendix is an *optional* part of the paper, and is only rarely found in published papers.

Headings: Each Appendix should be identified by a Roman numeral in sequence, e.g., Appendix I, Appendix II, etc. Each appendix should contain different material.

Some examples of material that might be put in an appendix (not an exhaustive list):

- raw data
- maps (foldout type especially)
- extra photographs
- explanation of formulas, either already known ones, or especially if you have "invented" some statistical or other mathematical procedures for data analysis.
- specialized computer programs for a particular procedure
- full generic names of chemicals or compounds that you have referred to in somewhat abbreviated fashion or by some common name in the text of your paper.
- diagrams of specialized apparatus.

Figures and Tables in Appendices

Figures and Tables are often found in an appendix. These should be formatted as discussed previously (see Tables and Figures), but are numbered in a separate sequence from those found in the body of the paper. So, the first Figure in the appendix would be Figure 1, the first Table would be Table 1, and so forth. In situations when multiple appendices are used, the Table and Figure numbering must indicate the appendix number as well (see Huth and others, 1994).

CHAPTER 10

HOW TO WRITE A RESEARCH JOURNAL ARTICLE
IN ENGINEERING AND SOCIAL SCIENCE

1. Introduction

Writing a journal article can be an overwhelming process, but breaking it down into manageable tasks can make the overwhelming the routine. These manageable tasks can be identified by determining what the essential elements of a successful article are and how they function together to produce the desired result: a published journal article. Often, different languages and cultures write in different styles and with different organization than English language authors. This can compound the problem for non-native English writers. In this article, I outline the essential elements of an English-language journal article in engineering or the sciences, providing a functional template and guidelines for authors. Many of the ideas in this article were gleaned from my own reading of various journal articles, both in the review process and after publication, and of both good and bad articles.

However, there are also a great number of good books available that also address the issue of scientific writing. One book whose philosophy of writing contributed to many ideas presented here is "Writing a Thesis: Substance and Style," by van Wagenen (1990). I also benefited greatly from a set of outline notes provided to me by Prof. Gerhard H. Jirka at the University of Karlsruhe. Many of his insights find their way throughout this text. Also to note is a series of editorial comments published in the Journal of Hydraulic Engineering pertaining to abstracts, introductions, conclusions, and reducing a paper's length (McNown 1996a, McNown 1996b).[12][13]

Other helpful resources are the various style manuals and grammar tutorials. The LATEX system is a convenient way to get a professional-quality layout to your article (this paper was written using LATEX). Likewise, a very helpful guide to writing is the (in)famous "Strunk and White," a short paperback book titled "The elements of style" (William Strunk&White 1979). Strunk and White do a great job of eliminating the excess so that the clearest writing results. Their motto is "Vigorous writing is concise," an axiom that should guide any writing that wishes to be clearly understood. They are also especially strong in the use of punctuation and in the proper use of words. These resources will help any writer, new or old, native English speaking or not.[17]

The remainder of this article condenses these resources and others down to a brief "how to" for writing a journal article submission. The first section gives some constructive ideas for how to get started with the writing process (do not just start by writing on page one, paragraph one). The structure section provides a detailed outline for an article and gives the required content of each section. Some of the more difficult parts are illustrated with examples from published journal articles. The section on how to write gives a few pointers on good writing style. The last section covers the revision and review process and gives tips on how to use feedback to improve the article. The summary and conclusions section reiterates the key points and provides a skeletal outline for the journal submission. Together, these sections should reduce the writing task to manageable projects and result in a successfully published article, providing the scientific merit does not let you down.

2. Before starting to write

Before you start to write, you should spend some time thinking about the article content. At this stage, you should write down ideas in a free form, creating a general outline for the paper. Jirka suggests you consider such questions as:

- What is the message of the paper?

- What is the new result or contribution that you want to describe?

- What do you want to convince people of?

If you have not already done so, you should conduct a thorough literature search to identify those important contributions that are related to your work. As you are ready to submit your article, it is always helpful to do one more search; including articles that were published just as you submit your paper will show that you are aware of the current work going on in your field (Russel& Morrison 2003).[15]

As you get ready to write, try to summarize these initial ideas into concrete bullets that will eventually become paragraphs. Start to organize these bullets into a logical structure 2 and develop them in the form of key sentences. If the outline is convincing, then the article will be successful. Likewise, a weak outline cannot be saved by any good writing skills.[30]

3. Structure and function of the article: What to write

In formulating the outline it is important to know that most engineering or science journal articles have a well-accepted general format. Each of the following sections are included, usually also in this order, though specific articles may disguise them under different section titles that relate closer to the actual contents of each section. These sections are

1. Abstract

2. Introduction

3. Methods

4. Results

5. Discussion

6. Summary and Conclusions

7. Acknowledgments

8. References

Each part serves a different purpose and has a narrowly defined content and purpose. Understanding how each section functions together with the whole will help the author minimize overlap and repetition.

3.1 The Abstract

The abstract is a single paragraph that precedes the article and summarizes the content. The abstract reduces the whole paper to a single paragraph. Many times, the abstract will be published by itself in an index to the article and often only the words in the abstract can be searched using library databases; hence, the abstract is a critical element of the research paper. It contains a general introduction to the topic, outlines the major results, and summarizes the conclusions. It is shorter than the summary and conclusions section of the main paper and is less of an outline than the closing paragraph of the introduction. Often, the abstract does not require citations; some journals discourage use of mathematical symbols. The guideline for a good abstract is:

> *The abstract should inform the reader in a succinct manner as to what the article is about and what the major contributions that are discussed*

The abstract is more general than the conclusions section and can have a staccato literary style.

The following are two examples of well-written abstracts:

- "Fishes swim by flapping their tail and other fins. Other sea creatures, such as squid and salps, eject fluid intermittently as a jet. We discuss the fluid mechanics behind these propulsion mechanisms and show that these animals produce optimal vortex rings, which give the maximum thrust for a given energy input. We show that fishes optimize both their steady swimming efficiency and their ability to accelerate and turn by producing an individual optimal ring with each flap of the tail or fin. Salps produce vortex rings directly by ejecting a volume of fluid through a rear orifice, and these are also optimal. An important implication of this paper is that the repetition of vortex production is not necessary for an individual vortex to have the 'optimal characteristics." (Linden & Turner 2004).[34]

- "Aquatic plants convert mean kinetic energy into turbulent kinetic energy at the scale of the plant stems and branches. This energy transfer, linked to wake generation, affects vegetative drag and turbulence intensity. Drawing on this physical link, a model is developed to describe the drag, turbulence and diffusion for flow through emergent vegetation which for the first time captures the relevant underlying physics, and covers the natural range of vegetation density and stem Reynolds numbers. The model is supported by laboratory and field observations. In addition, this work extends the cylinder-based model for vegetative resistance by including the dependence of the drag coefficient, CD, on the stem population

density, and introduces the importance of mechanical diffusion in vegetated flows." (Nepf 1999).[31]

Both abstracts tell the reader what to expect, summarize what the important contribution is, and entice the reader to look further. Neither abstract gives detailed quantitative results.

This level of detail lets the reader know what to expect without overwhelming him with details, derivations, or sophisticated results—the reader is equipped to safely set the article aside or delve deeper to uncover the details.

3.2 The Introduction

The introduction is perhaps the most important sections in a research article. Nearly every reader will at least skim through the introduction. The introduction is also written with the strictest requirements in terms of organization.

3.2.1 Paragraph 1

The first paragraph should follow the inverted triangle principle: start with a broad statement and become more detailed until finally identifying the specific problem that the paper addresses. The purpose of the first paragraph is to interest the reader in the paper, to clearly identify for the reader what the paper will address, and to quickly bring the reader 4to the edge of knowledge in the field the paper addresses (Russel& Morrison 2003). The paragraph should end with the general problem addressed by the paper. To have the greatest impact, the first sentence should be broad in scope and should attract the reader's attention. Here are five opening sentences from the current issue of the Journal of Fluid Mechanics:

- "Turbulence is not a universal state of nature, but there are similar forms of eddy motion, and mixing processes with similar statistical properties for a variety of turbulent flows within a particular 'type." (Hanazaki& Hunt 2004).[35]

- "There is a long-standing interest in flow over isolated topography, such as seamounts, with regard to both theoretical and practical issues." (Nycander&Lacasce 2004).[32]

- "Breaking waves at the sea surface promote vigorous mixing of momentum, energy, and scalars, and thus are a key process in upper-ocean dynamics and air-sea interaction." (Sullivan et al. 2004).[37]

- "We investigate a family of exact solutions of the Navier-Stokes equations that describe the steady flow of a rivulet down an incline." (Perazzo&Gratton 2004).[35]

- "Granular flow exhibits a variety of dynamical phenomena, which have been attracting research interest for many years (for reviews, see e.g. Savage 1984 and Jaeger, Nagel &Behringer 1996)." (Mitarai& Nakanishi 2004).[29]

Clearly, there is a wide variety of levels of detail, but each statement, except for the fourth example, follows the rule of thumb outlined above

Start with an attention-getting broad statement that establishes a general topic for the article.

Here are four more examples from papers by some of the best authors:

- "Observations of swimming fishes and other organisms such as salps reveal a series of vortex rings forming behind the animals, which play an important part in their mechanisms of propulsion." (Linden & Turner 2004).[34]

- "Freshwater and saltwater wetlands provide important transition zones between terrestrial and aquatic systems, mediating exchanges of sediment [Phillips, 1989], nutrients [Nixon, 1980; Barko et al., 1991], metals [Orson et al., 1992; Lee et al., 1991], and other contaminants [Dixon and Florian, 1993]." (Nepf 1999).[31]

- "Shallow flows are ubiquitous in nature" (Jirka 2001).[11]

- "The entrainment hypothesis was first introduced by Sir Goeffrey Taylor in a wartime report on the dynamics of hot gases rising in air." (Turner 1986).

- "The convection currents which rise from heated bodies have been discussed previously, but in most cases attention has been directed towards finding the distribution of fluid velocity and temperature near such bodies."(Morton et al. 1956).These also exhibit a wide variety, but each follows our general principle. [30]

The next sentences of the introduction narrow the topic. These sentences often contain citations to other work and build up to a specific lack of knowledge that culminates in the problem statement. This section can vary in length from one to many sentences, but the general goal is to educate the reader about an important gap in knowledge that the paper will address (Russel& Morrison 2003). Here are three good examples of a complete introductory paragraph: the first is short, the second contains no citations, and the third is longer. The problem statement in each paragraph has also been italicized.[15]

- "There is a long-standing interest in flow over isolated topography, such as seamounts, with regard to both theoretical and practical issues. Trapped flows are often observed over seamounts, and these flows evidently affect the distribution and concentration of subsurface fauna, filter feeders and the like (e.g. Genin, Noble & Lonsdale 1989 and references therein). These flows are often so intense that they alter the ambient vorticity and, as such, can modify the allowable frequencies of internal waves. This in turn may affect wave breaking (Kunze& Toole 1997 and references therein)." (Nycander&Lacasce 2004), emphasis added.[32]

- "Observations of swimming fishes and other organisms such as salps reveal a series of vortex rings forming behind the animals, which play an important part in their mechanisms of propulsion. Fishes produce these vortices by an undulatory motion of the body and tail, controlling the periodic shedding of vorticity into the wake, and salps form them more directly, by ejecting fluid backwards through an orifice. In both cases the vortices roll up into three-dimensional (3D) ring-like structures. For fishes, the important question is what

frequency and amplitude of the undulatory motion provide the most efficient propulsion? A similar question faces the oarsman of a gondola. For efficient motion, should the oar be moved slowly at large amplitude or quickly with a smaller amplitude? Here, we discuss this question, not in terms of a periodic motion, but by considering each flap of the tail or fin as a single event. This may be repeated periodically during steady swimming, but may be aperiodic during a turn or other man oeuvre. For other organisms using a jet for propulsion, the question is how long a jet provides the optimal efficiency." (Linden & Turner 2004), emphasis added.[34]

- "Granular flow exhibits a variety of dynamical phenomena, which have been attracting research interest for many years (for reviews, see e.g. Savage 1984 and Jaeger, Nagel &Behringer 1996). Its complex behavior can be seen even in a simple situation like the gravitational flow on a slope. When the inclination angle is large and the slope is rough, a rapid and relatively low-density flow is realized, and the interaction between grains is dominated by inelastic collisions. On the other hand, when the inclination angle is small, the flow becomes dense and slow, and the frictional interaction plays an important role (Savage 1984; Mitarai& Nakanishi 2003). The comprehensive rheology of the granular flow has not been fully understood yet, except for the rapid collisional flow regime, where hydrodynamic models have been developed with constitutive relations based on the kinetic theory of inelastic hard spheres (Jenkins & Savage 1983; Campbell 1990; Lun et al. 1984; Goldhirsh 2003); it has been demonstrated that some quantitative agreement can be achieved for the steady flow by introducing the spinning motion of each grain (Mitarai, Hayakawa & Nakanishi 2002). The steady granular flow, however, turns out to be unstable in various ways, and shows rich phenomena."(Mitarai& Nakanishi 2004), emphasis added.[29]

In each case there is reference to broader knowledge beyond the scope of the actual article. This knowledge is narrowed to a specific problem, or gap, in the understanding of the subject. As a result, each example illustrates our next rule-of-thumb (adapted from Russel& Morrison (2003)):[15]

Narrow the topic in successive sentences that outline the state of the art and introduce a gap in knowledge

Each paragraph also contains a statement of the main problem addressed by the article. The second example has a specific problem statement, though it is expanded in the final sentence. The other two paragraphs have somewhat more open-ended problem statements. This statement is not always the final sentence; however, any statements that follow the problem statement serve to make it more specific or further justify its importance. Our final rule for the introductory paragraph follows:

End the introductory paragraph with a general statement of the problem and optional supporting/specifying statements

By following this procedure, the introductory paragraph will serve its purpose of attracting the reader, identifying the context of the problem, and specifying the general direction of the article. After reading this paragraph, the reader should be able to safely set

aside the article if he concludes that the topic is not applicable to his area of research. Hence, the statement of the problem should be specific enough for the reader to anticipate the kinds of results that will be reported. Writing in this way, your article will be read by more people and not overlooked by your colleagues in the field.

3.2.2 Middle paragraphs

Following the introductory paragraph is a series of paragraphs that traditionally function as a literature review (McNown 1996). The extent of this section varies somewhat by journal and by topic, but generally follows a specific format. The beginning of the literature review should cite the most important historical contributions that build the foundation to the topic the paper will extend (Russel& Morrison 2003). The goal is not to cite everything, as in a review article, but to cite the seminal contributions that directly lead to the problem the article addresses. The remaining paragraphs should focus on the state-of-the-art knowledge base and the significant differences between what has already been published and the new contribution that your article is presenting. Together, these paragraphs give another guiding principle:

The literature review identifies the seminal historical contributions, outlines the state of knowledge, and justifies the novelty of the article's contribution

The literature review should be based on refereed journal articles to the extent possible. Conference proceedings can be referenced where they never resulted in journal publications; web sites can be referenced where they present unique, multi-media oriented content. Keep in mind that non-refereed material does not bolster an argument. Hence, the literature review gives credit to our predecessors and justifies the need and novelty of the article's contribution.

3.2.3 Final paragraph

The introduction ends with the "road-map" paragraph. This paragraph outlines the remaining sections of the paper. It can either give a general outline of the contribution, or a specific, section-by-section breakdown of the remaining article. Here are two examples illustrating these two possibilities:

● "In addition to the theory, we present results from numerical simulations. These are done in order to examine whether the predicted stable flows can arise naturally as a result of the time-dependent evolution. As the initial condition, we use various non-stationary vortices near or on top of a seamount. We also revisit two-dimensional turbulence over a bump. The simulations are broadly supportive of the theoretical predictions, although time-dependence can produce exotic and interesting final states." (Nycander&Lacasce 2004).[14]

● "Section 2 introduces models for drag, turbulence, and diffusivity for flow through emergent vegetation. Laboratory and field experiments described in section 3 provide observations which support these models. The comparison of model prediction and experimental observation is given in section 4. Finally, the models are used to compare the

mean flow, turbulence intensity, and diffusivity in vegetated and un-vegetated regions (section 5)." (Nepf 1999).[31]

This paragraph serves two important functions. First, it puts the complete contribution of the article in the context of the previous contributions, thereby, emphasizing novelty and the extent of the new contribution. Second, it guides the expert reader, who may want to skip sections of your article, to the sections that interest him. Thus, we have our final principle for the Introduction:

End the introduction by outlining for the reader the specific contribution of the article and tell the reader the overall organization

This paragraph will also help you organize your logic: if this paragraph is unclear, the rest of the paper will be built on a weak foundation.

3.3 The Methods

The methods sections often come disguised with other article-specific section titles, but serve a unified purpose: to detail the methods used in an objective manner without introduction of interpretation or opinion (van Wagenen 1990). The methods sections should tell the reader clearly how the results were obtained. They should be specific. They should also make adequate reference to accepted methods and identify differences. The governing principle is as follows:

Describe all of the techniques used to obtain the results in a separate, objective Methods section

In the case of a paper that develops both an analytical model and laboratory results, it is common to write separate methods sections for each. At the conclusion of the methods sections, the reader should be able to form an educated opinion about the quality of the results to be presented in the remaining sections (van Wagenen 1990). [16]

Here are five examples of the titles of the methods sections in some of the papers referenced above:

● "2. Model Development; 2.1 Draft Model for Emergent Vegetation, 2.2 Turbulence Intensity within Emergent Vegetation, 2.3 Diffusion within Emergent Vegetation. 3.Methods; 3.1 Laboratory Experiments, 3.2 Field Experiments." (Nepf 1999).[31]

● "Gravitational Convection; The main assumptions." (Morton et al. 1956).[30]

● "2.Classification of 2-D coherent structures in shallow flows.3. Methods of investigation." (Jirka 2001).[11]

● "2. Theory of Vortex Ring Formation" (Linden & Turner 2004).[34]

- "2.Theory; 2.1.Conservation laws and variational principle, 2.2.Flat topography or circular seamount, 2.3.Irregular seamount, 2.4.Comparison with the theory of Carnevale&Frederiksen."(Nycander&Lacasce 2004).[32]

One thing to notice is that subsections should only be used when there will be more than one subsection; a subsection implies that the material should be classified into more than one group.

3.4 The Results

The results section and the following discussion section allow the most flexibility in terms of organization and content. In general, the pure, unbiased results should be presented first without interpretation (van Wagenen 1990). These results should present the raw data or the results after applying the techniques outlined in the methods section. The results are simply results; they do not draw conclusions. Often the results are combined with the discussion section, which does make interpretations and suggest implications. When these are presented in one section, there should be a clear distinction between a result and 9discussion. This could be done by paragraphing, by section headings, or by careful writing within a single paragraph. The main purpose of the results section, however, is to provide the data from your study so that other researchers can draw their own conclusions and understand fully the basis for your conclusions.

A common format for the results section is to present a series of figures and to describe the figures in detail through the text. A good results section presents clear figures with efficient text. The figures should support the assertions in the paper or illustrate the new insights. Where applicable, results should be illustrated in terms of non-dimensional variables. These characteristics lead to our principle for results sections:

Results should be clear, convincing, and general and should be free from interpretations or opinions

Whether together with the discussion or in their own section, results need to be communicated objectively.

3.5 The Discussion

The discussion section is where the article interprets the results to reach its major conclusions. This is also where the author's opinion enters the picture (van Wagenen 1990)—the discussion is where the argument is made. Often writers will combine the discussion and results sections so that they can avoid repetition and so that they can give their conclusions parallel with the results. This is acceptable if there maintains a clear distinction between facts and opinion. Most scientific papers, however, require the results and discussion to be in separate sections.[16]

A common feature of the discussion section is comparison between measured and modeled data or comparison among various modeling methods. Jirka suggests considering the following questions:

- How do the results compare with earlier work?

- What is new and significant?

Another common element in a discussion section applies the results obtained to solve a specific engineering or scientific problem. Some journals, notably the Journal of Hydraulic Engineering, even require a separate applications section for this purpose. The main feature of the discussion section can be summarized as follows:

Discussion sections interpret the results to reach the main conclusions of the article

The discussion section is the main impact section where the researcher has the most freedom to tout the implications of his research. A word of warning, though: never make an assertion of which you are not 100% sure—do not open the door for a negative review or the eventual rejection of your article. As a rule, it is better to be conservative. Most of the experts reading your article will draw their own conclusions anyhow. This section allows you to highlight the conclusions you think are important.

3.6 The Summary and Conclusions

The final section of the paper does not introduce any new information or insights: it merely summarizes and concludes. This section is longer than the abstract and generally includes more specific conclusions. It is often more quantitative than the abstract, however, listing equations or citations should not be necessary (McNown 1996a). The summary and conclusions section also has a more fluid literary style than the abstract. [12]

A good format for this section is to write it in two paragraphs. The first paragraph summarizes various sections of the article. The second paragraph draws the important conclusions. The summary paragraph is different than that at the end of the introduction section. Here, the summary paragraph draws on the fact that the reader knows all of the new results presented in the article. It then summarizes what the important results where. The conclusion paragraph identifies the significant conclusions.McNown (1996a) suggests two possible formats for this second paragraph:[12]

1. Organize based on logical flow for points that are interconnected

2. Organize based on merit, where the most important items appear first

It is important to remember that this paragraph should not present new information. It may combine parts of the article to underscore an important conclusion, but it cannot present information that could not be gleaned from the other sections. A third, optional, paragraph may identify future research directions that flow naturally from the article.

The guiding principle for the summary and conclusions section may be formulated as follows:

The summary and conclusions section tells the reader what has already been read and draws the important conclusions—keep it short and make it as specific as possible

If the reader wants to know specifically what aspects of a problem your paper will address, he will often read the introduction and then the summary and conclusions section. Hence, it is important that all of the significant findings are summarized and united in the significant conclusions. Follow these guidelines and your papers will have maximum impact and receive the most positive reviews that your work warrants.

3.7 The Acknowledgments

The acknowledgments are given at the end of the research paper and should at a minimum name the sources of funding that contributed to the article. You may also recognize other people who contributed to the article or data contained in the article, but at a level of effort that does not justify their inclusion as authors.

There is a growing trend to also acknowledge the contributions of the reviewers. This is a controversial issue. Since acknowledgment sections cannot be referenced or listed on a curriculum vitae, this seems only a means of getting the reviewers to agree with a revision and accept the paper. I would suggest that if the reviewer's comments are great enough that l lthey substantially changed the paper, the reviewer might be invited as an author; a flowery acknowledgment seems unjustified, given that every article is presumed to have benefited from reviewer comments.

3.8 The References

All reference works cited in the paper must appear in a list of references that follow the formatting requirements of the journal in which the article is to be published. You may not include references that were not cited. Refereed journal articles, research monographs, and books are preferred over less stable or reliable sources, such as personal communications, un-refereed conference proceedings, or web-site addresses.

4. Literary Style: How to write

Scientific writing does not leave a lot of room for creativity, but good writing style is inherently more understandable and enjoyable to read. Readers respond well when sentences have a varied length and when paragraphs have a consistent length (Gray 2003). There should be a good mix of short and long sentences. There should also be a mix of sentence structure (Gray 2003). Punctuation. the use of subordinate clauses and compound sentences, and varied tempo are examples of ways to alternate sentence length. On the other hand, readers prefer paragraphs to be of about equal length. Long paragraphs are daunting; short paragraphs make it difficult to fully develop an idea.

Each paragraph itself should also have a well-organized flow. They should have a key sentence, supporting sentences, and a concluding or summary sentence (Gray 2003). The key sentence does not have to be the first sentence in the paragraph, though often it is, but it

should clearly contain the purpose for the paragraph. The supporting sentences should relate to the key idea and should develop the idea as needed. The final sentence should draw a conclusion or summarize the key concept in light of the supporting sentence. Conjunctive adverbs, such as therefore, hence, thus, consequently, and however, among others, are excellent tools to force a conclusion to develop. By following this format, your paragraphs will be clear, convincing, and easy to organize.

A good way to structure your paper is by organizing the key sentences (Gray 2003). If the logical flow from one key sentence to the next does not work, then no addition of supporting sentences will save the article. Create your outline first, then work on the key sentences for each paragraph until a convincing, clear, well-organized plan is in place. Only at that point should you start writing your full paragraphs.

When writing the article, the active voice (he said, we derive, they found) is preferred to the passive voice (was communicated by, is derived as follows, was found by). In scientific writing, the passive voice is often more convenient and sometimes is unavoidable. Wherever the active voice is used, however, the sentences appear stronger, more convincing, and more clear.

In searching for your personal style, feel free to be creative (William Strunk& White 1979). Be sure to include the elements described above, but explore different paragraph 12styles, sentence structures, and reporting methods. In this regard, the more you read, the more prepared you will be with examples that will provide a palette from which to experiment. Reading and writing daily are necessary to be productive. And above all: write something. Even when you feel the words are terrible, put something into print. The revision process is much easier than the creation process, so just start writing. Research has shown that those writers who write 30 minutes every day are 5 to 10 times more productive than those who wait for extended periods of time in which to write (Gray 2003). Therefore, write often and write freely, and you will be a productive writer.[10]

5. The review process: What to expect

After spending hours writing your journal submission, you are ready to begin the review process. This process likely contains three stages: editorial review by your advisor (or yourself if you are the only author), external review by peer reviewers, and publication, modification, or rejection. If you follow the structure outlined above, hopefully most of the review process will focus on the scientific merit of your work. However, sometimes the best science is difficult to communicate, so it is good to get as much input as possible.

5.1 Editorial review

You or your co-authors should critically evaluate the article before sending it to a journal for external reviews. In this process I suggest one over-arching principle:

Revise and edit your article as if you are not the one who has to do all the work

This is what I learned during my Ph.D. dissertation. My advisor would always suggest large changes to what I had written: complete organizational changes, additions and removal of

sections, new work to be included. These always appeared daunting and overwhelming and were suggestions I never would have considered on my own. However, once the changes were complete, the article was always greatly improved, and the level of effort was invariably far less than I originally anticipated. So, read your own work and decide what changes need to be made objectively, without regard to how time consuming they may be. You can always revert back to your original version if a revision is poor or not feasible. Also, expect to revise what you write. It is not a mark of a poor writer to receive a draft back that is more red than it is black. A good writer makes use of this feedback to create a stronger article. The goal of this stage of the process should be to submit the strongest article possible, both in terms of communication quality and scientific merit.

5.2 Review process

These days most articles will be reviewed by 2 to 4 external reviewers. These are experts in your field who read the article and give their opinions. They comment on scientific merit, suitability to the journal for which you are applying, and readability. They are not likely to 13correct grammar or poor organization; however, negatives in these areas will probably lead to a negative assessment of the scientific merit. By writing the best literary article you can, you maximize the chances that the reviews will be favorable. The bulk of the decision will then land where it should: on the scientific merit of your contribution. The best-written article that presents poor science is still not publishable.

The duration of the review process varies widely by journal. It is a good idea to investigate the review timeline before submitting your article.

5.3 Results of the reviews

If all goes well, your paper will be accepted without changes or accepted without re-review. The later case is the most common, and basically means that you are given the opportunity to modify your article in response to the reviewer comments, but that no further review is necessary before the article is published.

If there is a preponderance of negative reviews, the result may be to re-submit subject to re-review or reject. In the earlier case, the article is still alive, through there is an uphill battle to be won; whereas, in the later case, the article has hit a dead end with that journal.

In the case of a resubmission subject to re-review, the author should prepare a detailed response to the reviewers. Reviewers do not have the time or patience to track down every recommendation they made to see how you have addressed it in your article; therefore, you should prepare a point-by-point response. For each major comment by a reviewer, you should summarize the comment in your response letter and then state how the comment has been addressed. This could be an excerpt from the paper where the comment has been incorporated, a gentle reminder as to where the comment was addressed in the original draft, or a rebuttal explaining why the comment is not addressed in the paper. When you feel that the original draft addressed the comment, you should consider whether the original draft was clear enough. If the reviewer missed it, chances are that it was not communicated as well as

you thought. The better your response, the easier it will be on the reviewers and the faster you are likely to get back the second round of decisions.

6. Publication

Once the article is accepted and your final version is submitted, you have achieved your goal of being published. Hopefully, you have also achieved the goal of the article: to communicate the results of your research to a broad audience. The Science Citation Index keeps track of article citations and will provide you with a means to track who is citing your work.

A couple things to keep in mind once your article has been accepted are these. Once it's published, there's no changing your mind. Carefully re-review your own equations. It is not common that the reviewers will check the accuracy of every equation—only you can do that. Also, re-read your discussion and conclusions. Has your recent research changed your interpretation of the results in any significant way? Be sure the article you submit is the article you want to go into print.

In the same way that you critically evaluate your work before submission, you should also be critical of the published literature. Not every equation is right: in fact, many published equations contain typographic errors. The published model results generally correspond to the correct equations, but article text often contains errors. So, read the literature with a keen eye for errors and a critical ear so that you will be prepared to make the greatest impact with your own publications.

7. Summary and Conclusions

In this article I have briefly described the necessary elements of a good scientific or engineering journal publication, some of the steps along the publication process, and have provided specific guidelines for developing the journal article. Some sections, like the introduction, have very specific requirements, whereas, other sections, like the results and discussion, have a freer form. In the end, the decision to publish should lie most heavily on the scientific merit of your article, but by following these guidelines, you should maximize your opportunity for success.

The general outline of a journal article with the governing principles outlined above is presented here as follows:

1. Abstract

- The abstract should inform the reader in a succinct manner as to what the article is about and what the major contributions are that are discussed.

2. Introduction

(a) Introductory paragraph

- Start with an attention-getting broad statement that establishes a general topic for the article
- Narrow the topic in successive sentences that outline the state of the art and introduce a gap in knowledge.
- End the introduction with a general statement of the problem and optional supporting/specifying statements.

(b) Middle paragraphs

- The literature review identifies the seminal historical contributions, outlines the state of knowledge, and justifies the novelty of the article's contribution.

(c) Final paragraph

- End the introduction by outlining for the reader the specific contribution of the article and tell the reader the overall organization of the paper.

3. Methods

- Describe all of the techniques used to obtain the results in a separate, objective Methods section.

4. Results

- Results should be clear, convincing, and general and should be free from interpretations or opinions.

5. Discussion

- Discussion sections interpret the results to reach the main conclusions of the article.

6. Summary and Conclusions

- The summary and conclusions section tells the reader what he already read and draws the important conclusions—keep it short and make it as specific as possible.

7. Acknowledgments
8. References
9. Appendices

And throughout the writing process, keep in mind the best principle for an effective revision:

Revise and edit your article as if you are not the one who has to do all the work

Also remember that each journal has its own personality and may have some specific requirements in addition to these or that supersede these. It is always a good idea to read the information for authors before submitting your article.

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APPENDIX

Water management: the obscurity of demand and supply in Delhi, India

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Abstract

Purpose – The purpose of this paper is to evaluate the possibilities of continuous water supply in New Delhi, India and nearby places; also to scrutinize/assess/recognize the role of the Municipal Corporation and Delhi Jal Board (DJB), the departments which take care of water supply and demand in the region.

Design/methodology/approach – The paper takes the form of a case study and a literature review.

Findings – The authors infer that there is a bright possibility of continuous water supply in the region, provided there is improvement of water supply networks, auditing of supplied water, educating people for water conservation and rain water harvesting and proper distribution by building underground reservoirs (UGR) in different areas.

Originality/value – The conclusion and inferences of this research may enhance the existing literature on water supply, for the first time focusing on the Indian context, where there is no major problem in supply of water but the designed infrastructure creates shortages in the area.

Keywords India, Water supply, Water treatment, Water storage, Water demand, Leakages

Paper type Case study

1. Introduction

The rate of urbanization in India is amongst the lowest in the world. Experts predict that by 2020 about 50 per cent of India's population will migrate to urban cities thereby putting further pressure on the already strained centralized water supply systems of the urban areas. Further, the present urban water supply and sanitation sector in the country is suffering from inadequate levels of service, an increasing demand-supply gap, poor sanitary conditions and deteriorating financial and technical performance. Presently, the need of urban India is approximately 50 billion litres of water each day, whereas the municipalities have only succeeded in meeting about 82 per cent of India's urban population demand and hence, the scarcity of water is one of the major problems faced in metros and other urban cities. The popular notion shared amongst most for the acute shortage of water across the country is, "What is supplied by the supplier (municipality) never reaches the end user in the same quantity and quality" and it gets worse in areas which have a substantial population of low-income group. While the government has invested a lot of money to make sure that people get a good supply of potable water, still in many areas people have to buy water tankers to meet their daily needs (Seth, 2009). According to a World Bank 2001 study, of the 27 Asian cities with populations of over 1,000,000 Chennai and Delhi are ranked as the worst performing metropolitan cities in terms of water availability for a number of hours per day, while Mumbai is ranked as second worst performer and Calcutta fourth worst. The nation's capital, New Delhi, it seems, has reached a situation wherein it is perpetually gripped

by the water crisis, more so during the dry season, when the situation gets particularly worse. As the demand-supply gap widens, more groundwater is being exploited. Of the water supplied by the municipality, approximately 11 per cent comes from groundwater reserves and remaining from the Yamuna River. It is, however, difficult to establish the total quantity of groundwater extracted because a large number of tube wells (owned by individuals, industries and bottled water companies) remain unregistered. In Delhi approximately 13 per cent households do not receive water every day (Zerah and Helene, 2000).

This article has been categorized as follows: we first summarize prior findings on water supply, water demand and water treatment. Next, we describe and elaborate our discussion with Mr Venugopalan, the program director of Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and Mr R. S. Tyagi, executive engineer with Delhi Jal Board (DJB). Thereafter, we put forth our findings and in the final section, we offer a proposition for managers and researchers.

2. Literature review
2.1 Water supply
The water crisis is a major problem faced by both the government and the people who are not provided with the luxury of continuous water supply. The huge disparities in water supply is apparent from the fact that in cities there exists areas where water supply is so profuse that residents therein fail to realize it's worth and on the other hand there exists areas which are water struck and the residents, due to the scarcity are compelled to buy it for meeting their daily needs. Unfortunately, no major Indian city has an equally distributed 24 hours supply of water. Moreover, in contrast to the Asian-Pacific average of 19 hours per day supply of water, India lingers miserably to four to five hours of supply of water per day. In Delhi, only 40 per cent households with in-house connections have 24 hours supply of water, while more than 25 per cent have it for less than four hours a day. A survey in 1995 showed that each household on an average spent around Rs 2,000 annually to get proper water supply, which is 5.5 times of what they paid to municipality for water consumption (McKenzie and Ray, 2009). Although municipalities are responsible for water supply in the cities, but it is no secret that without the adequate support from the government they too cannot perform to their optimum. The government has to improve and introduce new schemes to support them with money for better supply system and pipes which carry water. Also, due to lack of skilled, experienced and good man-power most of the schemes and project do not take-off well (Dieterich and Henderson, 1963).

Water supply has increased in Delhi with almost each five year plan taking into account the population increasing at a rapid rate. In spite of the best efforts made by the government, water supply in an equitable and/or adequate manner remains a matter of concern due to various reasons like raw water scarcity and related problems, transmission and distribution losses, thefts and leakages in water supply, corrosion, degradation and dilapidation of water pipelines, supply with less water pressure, uneven distribution, depleting ground water levels, rapid urbanization not allowing the water level to fill up, increasing cost of water treatment and increasing gap between water supply cost and tariff, etc.

The water treatment and supply capacity has increased from 250 million litres per day (MLD) in 1956 to 3,066 MLD in 2007. Out of the total of 25.54 lakh households in Delhi in 2001, about 19.24 lakh (75.33 per cent) households were provided water viz. piped water supply system. About 5.60 lakh (21.91 per cent) households were

provided water supply through tube wells, deep bore hand pumps, public hydrants and the remaining 2.76 per cent households were dependent on other sources like wells, rivers, tanks, canal, ponds, etc. (Economic Survey of Delhi, 2008-2009).

Rapid expansion in low- and middle-income urban populous areas of Delhi has resulted in a significant growth in the informal settlement areas around the city. With the hasty rise in population the sustainable supply of potable water in Delhi has become major issue and an uphill task for the authorities. The municipal corporations do not have adequate money supply to invest in the maintenance and repair of the existing systems or for setting up of the new ones. The participation of private sector can be a "forefront" strategy to remedy the situation. Rehabilitation and upgrade of existing water supply systems could form a big part of the private investment because they promise shorter gestation period and more value for money in a short span of time. To customers, this would mean an immediate improvement in the quality of water supply. However, still, no single solution exists for the current problems of Delhi's water management. Long-term and a sustainable solution lies not only in the construction of a new infrastructure but also in concurrent implementation of demand management and conservation practices, in development of appropriate strategies and regulatory frameworks, and in transformation of existing institutions to become increasingly more efficient and effective. Without such an integrated and concerted approach, sustainable water management in Delhi will simply not be possible (Zérah, 2001).

Urban water supply is characterized by irregular supply and inconsistent pressure aided by inefficient and substandard Jal Board that is unable to maintain and/or expand the existing system. Substantial reforms are needed in order to cater for existing needs, and to meet increasing demand for water fuelled by both population and income growth (McKenzie and Ray, 2004). Due to irregular water supply, people unfortunately are compelled to resort to alternative sources of untreated and contaminated water which definitely are unfit, unhealthy and detrimental for use. Also, contamination of water, per se, during commuting/travelling and storage within the household presents a significant inevitable health risk. The use of such kind of water causes various water-related diseases such as diarrhoea, cholera, typhoid, etc. In order to protect people, municipalities have to make sure that the water supplied is treated properly, and people have to make sure that the water they consume is treated before consumption at their home (Sobsey, 2002).

2.2 Water demand
With the population of Delhi increasing from 0.4 million in 1911 to 13.8 million in 2001 (census 2001), the demand for water in Delhi has also increased rapidly from 246 MLD in 1956 to 3,406 MLD in 2008. Pure drinking water is a luxury in India today. However, in case of Delhi, it is just drinking water. Due to rapid urban development, much due to unplanned and unprecedented growth of unauthorized colonies and annual influx of migrants, water supply infrastructure has come under severe pressure. Thus, people have begun to realize that in order to enjoy this luxury, they have to pay a price. The people of Delhi are paying exorbitant prices for this luxury. NCT of Delhi, the capital city of India, cannot boast of supplying sufficient water, a basic necessity of life, to all its citizens. Though the per capita availability of water in Delhi is the highest in the country, the inadequacy is mainly on account of inequitable distribution of water and loss of water through leaking pipes. Water wastage proves to be very expensive; the investments in leak detection and leak proofing may prove to be more productive. This, coupled with an efficient distribution network

and sustainable extraction of groundwater, would not only help increase the supplies but would also lead to a more equitable distribution Economic Survey of Delhi, (2008-2009).

DJB is the sole government agency responsible for meeting water demands of the city. It has the capacity of supplying 3,104 MLD. If we account for 20 per cent transit losses, DJB should supply around 2,483 MLD water. The city demands 3,406 MLD water approximately. Thus, there should be a shortage of 923 MLD water only, but the losses are higher than that, due to which there is no supply of water in most of the areas. People buy water from private supplier at five to ten times the price at which they get from government. To meet their demand people go for bore wells to extract water from ground, indiscriminate extraction of groundwater has caused the water table to drop to an alarming level, still people go for deepening of the already installed bore wells. With government supplying from ground water resource, and people also taking it out through bore wells, ground water has depleted at a higher rate, and the rate with which the water is absorbed, it is not being filled back at the same rate. Therefore, more emphasis should be placed on water demand management and conservation of the quality of water sources. Water demand management usually includes introducing water saving technologies and public participation, as well as water rights transfer to activities that make more beneficial use of water from social, ecological and economic viewpoints (Garduño, 1999).

2.3 Water treatment

Clean drinking water is a basic human need. Unfortunately, more than a billion people do not have a reliable access to this precious resource in developing world, which the people in developed world take for granted (Gleick, 1999). Water being an excellent solvent can dissolve almost all minerals when mixed with. Therefore, in nature, water always

contains chemicals and biological impurities, i.e., suspended and dissolved inorganic and organic compounds and microorganisms. These compounds may come from natural sources and leaching of waste deposits. However, municipal and industrial wastes also contribute to a wide spectrum of both organic and inorganic impurities. Inorganic compounds, in general, originate from weathering and leaching of rocks, soils and sediments, which principally are calcium, magnesium, sodium and potassium salts of bicarbonate, chloride, sulphate, nitrate and phosphate. Besides, lead, copper, arsenic, iron and manganese may also be present in trivial proportion. Organic compounds originate from decaying plants and animal matters and from agricultural runoff. Synthetic organic compounds such as detergents, pesticides, herbicides and solvents are also found. These constituents and their concentrations influence the quality and use of the natural water resource. Production of biologically and chemically safe water is the primary goal in the design of water treatment plants (WTPs), anything less is unacceptable. A properly designed plant is not only a requirement to guarantee safe drinking water, but also skilful and alert plant operation and attention to the sanitary requirements of the source of supply and the distribution system are equally important.

The basic aim of water treatment is the production of water that is appealing to the consumer. Ideally, appealing water is one that is clear and colourless, pleasant to the taste, odourless and cool. It is not staining, neither corrosive nor scale forming, and reasonably soft. The consumer is principally interested in the quality of water delivered at the taps and not the quality at the treatment plants. Therefore, water utility operations should be such that quality is not impaired during transmission, storage and distribution to the consumer. Storage and distribution system should be

designed and operated to prevent biological growths, corrosion and contamination by cross-connections. In the design and operation of both treatment plant and distribution system, the control point for the determination of water quality should be the customer's tap. Another aim of water treatment is that water treatment may be accomplished using facilities with reasonable capital and operating costs. Various alternatives in plant design should be evaluated for production of cost-effective quality water. Alternative plant designs developed should be based upon sound engineering principles and flexible to future conditions, emergency situations, operating personnel capabilities and future expansion (Thirumurthy et al., 2008).

3. Case discussions on JNNURM scheme

JNNURM is a massive city modernization scheme launched by Government of India. It promises a total investment of over $20 billion over a period of five to six years. It is named after Pt Jawaharlal Nehru, the first prime minister of Independent India. This scheme was officially inaugurated by the Honourable Prime Minister, Dr Manmohan Singh on 3 December 2005 as a programme meant to improve the quality of life in the cities. The mission is divided into two parts:

(1) Urban Infrastructure & Governance (UIG); and

(2) Basic Service for Urban Poor (BSUP).

JNNURM covers 63 cities across the country and the rest are covered under Urban Infrastructure Development Scheme for Small and Medium Towns. UIG takes care of Delhi and NCR. The role of Urban Development Ministry in this project is giving money to State Government and the civic bodies for uplifting Indian cities. To solve the problem of limited or sometimes no water supply:

(1) There has to be assured water source, if there is none then UIG has to augment one. For this purpose they have to get water to such places where there are no water bodies through pipelines. Also, for better supply of water, different sources at different point need to be tapped.

(2) The next point is to provide pure and clean water to the residents of a particular area, for this setting up of treatment plants and upgrading the treatment capacity of existing plants is required.

(3) Lastly, the distribution channel of water is bad. The pipelines supplying water are in bad shape, due to which pipelines burst up and a lot of water is wasted. Due to deteriorated pipelines and poor connectivity the amount of water supplied is never equal to the amount of water received by the people.

(4) The project was started in 2005 and very few cities have 24/7 continuous water supply, this is because the project only gives out money to the State Governments and the civic bodies. Its role is only limited to enquire about the progress and get reports on the ongoing work of the project. Lot of work in many cities has just started and it will take time for water to be available in all the Indian cities 24/7 continuously. There is a possibility of the hypothetical situation of supplying water 24/7 continuously all over India, provided:

There is participation from everyone, i.e. the residents and the municipal bodies. Both of them have to work hand in hand to make sure there is adequate supply of water without disturbance.

· It is the mindset of people that has to change as they need to learn how to use and save water when they get 24/7 continuous supply of water and thereby minimizing the wastage of water.

(5) For maintenance of the system money is required, but people do not want to pay money for water they use. People have to realize that providing clean water for their use is not easy and a lot of hard work and money goes into it for which they should pay a little amount. However, if there is a rise in the price of water or water tariff is introduced, people make it an issue and start protesting; sometimes it's made a political issue which delays the project further.

(6) Lastly, water can be provided for 24/7 continuously, but without the co-operation from people this scheme can only run for six to 12 months. If, people are not proactive then they will suffer shortage in water supply. People have to understand that if they do not use water wisely, they will be at a loss.

Therefore we conclude that, there is no shortage of water in India, but water supplied is never equal to water delivered. The JNNURM project offers to solve the problem of water supply in many cities across India provided the State Governments and the civic bodies work together towards the improvement of infrastructure. The pipelines need to be changed, because they are one of the biggest reasons for water loss. The central government needs to be more pro-active by just not relying on the reports, but demand action and remove causes of delay in project completion. People should be made aware about the correct procedures to use water for minimum wastage. People are not willing to pay for the water they use, however, they want better water supply. Further, they should be encouraged to pay for the water.

4. Case discussions on DJB

DJB ensures continuous water supply 24/7 to all the parts of Delhi by 2021 (Lalchandani, 2009). For a population of 17 million in Delhi 3,104 MLD of water is provided for household and agriculture needs, accordingly 210 litres per capita per day (lpcd) should reach each household but, this does not happen. The reason being most of the WTPs are in north-east and north-west Delhi and the water is supplied from there to all the parts of Delhi. Ideally, the water should be supplied from the plants to underground reservoirs (UGR) at different locations and, from those it should be sent to their respective areas, but due to non-availability of UGRs the water is being sent directly through the raising main or pressure main (pipes that carry water), that kills the pressure. Due to this the areas near the WTP have a lot of water, for e.g. Prashant Vihar has a water supply of 600 lpcd, whereas, the ones far away get modest water supply, for e.g. south Delhi area gets a water supply of just 60 lpcd. The factors which result in this uneven supply are:

(1) Leakages in pipe at the joints. The pipelines which bear exemplary/very high water pressure develop leakages at joints.

(2) The pressure drop creates gaps in the pipes as inconsistent pressure wears and tears/deteriorate the condition of the water pipes, which may eventually result in bursting of pipe, thus resulting in undue water loss.

(3) Also, because of leakages the water gets contaminated due to soil and pollution going through the point of leakages.

If these three problem areas are checked and improved, water supply for all seven days and 24 hours continuous can be achieved. Currently, DJB follows the intermitant supply of water, in which the water is supplied three hours in the morning and three hours in the evening as that is the peak demand hours of water. Hence, the water supply is not continuous and the leakage is not consistent. This supply system has been adopted because of leakages and through this system the leakage of water is reduced. But, this system has its own negative points that are:

(1) Due to six hours of supply instead of 24 hours people save water in the morning for their needs during the day and the water saved, is more than they require. In the evening when water is supplied again, in order to store fresh water people throw away the stored water and fill in the fresh water. This results in a lot of wastage of water.

(2) People install water pumps in their houses to get more water when the supply starts, in a locality the person to whose house water comes first gets a lot of water and the tail ends do not get adequate water supply and they run the pumps even when there is no water supply. Doing this the water pumps suck in soil and pollution from the gaps at leakage point and when there is water supply the water coming in the beginning gets contaminated and is wasted. This also wastes a lot of energy.

In intermitant supply more water is wasted. Water shortage problem is also because there is no measurement of flow at any point. For e.g. if a WTP of a capacity of 530 MLD releases X amount of water for four points where the amount of water going is X_1, X_2, X_3 and X_4. The amount of water going to any of these points is not known because of the absence of flow and pressure meters. Also, the loss of water at these four points due to leakages is not known (Figure 1).

$$X ¼ X_1 þ X_2 þ X_3 þ X_4$$

Figure 1 shows X quantity of water distributed from a WTP for an area and going to four different parts in the quantity of X_1, X_2, X_3 and X_4. The measurement of the amount of water supplied can only be done at the house of the consumer from the meters installed at their houses. The amount of water the houses receive is much less than what is supplied from the WTP every day. There is water wastage of 45-50 per cent which is way above the globally accepted standard of 15-20 per cent loss. To correct this loss, flow and pressure meters have to be installed not only at the point from where the water is supplied, but also put district meters to check the amount of water going into a locality/district that has domestic meter installed in every house. By
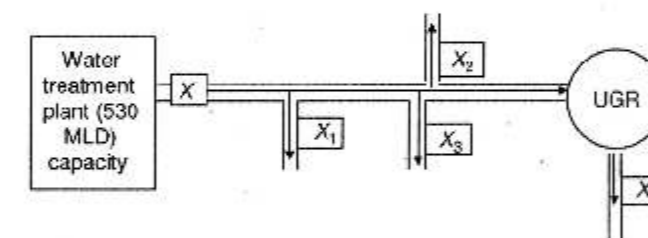
Figure 1.
Water supply to four
different parts in an
area under the water
treatment plant

doing this, there can be a water audit to check how much water is going to which area, also check from the district meters' reading to match the reading from domestic meters'. Further, check where there is leakage or any other problem due to which people are not able to receive the exact amount of what is being supplied or with a normal loss of 15-20 per cent (Figure 2):

$$X \quad \eth X_1 \ þ X_2 \ þ X_3 \ þ \qquad þ X_n þ \frac{1}{4} \ 42\% \qquad \eth1þ$$

Equation (1) explains the amount of water lost in the process of supplying it to an area, wherein, X is the amount of water released from the WTP and $X_1 þ X_2 þ X_3 þ$ --------
-- $þ X_n$ is the total amount of water received by all the houses in a locality. First, deduct the total amount of water received by the houses from the total amount of water supplied, if a loss of 42 per cent is calculated. Next step would be to check for leakages in the pipelines supplying water from the WTP to the area:

$$X \quad \eth X_1 \ þ X_2 \ þ X_3 \ þ \qquad þ X_n þ \frac{1}{4} \ 30\% \qquad \eth2þ$$

Equation (2) explains the situation of water loss after checking and rectifying the leakages in pipelines. First, deduct the total amount of water received by the houses from the total amount of water supplied, if a loss of 30 per cent is calculated. Next step would be to check the loss due to leakages (i.e. water lost while supplying to houses within the area), theft of water if any and accuracy of meter installed (sometimes the meters run fast and sometimes slow) in houses:

$$X \quad \eth X_1 \ þ X_2 \ þ X_3 \ þ \qquad þ X_n þ \frac{1}{4} \ 20\% \qquad \eth3þ$$

Equation (3) needs to be achieved where the losses are less than or equal to 20 per cent in order to have 24/7 continuous water supply. Demand for water is never constant throughout the day, so in order to successfully carry out continuous water supply throughout the day the authorities have to make sure that the water pressure is not constant and it should vary according to the demand of water. The demand levels for a normal household in Delhi are:

· In morning (6:00-11:00 am) – more pressure, as people have to go to offices more water is required for all the daily needs of bathing, washing clothes, cooking, etc.

· In afternoon (12:00-6:00 pm) – Less pressure is required as people normally not at home or sleep after finishing domestic work.
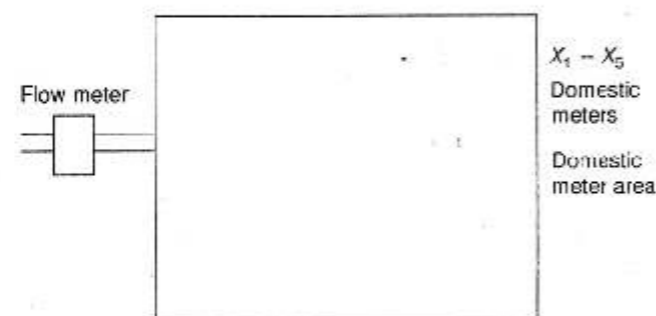

Figure 2.
A locality with X_n houses

· In evening (6:00-10:00 pm) – More pressure is required because people come back from offices.

· In night (10:00 pm-6:00 am) – This is a zero demand period where minimum pressure is required as mostly everyone sleeps at this time (Figure 3).

The other problem that the DJB is facing is non-completion of UGR (18 UGR are under construction), due to this all the water is directly sent to everywhere in Delhi and there is inconsistent pressure at areas closer to WTP and those at long distance. DJB has also planned to give every plant a point responsibility after which they will be providing water to a specific area designated to them, in this process Nangloi plant is being studied and its success will define whether to carry out this procedure (Gupta, 2010). DJB also wants more dams should be constructed, so that as demand would increase from 3,406 MLD at this moment to 5,224 MLD in 2021, they should be able to meet it. Rest it is also working on increasing the capacity of sewage treatment plant to meet the increase in demand, at this moment it gets 416 MLD of treated water, which can be given for commercial use in factories and the soft water from plants can only be kept for household and agriculture activities. They have also roped in Japan International Bank which is studying the leakages in the capital. Different water treatment plants and their capacity are given below:

(1) Nangloi (west Delhi) – 152 MLD.

(2) Sonia Vihar (north-east Delhi) – 530 MLD.

(3) Bhagirathi (north-east Delhi) – 379 MLD.

(4) Haiderpur (north Delhi) – 757 MLD.

(5) Chandrawal (north Delhi) – 341 MLD.

(6) Wazirabad (north-east Delhi) – 454 MLD.

(7) Okhla (south Delhi) – 45 MLD.

(8) Bawana (north-west Delhi) – 76 MLD.

Sources of water to these plants and homes are:

· Western Yamuna Canal (Yamuna and Beas Rivers) – 947 MLD.

· Direct Yamuna Water – 833 MLD.

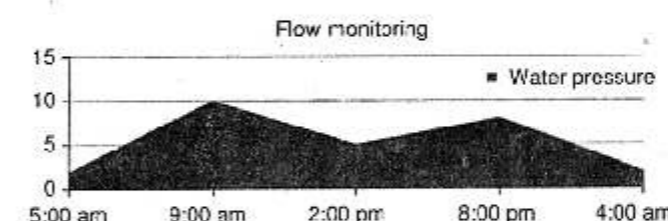· Ganga Water – 947 MLD.

· Ground Water – 379 MLD.

Figure 3.
Water pressure during different time intervals

We notice that the difference in supply of water in two places in one state, i.e. north Delhi and south Delhi is ten times. Lack of UGR, bad pipes and no water audit is costing the DJB a lot. No UGR means the water from one location in Delhi is supplied to all the parts through pipelines as most of the water treatment plants are in the northern part of Delhi. With UGR the water can be stored in the UGR from water treatment plant and supplied to the area in which the UGR is present. Bad pipes means water is lost due to leakage at joints because inconsistent supply of water and, due to the cracks soil enters in the pipeline, due to which polluted water goes to many homes. Sometimes in these bad pipes due to high pressure bursts occur and a lot of water is lost. Further, due to no water audit, the amount of water released from the WTP to its designated areas is never received in the same quantity, also if a WTP supplies to four areas in a city the amount of water going into each area is unknown the amount of water received by that area can only be calculated when the reading from the residents meters is taken. In some cases those readings do not give the exact amount as people generally temper the meter to save their bill. The supply by DJB which every home should get is 210 lpcd which if compared to Philippines, 90 lpcd, and Mexico, 110 lpcd, is way more, and still they have 24/7 continuous water supply because of good infrastructure. The difference in what is supplied and received by people is more than 45-50 per cent. Also, intermitant supply which has been adopted by DJB to solve water problems by supplying water only six hours every day, has not solved the problem at all as the wastage is more than if water is supplied 24/7 continuous and the quality of water also gets deteriorated. The way the demand is increasing every year and predicted to reach 5,224 MLD by 2021 is a big concern for the authorities. A lot of steps are being taken to improve the supply but still the condition is same, a factor for which can be corruption which is hampering the growth of our country in any given field.

5. Conclusions and findings

The gap between water supply and demand is man-made. The Government of India supplies sufficient amount of water to its people but due to lack of proper infrastructure of pipes, etc. there is leakage and people suffer from shortages of water and thus hypothetically increasing the demand for water. Delhi is suffering from the same problem and its people need to be educated that repair and maintenance of pipes and other equipments involve huge costs. The residents should be willing to pay for the expenses so that water wastage in the area can be reduced and people can enjoy the luxury of 24/7 continuous water supply. This will help the state and municipalities to improve supply network in the region.

Sewage treatment plants in Delhi can solve the problem of sewage treatment and can use the treated water for purposes other than household. Sewage treatment is not given much relevance which in turn is polluting Yamuna River. All the sewer lines dump the sewage in Yamuna River polluting the water due to which the potable water which can be supplied to people gets soiled and cannot be used. With the help of STP the waste can be treated and that water although not usable by households can be sent to industries for their usage.

Rain water harvesting helps to meet the demand of people but rains in Delhi are not constant, due to which rain water harvesting is not a popular option. Roof top rainwater harvesting should be made mandatory in order to recharge groundwater; this is a better option as if 50 per cent of the rainwater can be harvested it would help in bridging the demand-supply gap. Watershed-scale rainwater harvesting could be

achieved with the construction of a check-dam across a seasonal drainage. During heavy rains the ground becomes saturated and rainwater flows quickly along the surface instead of percolating into the earth, flowing into drainage channels and then into streams, rivers and ultimately the ocean. A check-dam built across a drainage channel prevents the water from flowing downstream, creating a small reservoir (McKenzie and Ray, 2004). Benefits of rainwater harvesting include:

· Quality of groundwater improves.

· Raises the water levels in wells and bore wells that are drying up.

· Mitigates the effects of drought and achieves drought – proofing.

· An ideal solution to water problem in areas having inadequate water resources.

· Reduces the soil erosion as the surface runoff is reduced.

· Choking of storm water drains and flooding of roads decreases.

· Saving of energy: to lift ground water, one metre rise in water level saves about 0.40 kilo watt hour of electricity (DJB, 2009).

For continuous water supply the measures required would be:

(1) Water auditing: 100 per cent metering.

(2) District meter area: install meters to check the supply of water in a particular district.

(3) Prevention of leakages and thefts: changing old pipelines and maintenance of pipes.

(4) Flow and pressure meters to make sure that right amount of flow is maintained at the required time.

(5) Making the government organizations and state government more accountable for the timely completion of projects. This can be achieved through a more vigilant approach by Central Government.

(6) Creating awareness among people for the importance of water and not to misuse it.

(7) Encourage people to pay for the water they use.

(8) Promoting roof-top rain water harvesting.

At this moment the water is supplied everywhere from the WTPs, be it for commercial use or household use. The total water demand is 3,407 MLD and the supply is 3,104 MLD, if the demand for commercial supply can be met by STP whose capacity is 416 MLD and rest is only kept for household use. We theoretically have more supply (3,520 MLD) than demand (3,407 MLD). Even, if the above suggestions are implemented we can make sure that the water loss is also reduced from 45-50 per cent to 20 per cent. Also, it will create new source of water availability (rain water harvesting), which is cheaper and a very good solution to water problems over the period of time. Hence, with proper governance and support from public can make water 24/7 continuous supply a possibility in near future.

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Procedural justice, participation and power distance

Information sharing in Chinese firms

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Abstract

Purpose – The purpose of this paper is to investigate the extent to which procedural justice influences a manager's decision-making behaviour and the extent to which managerial values related to power-distance moderates the relationship between participation in decision processes and procedural justice. **Design/methodology/approach** – A questionnaire survey was conducted in this study. Dependent variables were the degree of participation in decision making and the degree of sharing information with subordinates. Independent variables were procedural justice and power distance.

Findings – The findings suggest that procedural justice is related positively to encouraging initiatives and information sharing. The findings also indicate that power distance moderates the relationship between procedural justice and decision-making behaviours. Although managers were inclined to share

information with employees when they believed in procedural justice, high-power-distance values would weaken such a positive link.

Research limitations/implications – The study explores the moderating role of power distance in the formation of perceptions about procedural justice but the interactive and distributive justice of managers are not included here for a comprehensive understanding of organizational justice. Another limitation is that the sample in the study was limited geographically to the regions of Southern China.

Practical implications – Emphasis of procedural justice among managers throughout the hierarchical system of an organization would be an effective way to improve both management effectiveness and employee performance. However, while managers develop warm relationships with their employees, they still share information reluctantly with employees in decision making when the intent is to maximize power.

Originality/value – The perspective of managers, which is adopted in this study, makes it original compared to previous studies of procedural justice. Such studies take the standpoint of employees or student subjects. Another contribution is that the cultural construct of power distance is analysed with managers at the individual level. Further, the study sheds light on important managerial issues related to the relationships between procedural justice, participation and the moderating effects of a manager's value orientation within the context of China.

Keywords Employee participation, China, Managers, Information control, Management power
Paper type Research paper

Introduction

Organizational justice has received a great deal of attention in the fields of management and psychology (Begley et al., 2006). The various factors related to organizational justice influencing how people react to events such as organizational downsizing (Brockner et al., 1994) and performance (Dulebohn and Ferris, 1999) are studied. Current research conceptualizes justice perceptions along three dimensions – distributive, procedural and interactional justice, playing a role in influencing a variety of organizational outcomes (see Colquitt, 2001; Colquitt et al., 2001; Cohen-Charash and Spector, 2001).

Procedural justice is of special interest to organizational researchers (Brockner et al., 2001a; Folger, 1977; Kanfer and Earley, 1990; Korsgaard and Roberson, 1995; Tyler et al., 1985; Thibaut and Walker, 1975). There is evidence that employees who feel treated fairly by an authority are inclined to accept its decisions (Lind and Tyler, 1988), particularly if the processes by which a decision was taken is perceived as being fair. Cohen-Charash and Spector (2001) found that procedural justice was significantly correlated with job performance, counterproductive work behaviour, organizational commitment, trust and organizational citizenship behaviour. However, the perspective taken in previous research on procedural justice focuses mainly on employee perceptions of how they are

treated by their managers and organizations (Kray and Lind, 2002). Research on influence of the managers' belief about procedural justice on their practice is limited.

More recently, the moderating effect on the relationship between justice perception and performance has drawn substantial attention. For example, gender (Brockner and Adsit, 1986; Greenberg and McCarthy, 1990) and organizational commitment (Brockner et al., 1992; Li et al., 2007) are found to moderate justice relationships. Cultural factors, such as tradition, are argued to act as a moderator in the relationship between organizational justice and employee behaviour (Brockner et al., 2001a, b; Farh et al., 1997; Lam et al., 2002). Power distance (Hofstede, 1980) may also play a moderating role between the procedural justice and management behaviours (Gomez et al., 1999).

Although the importance of cultural influences on procedural justice has been studied, the issue of how organizational procedural justice is related to the preferred managerial practice within the specific cultural context is under-explored. Most of the relevant research is conducted in the USA and almost exclusively in Western countries. These countries are commonly characterized as low-power-distance cultures where not having voice may be experienced as a violation of cultural norms relative to those countries characterized as high-power-distance cultures (Brockner et al., 2001b). Cultural value orientation at a national level has been well researched, but how procedural justice is influenced within cultural perceptions of individuals is not sufficiently investigated. It would be problematic to assume that all individuals within one society will show the same cultural perception.

This study extends previous research in three ways. First, our focus is on the manager rather than the employee. We examine the extent to which Chinese managers' belief of procedural justice is related to their willingness to share information with employees and encourage employee initiative. Second, we test the moderating effects of the work value of power distance on the relationships between procedural justice and a willingness to encourage employee participation, procedural justice and share information. Third, our study is undertaken at the individual unit of analysis to recognize the diversity in work values that can be expected to exist in a transitional society such as China.

In this study, procedural justice is defined as the belief of managers to have employees to voice their views in the decision-making process, especially when the outcomes affect the interest of the subordinates. Knowledge gained in this study contributes to the literature of organizational procedural justice and our understanding of Chinese management.

Procedural justice, participation and information sharing

In social exchange theory, procedural justice relates to the conviction of managers that employees should be given fair treatment both morally and technically in order for employees to deliver high performance (Masterson et al., 2000). A decision-making

procedure is perceived as fair if the procedure takes the interests of all parties into consideration (Leventhal et al., 1980). Research on procedural justice consistently shows that the permission to voice one's view – the "voice effect" – enhances the individual's perception of procedural fairness (Greenberg, 1996; Lind et al., 1990; Organ and Moorman, 1993; Lind and Tyler, 1988; Tyler and Lind, 1992). The perceptions of employees about procedural justice, thus, are associated with their participation in the organizational decision-making process. It is found that when being provided the opportunity to participate in work evaluations, the employee perception of procedural fairness increases (Bies and Shapiro, 1988; Kanfer et al., 1987).

Employee perception of procedural justice leads to a high level of organizational commitment (Konovsky, 2000), increases job satisfaction (Fryxell and Gordon, 1989) and reduces turnover intentions (Dailey and Kirk, 1992). Consequently, employees will make significant effort on achieving high performance (Cotton et al., 1988; Glew et al., 1995; Tesluk et al., 1999; Waite, 2007; van Yperen et al., 1999).

Importantly, the view of managers about whether procedural justice should be reflected in a decision-making process plays a crucial role in this interactive link because of their direct influence on practice, although it is argued that procedural justice issues constrain lower level employees more than they constrain those at higher levels (Schminke et al., 2002). The view is that transformational leaders motivate followers to focus more on fairness and justice issues (Cremer, 2005). It thus follows logically and practically that the reason why these leaders are effective in their leadership is that they not only believe that procedural justice is related to management effectiveness but also cautiously practice it. Organizational processes such as performance appraisals, disciplinary proceedings and discussions about career planning provide opportunities for managers to exercise procedural justice (Rupp and Cropanzano, 2002), which in turn strongly influences the employee perception of fairness.

Management in decision-making processes involves two basic issues. First, who is involved in the decision-making process and are the decisions made solely by the managers or jointly with subordinates? The second issue involves the degree to which subordinates are able to influence decisions (Heller et al., 1998). Managers play a key role in determining the actual degree of involvement of employees in the decision-making process by controlling the extent to which the views of employees are reflected in the outcomes. The practice of procedural justice requires that managers strive constantly to balance in a fair and equitable manner the rights of all the organization's stakeholders, especially the employees (Donaldson and Preston, 1995). Managers will exercise a participative approach in managerial practice if they strongly believe procedural justice is an effective motivational component.

Managers are likely to adopt a decision-making process involving employee initiative when they believe that fair procedures tend to inspire employee commitment to the organization and promote their psychological acceptance of managerial authority. In other words, managers consciously apply a participative approach to motivate employees based on the managerial concept of procedural justice. Managers encourage employees to voice their concerns in the decision-making process when they believe that instigating employees' feelings of fairness and dignity facilitates the implementation of even those outcomes that might be undesirable to the employees (Deutsch, 2000). Furthermore, those managers who recognize procedural justice as a tool to gain employee high performance are likely to share decision control and invite employee initiatives into the decision-making process (Magner and Johnson, 2000). Managers who believe that the practice of procedural justice not only strengthens their

moral character but also enhances the employees' perceptions of the trustworthiness and fairness of management will achieve their objectives by engaging the creative involvement of employees in the workplace.

In the context of the above, it is hypothesized that:

H1a. Managers' beliefs in procedural justice are positively related to their willingness to encourage employee initiative.

Managers who seek to maintain fairness of the decision-making procedures for positive interpersonal relations with employees can potentially make their decisions more acceptable through sharing information. It is found that employees' reception of adequate information leads to greater perceptions of justice (Jerusalim and Hausdorf, 2007). However, information sharing among employees does not necessarily take place in an organization (Fisher and Fisher, 1998). The disclosure of information as a source of power (French and Raven, 1959) may lead to the erosion of individual influence on key issues in an organization. Managers who view information control as the source of power and a lack of motivation to share information may negatively influence their attitude toward information sharing with employees. A lack of willingness by a manager to share information is an impediment to the transfer of best practices within any organization (Szulanski, 1996), a situation that leads to low performance.

In contract, a strong belief by managers that an increase of procedural justice is critical to employee high performance is likely to facilitate their intentions and actions regarding information sharing. In particular, when employees, in turn, give high performance based on the perception of procedural justice, managers will further perceive that sharing information is strengthening their managerial power instead of weakening it. A recent study by Bock and Kim (2002) indicates that managers' positive attitude toward information sharing is associated with positive intentions to share knowledge. In turn, this shapes corresponding behaviours. Managers who value procedural justice in the organization are likely to share organizational information with employees. Based on the observations above, we hypothesize that:

H1b. Managers' beliefs in procedural justice are positively related to their willingness to share information with employees.

The moderating effect of power distance

Previous studies support the idea that the belief about procedural justice is developed through socialization processes (Lind and Tyler, 1988). In this light, perceptions about fairness will vary depending on cultural norms. Power distance in Hofstede's (1980) view refers to the degree to which members of a society accept the fact that power is distributed unequally. Very little is known about how power distance affects issues of organizational fairness or influences management perceptions of procedural justice (Choi, 2003). In high power-distance cultures, people accept unequal distribution of power as natural, if not innate to the human condition. However, whether power is used legitimately by those at the top of the power structure is rarely questioned (Ackermann, 2001). It is found that people responded more negatively to lower levels of voice in low power-distance cultures than in high-power-distance cultures (Brockner et al., 2001b). A study by Gomez et al. (1999) also found that lower levels of participation do not influence organizational commitment in the higher power-distance cultures as much as in countries with lower power-distance values.

The findings of previous studies (for example Adler, 2002; Guillén, 1994; Francesco and Gold, 1998; see Triandis, 1996) indicate that the application of participation may be inappropriate in high-power-distance cultures as it could create an impression of managerial incompetence. Employees who are comfortable with high power distance will put less value on participation and thus the participation factor is less likely to influence organizational commitment (Gomez et al., 1999).

One of the main criticisms levelled against cross-cultural research is that it neglects individual differences within cultures by conceptualizing culture as an entity (Brockner et al., 2001b). When discussing the work of Hofstede (1980) on cultural value orientations of nations, researchers find that each of value dimensions have large variation over individuals in societies and that these individual differences have direct effects on social and organizational outcomes (see Clugston et al., 2000; Kirkman and Shapiro, 2001). There are, for instance, more similarities of cultural values across the same age groups from different countries than across the different age groups within a country, like the comparisons of Chinese and American age groups (see Egri and Ralston, 2004; Pan et al., 1994).

Brockner et al. (2001b) found that interactions of individual power distance and voice are significant and wash out the interactions based on culture level indicators. In general, it can be stated that people with high power distance tend to value conformity and hierarchy (Liang, 1999) and believe that it should be the responsibility of management to make decisions. Managers with high power distance tend to legitimize differences in decision-making power between those who are in high power positions vs those who are in low power positions. They prefer to control power and discourage the sharing of information and the participation of employees. In contrast, managers preferring low-power-distance values will reduce power differences among people in positions of varying levels of formal decision-making power. They will be more likely to share their power with those in lower power positions (Brockner et al., 2001b). Consequently, these people prefer to invite employee initiatives and share information with employees. Managers with various degrees of power distance are likely to view the involvement of employees in the decision-making process and the acceptance of procedural justice in management practice in very different ways. Power distance is likely to have a moderating effect on a manager's view of both the voice of employees via participation (Brockner et al., 2001b) and procedural justice.

China has traditionally been characterized as a high-power-distance cultural environment (Wang and Fulop, 2007). As a result of economic reforms, Chinese companies have achieved considerable autonomy in the management of their human resources in such areas as recruitment and selection, promotion, salary level and even firing (Liang, 1999). On the one hand, within Chinese organizations, the perception of justice or fairness – that is, who is entitled to do what and how such a decision is made – has gained in importance (Meindl et al., 1990; Yu and He, 1995; Yu et al., 1992). On the other hand, inequality induced by high power distance still engenders respect for hierarchy (Begley et al., 2006), which discourages procedural justice and participation. Work values, like power distance, are relatively steady and have profound influence in societies, even in changing cultural contexts. This study, therefore, hypothesizes that in China:

H2. Power distance will moderate the relationship between procedural justice and the willingness to encourage employee participation and share information. Specifically, the more the manager values power distance, the weaker the positive correlation between procedural justice and willingness to encourage

employee participation the weaker the positive correlation between procedural justice and willingness to share information.

Methods
Sample and procedure
A questionnaire survey was conducted between 2002 and 2003. The sample consisted of 213 Chinese managers, randomly sampled from private enterprises, in a hierarchical range stretching from top and middle management to first-line management. These managers were drawn from Beijing was well as from Shenjen and Shunde, cities in the Guangdong Province of Southern China.

Survey design and measures
The main survey instrument was developed through a review of the relevant literature leading to the adoption of standard validation measurements with the shift from a subordinate perspective to a manager's perspective. A seven-point Likert-type scale – from "strongly agree" to "strongly disagree" – with higher means representing a higher level of agreement was used.

Dependent variables. The degree of participation in decision making (Cronbach's alpha ¼ 0.70) was measured by Hemphill and Coons' (1957) scale. which tests the extent to which a manager encourages subordinates to initiate new ideas and practices. The degree of sharing information with subordinates (Cronbach's alpha ¼ 0.82) was measured using as scale from Wang and Satow's (1994) measurement of informative leadership style.

Independent variables. Procedural justice (Cronbach's alpha ¼ 0.81) was measured using a scale modified from Moorman's (1991) "justice measurement", which was adjusted from an employee's perspective to a manager's perspective. Power distance (Cronbach's alpha ¼ 0.70) was measured using Robertson and Hoffman's (2000) measurement.

Control variables. Control variables of gender, age, the level of position, the education level, the length of experience in management and current managerial position were controlled for the potential effects on procedural justice through independent variables power distance. In the hierarchical regression analysis. willingness to encourage employee initiative and share information with employees were regressed by biographical variables (Step 1), procedural justice and power distance (Step 2) and moderating interaction of procedural justice and power distance (Step 3).

Validity
The questionnaire was initially translated from an English version as the original items were all derived from the English-language literature. The versions in Mandarin and English were made equivalent in meaning, refining the questions through backward-forward translation. Second, to minimize social desirability effects, the respondents were promised anonymity and confidentiality. Third, all items were tested for common method variance using the approach of Harman's one-factor test (Podsakoff et al., 2003) since there are multiple items in an original measurement for each tested variable. All the variables used in the current study were entered into an unrotated factor analysis concerning their categories to determine the number of factors. If a single factor emerged from the factor analysis, this would indicate that the data suffered the problem of common method variance. The results of factor analysis provided confidence that common method variance was not an issue for the current study. Finally, the chosen items yielded a reliable Cronbach's alpha.

Results
The means, standard deviations and Pearson correlations for demographic variables, procedural justice, power distance, participation and sharing information are presented in Table I. The correlations indicate that there are relations between the values of procedural justice and the power distance (r ¼ 0.22, p < 0.05), participation (r ¼ 0.53, p < 0.01) and sharing information (r ¼ 0.48, p < 0.01).

The results of regression analysis with participation and sharing information as the dependent variables for Chinese managers in privately owned enterprises are presented in Table II. The results indicate that procedural justice is positively related to both the decision-making style of subordinate participation and the degree of sharing information by controlling demographic variables (age, education, position level and years in management). Thus, H1a and H1b are supported.

The results of regression also indicate that a manager's value of power distance moderates the relationship between procedural justice and sharing information. However, there is no significant moderating effect on the relationship between procedural justice and encouraging initiatives. Thus, H2 is only partially supported.

Discussion and conclusion
Theoretical implication
The purpose of this study was to examine the relationships between procedural justice, the managerial values of power distance, participation and information sharing. It extends the theory of organizational justice from a perspective of managers with empirical evidence. The findings of the study indicate that managers' beliefs about procedural justice are related positively to their willingness to encourage employee initiatives as well as to share information with employees. Practically, managers have dominant power and authority to choose both practice in work and the nature of interactive relationships with employees. Their managerial belief about procedural justice would lead to their significant improvement of management effectiveness. As argued above, sharing information and encouraging initiatives both create a better chance of bringing and integrating best practice into the Chinese workplace.

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Gender	2.41	0.87	–								
2. Age[a]	1.19	0.39	0.20	–							
3. Education[b]	2.92	0.44	0.14	0.22*	–						
4. Managerial years[c]	2.85	0.72	0.04	0.77**	0.20	–					
5. Managerial position[d]	3.07	1.13	0.01	0.50*	0.13	0.51**	–				
6. Procedural justice	5.03	1.95	0.25*	0.05	0.05	0.21	0.17	–			
7. Power distance	5.7	0.88	0.34	0.03	0.09	0.06	0.02	0.22*	–		
8. Inviting initiatives	5.23	0.95	0.04	0.04	0.08	0.28*	0.10	0.53***	0.11	–	
9. Sharing information	4.84	1.29	0.08	0.08	0.05	0.14	0.30	0.48**	0.13	0.50**	–

Table I.
Means, standard deviations and Pearson correlations (p < 0.10) for variables for POEs in China

Notes: *p < 0.05, **p < 0.01, ***p < 0.001 (two tailed); [a]Age was coded as 1 ¼ 20-29; 2 ¼ 30-39; 3 ¼ 40-49; 4 ¼ 50 or over; [b]Education level was coded as 1 ¼ primary school; 2 ¼ secondary school; 3 ¼ bachelor' degree; and 4 ¼ postgraduate degree; [c]Management position was coded as 1 ¼ top management; 2 ¼ senior management; 3 ¼ middle management; and 4 ¼ frontline management; [d]Years in management was coded as 1 ¼ less than 2 years; 2 ¼ 2-5 years; 3 ¼ 6-10 years; 4 ¼ 11-20 years; and 5 ¼ over 20 years

Variable	Sharing informative				Encouraging initiative			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Gender	0.16	0.01	0.01	0.05	0.01	17*	17*	0.17
Age	0.26	0.04	0.04	0.16	0.07	0.16	0.14	0.13
Education	0.05	0.07	0.07	0.05	0.21	0.19	0.20*	0.20
Years in mgt	0.30	0.05	0.05	0.07	0.03	0.23	0.22	0.22
Mgt position	0.05	0.14	0.14	0.12	0.11	0.01	0.02	0.02
Direct effect								
Procedural justice (PJ)		0.62	0.64**	0.55**		0.66**	0.65**	0.64***
Power distance (PD)			0.01	0.07			0.11	0.10
Interaction effect								
PJ × PD				0.29***				0.04
R^2	0.60	0.39	0.39	0.46	0.04	0.41	0.42	0.42
Adjust R^2	0.01	0.34	0.33	0.39	0.02	0.36	0.36	0.35
F	0.93	7.65	6.46	7.30	0.66	5.03	4.42	3.88
Observation number			213				213	

Notes: Standardized coefficients are reported; *p < 0.05, **p < 0.001, ***p < 0.01

Information sharing in Chinese firms

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Table II.
Hierarchical regression
analysis of participation
for managers in Chinese
private enterprises

The findings also indicate that power distance negatively moderates the relationship between procedural justice and willingness to share information; the higher power distance managers prefer, the weaker is the relationship between their belief about procedural justice and a willingness of sharing information. This clearly suggests that although managers are inclined to share information with employees when they believed in procedural justice, high-power-distance values would weaken such a positive linkage.

Managers with high power distance generally view their employees as unequal within an organization. However, if they prefer to maintain distance between employees and themselves regarding position or status, sharing information can be perceived to cause losing power and to be unacceptable, even if fairness within the organization is for these managers – at least in a theoretical sense – valuable.

Specifically, with high power distance, managers may refrain from sharing the necessary information employees need to make sound decisions, which in turn, causes employees to lose their belief and trust in the fairness of organizational procedures. Eventually, this could lead to a suspicion that a decision maker's stated reasons for soliciting voice are not accurate. This belief would frustrate employees (Potter, 2005).

Generally, the findings of the study deepen our understanding of procedural justice within organizations. As such, the findings contribute to the literature of organizational justice with an interactive perspective that involves both management and employee rather than focusing entirely on the employees.

Practical implications
The findings of the study regarding the positive correlations between procedural justice and employee participation have significant practical meaning for managers and management development. The findings indicate that emphasis of procedural justice among managers throughout the hierarchical system of the organization would be an effective way to improve both management effectiveness and employee performance.

Cultivating an organizational climate and providing training for the managers in ideas about respect may be a sound investment by the managers of organizations.

The results of the study on the moderating effect of power distance can partly explain managerial practice through the paternalism that prevails in most Chinese organizations. On the one hand, Chinese superiors develop warm relationships with their employees (Osigweh and Huo, 1993; Wall, 1990) for instrumental or emotional reasons (Tsui and Farh, 1997) so that subordinates perceive fair treatment by their managers and are more inclined to accept the manager's authority as legitimate (see Lind and Tyler, 1988). This practice ensures the cooperation of employees is available when it is needed. On the other hand, Chinese managers still reluctantly share information with employees in decision making and try to maximize their power.

In China, individuals with relatively low-power-distance values respond more favourably to participation. Top managers wanting to create an atmosphere of justice within their organizations need to be aware of the extent to which middle level and line managers share this view and reflect ideas about justice in their daily actions.

Limitations and future research
This study sheds light on some important managerial issues related to the relationships between procedural justice, participation and decision making. It also sheds light on the effects of a manager's value orientations – in this case, power distance, during these processes. However, certainly some limitations warrant consideration. First, the sample of the study was limited geographically to the regions of Southern China. Studying samples drawn from other parts of China may produce different results. Further research of a similar type will contribute to building a comprehensive picture of procedural justice in Chinese management. Second, the study investigates only procedural justice, one of three dimensions of organizational justice in China. The beliefs about interactive and distributive justice of managers are not included in this study. Future research may examine how these two dimensions of organizational justice are related to the behaviours of Chinese managers that encourage employee participation under the ubiquitous influence of power distance. In conclusion, the measurement on the procedural justice of managers in this study is developed by reversing an existing approach. To obtain information that is more specific in this regard, future research might design new constructs to measure beliefs about the procedural justice of managers in China.

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Further reading

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Business incubation in China

Effectiveness and perceived contributions to tenant enterprises

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Abstract

Purpose – Business incubation is an important strategy to foster entrepreneurship and innovation; it has gained enormous popularity in China since the mid-1990s. The purpose of this paper is to provide insights into the perceived value of business incubators from the perspective of start-up ventures and draw implications for future incubation programmes in China.

Design/methodology/approach – The research was based on a sample of 61 incubator tenants from well-established business incubators in Shanghai. A questionnaire including Likert-type scales was developed to collect feedback/comments on incubator services as well as the perceived benefits of the incubation programme.

Findings – True to their names, business incubators in China have added practical value to start-up ventures by providing wide-ranging services and tangible/intangible benefits via the incubation programme. However, compared to their counterparts in North America and Europe, the Chinese incubators are still deficient in some important aspects; for example, counselling and mentoring services. To achieve better incubation outcomes, it is crucial that the incubator managers be competent, qualified and highly skilled.

Originality/value – Most of the previous studies on the effectiveness of business incubation in China were undertaken using a case-based approach or focusing on the contributions of the business incubator to local economic development. The findings in such studies cannot be generalized. This paper provides empirical evidence to confirm the previous findings.

Keywords China, Business formation, Entrepreneurialism, China

Paper type Viewpoint

Introduction

The concept of business incubators or business incubation programmes since the mid-1980s has developed into an important strategy for enterprise development in both developed and newly developing countries (OECD, 1999; UN, 2000). The main objective of a business incubator programme is to stimulate entrepreneurship by creating an environment conducive to the formation, development and survival of new and emerging enterprises (Rice and Matthews, 1995). The rationale for business incubation resides in two facts. First, small business is a vital component of economic growth and social development. Second, the failure rate of small businesses is high, especially during the formative years (OECD, 1997; Scarborough and Zimmerman, 2002).

In the light of these high failure rates of small businesses on the one hand and the vital contributions they make to the economy and society on the other, numerous concepts and strategies have been formulated to assist these enterprises. Such strategies relate to the formation, development and survival of new and small businesses (Cromie, 1991). Among the existing concepts and strategies, business incubation, which began

to evolve and gain popularity in the USA in the 1980s, has become more widely considered as a promising support mechanism for entrepreneurship development (Abduh, 2003; Lumpkin and Ireland, 1988).

The concept of business incubation programme has been practised in China since 1987. China's first business incubator, the Wuhan Donghu Pioneers Center, was established in June 1987 following a UN visiting expert who made a suggestion to the State Science and Technology Commission. Since that time, business incubation programmes have been used as a major policy instrument of the Torch Program, a nationwide programme aimed at creating an appropriate environment for the development of new/high tech industries in China.

The primary objective of the Chinese incubators to date, however, has been to commercialize technical innovations, although small business promotion and employment generation are quickly gaining in importance. Parallel to China's accession to the WTO, international business incubators have become a new focus in China. These are designed to assist both international and Chinese start-up ventures to enter the Chinese and international markets successfully.

According to the Chinese Ministry of Science and Technology, there were 534 business incubators in China in 2005 with a combined capital of RMB 3.48 billion. It is predicted that by 2010, the number of incubators in China will hit 1,000 with each having 50 tenants and office space of 500 m^2 on average (Qian, 2006). The business incubation industry in China is arguably the largest in the developing world and the second largest worldwide, after the USA.

In October 2006, there were over 1,400 incubators in North America, up from only 12 in 1980. Of those, 1,115 were in the USA, 191 in Mexico and 120 in Canada (NBIA, 2007). By September 2007, the European Business Innovation Network had established a network of 160 Business Innovation Centers and 70 associate members throughout the European Union (EBN, 2007). In Germany, there were approximately 200 incubators offering premises for some 5,000 companies and 200 research institutions. The National Business Incubation Association in the USA estimates that there were about 5,000 business incubators worldwide in 2007.

The issue for Chinese managers is whether business incubators in China add real value to start-up ventures. In addition, what implications can Chinese managers draw for development to date? This paper provides insights into Chinese incubator services and the benefits of business incubation from the perspective of incubator tenants in Shanghai.

Business incubators in Shanghai

Business incubators in Shanghai can be divided into the categories of:

- general technology incubators;
- university science and technology (S&T) parks;
- overseas Chinese scholars park;
- international business incubators;
- special technology incubators; and
- small business incubators.

General technology incubators such as Caohejing Hi-tech Park Innovation Center and Shanghai Science and Technology Innovation Center are the most common type in

Shanghai and other major Chinese cities. Priority technologies in these incubators are new materials, environmental technologies, electro-mechanical technologies, biotechnology, aerospace and information technologies. Almost 87 per cent of incubators in China have a general technology focus (Lalkaka, 2003).

University S&T parks have also grown rapidly and cater to larger enterprises, providing modular manufacturing space. Many universities in Shanghai including Shanghai Jiaotong, Tongji and Fudan have S&T parks, mostly under the joint sponsorship of the host university and the local and central governments.

Overseas Chinese scholars' parks are incubator-like institutions that provide services for Chinese scholars who returned home after their studies overseas. Most of the overseas Chinese scholars parks share office buildings and other facilities with well-established incubators. International business incubators provide a supportive environment for foreign start-ups that wish to enter the Chinese market and to Chinese start-ups that wish to advance into a foreign market. More than ten general technology incubators, located in the eight big cities, have been selected by the Chinese authorities for mixed Chinese-foreign venture use.

Special technology incubators focus on one particular type of technology. Shanghai Zhangjiang Bio-medicine incubator is one such incubator. The incubator provides tenant enterprises with more sophisticated infrastructure and specialized services.

While the earlier incubators were predominantly for technology transfers, more recent institutions like industry parks sponsored by the district governments in Shanghai City focus on business creation using laid-off factory workers. These industry parks are small business incubators. A typical incubator takes one or several floors of a publicly owned office building. Compared to their large floor space, these incubators are generally lightly staffed. Very few incubators have more than 30 staff members. The organizational structures vary but are typically headed by a General manager and include an enterprise department responsible for servicing the tenants and Real Estate Management Department for maintenance of the main building and other properties. A finance department is available to deliver bookkeeping and financial services to both the incubator and its tenants. There is also a general office to support administrative and secretarial services.

Incubator sponsorship in Shanghai, like elsewhere in China, is undergoing an evolution from exclusive sponsorship by the central or a local government to a more pluralistic pattern of funding. In-coming tenants are screened for market potential and the nature of their technology is considered, among other factors. Acceptance rates range from 30 to 80 per cent and this often depend on availability of space in a building. Apart from low rents, tenants are entitled to a range of infrastructure discounts, such as subsidised access to telecommunication networks and use of meeting rooms. Other features frequently cited mimic a Western model: incubator staff provide the tenants with advice on management and loan applications and with low-cost or free legal and accounting aid. Perhaps the most important factor for fledgling start-ups is the potential – though limited – to access to venture capital funding (Harwit, 2002).

According to Chinese government statistics, there were 24 incubators in Shanghai in 2002, each having an average floor area of 18,520 m^2. By 2005-2006, 1,169 tenants had graduated from their incubators. The average annual revenue of tenants in Shanghai incubators in 2002 was CNY 3.6 million, which is CNY 400,000 higher than the nation's average for incubator tenants (see Table I).

A report by Shanghai Municipal Government in 2005 revealed that more than 2,000 ventures were incubated in Shanghai. As of June 2006, there were 35 business

	China (per incubator)[a]	Shanghai (per incubator)[b]
Floor area	5,090,000 sm (18,180 sm)	444,400 sm (18,520 sm)
Number of tenants	12,821 (45.8)	990 (41.3)
Number of graduates	3,994 (13 years) (14.3)	169 (3 years) (7.0)
Tenant sales	CNY40.54 b (3.2 m)	CNY3.576 b (3.6 m)
Graduate sales	30.88 b (7.73 m)	n.a. (n.a.)
Tenant employees	63,596 (15)	20,756 (21)

Notes: [a]Based on a survey of 280 incubators conducted by the MOSC in 2002; [b]there were 24 incubators in Shanghai in 2002
Source: Torch Program Development Center (2003)

incubators in Shanghai City with a total floor area of 560,000 m². This represented an increase of 25 per cent compared to floor space in 2002 (SMSC, 2006).

Value-added contributions to tenant enterprises

Despite numerous studies conducted to assess the performance of Chinese business incubation programmes, very few have examined the contribution of incubators from the perspective of the incubators' tenants, who are the primary customers of these programmes. To measure the value-added contributions of business incubation programmes, this study adopts the "double approaches" developed by Abduh (2003). Namely, the tenants' perceptions of both the value and usefulness of incubator services and the benefits or impacts of the incubation programmes are estimated.

In this study, 61 incubator tenants from three well-established incubators in Shanghai were interviewed. Tenants' responded to propositions about how they perceived the value of incubator services. A 4-point scale was used to measure value – these ranged from "1" representing "not at all" to "4" representing 'great value".

Business incubators typically provide tenants with various types of physical resources or facility-related services to help reduce the costs faced by start-up enterprises. In a broader classification, the services offered include affordable and flexible office space and building facilities, office equipment and shared office services. Office space is usually charged at a rate below market rents and is flexible in terms of both leasing arrangements and the changing needs of the incubator's tenants.

Services related to building facilities typically include conference or meeting rooms, cafeteria/dining room, building security and other amenities. Shared office services include secretarial, reception services, mail handling, fax and copying services and the like, which are generally not affordable or neglected by start-ups. Commonly incubators in Shanghai offer or help to arrange the leasing of office equipment services, such as furniture and computer equipment for their tenants.

By offering these basic office services, business incubators provide at a minimum level opportunities to reduce costs and to save time for entrepreneurs who want to start their businesses immediately. It is indicated in Table II that 90 per cent of the participating tenants perceived office space and building facilities as being a great value. Only one-third felt that the office equipment services added little or no value.

Office services were perceived to add moderate to great value by half of the eight tenant users with a mean rating value of 2.41. As indicated by the mean value of 3.48, the affordable/flexible space and building facilities were believed to be the most valuable among the service types included in the facility-related services.

In addition to the infrastructure-related services, business incubators directly and indirectly help to enhance the credibility and visibility of tenant businesses in several ways. These include lending the credibility of the incubator to the tenanted businesses and promoting the businesses through positive word-of-mouth campaigns among people within the incubator's networks and contacts.

Table III presents a summary of tenants' responses to the value of credibility/visibility enhancement services. About 84 per cent of the participating tenants felt that they had benefited from the business credibility/visibility enhancement services. As indicated by the mean value of 3.17, the credibility/visibility enhancement, as the third type of the facility-related services, was perceived to add the greatest value to the tenants.

An incubator manager typically provides direct and indirect support to the success of tenanted businesses. The manager usually performs two roles – a counsellor/mentor role and as a contact point between tenants and resources. However, as suggested in Table IV, only 15 out of 61 participating tenants reported using counselling or mentoring services and 80 per cent of them rated the service as being of little or no value. However, 82 per cent of the participating tenants indicated that they had interacted with their incubator's manager in the form of referrals to resources, either inside or outside of the incubator. More than two-thirds of these tenants indicated that the service had added moderate value.

Facility-related services	Users Number	(%)	Value-added ratings (%) 1	2	3	4	Mean
A	61	100	2	8	30	60	3.48
B	30	49	0	33	27	40	3.07
C	8	13	25	25	38	13	2.41

Table II. Perceived value of physical resources or facility-related services

Notes: A: affordable/flexible space and building facilities; B: office equipment; C: Shared office services (receptionist, clerical, etc.)

Facility-related services	Users Number	(%)	Value-added ratings (%) 1	2	3	4	Mean
A	61	100	0	16	51	33	3.17

Table III. Perceived value of credibility/visibility enhancement services

Note: A: credibility/visibility enhancement services

Facility-related services	Users Number	(%)	Value-added ratings (%) 1	2	3	4	Mean
A	15	25	20	60	20	0	2.0
B	50	82	10	20	60	10	2.7

Table IV. Perceived value of interaction with the incubator manager

Notes: A: counselling or mentoring; B: referral to resources inside and outside the incubator

By bringing tenants under one roof, business incubators create an environment conducive to sharing experience and even business opportunities among the tenants. This study found that the opportunities to "share information, experience and problems" were utilized by the majority of participating tenants. Half of the tenants even conducted business with each other. A summary of the responses to the value of interactions or networking among the tenants is presented in Table V.

Access to and networking with resources outside or beyond a business incubator is provided by incubators to their tenants. Incubator management may directly arrange these services and/or indirectly as an effect of professional associations within each incubator; that is, a tenant may introduce personal outside networks to other tenants. In the survey results, more than 80 per cent of the participating tenants used the incubator network. Table VI presents a summary of tenants' ratings on the value of these services. The mean of their respective ratings of 2.41 and 2.52 suggests that the network of business contacts and access to external information sources were perceived as adding moderate value to a tenant's business development.

Business incubators also provide training and education services as a way to strengthen the capacity and ability of resident enterprises for long-term survival. These services may take the form of workshops, seminars, conferences and short courses. In a transitional economy like China, training and education plays a much more important and unique role than is the case in developed economies. Much of the training is free-of-charge or subsidized by the management of the incubator. As evident in Table VII, all participating tenants used training and education services. The mean

Facility-related services	Users Number	(%)	Value-added ratings (%) 1	2	3	4	Mean
A	49	80	10	41	20	29	2.68
B	30	49	17	30	33	20	2.56

Notes: A: sharing information, experience, problems, etc.; B: conducting business with other tenant (s)

Facility-related services	Users Number	(%)	Value-added ratings (%) 1	2	3	4	Mean
A	54	89	19	37	28	16	2.41
B	50	82	10	20	38	22	2.52

Notes: A: business-related people in business, community, industry, government, universities, etc.; B: External information resources

Table VI.
Perceived value of the accessibility to and networking with the resources outside incubator

Facility-related services	Users Number	(%)	Value-added ratings (%) 1	2	3	4	Mean
A	61	100	0	33	49	18	2.85

Note: A: training and education (e.g. workshop, seminar)

Table VII.
Perceived value training and education services

value of the ratings suggests that the services added moderate value to the participating tenants generally.

It is noted that business incubators typically provide a wide array of specific business assistance to tenants, either directly by the incubator or by other parties arranged by the incubator management. The services provided ranging from information, expertise and other assistance attempt to extend the tenants' existing business capabilities. In this study, eight types of specific business assistance were selected for assessment. As recorded in Table VIII, except for sales/marketing assistance and employment assistance, the remaining specific types of business assistance were utilized by less than one-quarter of the participating tenants. The mean values of their responses suggest the perceived value of individual assistance services varies among the tenants.

Surprisingly, only 11 tenants used business planning and/or strategic planning assistance and the mean value of their ratings of 2.74 suggests that these services were perceived to add only moderate value to their business development. Financial management, typically including bookkeeping, cash flow, accounting and business taxes, was considered valuable. Nevertheless, only a very small percentage of the participating tenants had tried this service.

As for legal/patent/intellectual property assistance, the mean value of the ratings of 2.83 indicates that the users regarded these services as moderately valuable. Research and development assistance appeared to be the least favourite among the incubator services. Only nine tenants utilized this assistance, giving it the relatively low ratings of 2.2.

The survey also reveals that 74 per cent of the tenants utilized assistance to obtain financing from government grants and loans. Nevertheless, the tenants' ratings on the value of the assistance varied greatly. While more than three-quarters of the tenants perceived the assistance as adding moderate and great value, about one-sixth felt the services added no value at all. However, the mean value of 2.72 suggests that the tenants on average tended to perceive the services as adding moderate value. On the other hand, assistance to acquire outside debt/equity appeared to be of little value. The mean value of the ratings of 1.9 is the lowest among all services offered by the incubators (see Table IX).

Facility-related services	Users Number	(%)	Value added ratings (%) 1	2	3	4	Mean
A	11	18	0	36	54	10	2.74
B	50	82	0	40	40	20	2.80
C	6	10	0	0	50	50	3.50
D	15	25	20	40	27	13	2.33
E	13	21	15	47	23	15	2.38
F	16	26	13	26	26	35	2.83
G	9	15	11	56	33	0	2.22
H	36	59	14	17	28	41	2.96

Table VIII.
Perceived value of specific business assistance

Notes: A: business plan/strategic planning; B: sales/marketing; C: financial management (e.g. bookkeeping, cash-flow, accounting, etc.); D: government procurements and regulations; E: product development; F: legal/patent/intellectual property; G: R&D; H: employment assistance

Table X presents a summary of responses to the individual items of the incubation benefits as perceived by 61 participating tenants. Tenants were asked to indicate their opinions over each of the nine components of incubator benefit with responses ranging from strongly disagree to strongly agree. These responses of tenants here could be considered important feedback for the managers of business incubators. About one-third of responding tenants did not agree with the statements: "increased my entrepreneurial or business skills" "helped me to solve business problem faster" and "increased my confidence". Positive responses of "strongly agree" to "enhanced my business image" "reduced my business costs" 8 per cent of the responding tenants suggests incubation programmes delivered some benefits. These are followed by "Provided me with needed information" (32 per cent) and "Helped me to solve business problem faster" (30 per cent).

The responses to this survey suggest that the majority of the respondent tenants acknowledged the nine components of incubation benefits.

Conclusion

From the viewpoints of the incubator tenants, business incubators are cultivating entrepreneurs and their businesses by providing various types of services as well as tangible and intangible benefits through the incubation programmes. Thus, these mechanisms contribute to the success of Chinese start-ups. The findings also suggest that the highly effective services provided by incubators in Shanghai include affordable/

Facility-related services	Users Number	(%)	Value-added ratings (%) 1	2	3	4	Mean
A	45	74	16	18	44	22	2.72
B	20	33	45	20	35	0	1.90

Notes: A: assistance with government grants and loans; B: assistance to acquiring outside debt/equity

Table IX.
Perceived value of assistance to gain the outside financing

Business incubation benefits	Number		Distribution of responses (%) Strongly disagree	Disagree	Not sure	Agree	Strongly agree
A	61	100	0	7	0	70	23
B	61	100	5	10	12	50	23
C	61	100	8	8	30	42	12
D	61	100	7	15	28	31	19
E	61	100	8	16	47	20	9
F	61	100	10	15	23	41	11
G	61	100	5	5	37	40	13
H	61	100	5	9	36	30	20
I	61	100	10	7	25	43	15

Notes: A: enhanced my business image; B: reduced my business costs; C: shortened my learning curve; D: helped me to solve business problem faster; E: increased my entrepreneurial or business skills; F: increased my confidence; G: provided me with needed information; H: enhanced the competitiveness of my business; I: accelerated the overall development of my business

Table X.
Tenants' responses on the perceived incubation benefits

flexible space and building facilities, credibility/visibility enhancement, employment assistance, training, education, financial management, assistance with obtaining government grants and loans, office equipment services among other things. Incubation programmes in Shanghai are relatively strong in enhancing the professional images of businesses and reducing business operating costs. However, they are weaker in increasing entrepreneurial or business skills.

The results also suggest that managers of business incubators must be competent in the eyes of their tenants. Managers must have a sound understanding of the needs of their particular tenants and be friendly and proactive in this process. Incubator managers are expected to provide quality counselling and mentoring. Unfortunately, in this study, the majority of the counselling and mentoring service users rated the service as of little or no value at all. Therefore, it is suggested that before a trainer or manager begins to train a group of trainees, the manager too must also undergo some form of training.

Some limitations in the present study include the small sample. In addition, the value-added contributions of business incubation programmes may be under or over estimated because of the subjective nature of a tenant's perceptions. In addition, the same tenant can perceive the value of incubation quite differently at different stages in the incubation process. A follow-up study should, therefore, use both qualitative and quantitative measurements and involve three groups of people: those who entered the incubation programmes 6-12 months ago, those who have been at the incubator for 18-24 months and those who have graduated from the incubator. The suggested study should address both the expected and experienced value of incubation and discuss business activities before and after the experience. Alternative incubation models like internet incubation could also emerge as a future topic of study.

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