

Orientation Lecture Series: LEARNING TO LEARN

Successful report writing at university

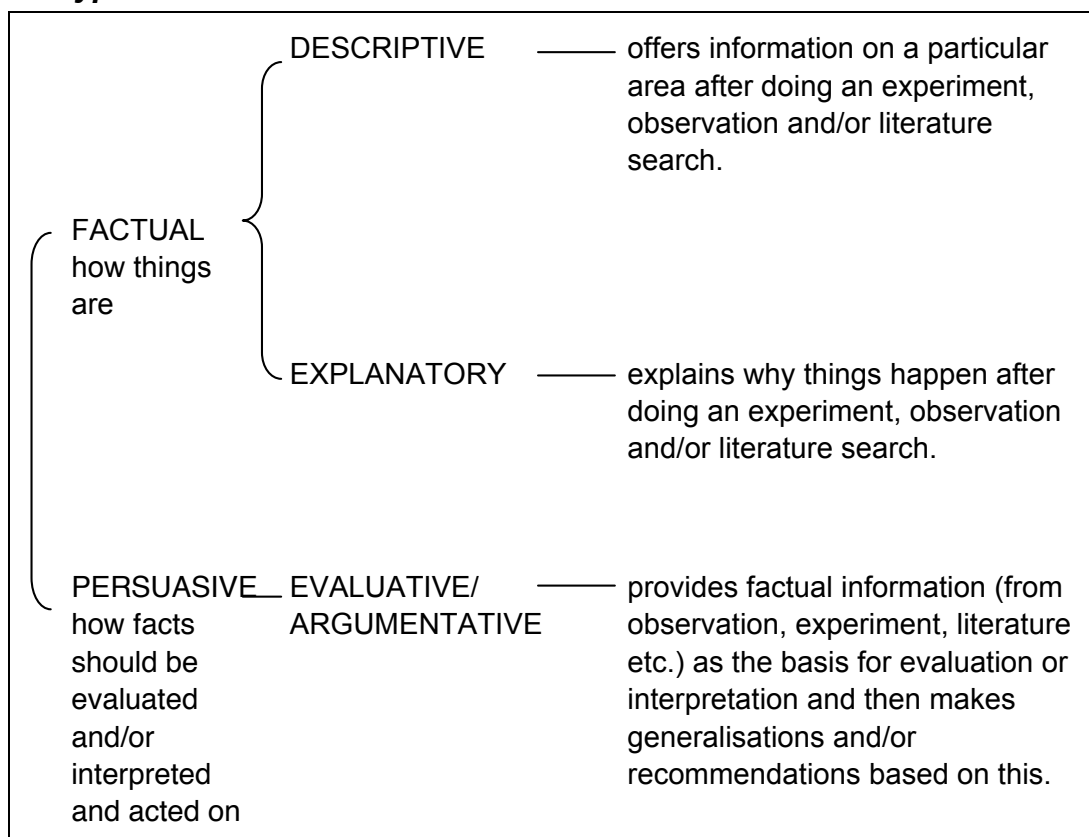
Introduction

Reports together with essays are the most common terms your lecturers will use to describe the kinds of written assignments you will be required to do at university. However, there are many different kinds of writing at university that are called reports and they have different structures depending on their purpose, their audience and their discipline. For example, in the sciences you may have to write a report for your lecturer based on experiments carried out in the laboratory - a lab report; or in Economics and Business, you may be required to write a financial report based on a given financial situation as if you were writing it for a company board meeting; or in Chemical Engineering, you may be required to write a technical report for the manager of a power plant who wants to know whether to invest in a new cooling tower or renovate the old one or in Education, you may be required to write a report on topics like child development or adult learning styles to present to your fellow students and the lecturer in a tutorial situation. Some reports are highly structured e.g. lab reports or technical reports but others are not and this means that you have to create a logical structure based on the purpose of your report, your audience and the content you are reporting. We will consider both kinds of reports in this lecture although we will not be able to go into great detail about them in this short space of time.

What are reports

When we think about what reports are we usually think of providing factual information on a topic. This is what "reporting" means : telling someone the facts about something. Certainly some reports do just that and the challenge in writing these kinds of reports is the way in which we analyse the information and then organise it in a logical way to present to our reader. We can think of these reports as either descriptive (saying what something is) or explanatory (explaining why something happened). Many reports are a combination of these. However these kinds of reports are often only set in the introductory stages of a course when you are learning about what is accepted knowledge in the field and most report writing at university moves into what we have called 'persuasive' reports. These reports often build on the presentation of factual information in a factual report and present some kind of evaluation or interpretation of this information or say why this information is significant, what is important about it and this becomes the main point of the report. Making the main point may mean you have to take a position about the information or make generalisations about the information and this forms the basis for recommending some kind of action.

Report types



(adapted from Martin J R & P Peters (1985) "On the analysis of exposition" in Hasan R (Ed) *Discourse on Discourse*. ALAA Occasional Papers No 7 p88)

Example of a report assignment

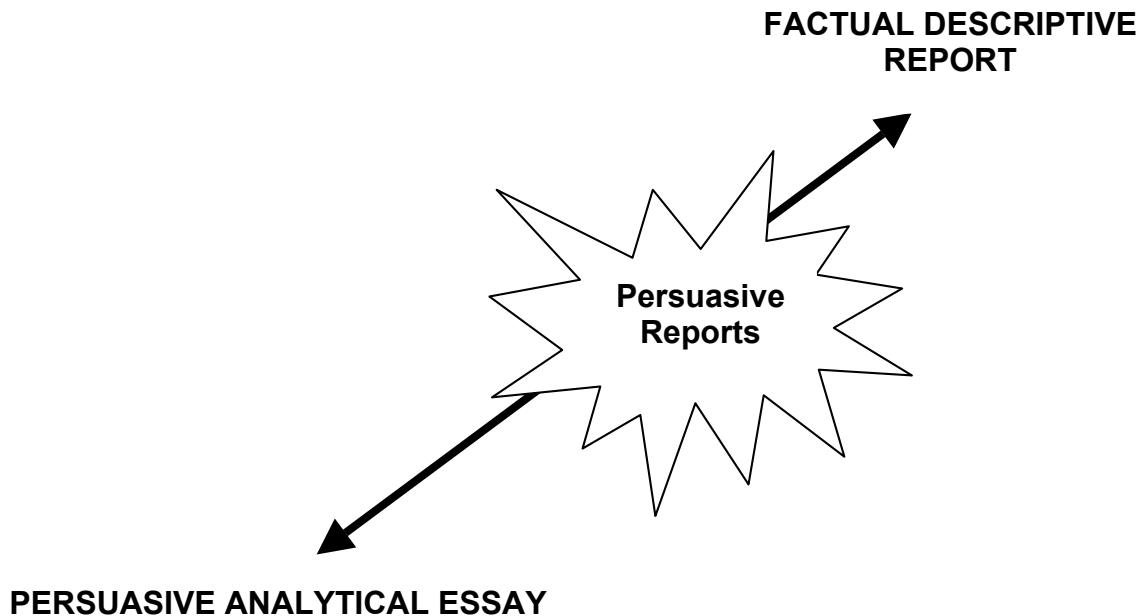
Let's look at an example from the biological sciences. Like many reports set in first year or the introductory stages of a course this one is structured around a series of questions leading from the presentation of factual information to the presentation of a judgment based on that information.

1. Write a brief **description** of the field characteristics which you would use to distinguish Cactaceae from the species of *Euphorbia*.
2. Using information from the reference material, write a brief **description** of the difference between convergent, parallel and divergent evolution. Then use these definitions and the information you have collected from the Botanic Gardens to which evolutionary trend(s) **may have accounted** for the morphological similarities between the two plants groups. Give **justifications** for your answer and remember that there is **no one correct answer**.

This task required students to make observations in the Botanic Gardens - i.e. to gather data in the field on the Cactaceae and *Euphorbia*. Based on these observations students had to answer the two questions. As you can see from the wording (in bold) in the first question, it requires students to report or simply describe their observations on these 2 groups of plants but with the purpose of distinguishing between them and in this way supporting the accepted biological way of classifying these plants. The second question requires students to use their readings to describe the 3 kinds of evolution - again, this requires a factual reporting of the literature. However the last task moves into a persuasive report and requires students to make judgements about the possible kinds of evolution that have influenced the Cactaceae and *Euphorbia*.. Notice how the language in

the last part of the question (in bold italics) signals this kind of persuasive report and notice how students are expected to use the factual information they have observed to justify their answer. This kind of writing is moving towards what we usually think of when we hear the word 'essay' rather than report. So what are the differences between a report and an essay?

Report versus Essay



As you can see from the continuum or cline above, there is strictly speaking no clear division between what is called an essay and what is called a report - they do meet along this line. However if we look at the extremes this gives us a sense of what is different about these two kinds of writing. At one extreme we have a descriptive report which presents the facts - it has no position or thesis, there is no argument to develop - at the other end of the continuum is the persuasive, analytical essay which must have a position or thesis statement and must develop an argument - not a one sided argument but a careful consideration of all positions which allows the writer to justify their own position or thesis. Of course the essay will use factual information to support its arguments but the main thrust of the essay will be to argue a position. As we have said, purely factual reports are rare at university and most reports will require some elements of persuasive writing and in this way the report moves closer to the kind of writing required in an essay. However, reports, not always, but usually go a step further than the essay in recommending a course of action based on the main conclusion or main point or position they arrive at. This is not always the case and as with all writing tasks at university you need to read the assignment question carefully and the guidelines given by your lecturer to help you to decide on what kind of writing is required. You will also need to be careful when lecturers use the words essay or report to describe the kind of writing they require as these terms need to be interpreted in the context of the assignment question, guidelines and assessment criteria. In other words, some reports will be more like essays (presenting an argument) and some essays will be more like reports (presenting factual information with minimal argument).

Requirements for effective report writing

When teaching staff in the University are marking their students' writing, whether essay or report writing, their most common criticisms often focus on five broad skills. We will look at these areas using typical report writing examples.

- Students need to structure their reports logically
- Students need to be analytical
- Students need to be critical and persuasive
- Students need to use evidence effectively
- Students need to write in an academic style

Structure and analysis in reports

Like all pieces of writing, reports have a beginning - middle - end structure - Introduction, Body, Conclusion. Some reports are highly structured like the lab report whose typical stages are given below. Other reports do not have a given structure and we will talk about these later.

1. Reports with a given structure

STRUCTURE OF THE LAB REPORT	FUNCTION OF EACH PART
TITLE	to tell the reader the topic of your report
INTRODUCTION	to give enough background information to the reader so they will know the context and purpose of your experiment
METHODS	to tell the reader what you did, the materials you used, the procedure you followed
RESULTS	to tell the reader what you found
DISCUSSION	to interpret and explain the significance of what you found
REFERENCES	to tell the reader (in alphabetical order by author) the origin of all the references you have cited the text.

These stages form the headings for the different parts of the report. This way of reporting laboratory work has evolved to fulfil the purpose of the report i.e. to allow other scientists to carefully examine the methods you used which led to your results and their interpretation as this is how other scientists will be able to come to a judgement about your work and if necessary replicate it. Each stage in the report is a step in fulfilling the overall purpose of the report and the structure and language choices at each stage reflect its function. Extracts from each stage of a lab report which investigated the effect of a growth hormone - gibberellic acid - on dwarf and tall pea plants are given below. However these extracts have **not** been placed opposite the stage from which they come. Read through the extracts and arrange them (put the appropriate letter in the box beside each stage) according to the stage they come from.

STRUCTURE OF THE LAB REPORT	EXTRACT FROM EACH PART
TITLE []	a) The results show that gibberellic acid has a marked effect on the growth of dwarf pea plants but little effect on the growth of tall pea plants.
INTRODUCTION []	b) Keenton, W. T. (1998) Biological Science. Norton and Co., New York.
METHODS []	c) Gibberellic acid is a plant growth substance which is known to have certain, often dramatic, effects on the growth of plants (School of Biological Sciences, 1994).
RESULTS []	d) After the seeds had germinated, the experimental seedlings were treated with gibberellic acid.
DISCUSSION []	e) The results in Table 1 show that dwarf plants which were treated with gibberellic acid (GA) grew to almost twice the height of the controls (untreated dwarf plants). Their internode length almost doubled.
REFERENCES []	f) The Effect of Gibberellic Acid on the Growth of Pea Seedlings

Structure of the Lab Report and Extract from Each Part

TITLE [f]

The Effect of Gibberellic Acid on the Growth of Pea Seedlings

INTRODUCTION [c]

Gibberellic acid is a plant growth substance which is known to have certain, often dramatic, effects on the growth of plants (School of Biological Sciences, 1994).

METHODS [d]

After the seeds had germinated, the experimental seedlings were treated with gibberellic acid.

RESULTS [e]

The results in Table 1 show that dwarf plants which were treated with gibberellic acid (GA) grew to almost twice the height of the controls (untreated dwarf plants). Their internode length almost doubled.

DISCUSSION [a]

The results show that gibberellic acid has a marked effect on the growth of dwarf pea plants but little effect on the growth of tall pea plants.

REFERENCES [b]

Keenton, W. T. (1998) Biological Science. Norton and Co., New York.

In first year you may only be required to write certain stages of a lab report eg. the results and discussion. Also the structure of the lab report can vary from discipline to discipline and even within disciplines i.e., from first year to second and third year - e.g. some reports have an abstract or summary stage, some reports have a separate conclusion stage and some reports combine the results and discussion stages - so always follow the guidelines given by your lecturers. Although having a given structure instead of having to develop one yourself is to some extent easier, students still have problems as we can see from the typical markers' comments.

Typical Markers Comments and Concerns

➤ Students need to structure their reports logically

Your Results section should not contain information on how you did the experiment - this belongs in the Methods.

➤ Students need to be critical and persuasive

Your Discussion is not critical of the methodological limitations and shortcomings of the work that you carried out.

You haven't explained or interpreted your results.

What are your recommendations?

One of the main problems students have is knowing what kind of information to put where in the report and this means that they don't fully understand the purpose of each stage of the report and the logic behind the structure that fulfils that purpose.

Another problem is that students fail to develop the discussion and conclusion sections as a persuasive part of the report i.e. explain and interpret their results in terms of the aim of the experiment and the methodology they used, say what is significant about their results and generalise and make recommendations based on their results. Certainly the discussion is the most challenging part of a lab report to write because it does mean that you have to be persuasive in your writing. We will look again at this stage in the report later in the lecture.

Reports without a given structure

A. Reports where structure is influenced more by content

Other reports do not have a given structure and you have to create the structure yourself. However often the purpose and the content strongly influence the kind of structure you use. You can begin structuring the report by dividing up the content into related parts or analysing the content but at the same time keeping in mind the purpose of your report as this will also influence its structure. In the end your structure should be clear in the parts of your report and the headings you have given each part. Let's look at an example:

Sudden Infant Death Syndrome (SIDS)

Abstract

Introduction

 What is Sudden Infant Death Syndrome(SIDS)

History

Causes of SIDS

 Effect of sleeping environment and carbon dioxide

 Alternative theories

Public Awareness of Risk Factors

Conclusion

The overall purpose of the report on SIDS (Sudden Infant Death Syndrome) is to provide information about this topic but since SIDS involves the problem of infant deaths, the purpose is also to point towards possible ways of avoiding these. The report divides the content into 4 main areas, arranged in sequence, namely what SIDS is, its history, its causes and possible solutions. Obviously we would not be able to understand the discussion of the causes if we didn't know what SIDS is and in the same way, ways of addressing the problem wouldn't make sense before we know what the possible causes are. So this particular report draws on a Problem, namely SIDS and a Solution structure, namely raising public awareness of the possible causes and how to take measures to avoid them and this is how the writer has organised the information.

B. Reports where structure is influenced more by purpose

To determine whether Company G should build a new store in Location Q, R, or S.

Demographic profile of each location

Availability of labour

Community attitude and local politics

Transportation infrastructure

Proximity to other shopping centres

In the second example from the discipline of Marketing, the purpose of the report is to compare and contrast different locations for a new store and make recommendations based on this. In order to do this, the writer has to decide on what the parts of the topic are, in other words what kinds of economic factors are important in the location of a new store - factors such as availability of labour etc. Then the locations are compared and contrasted under these headings. So this particular report draws on a compare and contrast structure that operates within the writer's analysis of the topic or how the writer has divided up the topic into different parts like demographic profile, availability of labour etc. It is these parts that form the headings in the report. However another student writing this report may well choose a different way of analysing the topic and use different headings although it is likely they would have had to address similar issues.

Other ways of organising the information in the body of the report draw on other structures and we can divide these organising structures into what we could call natural structures or schemes or artificial structures or schemes. (see next page)

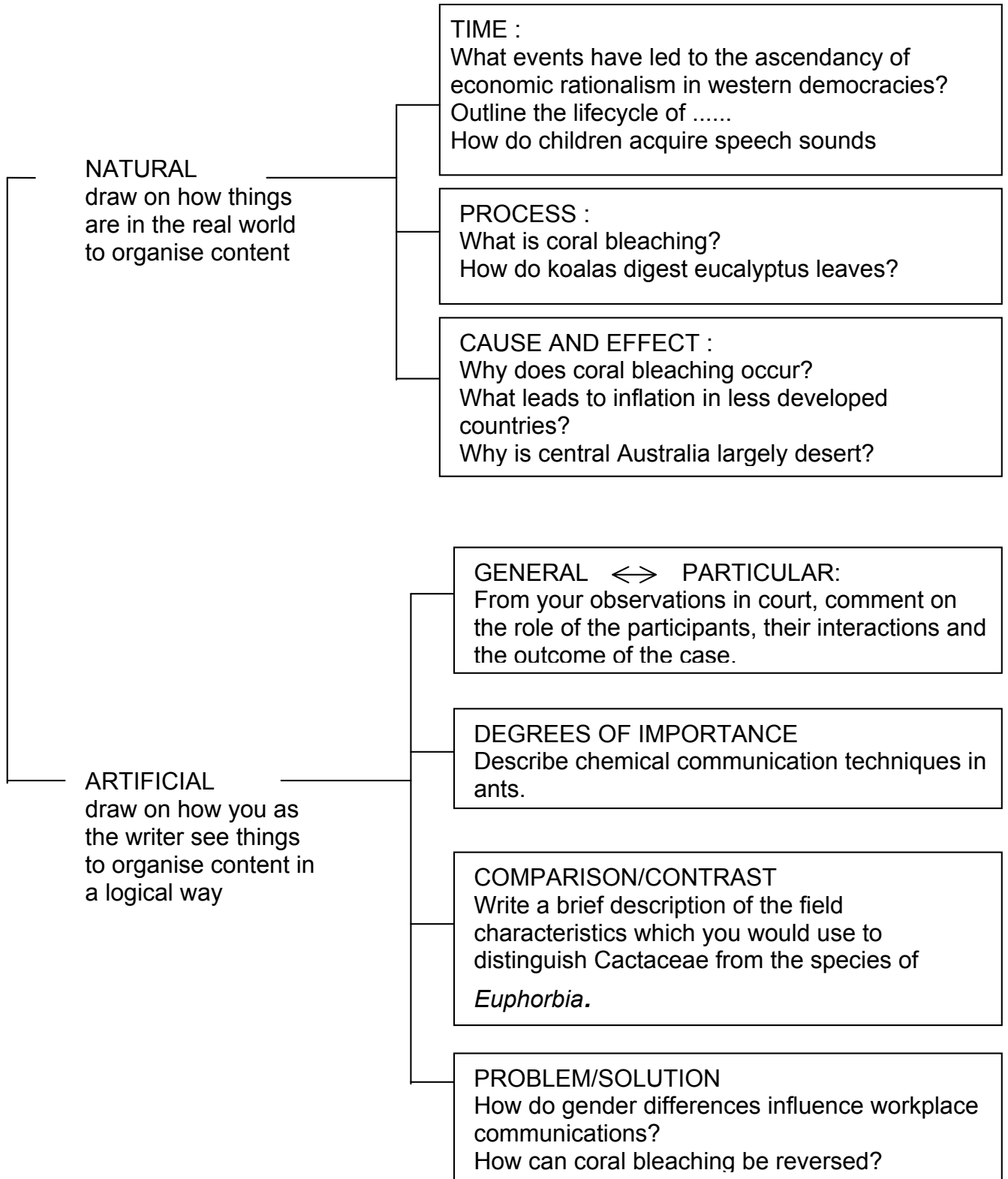
Natural structures are those which are based on how things are in the real world. For example, we can organise information in terms of time, time in the sense of events which have occurred one after another in historic time, or time in the sense of a naturally occurring repeated sequence of events such as in a life cycle or the typical way in which a child learns speech sounds. Another natural structure we can draw on is process, for example in the sequence of events that result in coral bleaching or digestion in the koala. Another example is that of cause and effect or vice versa and we can see this used in many reports that have to explain why things happen. Remember that just because you are drawing on largely a real world or natural way of organising your content, it doesn't mean that your report is purely factual. This will depend on the content you are reporting. For example, in the case of the causes of coral bleaching, there may well be some debate about some of the causes and you would have to indicate which are more important or likely. This would then involve you in writing a persuasive report and it would also mean that you would have to combine your cause and effect structure with an artificial structure or a writer based structure, in this case, one of importance, i.e. ranking the causes in terms of importance or likelihood.

Artificial structures are those which involve you as the writer organising the information into a logical way of looking at the topic either in terms of moving from or between general and particular or vice versa as in this case study report of a visit to a court, or degrees of importance as we have seen with the coral bleaching example or comparison/contrast as in the example of the location of a new store or problem /solution as we have seen in the case of the SIDS report.

Ways of structuring your report

SCHEMES

EXAMPLES



(adapted from Peters, P. (1985) "Strategies for Student Writers")

So in these kinds of report where the writer has to work out the structure based on the purpose of the report and its content - what are the main problems?

Typical Markers Comments and Concerns

➤ **Students need to be analytical**

You've given lots of information but you haven't organised it very well.

➤ **Students need to be persuasive**

You've told me a lot about this topic but what's the point???

➤ **Students need to use evidence effectively**

Many statements are not backed up with reference to the literature.

Most of the problems have to do with organising the information in the body of the report. Students are not successful in drawing on organising structures to present the information in a logical way to fulfil the purpose of the report. Many students simply summarise their readings on the topic and the report reads like a series of bits of information rather than a report where the writer has analysed the topic into relevant parts and presented them in a logical way that makes sense as a whole. Other students present the information in a logical way but fail to go a step further to comment on the significance of the information they have gathered and to make recommendations if appropriate. Another problem involves students giving information without providing evidence from their readings for what they are saying or referencing the information.

To sum up this section on report structures, let's look at what in general is the overall structure of a report - both reports like the lab report which have a given structure or those where you have to create the structure of the body of the report yourself.

Overall Structure of Reports

<i>REPORT PART</i>	<i>PURPOSE</i>	<i>STAGES (EXAMPLES)</i>
Introduction	To tell the reader what the report is going to be about	<ul style="list-style-type: none"> ◆ background ◆ aim or purpose ◆ outline of parts of the body of the report
Body	To tell the reader what the report is about	<ul style="list-style-type: none"> ◆ information based on evidence from observations/ experiments/literature in relation to particular areas which form the headings and subheadings e.g. content headings or methods, results
Conclusion	To tell the reader the significance of the report based on information in the body and make recommendations	<ul style="list-style-type: none"> ◆ summary of content in the body/ results ◆ statement of significance of findings from observations experiments/literature ◆ recommendations

Persuasion in reports

As we have said, most reports need to persuade the reader even if only about the significance of the information/ results etc. that has/have been presented in the body of the report. Usually the persuasive part of the report is in the last sections after the information, evidence etc. has been presented in the body of the report. In a lab report the persuasive part is in the Discussion section and in other reports it occurs typically in the Conclusion and Recommendations sections.

Persuading your reader that your point of view about the topic is acceptable is achieved in 3 main ways: by structuring your report logically so the ideas flow from sentence to sentence, by using convincing evidence published in reputable sources in the academic literature and by using the language associated with persuading. We will look at these 3 in turn using the lab report as an example.

How to Persuade in Reports

- ◆ Use structure
- ◆ Use evidence
- ◆ Use language

Using Structure

In the discussion section of your lab report, there are typical stages or steps to be found for the report to be persuasive. The typical stages and their sequence are shown below. Remember all of these stages may not be present in every report and you have to adapt them to each experiment..

Typical stages in the Discussion section of the lab report

Stage 1	Relate your results to the aims of the experiment
Stage 2	Explain how your results compare to those of previous researchers
Stage 3	Explain why you got your results
Stage 4	Identify problems in experimental technique and suggest improvements
Stage 5	State the significance or implications of your experimental findings and areas of future research

The first stage needs to remind the reader about why you did the experiment - what was your aim and did your results fulfil your aim. If so, you are making a strong case for accepting the outcome of your experiment and the results you obtained. Are these results a one off or have other researchers found similar results ? if they have, this will make your results more convincing. If there are some differences between what you found and what other researchers have found, then you need to say why this is so - if you don't your reader will have doubts about your results. Usually this involves some discussion of the problems you had in carrying out the experiment - your methodology - which may have

led to the difference between your results and those found by other researchers and widely accepted in the field. Finally and most importantly, you need to say what is significant about your results - what is the point - and possibly recommend areas for future research. The overall structure of this part of a report moves from the particular - your own results - to the general - their importance in a wider context.

An example discussion is shown below from the experiment about adding gibberellic acid to pea plants. It has been divided up into its typical stages. However these stages are not in their correct order. Identify each stage - number them 1 - 5

Report aim: This experiment aimed to establish whether the addition of gibberellic acid had a similar effect on the growth of tall and dwarf pea plants.

Extracts from the discussion stage of the laboratory report	Stages
This is largely consistent with previous research findings (Low, 1975, Keenton, 1980). However, the dwarf plants in this experiment did not grow into normal 'tall' plants (Irvine and Freyre, 1960), although they underwent significant stem elongation compared to untreated dwarf plants.	
This suggests that some experimental error was involved and it is possible that differences in the concentration of gibberellic acid added may have caused these variations. More care needs to be taken in the preparation and administration of treatment solutions in future experiments as well as greater accuracy in measurements.	
The results show that gibberellic acid has a marked effect on the growth of dwarf pea plants but little effect on the growth of tall plants.	
Since gibberellic acid appears to stimulate growth in dwarf plants and have little or no affect on the growth of tall plants, it is possible to conclude that the absence of gibberellic acid in dwarf plants may be responsible for their dwarfism. Further investigation needs to be carried out into why dwarf plants are unable to produce gibberellic acid naturally.	
This may be accounted for by the fact that all treated dwarf replicates did not show the same degree of stem elongation, some growing far more than others.	

Stages in the discussion section of the lab report on gibberellic acid

Report aim: This experiment aimed to establish whether the addition of gibberellic acid had a similar effect on the growth of tall and dwarf pea plants.

	Stages
Extracts from the discussion stage of the laboratory report	
This is largely consistent with previous research findings (Low, 1975, Keenton, 1980). However, the dwarf plants in this experiment did not grow into normal 'tall' plants (Irvine and Freyre, 1960), although they underwent significant stem elongation compared to untreated dwarf plants.	2
This suggests that some experimental error was involved and it is possible that differences in the concentration of gibberellic acid added may have caused these variations. More care needs to be taken in the preparation and administration of treatment solutions in future experiments as well as greater accuracy in measurements.	4
The results show that gibberellic acid has a marked effect on the growth of dwarf pea plants but little effect on the growth of tall plants.	1
Since gibberellic acid appears to stimulate growth in dwarf plants and have little or no affect on the growth of tall plants, it is possible to conclude that the absence of gibberellic acid in dwarf plants may be responsible for their dwarfism. Further investigation needs to be carried out into why dwarf plants are unable to produce gibberellic acid naturally.	5
This may be accounted for by the fact that all treated dwarf replicates did not show the same degree of stem elongation, some growing far more than others.	3

Using Evidence

When you are trying to persuade in your report, it is very important to use evidence from the academic literature to support what you are saying. If others, particularly experts in your field, agree or partly support your findings, this will make them more acceptable. In the lab report context, this means you have to compare your findings with those of other researchers - are they the same or similar to what you found? In the early undergraduate years, you are largely involved in experiments where the results are widely accepted in the field - so usually your findings will be similar to those of other researchers. However there may well be some differences and you will need to report these and give an explanation as

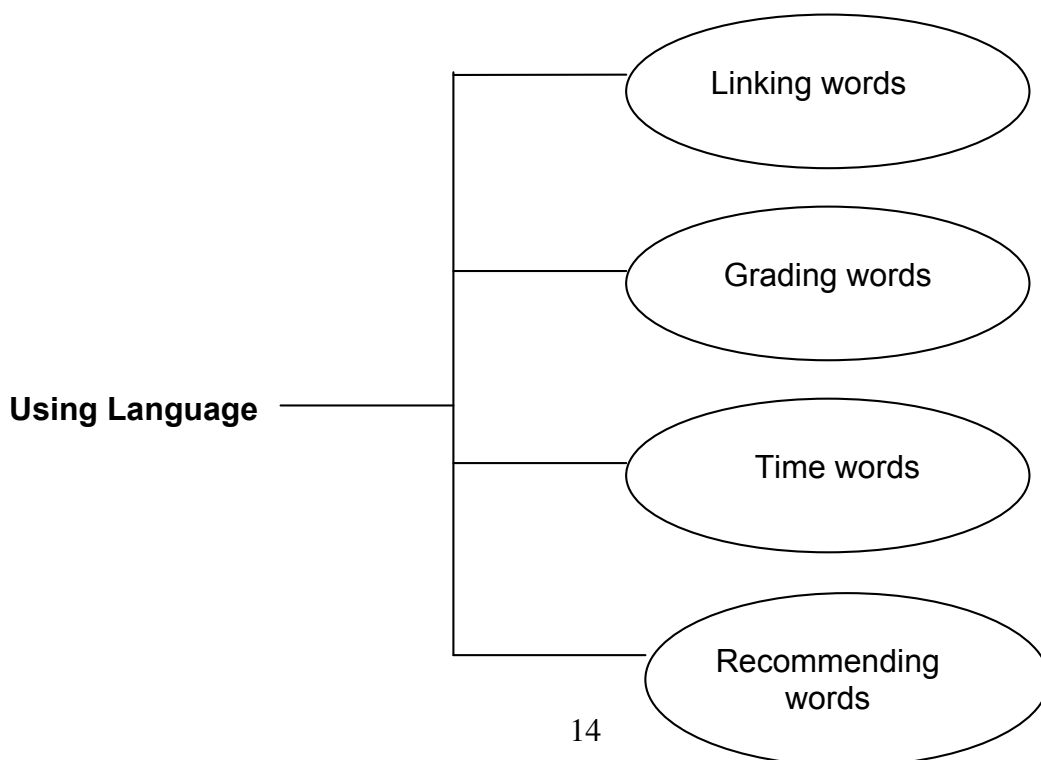
can be seen in the highlighted parts of the discussion section of the gibberellic report below (in bold italics).

Example report : using evidence to persuade

The results show that gibberellic acid has a marked effect on the growth of dwarf pea plants but little effect on the growth of tall pea plants. ***This is largely consistent with previous research findings (Low, 1975, Keenton, 1980). However, the dwarf plants in this experiment did not grow into normal 'tall' plants (Irvine and Freyre, 1960), although they underwent significant stem elongation compared to untreated dwarf plants.*** This may be accounted for by the fact that all treated dwarf replicates did not show the same degree of stem elongation, some growing far more than others. This suggests that some experimental error was involved and it is possible that differences in the concentration of gibberellic acid added may have caused these variations. More care needs to be taken in the preparation and administration of treatment solutions in future experiments as well as greater accuracy in measurements. Since gibberellic acid appears to stimulate growth in dwarf plants and have little or no effect on the growth of tall plants, it is possible to conclude that the absence of gibberellic acid in dwarf plants may be responsible for their dwarfism. Further investigation needs to be carried out into why dwarf plants are unable to produce gibberellic acid naturally.

Using language

We can classify the ways in which we use language to persuade into 4 areas as follows:



Linking Words

When you are trying to persuade in your writing, it is very important to make sure that your ideas flow, i.e. that there is a logic in the way you develop your ideas. English has a number of structures to help you do this and you can see some of these in the example below (in bold italics). The kind of linking words you are most familiar with are probably conjunctions - words like 'however' or 'although'. These not only provide a link between different sentences or parts of sentences but they create a particular logical meaning between the ideas. For example, 'however' creates the meaning of contrast between the idea that gibberellic acid made the dwarf plants grow but not into normal tall plants. Other words we call 'reference' words as they always refer to another idea usually in a previous sentence and in this way link the ideas together. For example, 'this' in the second sentence below refers back to the idea in the whole of the first sentence i.e. the results of the experiment. Other ways of linking are perhaps not so obvious. For example, when a writer uses an expression like 'account for' s/he is making a cause-effect link between the dwarf plants not growing as large as normal plants and the fact that they all grew to different degrees and in this way giving a reason for the difference between his/her findings and those of other researchers. Other examples in this report are 'cause' and 'be responsible for'.

Example report : using linking words to persuade

The results show that gibberellic acid has a marked effect on the growth of dwarf pea plants but little effect on the growth of tall pea plants. **This** is largely consistent with previous research findings (Low, 1975, Keenton, 1980). **However**, the dwarf plants in this experiment did not grow into normal 'tall' plants (Irvine and Freyre, 1960), **although** they underwent significant stem elongation compared to untreated dwarf plants. **This** may be **accounted for** by the fact that all treated dwarf replicates did not show the same degree of stem elongation, some growing far more than others. **This** suggests that some experimental error was involved and it is possible that differences in the concentration of gibberellic acid added may have **caused** these variations. More care needs to be taken in the preparation and administration of treatment solutions in future experiments as well as greater accuracy in measurements.

Since gibberellic acid appears to stimulate growth in dwarf plants and have little or no effect on the growth of tall plants, it is possible to conclude that the absence of gibberellic acid in dwarf plants may be **responsible for** their dwarfism. Further investigation needs to be carried out into why dwarf plants are unable to produce gibberellic acid naturally.

Grading Words

When you are trying to persuade you need to use your judgement to attach some kind of value to the information or in this case the results that you have found - to what degree did

gibberellic acid affect the dwarf plants? - was it only a small amount or was it very large? In this example, the writer uses language like 'marked' and 'significant' to describe the effect of gibberellic acid - these are high degrees of 'grading'. Other language like 'may' or 'possible' shows gradings about how certain the writer can be about the reasons for differences in his/her results and those found by previous researchers. The writer cannot be 100% certain - this would not be very persuasive as the reader knows that there are other possible explanations. Grading words are also attached to other judgements that you make in the discussion such as generalisations from your results, saying what is important about your results and making recommendations.

Example report : using grading words to persuade

The results show that gibberellic acid has a **marked** effect on the growth of dwarf pea plants but **little** effect on the growth of tall pea plants. This is **largely** consistent with previous research findings (Low, 1975, Keenton, 1980). However, the dwarf plants in this experiment did not grow into normal 'tall' plants (Irvine and Freyre, 1960), although they underwent **significant** stem elongation compared to untreated dwarf plants. This **may** be accounted for by the fact that all treated dwarf replicates did not show the same degree of stem elongation, some growing far more than others. This **suggests** that **some** experimental error was involved and it is **possible** that differences in the concentration of gibberellic acid added **may** have caused these variations. More care needs to be taken in the preparation and administration of treatment solutions in future experiments as well as greater accuracy in measurements.

Since gibberellic acid **appears** to stimulate growth in dwarf plants and have **little** or **no** effect on the growth of tall plants, it is **possible** to conclude that the absence of gibberellic acid in dwarf plants **may** be responsible for their dwarfism. Further investigation needs to be carried out into why dwarf plants are unable to produce gibberellic acid naturally.

Time Words

If you confine your discussion to only one set of results this is not very persuasive so you need to see how you can use these particular results to make more general statements. In this way you say what is significant or important about your results. When you move from talking about your particular experiment to make more general statements, you move from talking in past time (i.e. your experiment which you carried out and the results you got) to present time (i.e. what is important about your results which is relevant to the present and the future.). So when you are generalising you use the part of the verb which we call the 'present tense'. You can see examples of this highlighted below.

Example report : using time words to persuade

The results show that gibberellic acid **has** a marked effect on the growth of dwarf pea plants but little effect on the growth of tall pea plants. This **is** largely consistent with previous research findings (Low, 1975, Keenton, 1980). However, the dwarf plants in this experiment did not grow into normal 'tall' plants (Irvine and Freyre, 1960), although they underwent significant stem elongation compared to untreated dwarf plants. This may be accounted for by the fact that all treated dwarf replicates did not show the same degree of stem elongation, some growing far more than others. This **suggests** that some experimental error was involved and it **is** possible that differences in the concentration of gibberellic acid added may have caused these variations. More care needs to be taken in the preparation and administration of treatment solutions in future experiments as well as greater accuracy in measurements.

Since gibberellic acid **appears** to stimulate growth in dwarf plants and **have** little or no effect on the growth of tall plants, it **is** possible to conclude that the absence of gibberellic acid in dwarf plants may be responsible for their dwarfism. Further investigation needs to be carried out into why dwarf plants are unable to produce gibberellic acid naturally.

Recommending Words

Typically, a report will make recommendations for future action. These need to be persuasive so they are usually made tentatively rather than strongly (i.e. 'more care **needs** to be taken' rather than 'more care **must** be taken'). Since your recommendations need to be based on your results and your interpretation of your results, they usually come at the end of your discussion section.

Example report : using recommending words to persuade

The results show that gibberellic acid has a marked effect on the growth of dwarf pea plants but little effect on the growth of tall pea plants. This is largely consistent with previous research findings (Low, 1975, Keenton, 1980). However, the dwarf plants in this experiment did not grow into normal 'tall' plants (Irvine and Freyre, 1960), although they underwent significant stem elongation compared to untreated dwarf plants. This may be accounted for by the fact that all treated dwarf replicates did not show the same degree of stem elongation, some growing far more than others. This suggests that some

experimental error was involved and it is possible that differences in the concentration of gibberellic acid added may have caused these variations. More care ***needs to be taken*** in the preparation and administration of treatment solutions in future experiments as well as greater accuracy in measurements.

Since gibberellic acid appears to stimulate growth in dwarf plants and have little or no effect on the growth of tall plants, it is possible to conclude that the absence of gibberellic acid in dwarf plants may be responsible for their dwarfism. Further investigation ***needs to be carried out*** into why dwarf plants are unable to produce gibberellic acid naturally.

LEARNING CENTRE WORKSHOPS WHICH WILL SUPPORT YOU WITH SOME OF THE ISSUES RAISED IN THIS LECTURE:

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