RESULTS

PhD

Glasman-Deal, H. (2010). Science Research Writing for Non-native speakers of English. London: Imperial College Press

1.5 almost, hard, hardly, nearly, everything, entire, all

1. We have **almost / hardly / nearly** completed the first draft – it should be ready tomorrow.
2. They **nearly never / hardly ever** achieve their goals.
3. These substances are **almost / hardly** insoluble.
4. There is **almost / hardly** any loss in temperature.
5. They could **almost / hardly** have learned ten languages at the same time.
6. If the students work **hard / hardly** they will pass their exam.

A. Wallwork, *English for Academic Research: Grammar Exercises*,
DOI 10.1007/978-1-4614-4289-9, © Springer Science+Business Media New York 2013

1.5

1. almost / nearly
2. hardly ever
3. almost
4. hardly
5. hardly
6. hard

21.2 active, passive 1

Underline any verbs in bold that should not be in the passive form.

All the experiments performed (1) ***were carried out*** using watermelon. Melon seeds (2) ***were sown*** on damp filter paper under light until germination (about 7–8 days). When the cotyledons (3) ***were reached*** their full extent, the plants (4) ***were transplanted*** into soil or into a hydroponical system. The hydroponical system (5) ***was based*** on thick gravel. Hydroponics (6) ***was dispensed*** to plants once a week. Each time, the exhausted nutrient solution (7) ***was discarded*** and refreshed with a newly-made solution. On the other hand, plants grown in soil (8) ***were watered*** three times a week. All plants (9) ***were grown*** in plastic pots in a growth chamber. Depending on the kind of experiment, plants (10) ***were treated*** at the age of two weeks or two months. The melons (11) ***were grown*** rapidly and after a period of only two weeks, they (12) ***were weighed*** over 2 kg.

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21.2 Keys

Only 3, 11 and 12 should be in the active form (*had reached*, *grew, weighed*)

21.4 present simple, present perfect, past simple

The instrument employed (1) ***is / was*** a DX model. The apparatus, as provided by the manufacturers, (2) ***consists / consisted*** of three containers. The system also (3) ***comes / came*** equipped with a pump. The data (4) ***are / were*** obtained using a Backman XRZ, which (5) ***incorporates / incorporated*** the latest technological advances. The XRZ (6) ***has / had*** a fully integrated support mechanism. We (7) ***tailored / have tailored*** the XRZ to our own specific purposes. Samples (8) ***were / have been*** prepared as described by Schocken [2018] and (9) ***were / have been*** weighed in pre-cleaned tubes. The final solutions (10) ***contain / contained*** 10% sulphuric acid. Initial studies (11) ***are / were / have been*** made using the conditions described above. The traditional approach (12) ***is / was / has been*** complicated. Consequently, it (13) ***is / was / has been*** decided to adopt a more practical approach, which (14) ***entails / entailed / has entailed*** conducting the experiments both inside the laboratory and in the field. The repeatability for 10 replicate injections (15) ***is / was / has been*** shown in Table I.

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21.4

1. was
2. consists
3. comes
4. were
5. incorporates
6. has
7. tailored
8. were
9. were
10. contained
11. were
12. is
13. was
14. entailed
15. is

Methods_feedback

1. Work in pairs/groups.
2. Share your Methodology sections.
3. Read your partner's section.
4. Provide a constructive feedback:
   - Elements of structure;
   - Language;
   - Grammar.

25 minutes

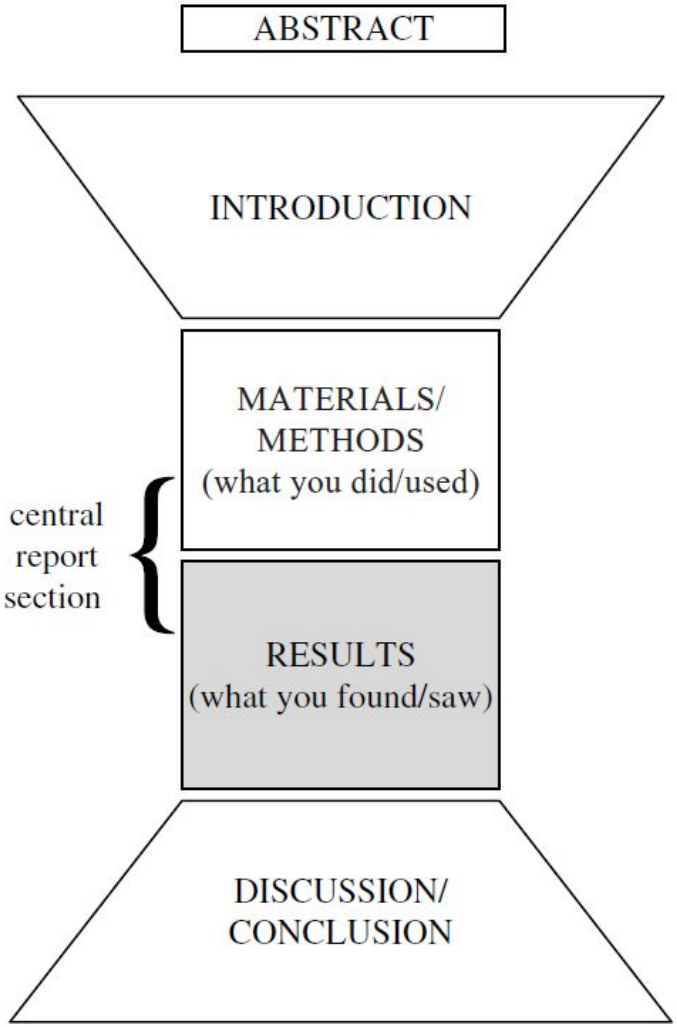

Fig. 1. The shape of a research article or thesis.

Options

Option 1	Option 2	Option 3	Option 4
Results *or* Data Analysis	Results *or* Data Analysis	Results and Discussion	Results *or* Data Analysis
Discussion	Discussion	Ø	Discussion and Conclusion(s)
Conclusion(s)	Ø	Conclusion(s)	Ø

- How do I start the Results section? What type of sentence should I begin with?
- What type of information should be in this section and in what order?
- How do I end this section?

SEQUENCE
FREQUENCY
QUANTITY
CAUSALITY

Results Model

Results

1 *Data obtained in previous studies[1,2] using a fixed on-site monitor indicated that travel by car resulted in lower CO exposure than travel on foot.* **2** *According to Figo et al. (1999), the median exposure of car passengers was 11% lower than for those walking.[2]* **3** *In our study, modelled emission rates were obtained using the Traffic Emission Model (TEM), a CO-exposure modelling framework developed by Ka.[3]* **4** *Modelled results were compared with actual roadside CO concentrations measured hourly at a fixed monitor.* **5** *Figure 1 shows the results obtained using TEM.*

6 *As can be seen, during morning peak-time journeys the CO concentrations for car passengers were significantly lower than for pedestrians, which is consistent with results obtained in previous studies.[1,2]* **7** *However, the modelled data were not consistent with these results for afternoon journeys.* **8** *Although the mean CO concentrations modelled by TEM for afternoon journeys on foot were in line with those of Figo et al., a striking difference was noted when each of the three peak hours was considered singly (Fig. 2).*

9 *It can be observed that during the first hour (H1) of the peak period, journeys on foot resulted in a considerably lower level of CO exposure.* **10** *Although levels for journeys on foot generally exceeded those modelled for car journeys during H2, during the last hour (H3) the levels for journeys on foot were again frequently far lower than for car journeys.*

11 *A quantitative analysis to determine modelling uncertainties was applied, based on the maximum deviation of the measured and calculated levels within the considered period.* **12** *Using this approach, the uncertainty of the model prediction for this study slightly exceeds the 50% acceptability limit defined by Jiang.[7]* **13** *Nevertheless, these results suggest that data obtained using TEM to simulate CO exposures may provide more sensitive information for assessing the impact of traffic management strategies than traditional on-site measurement.*

Sequence

1. *before the beginning*

beforehand

2. *the beginning or first step*

at the beginning

3. *steps/order*

then

4. *after a short while*

soon

5. *at a late/later stage; after a while/longer period*

later

6. *one point/period occurring almost or exactly at the same time as another*

when

7. *the end or last step*

at the end

8. *after the end*

afterwards

Now put them into one (or more) of the appropriate groups. One example in each group has been entered in the box as a guide and some of the words or phrases can appear in more than one group.

after afterwards as as soon as at first at that point at the beginning at the end at the same time at the start beforehand before long earlier eventually finally	firstly formerly immediately in advance in the beginning in the meantime in the end initially just then lastly later later on meanwhile next once originally	previously prior to secondly shortly after simultaneously soon straight away subsequently then to begin with to start with towards the end upon when while

Keys

Frequency

It is also important to communicate clearly how often a particular event or result occurred. If a particular result occurred *on every occasion* a test was carried out, then it is a very reliable result; if it *sometimes* occurred when the test was carried out, that is a less reliable result.

In the Results, if you write *x occurred* without a frequency modifier, your readers may not be able to compare their results with yours. Most importantly, readers may not be able to evaluate your results appropriately if they do not know how often a particular result occurred.

1.	each/every time without exception on each/every occasion always invariably
2.	habitually as a rule generally normally usually
3.*	regularly repeatedly
4.*	frequently often commonly
5.	more often than not
6.	as often as not **(neutral frequency)**
7.	sometimes on some occasions at times
8.	occasionally now and then from time to time
9.	rarely seldom infrequently
10.	hardly ever barely ever almost never scarcely ever
11.	on no occasion not once at no time never

1. If he **always** goes to the library on Monday mornings you will find him there today.
2. If he **generally** goes to the library on Monday mornings you expect to find him there today and you will be surprised if he is not there.
3. If he **regularly** goes to the library on Monday mornings you will probably find him there today.
4. If he **often** goes to the library on Monday mornings there is a good chance that you may find him there today.
5. If he goes to the library **more often than not** on Mondays, you should start by looking for him there, but he may not be there today.

Quantity

Results do not speak for themselves! You can describe your results in numbers or percentages but those numbers or percentages are already visible to your reader in the graph or table; your reader needs to know what the numbers or quantities mean in order to understand them. For example, if the table or graph of your results shows that the effect you were looking for occurred in 23% of cases, you can communicate this as a strong result (*in **as many as** 23% of cases*) or a weak result (*in **only** 23% of cases*), but if you just write: *As can be seen in Fig. 1, the effect occurred in 23% of cases*, you have not added anything to what the reader can see for themselves.

Quantity options

1) The first group contains words or phrases which make the size/quantity look big:

*A **considerable** amount of residue remained in the pipe.*

2) The second group contains words or phrases which make the size/quantity look small:

***Barely** 23% of the residue remained in the pipe.*

3) The third group is used to **emphasise** how big/small/high/low the size/quantity is:

*The amount that remained was **even higher/even lower** than predicted.*

4) The fourth group is used to communicate that the size/quantity is **similar/close** to another:

***Almost all/Almost half** of the residue remained in the pipe.*

5) The fifth group is useful when you need to say something about the quantity but you **do not want to commit yourself to an interpretation** of how big or small it was:

***Some** of the residue remained in the pipe.*

a great deal (of)
a few
a little
a number (of)
appreciable
appreciably (higher/lower)
approximately
as many as (*e.g.* 45)
as few as (*e.g.* 45)
at least
barely
below
by far
close (to)
considerable
considerably (higher/lower)
easily (over/under)
even (higher/lower)
exceptionally (high/low)
extremely (high/low)
fairly (high/low)
far (above/below)
few
fewer (than)
greater (than)
hardly
infinitesimal
in some cases
just
just (over/under)
less
little
marginal
marginally (higher/lower)
marked
markedly
moderate
more (than)
most
much
nearly
negligible
noticeable
noticeably
numerous
only
over (half/25%)
particularly
plenty
practically
quite
reasonably
relatively
significant
significantly
slight
small
so (high/low)
some
somewhat
substantial
substantially
to some extent
under
upwards of
virtually
well (under/over)

1. words or phrases which **increase** the size/quantity

most

2. words or phrases which **reduce** the size/quantity

below

3. words or phrases which **emphasise** how big/small/high/low the size/quantity is

very

4. words or phrases which communicate that the size/quantity is **similar/close to another**

almost

5. words or phrases which communicate **a reluctance to commit oneself** to an interpretation of the size/quantity

some

Keys

Causality

When you describe your results, you may want to indicate the relationships or connections between the events that you observed.

Some verbs/phrases in the list below communicate a clear/strong causal connection (*cause, produce, be due to*). Some refer to a partial cause (*be a factor in, contribute to*), some refer to the initial or first cause in a causal chain (*originate in, initiate*). There are also verbs and phrases in the list which communicate a weak causal connection (*be related to, link*). These

Note that:

- to be **a** cause of or **a** result of something implies that other factors were also involved, whereas to be **the** cause of or **the** result of something implies that it is the only cause or result.
- *x results from y* means *x is a consequence of y; whereas result in y* means *y is a consequence of x*

It appears that…	
It can/may* (therefore) be inferred/assumed that…	
It is (very/highly/extremely) probable/likely that…	
It is (widely/generally) accepted that…	
It is/may be reasonable to suppose/assume that …	
It is/may be thought/recognised/believed/felt that…	
It is/may/can be assumed that…	
It seems (very/highly) probable/likely that…	
It seems (likely) that…	
It would seem/appear that …	x caused y.
The evidence points to the likelihood/probability that…	
The evidence suggests that…	

Structure of Data Commentary

Data commentaries usually have these elements in the following order.

1. location elements and/or summary statements
2. highlighting statements
3. discussions of implications, problems, exceptions, recommendations, or other interesting aspects of the data

Location statement + indicative summary

❶ Table 4 shows survey respondents' self-reported involvement in online misbehavior during the previous 12 months. ❷ According to the table, the most common online misbehavior is "unauthorized downloading of film and music." ❸ As can be seen, just over three out of four students in the study have downloaded music or film more than once a year. ❹ This very high percentage of misbehavior is especially alarming, since protection of intellectual property is a basic element for enriching the film and music industries. ❺ Another notable result is that viewing pornographic materials on the internet was reported by 40% of the respondents, although purchasing pornography was reported by only a small minority of these respondents. ❻ The least frequently reported misbehaviors were illegally using another person's email account or credit information, along with either completely copying homework from a website or buying an assignment from a source on the internet. ❼ It is worthwhile to note that these different forms of online misbehavior seem to be patterned according to the degree of the perceived seriousness of the bad behavior. ❽ Activities that are generally believed to be criminal (e.g., using someone's credit information) were less frequent than activities that, although unlawful, many do not view as criminal, such as downloading movies and music. ❾ Illegal downloading may have an economic cause, but other reasons might be important, as well. ❿ This problem will likely continue until reasons that students engage in this behavior are clearly identified.

Highlighting statement in terms of a linking *as* clause

Interpretations and implications

Location Elements and Summaries

Many data commentary sections begin with a sentence containing a location element and a brief summary of what can be found in a visual display of information, as shown in these examples.

a. *Table 5 shows* the types of internet misbehavior common among university students.

b. *Table 6 provides* summary statistics for the variables used in the analysis.

c. *Figure 2 shows* a honeycomb solid oxide fuel cell (SOFC) unit with air cooling paths.

d. *Figure 1 plots* wealth as a function of age.

Summary + Location Element with Passive Voice

a. The types of internet misbehavior common among university students *are shown in Table 4.*

b. Summary statistics for the variables used in the analysis *are provided in Table 5.*

c. A honeycomb solid oxide fuel cell (SOFC) unit with air cooling paths *is shown in Figure 2.*

d. Wealth as a function of age *is plotted in Figure 1.*

Data commentary: location & summary statements

Typical location statements, using the ACTIVE FORM

- Table 5 shows …
- Table 5 provides ...
- Figure 4.2 gives …
- Figure 4.2 suggests …
- As revealed by the graph, …

SOME VERBS FOR REFERRING TO DATA

show	provide	display
summarise	demonstrate	illustrate
reveal	suggest	indicate
display	give	present

Data commentary: location & summary statements

Typical location statements, using the PASSIVE FORM:

- The most common forms of transmission are shown in table 5
- The most common forms of transmission are given in table 5
- The most common forms of transmission are provided in table 5
- As can be seen from table 5, the size of particles is reduced when …
- As shown in table 5, the size of particles is reduced when …

Other elements in a data commentary

Statements that present the most important findings e.g.

As can be seen in the majority of cases, the source of transmission can be detected by …

Statements that comment on the results which can be categorised into:

- generalisations from the results
- explanations for the possible results
- comparing the results with those of other researchers

Note the specific to general pattern

A basic data commentary in a results & discussion section

FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOL A COMPARISON OF ACHIEVEMENT

Figure 7.2 displays the mean percentile scores on the four subtests for non-immersion and immersion French students. Students in the French immersion programs performed significantly better than their non-immersion peers on all four Modern language Association tests by more than two to one in terms of scores attained on each of the subtests. For example in the listening subtest, immersion students scored at the 80th percentile, while non-immersion students scored at the 14th percentile. Clearly, the findings indicate that the amount of exposure to a foreign language has a positive effect on student performance. It appears that the intensity of immersion program (an average of 75% of total instruction per week in French compared to approximately 10% for non-immersion) and the use of the foreign language to study basic subjects results in substantial differences in performances in all four skill area of the MLA test.

[Table not included. Source Weissburg and Buker (1990:)]

A basic data commentary in a combined results & discussion section

[*LOCATION OF RESULTS*] Figure 7.2 displays the mean percentile scores on the four subtests for non-immersion and immersion French students.

[MOST IMPORTANT FINDINGS] Students in the French immersion programs performed significantly better than their non-immersion peers on all four Modern language Association tests by more than two to one in terms of scores attained on each of the subtests. For example in the listening subtest, immersion students scored at the 80^{th} percentile, while non-immersion students scored at the 14^{th} percentile.

[COMMENTS] Clearly, the findings indicate that the amount of exposure to a foreign language has a positive effect on student performance. It appears that the intensity of immersion program (an average of 75% of total instruction per week in French compared to approximately 10% for non-immersion) and the use of the foreign language to study basic subjects results in substantial differences in performances in all four skill area of the MLA test.

Tenses For Results Sections

Reporting what you found i.e. results = past tense

Both species of ants exhibited a behavioural sequence.

Referring to figures & tables = present [simple]

Figure 1 shows time series of anthropogenic emissions of carbon dioxide to…

Discussing your results: implications/conclusions= present & present perfect

Thus, the recumbent protein is stable in plants grown at greenhouse temperatures.

MODEL Analysis

Basic ‘Menu’ components

1	REVISITING THE RESEARCH AIM/EXISTING RESEARCH REVISITING/EXPANDING METHODOLOGY GENERAL OVERVIEW OF RESULTS
2	INVITATION TO VIEW RESULTS SPECIFIC/KEY RESULTS IN DETAIL, WITH OR WITHOUT EXPLANATIONS COMPARISONS WITH RESULTS IN OTHER RESEARCH COMPARISON/S WITH MODEL PREDICTIONS
3	PROBLEMS WITH RESULTS
4	POSSIBLE IMPLICATIONS OF RESULTS

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