The Graph Shows: An Innovative Approach to Teaching Data Description

Richard Ingold & Alex Motel

English Australia Conference
21st Sept, 2018
Academic English 2

Direct entry pathways

- General English or equivalent
- Academic English 1
- Academic English 2
- Academic English 3

on successful completion

- University undergraduate and postgraduate courses
- Navitas pathway colleges, Foundation studies and vocational courses

IELTS

Pearson PTE Academic
AE2 Students

- IELTS 5 / CEFR B1
- 10 week course
- 2nd level of a 3 level study programme
- Mostly from E & SE Asia, & Middle East
- Accounting, nursing, IT, hospitality...
Common Student Errors

- **Education** in the 50+ age group is triple of education in the 18-25 age group.

- People like to study community welfare which is slightly less than social sciences.

- The tertiary students studying business in 50 and over age group has the same number with the percentage of over 50 age group students.

- The proportion of community accounts to the same number with the percentage of over 50 age group student.
2. Complete the description of Figure 2 using the words / phrases in the list.
also compares compared to in contrast shows

Figure 2 1 ___________ participation in five different leisure activities by two different age groups: 16-24 year olds and 35-44 year olds. It 2 ___________ that 88% of both age groups watched TV, making it the most popular leisure activity. However, there are large differences depending on age for other activities. Going to the cinema is more popular with the younger age group. This is 3 ___________ true of listening to music, where there is nearly a 15% difference in participation. 4 ___________ , gardening is more popular with the older age group. Just over 50% of 35-44 year olds do some gardening 5 ___________ only 16% of 16-24 year olds.
Look at the graph and complete the text with a suitable **noun, adjective, verb, adverb, or preposition.**

This graph shows the number of students at university 1_________2000 and 2005.

In 2000 there were about 10,000 people studying at university. There was a slight 2_________in 2001 to about 8,000. This was followed by a dramatic 3_________to 22,000 4_________2002. After this, the number 5_________6_________at around 23,000 people for two years. Then, the number 7_________8_________to approximately 32,000 by 2005.

Overall, the number of students continued to rise between 2000 and 2005, apart from a slight fall in 2001.
[e] Fill in the boxes in the diagram below using the following words:

- climb
- gentle
- rapid
- sharp
- decline
- gradual
- reach a peak
- slight
- drop
- increase
- remain constant
- slow
- fall
- level off
- remain stable
- steep
- a fluctuation
- peak
- rise
- fluctuate

EAP Now!
Fill in the gaps in the model answer below. Use one word in each gap.

The charts below show the number and types of books bought by men and women and four different age groups in the UK.

Summarise the information by selecting and reporting the main features, and make comparisons where relevant.

The charts give information about the types of books that British men and women and different age groups buy. The initial impression from the charts is that women tend to buy 1 more books than men overall, although they buy slightly 2 non-fiction books. The people that buy the 3 books are in the 45+ age group.

Nearly 60% of women buy fiction, which is almost 4 as many as the number of men who choose this type of book. Nevertheless, most age groups buy 5 fiction books than non-fiction ones showing that non-fiction is generally 6 popular than fiction.

The number of people buying fiction increases steadily from ages 16 to 45 with the 7 number of books, at just over 40% of the age group, bought by 16- to 24-year-olds and the 8 number at just over 50%, bought by the over 45s.

However, the pattern is different for non-fiction. The number of books bought by 25- to 44-year-olds is 9 lower than the number bought by 16- to 24-year-olds and those over 45. Just over 40% of 16- to 24-year-olds buy non-fiction, but this number is not 10 high as the number of people aged 45 and over buying non-fiction, at nearly 60%. Only 31% of 35- to 44-year-olds buy non-fiction, and the number of 24- to 34-year-olds is 11 lower at 28%.
TASK 3 Decoding and constructing long noun phrases

1. Work in pairs. For each long noun phrase 1–4:
   - identify the head noun
   - break the phrase down into parts, as in the example
   - explain what kind of information each phrase gives about the head noun.

Example: a sharp **decline** in the African elephant population, which resulted from widespread poaching for ivory in the previous decade

- speed/size of decline
- head noun (decline)
- decline in what (population)
- non-defining relative clause showing reason for decline (which resulted from widespread poaching)
- extent of poaching
- when
- reason for poaching
Previous Research

Data description / commentary = a central component of academic writing.


No focus on the grammatical difficulties experienced by learners.

Swales & Feak (1995)
Swales & Feak (2012)
Wharton (2012)
Nordrum & Eriksson (2014)
Eriksson & Nordrum (2018)
Common Student Errors

- Education in the 50+ age group is triple of education in the 18-25 age group.
- People like to study community welfare which is slightly less than social sciences.
- The tertiary students studying business in 50 and over age group has the same number with the percentage of over 50 age group students.
- The proportion of community accounts to the same number with the percentage of over 50 age group student.
Alcohol preference among overseas students

Percentage of students

Data

Categories

Alcohol type

Wine
Beer
Vodka
Whisky
Gin
Rum
The above bar graph illustrates international students’ preferred alcohol types.

Overall, beer was clearly the most popular type of alcohol. In more detail, the percentage of students who chose beer was significantly higher than that of students who chose wine, the second most popular alcohol type (52% and 32%, respectively). While students who consumed wine accounted for over a third of the sample, just under a tenth chose vodka. However, vodka was still the most popular spirit, as the percentage of vodka drinkers was almost double that of rum drinkers (8% and 5%, respectively). There was little difference between the percentages of gin and whisky drinkers, as only a negligible percentage of students preferred these drinks (2% and 1% respectively).

These results suggest that a vast majority of international students preferred beverages with lower alcohol content.
The above bar graph illustrates international students’ preferred alcohol types.

Overall, **beer was clearly the most popular type of alcohol.**

In more detail, **the percentage of students who chose beer was significantly higher than that of students who chose wine, the second most popular alcohol type (52% and 32%, respectively).** While students who consumed wine accounted for over a third of the sample, just under a tenth chose vodka. However, **vodka was still the most popular spirit, as the percentage of vodka drinkers was almost double that of rum drinkers (8% and 5%, respectively).** There was little difference between the percentages of gin and whisky drinkers, as only a negligible percentage of students preferred these drinks (2% and 1% respectively).

**These results suggest that a vast majority of international students preferred beverages with lower alcohol content.**
5 Clause Types - stating

1. **Sample focus**: Females who drank wine accounted for 56%.

2. **Data focus**: The majority of males drank beer.

3. **Measure focus**: The percentage of females who drank wine was high.

4. **Category focus**: Wine was a very popular drink among females.

5. **Existential**: There was a large percentage of males who drank beer.
1. **Sample focus**: Females who drank wine accounted for 56%, while males represented 32%.

2. **Data focus**: More males than females drank beer. Or: More males drank beer than females did (56% and 32%, respectively).

3. **Measure focus**: The percentage of females who drank wine was higher than that of males (56% and 32%, respectively).

4. **Category focus**: Wine was a more popular drink among females than among males (56% and 32%, respectively).

5. **Existential**: There was a large difference between the percentage of males who drank beer and that of females.
Now practise!

1. **Sample focus:** Females who drank wine accounted for 56%.
2. **Data focus:** The majority of males drank beer.
3. **Measure focus:** The percentage of females who drank wine was high.
4. **Category focus:** Wine was a very popular drink among females.
5. **Existential:** There was a large percentage of males who drank beer.

The number of students who liked grammar was very small.
Now practise!

1. **Sample focus:** Females who drank wine accounted for 56%.
2. **Data focus:** The majority of males drank beer.
3. **Measure focus:** The percentage of females who drank wine was high.
4. **Category focus:** Wine was a very popular drink among females.
5. **Existential:** There was a large percentage of males who drank beer.

There was a small difference between males who exercised every day and females who did so.
Now practise!

1. **Sample focus:** Females who drank wine accounted for 56%.
2. **Data focus:** The majority of males drank beer.
3. **Measure focus:** The percentage of females who drank wine was high.
4. **Category focus:** Wine was a very popular drink among females.
5. **Existential:** There was a large percentage of males who drank beer.

Hot chips were a very common food choice for male students (65%).
Now practise!

1. **Sample focus**: Females who drank wine accounted for 56%.
2. **Data focus**: The majority of males drank beer.
3. **Measure focus**: The percentage of females who drank wine was high.
4. **Category focus**: Wine was a very popular drink among females.
5. **Existential**: There was a large percentage of males who drank beer.

Students who hated graph descriptions accounted for three quarters of the class.
Now practise!

1. **Sample focus**: Females who drank wine accounted for 56%.
2. **Data focus**: The majority of males drank beer.
3. **Measure focus**: The percentage of females who drank wine was high.
4. **Category focus**: Wine was a very popular drink among females.
5. **Existential**: There was a large percentage of males who drank beer.

Many students spent over half of their income on rent.
5 clause types (stating). Grammar breakdown table.

<table>
<thead>
<tr>
<th>Type 1: Sample Focus</th>
<th>Type 2: Data Focus</th>
<th>Type 3: Measure Focus</th>
<th>Type 4: Category Focus</th>
<th>Type 5: Existential</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Structure:</strong></td>
<td><strong>Structure:</strong></td>
<td><strong>Structure:</strong></td>
<td><strong>Structure:</strong></td>
<td><strong>Structure:</strong></td>
</tr>
<tr>
<td>NG (= Sample) + who/which + ...</td>
<td>The majority of* + noun (= Sample) + verb + object</td>
<td>The number* of + noun (= Sample) + who/which + Rel.clause</td>
<td>Noun (= Category) + verb (often BE) + a/an + Adj* + noun+ (among + noun (= Sample))</td>
<td>There was a + adj+ percentage of + noun (= Sample) + who/which + ...</td>
</tr>
<tr>
<td>+ verb + Measure (%)</td>
<td>*a small percentage of</td>
<td>+ BE verb + Adj</td>
<td>*The percentage</td>
<td>Rel.clause</td>
</tr>
<tr>
<td></td>
<td>57% of a large proportion of</td>
<td></td>
<td>The proportion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a small amount/number of</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**What verbs can I use?**

- account for
- represent
- equal
- amount to
- comprise
- constitute
- make up

- It depends on your topic:
- consume
- choose
- select
- report
- experience
- feel
- produce
- exercise
- suffer from

**Examples:**

- Females who drank wine accounted for 56%.

---

**What verbs and adjectives can I use?**

- be high
- be low
- be significant
- be negligible

**Examples:**

<table>
<thead>
<tr>
<th>Type 4 category focus examples</th>
<th>Type 5 existential examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>It depends on your topic:</td>
<td>a large proportion</td>
</tr>
<tr>
<td>be a popular + noun</td>
<td>a small percentage</td>
</tr>
<tr>
<td>be a common + noun</td>
<td>a small number</td>
</tr>
<tr>
<td>be a frequent + noun</td>
<td>a reasonable amount</td>
</tr>
<tr>
<td>be a widespread + noun</td>
<td></td>
</tr>
<tr>
<td>be a large + noun</td>
<td></td>
</tr>
<tr>
<td>be an important + noun</td>
<td></td>
</tr>
<tr>
<td>hold a large / important + noun (or graph-specific adjective)</td>
<td></td>
</tr>
</tbody>
</table>
Teaching stages

1. Activate existing knowledge — Graph types.
2. Finding the Measure, Sample & Categories.

Step 1: Find the Measure
Are the numbers used in the graph: percentages, numbers, dollars, etc?

Measure =

Step 2: Find the Sample
Who or what was questioned, observed or measured?

Sample =

Check: Does the Measure apply to the Sample?
Yes: You have found the Sample &
No: You haven’t found the Sample &

Step 3: Find the Categories
If people were questioned, what boxes did they tick/what did they say?
If people, things or animals were observed or measured, have they been divided into different groups? What are those groups?

Categories =

Step 4: Useful language
Does the graph show change over time?
What key words are used in the graph’s title?
What verbs can be used to describe the sample’s actions or states as shown in the graph?
Can these verbs be changed into nouns? What adjectives often go with these nouns?

Language =
Teaching stages


The above bar graph illustrates international students’ preferred alcohol types.

Overall, beer was clearly the most popular type of alcohol.

In more detail, the percentage of students who chose beer was significantly higher than that of students who chose wine, the second most popular alcohol type (52% and 32% respectively). While students who consumed wine accounted for over a third of the sample, just under a tenth chose vodka. However, vodka was still the most popular spirit, as the percentage of vodka drinkers was almost double that of rum drinkers (8% and 5% respectively). There was little difference between the percentages of gin and whisky drinkers, as only a negligible percentage of students preferred these drinks (2% and 1% respectively).

These results suggest that a vast majority of international students preferred beverages with lower alcohol content.
Teaching stages

4. Language analysis — 5 types.

1. Sample focus: Females who drank wine accounted for 56%.
2. Data focus: The majority of males drank beer.
3. Measure focus: The percentage of females who drank wine was high.
4. Category focus: Drinking wine was very popular among females.
5. Existential: There was a large percentage of males who drank beer.

The above bar graph illustrates international students’ preferred alcohol types.

Overall, beer was clearly the most popular type of alcohol.

In more detail, the percentage of students who chose beer was significantly higher than that of students who chose wine, the second most popular alcohol type (52% and 32%, respectively). While students who consumed wine accounted for over a third of the sample, just under a tenth chose vodka. However, vodka was still the most popular spirit, as the percentage of vodka drinkers was almost double that of rum drinkers (8% and 5%, respectively). There was little difference between the percentages of gin and whisky drinkers, as only a negligible percentage of students preferred these drinks (2% and 1% respectively).

These results suggest that a vast majority of international students preferred beverages with lower alcohol content.
Teaching stages

5. Recognition of 5 types.

1. **Sample focus**: Females who drank wine accounted for 56%.
2. **Data focus**: The majority of males drank beer.
3. **Measure focus**: The percentage of females who drank wine was high.
4. **Category focus**: Wine was a very popular drink among females.
5. **Existential**: There was a large percentage of males who drank beer.

There was a small difference between males who exercised every day and females who did so.
6. Controlled practice — sentence writing.

1. Sample focus:

2. Data focus:

3. Measure focus:

4. Category focus:

5. Existential:
7. Joint construction — full text.

The pie chart shows overseas students’ hours of sleep last night.
Overseas students who slept for 6 to 7 hours accounted for more than half of the sample.
The percentage of overseas students who slept for 6 to 7 hours was much higher than that of others.
Sleeping for 5 to 6 hours and less than 5 hours were
8. Independent practice.
Other classroom activities

- Sts organise sentences into different groups.

- Sts identify sentence type and add missing words.

  1. The ____________ of students who were vegetarian was high.
  2. ____________ who spoke 3 languages ____________ 42%.
  3. Tennis was the _________ _________ sport among females.

- Sts re-order words to form the correct sentence. They then identify the type.

- Sts are asked to write a particular sentence type under different graphs pasted around the room.
These graphs show the types of disease in developing and developed countries.

Overall, the percentage of people who had infectious disease and parasitic disease in developing countries was the highest. In contrast, the largest percentage of people had diabetes in developed countries.

In more detail, people who had infectious and parasitic disease in developing country represented 46% while only 1% people had infectious and parasitic disease in developed countries. In contrast, the percentage of people who had diabetes in developing countries was very low (2%). However, over a half of people had diabetes in developed countries. There was a small difference between the percentage of people who had heart disease and that of people who had cancer in developed countries (24% and 21% respectively). Also, there was a small difference between people who had infectious and parasitic disease and that of people who had heart disease in developing countries (46% and 43% respectively).
Next steps
References


Thank You!

- richard.ingold@navitas.com
- Alex.Motel@navitas.com

Richard Ingold Eap
- Alex at Navitas
- Alexane Motel

Richard Ingold
- @RichardIngold
- navitasenglish.edu.au
- navitas.com
Analysis Questions

Step 4: Useful language

Does the graph show change over time?

Proportion of Population aged 65 years and over

%  
USA  
Sweden  
Japan  

Year  
1940  1960  1980  2000  2020  2040
5 types – Line graphs

1. **Sample focus:** Females who drank wine accounted for 56% in 2016.

2. **Data focus:** Throughout the period shown by the graph, the majority of males drank beer.

3. **Measure focus:** The percentage of females who drank wine increased rapidly between 2010 and 2018.

4. **Category Focus:** Drinking wine was increasingly popular among women between 2010 and 2018.

5. **Existential:** There was a gradual reduction in the percentage of males who drank whiskey between 2010 and 2016.
## 5 types – Line graphs

### Dynamic graphs

<table>
<thead>
<tr>
<th>Type 1: Sample Focus (state)</th>
<th>Type 2: Data focus (state)</th>
<th>Type 3: Measure Focus (express evolution)</th>
<th>Type 4: Category Focus (express evolution)</th>
<th>Type 5: Existential (express evolution)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Structure:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NG (=Sample) + who + V + VERB + Measure + prepositional phrase (point in time).</td>
<td>Prepositional phrase (time), the majority* of + noun (= Sample) + verb + object</td>
<td>The number* of + noun (=Sample) + who + verb + obj (=rel. clause) + verb + Adv + prepositional phrase (time)</td>
<td>Noun (= Category) + verb (often BE) +a/an+ +Adv+ Adj++ noun (among + noun (=Sample)) + prepositional phrase (time)</td>
<td>There was a + adj+ increase* in the number **of + noun (=Sample) + who +verb+ obj (=rel. clause) + prepositional phrase (time)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>What verbs can I use?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>account for</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>represent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>equal amount to</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>comprise</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>constitute</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>make up</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>What verbs and adverbs can I use?</strong></td>
<td>It depends on your topic: consume choose/ select report experience feel produce exercise suffer from ...</td>
<td>Increase (rapidly, significantly, dramatically...) decrease (slightly...)</td>
<td>It depends on your topic: verb BE+ an increasingly popular+ N a more and more common +N a more and more frequent+ N an increasingly widespread+ N an increasingly important + noun hold a more important +N</td>
<td>a large increase a small decrease a small reduction a gradual increase</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Examples:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females who drank wine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>accounted for 56% in 2016.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5 types – Line graphs

1. Subject focus:
   - 
   - 
   - 

2. Quantity focus:
   - 
   - 
   - 

3. Number focus:
   - 
   - 
   - 

4. Activity/Thing:
   - 
   - 
   - 

5. Existential:
   - 
   - 
   - 

Proportion of Population aged 65 years and over

USA
Sweden
Japan
The Graph Shows: An Innovative Approach to Teaching Data Description

Richard Ingold & Alex Motel

English Australia Conference
21st Sept, 2018
Common Student Errors

- Education in the 50+ age group is triple of education in the 18-25 age group.
- People like to study community welfare which is slightly less than social sciences.
- The tertiary students studying business in 50 and over age group has the same number with the percentage of over 50 age group students.
- The proportion of community accounts to the same number with the percentage of over 50 age group student.
Alcohol preference among overseas students

Sample

Percentage of students

Data

Categories

Measure

Wine  Beer  Vodka  Whisky  Gin  Rum

Alcohol type

Data

Categories

Alcohol preference among overseas students

Sample

Percentage of students

Data

Categories

Measure

Wine  Beer  Vodka  Whisky  Gin  Rum

Alcohol type

Data

Categories

Alcohol preference among overseas students

Sample

Percentage of students

Data

Categories

Measure

Wine  Beer  Vodka  Whisky  Gin  Rum

Alcohol type
The above bar graph illustrates international students’ preferred alcohol types.

Overall, beer was clearly the most popular type of alcohol.

In more detail, the percentage of students who chose beer was significantly higher than that of students who chose wine, the second most popular alcohol type (52% and 32%, respectively). While students who consumed wine accounted for over a third of the sample, just under a tenth chose vodka. However, vodka was still the most popular spirit, as the percentage of vodka drinkers was almost double that of rum drinkers (8% and 5%, respectively). There was little difference between the percentages of gin and whisky drinkers, as only a negligible percentage of students preferred these drinks (2% and 1% respectively).

These results suggest that a vast majority of international students preferred beverages with lower alcohol content.
5 Clause Types - comparing

1. **Sample focus**: Females who drank wine accounted for 56%, while males represented 32%.

2. **Data focus**: More males than females drank beer. Or: More males drank beer than females did (56% and 32%, respectively).

3. **Measure focus**: The percentage of females who drank wine was higher than that of males (56% and 32%, respectively).

4. **Category focus**: Wine was a more popular drink among females than among males (56% and 32%, respectively).

5. **Existential**: There was a large difference between the percentage of males who drank beer and that of females.
These graphs show the types of disease in developing and developed countries.

Overall, the percentage of people who had infectious disease and parasitic disease in developing countries was the highest. In contrast, the largest percentage of people had diabetes in developed countries.

In more detail, people who had infectious and parasitic disease in developing country represented 46% while only 1% people had infectious and parasitic disease in developed countries. In contrast, the percentage of people who had diabetes in developing countries was very low (2%). However, over a half of people had diabetes in developed countries. There was a small difference between the percentage of people who had heart disease and that of people who had cancer in developed countries (24% and 21% respectively). Also, there was a small difference between people who had infectious and parasitic disease and that of people who had heart disease in developing countries (46% and 43% respectively).