

# 1

## Academic Achievement

This unit will help you:

- use your prior knowledge to help you understand what you are reading;
- practice reading for a specific purpose;
- make decisions about the relevance of a text in terms of reading purpose;
- read selectively in order to use appropriate information from the text.

The topic of this unit concerns factors that may lead to improvement in academic performance among students. It is based on three major research projects carried out in the United States.

### Text 1-1 The influence of class size on academic achievement (157-159)

#### Task 1: Predicting text content

**1.1** Think about what factors can have an influence on the academic achievement of the students in a school, college, or university.

**1.2** Look at the following list of possible influences and rate the ideas on a scale of 1-5 (1 = *very little influence*, 5 = *very strong influence*).

Influence on academic performance	Rating
Resources available (e.g., computers, laboratories, textbooks)	
Teacher level (qualifications, experience, etc.)	
Student motivation	

**1.3** Add and rate some of your own ideas. Then compare your list and ratings with a partner.

#### Focus task

Your reason for reading Text 1-1 is to get some background information to help you write the following essay.

*What are the aims of academic study and how can they be achieved?*

## Task 2: Reading for a purpose

- 2.1** Look carefully at the title of Text 1-1. Do you think that the text will be useful for writing an assignment about academic achievement? Share your conclusions with another student.
- 2.2** Read the introduction to Text 1-1 (lines 1–66). As you read, try to make up your mind about how useful this text might be for your purpose. When you have finished reading, circle and complete the following sentence.

The text may / will / will not be useful because

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## Task 3: Reading selectively

- 3.1** Read the subheading (lines 67–68) and think about your own opinion on the issue. Do you think that smaller class sizes help to improve academic performance? Circle your answer then write one reason for your choice below.

Yes / No / Not sure

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- 3.2** Below are some notes that have been made by another student on Text 1-1. Read lines 67–117 and check the points mentioned in the text.

- a)  easier to concentrate
- b)  students prefer smaller classes
- c)  more cooperative learning occurs
- d)  more help for students with problems
- e)  students develop good methods of learning
- f)  more opportunities to use resources if fewer students in class
- g)  students get much better academic results



- 3.3** Read lines 69–72. What does *anecdotal* mean? Try to guess the meaning of this word by looking carefully at the whole sentence.

If the ideas in this paragraph are *anecdotal*, think about how seriously you should take them into account when writing your assignment.

**3.4** Read lines 97–117 and underline specific information from this paragraph that you might use to help in the completion of the Focus task.

**Think about:**

- how useful you think this paragraph might be in relation to the Focus task;
- whether you think the sources are reliable.

**3.5** With a partner, compare and justify your choice of information for all four questions.

## Task 4: Identifying the writer's purpose

**4.1** Read lines 118–192 and decide on the main functions of this section of text from the choices given below.

For each choice, rate the function from 0–5 depending on how sure you are (5 = very sure).

### Study tip

It can be very helpful to recognize why the writer has written a text, or a section of a text, i.e., what the function of the text is.

Function	Rating
a) To persuade the readers to accept a certain point of view.	
b) To explain the importance of using research data instead of <i>anecdotal</i> explanations.	
c) To evaluate the importance of the research carried out into the effect of classroom size on academic achievement.	
d) To describe the research method used in various parts of the US into the effect of classroom size on academic achievement.	

**4.2** What is the function (or functions) of Figure 1: *Milestone studies in class size* (page 159)?

- a) to summarize the content of the text
- b) to outline the content of certain relevant research
- c) to explain the importance of the STAR project
- d) to compare the data from research about class size



## Task 5: Understanding referencing in texts

Referencing in a text is a way of linking words and ideas together, thus making the text more cohesive and easier to understand. The following activity will provide practice in this important skill.

**5.1** Look at line 119 of Text 1-1. What information or idea in the text do the words *these findings* refer to?

- a) The US Department of Education
- b) The National Assessment of Educational Progress
- c) Project STAR

### Study tip

An effective reader makes use of referencing in a text to gain a clear understanding of what the author wishes to convey.

**5.2** What other words or phrases (lines 119–148) refer to the same data?

- a) \_\_\_\_\_ (line number \_\_\_\_\_)  
 b) \_\_\_\_\_ (line number \_\_\_\_\_)

**5.3** What reasons do the writers give for ignoring the data? Complete the list below, using a similar note form.

- a) *Decreased dropout rates* \_\_\_\_\_  
 b) \_\_\_\_\_  
 c) \_\_\_\_\_  
 d) \_\_\_\_\_  
 e) *More experienced teachers* \_\_\_\_\_

**5.4** What factors, according to the writers, made Project STAR better than other *poorly designed* studies? Complete the list below, using a similar note form.

- a) \_\_\_\_\_  
 b) *The research was carried out over a number of years* \_\_\_\_\_  
 c) \_\_\_\_\_  
 d) \_\_\_\_\_  
 e) *No new curricular methods* \_\_\_\_\_

## Text 1-2 A case study: Shining star (p. 160)

### Task 6: Reading a text for closer understanding (1)

**6.1** What general point is made in the first paragraph of Text 1-2 (lines 1–11)? Find a short phrase that best summarizes this conclusion.

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**6.2** In the second paragraph, which of the following benefits of smaller classes do Finn and Achilles (1990) identify in their review of the project? Answer *true* or *false* and add the line number from where you found the answer.

- a) Better academic performance in small-sized classes. \_\_\_\_\_ (line number \_\_\_\_\_)
- b) Students benefit at an early stage in small classes. \_\_\_\_\_ (line number \_\_\_\_\_)
- c) Students later continue to perform well in normal-sized classes. \_\_\_\_\_ (line number \_\_\_\_\_)
- d) Average students make the most progress. \_\_\_\_\_ (line number \_\_\_\_\_)
- e) Minority groups gained the most significant benefits. \_\_\_\_\_ (line number \_\_\_\_\_)
- f) On average, ethnic minority students improved by one-fifth of standard deviation. \_\_\_\_\_ (line number \_\_\_\_\_)

**6.3** In the final paragraph, which of the findings of Finn and Achilles (*ibid.*) in Ex 6.2 does Hanushek comment on? Put a check (✓) when Hanushek agrees and a cross (✗) when he disagrees. Write *N/A* if Hanushek does not mention these findings.

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_
- d) \_\_\_\_\_
- e) \_\_\_\_\_
- f) \_\_\_\_\_

**6.4** To what extent do you feel that the analyses of Project STAR will help you with the Focus task? Rate your opinion 0–5 (0 = not at all). Discuss your answer with a partner.

## Text 1-3 The Asian paradox: Huge classes, high scores (p. 161)

### Task 7: Reading a text for closer understanding (2)

**7.1** Discuss with a partner or in groups what you know about academic performance in developed Asian countries, and how academic success is achieved.

**7.2** Read lines 1–65 of Text 1-3. As you read, remember to highlight ideas that might be useful for the Focus task.

**7.3** What is your understanding of the “Asian paradox”? What one word in the text (lines 17–35) gives a reason for this Asian paradox?



- 7.4** Find other short phrases in the rest of the paragraph (lines 35–48) that might provide further reasons for the apparent academic success of Japanese students.

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- 7.5** Having read the text, have you found any information that might be useful for the Focus task?

## Task 8: Thinking critically about the text

- 8.1** Look at the list of possible influences on academic performance in Task 1 (page 18). Are there any new influences you want to add to the table, and any you want to delete?

Influence on academic performance	Rating

- 8.2** If you added any influences to your table, what rating would you give them, on a scale of 1–5?

## Task 9: Making use of the text

You now have some information that may help with the Focus task that you will be given in order to complete Unit 1 of *English for academic study: Writing*, if you are studying that course.

Decide now if, and how, you can use the information in Texts 1-1, 1-2 and 1-3.

## Unit summary

In this unit you have thought about using your prior knowledge to help you understand what you are reading and made decisions about the relevance of a text in terms of reading purpose. You have learned to identify the writer's purpose and to read selectively in order to use appropriate information from the text.

### 1 Complete this summary about the reading skills you practiced in the first unit with some of the words from the box.

understanding expertly prior title critically predictions  
meaning subheadings selectively purpose

It is easier to read a text if you have some \_\_\_\_\_ knowledge of the topic that the text is about. This will help you to make \_\_\_\_\_ and will give you a \_\_\_\_\_, which you always need when you read. Knowing why you are reading and what you are looking for will help you to both enjoy a text and focus on it better. Reading the \_\_\_\_\_ and any \_\_\_\_\_ there might be will help you to quickly know if you want to read a text and how useful it will be to you. It is important to read \_\_\_\_\_, especially if you are short of time. Some parts of a text will provide the information you need while other parts will be less important. You will usually read a text quickly first to get a general idea of what it is about and then read more carefully for closer \_\_\_\_\_ and to be able to think \_\_\_\_\_ about the content.

### 2 Look at these possible topics of a reading passage. How much prior knowledge do you have of each topic? Mark each topic as follows:

**L** – I know a lot about this topic, so I could make plenty of predictions.

**S** – I know something about this topic, and so I could make a few predictions.

**N** – I know very little or nothing about this topic, so I wouldn't be able to make any predictions.

- a) increasing traffic congestion in major cities
- b) special education for children with learning difficulties
- c) the growth in the popularity of baseball in Asian countries
- d) the intelligence of dolphins
- e) the origins of development of paper making

For web resources relevant to this unit, see:

[www.englishforacademicstudy.com/us/student/reading/links](http://www.englishforacademicstudy.com/us/student/reading/links)

# 1

## Academic Achievement

This unit will help you:

- think about the aims of academic study, and how to achieve them;
- learn about the different stages of the writing process;
- identify and learn how to cope with difficulties in academic writing;
- learn how to consider the knowledge and expectations of your reader;
- think about different approaches to the organization of your ideas.

### Task 1: Thinking about academic success

The following questionnaire, Ex 1.1–1.14, will help you think about your views on the meaning of academic success and aspects of academic writing. You will then be able to discuss your views with the rest of the class.

#### 1.1 What is the aim of academic study? (Please check (✓) one or more.)

- to meet intelligent people
- to ensure having a career or future job
- to discover more about theories and certain known facts
- to discuss philosophy
- to enjoy learning
- to enable members of society to exchange ideas that are intellectually stimulating\*
- to develop personal growth
- to contribute to the social and economic development of society
- to pass examinations
- to gain a higher-level degree
- to improve cooperation between different members of world society

\* **intellectually stimulating:** *encouraging the mind to develop further*

#### 1.2 How important is it for you as a student to develop the following characteristics while studying at university? (Check (✓) **H** for High importance, **M** for Medium importance, **L** for Low importance.)

- | <b>H</b>                 | <b>M</b>                 | <b>L</b>                 |  |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | knowing your strengths and weaknesses                |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | thinking about how to further develop your abilities |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | thinking about how to approach a particular task     |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | using a logical, reasoned approach to study          |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | approaching your subject in depth                    |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | being interested in finding things out               |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | learning how to study                                |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | communicating results successfully                   |

#### Study tip

Working with information is a good way of helping you develop ideas. Doing a questionnaire is one example of this, but you can do this yourself by setting clear goals for reading text, e.g., having several clear questions you would like to answer.



**1.3 What is academic writing? (Please check (✓) one or more.)**

- a mechanical exercise
- groups of grammatically correct sentences
- the clear expression of ideas, knowledge and information
- a form of self-expression
- a way of exploring, addressing and expressing academic issues
- a way of communicating results or information

**1.4 To write well academically, how important are the following? (Check (✓) H for High importance, M for Medium importance, L for Low importance.)**

**H M L**

- reading a lot
- studying grammar
- studying vocabulary
- imitating other writers
- writing a lot
- inviting others to comment on your writing
- going back and thinking again about what you have written
- rewriting repeatedly until you are satisfied
- understanding the process of writing
- meeting the needs of your reader

**1.5 How important do you think the following are when writing academic texts? (Check (✓) H for High importance, M for Medium importance, L for Low importance.)**

**H M L**

- grammatical correctness
- spelling and punctuation (using periods, commas, etc.)
- an appropriate style
- overall organization
- vocabulary
- good ideas
- good use of sources (appropriate citation, bibliography)
- relevance of subject content
- response to the task

**1.6 In which of the following ways can you support your ideas when writing academic texts?**

- using personal anecdotes\*
- using facts
- using statistics

- using examples
- using the news
- using information from books, articles, reports, the Internet
- using analogies\*\*
- using the views and attitudes of others
- using research data

\* **anecdote:** *a short, often amusing account of something that has happened*

\*\* **analogy:** *to make or draw an analogy between two things is to show they are alike in some way*

### 1.7 Which of the following contribute to successful academic writing?

- presenting information clearly and precisely
- analyzing questions and issues clearly and precisely
- distinguishing between relevant and irrelevant material
- recognizing key assumptions\*
- identifying competing points of view
- demonstrating excellent reasoning and problem-solving abilities
- adopting a critical stance\*\*
- understanding the context for which you are writing

\* **assumption:** *if you make an assumption that something is true, you accept it is true without any real proof or evidence*

\*\* **critical stance:** *to take a critical stance is to have a strong viewpoint on something after examining and judging it carefully*

### 1.8 When persuading your professor or other members of your academic community that your argument is valid, how important are the following? (Check (✓) H for High importance, M for Medium importance, L for Low importance.)

- | H                        | M                        | L                        |  |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | analyzing questions  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | stating facts  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | reasoning your argument logically from facts                       |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | explaining key terms   |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | using language appropriate to a particular subject area            |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | using other points of view to strengthen your argument or research |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | demonstrating the weaknesses of other people's arguments           |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | acknowledging the limitations of your own argument or research     |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | supporting your argument with examples                             |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | frequently summarizing your argument                               |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | referring to well-argued conclusions                               |

**1.9** Should you always think of academic writing as communicating with another person? Why/Why not?

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**1.10** What do you do, or what do you concentrate on, when you are given a writing task:

a) while you are still writing your first draft?

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b) when you have finished your first draft?

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c) before you hand in your final draft?

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**1.11** What type of academic writing have you done in the past?

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**1.12** What difficulties do you have with writing in English or in your own language?

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**1.13** What do you do when you have difficulties?

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**1.14** Do you enjoy academic writing? Why/Why not?

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When you have finished the questionnaire, compare your answers with those of other people in your group. Discuss your answers, and keep notes of the discussion. Do you find that you all have very similar views and experiences? Or are your views and experiences very different? Are there any general trends among students in the group?

Material adapted from White, R.V. (1994). *Writing English for academic study series* and Richards, R. (2001). *Presenting critical thinking as a study strategy for UK higher education*.

**Text 1** Academic achievement (pp. 157–161)

You will have an opportunity to read these extracts from articles in the *Scientific American* during this stage. This will help you identify information that is relevant to the title of your essay.

**Task 2: Microskills: Planning**

The essay that you will prepare in this unit is on the following topic:

*What are the aims of academic study and how can they be achieved?*

Before you begin writing, you should spend some time:

- thinking about exactly what the question is asking you to write about;
- generating ideas about the topic; this is called *brainstorming*;
- organizing your ideas into a plan.

As part of this preparation, you should read Texts 1-1, 1-2, and 1-3 to identify relevant information. You might also find that some of the ideas generated by the questionnaire and discussion in Task 1 will help you.

**2.1 Discuss what you think the key words are in the essay question:**

- a) with a partner;
- b) with the whole group and your instructor.

**2.2 Spend five minutes writing down all the ideas you can think of that are relevant to the essay topic. Write notes, not complete sentences, so that your ideas flow. The order of your ideas is not important at this stage.**

**2.3 Discuss the ideas you have written in Ex 2.2:**

- a) with a partner;
- b) with the whole group and your instructor.

**2.4 Decide which of your ideas you are going to use in your essay.**

- a) To help you, ask yourself these questions about your readers:
  - What knowledge about academic study do they already have?
  - What do you think they are interested in reading about in your essay?
- b) When you have decided which ideas you are going to include, organize them into a logical order in a plan. You may want to develop some of the ideas further and you may want to add a new idea.
  - Group together ideas that seem to belong to the same paragraph.
  - Think carefully about the order in which you will arrange the paragraphs.

**Study tip**

Writing down ideas quickly in note form is a very good way of unlocking your understanding. As long as you let your ideas flow and don't try too hard, you will be surprised by what you already know.

**2.5 Discuss your plan with your partner. When you look at your partner's plan, ask yourself:**

- What is the overall idea in the essay?
- Does the plan follow a logical sequence of ideas?
- Are the ideas grouped effectively into paragraphs?
- Is the main idea clear in each paragraph?
- How many paragraphs will the essay contain?

If the answers to these questions are not clear from looking at your partner's plan, ask her/him to explain. Perhaps the plan needs to be changed or developed more.

**Note:** Remember your plan is your guide; when you think more and start writing, you may need to change it, so keep evaluating it.

**2.6 Think about your partner's comments on your plan and try to improve it.**

**2.7 Write the first draft of your essay. At this stage, you should try to write between 400 and 600 words.**

**Study tip**

It is always helpful to get another opinion. This will not only help you improve your essay writing, but also get you used to the idea of modifying and redrafting that is so important in university study.

**2.8** When you have finished your first draft, find another student who has also finished and exchange drafts.

- a) Read your partner's draft carefully. Respond to the questions on the Peer Evaluation Sheet for Unit 1 on page 141 of this book.
- b) When commenting on your partner's draft, remember that *constructive criticism* is more helpful when giving advice. The phrases below for making polite suggestions should help you to express your comments in a constructive manner.

## Giving Peer Feedback

### PHRASES FOR MAKING POLITE SUGGESTIONS

- It might be a good idea if you ...
- It might be a good idea to ...
- I agree with you, but you could ...
- Right, but you could ...
- This is/That's good, but you could ...
- My advice would be to ...
- Do you think a better approach might be to ...?
- Why don't you ...?
- How about this?
- Perhaps you could ...
- Maybe it would be better to ...
- I think it would be better if you ...
- Can I/May I make another suggestion?
- I would recommend that you ...
- Have you thought about (verb + *ing*) ...?
- What about ...?



**Remember:** Peer feedback should be supportive and helpful—provide *constructive criticism*.

## Task 3: Microskills: Introductions

**3.1** Quickly write down what you think are the important points to include in an introduction to an academic essay.

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**3.2 Discuss your ideas and explain why you have chosen these points:**

- a) with a partner;
- b) with the rest of the class.

**3.3 Answer the following questions:**

- a) What function or purpose does the introduction of an essay have?

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- b) What should an introduction contain?

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**Study tip**

*EAS Writing* contains suggestions for individual work as well as pair, group, and class discussion. Make full use of this varied interaction to develop your ideas.

**3.4** Look at the following sentences from an introduction to an essay on **The problems of population growth**.

a) Decide which would be the most logical order of these sentences:

1 This growth has created many problems, especially in the capital cities.

2 This essay will discuss the situation that has led to the development of these problems and describe some of them.

3 The population of the world has been growing rapidly over the last thirty years.

4 It will then suggest some possible solutions to the problems and evaluate their viability.

5 The problems include housing, pollution, unemployment, and food and water shortages.

b) Compare what you think with another student and also say why you decided on the order you chose.

c) Together with your partner, try to identify an obvious pattern to the introduction and decide what the function of each sentence is.

**3.5** Read carefully the following five introductions for an essay entitled **Academic success in one's own culture** and try to evaluate their strengths and weaknesses.

1 There are different programs for education in different countries. Every country has a special education system that is adapted to each country. In Iran, the education system is organized from primary school to university. This essay is about the academic success in Iran.

2 Academic success is one of the most important goals of many students in Thailand. There are some relevant factors to obtain this goal. In Thailand, if you can enter college, it means that you succeed in your life. Every year, most final-year students try to enter college; however, some students prefer to study in small colleges. This essay will describe some factors that are closely related to academic success in Thailand.

3 Everybody wishes to achieve success in society. "Success" in Chinese society is not only for one's own honor, but also the whole family's. Furthermore, for most Chinese students, in the first stage, our academic success might be that required to gain a good score and enter a higher school to study. In the second stage, it might be that needed for a student to find a good job or contribute to specific academic fields. It could be called "academic success." In addition, our education system and concept of traditional culture always affects our students' success. Therefore, this essay will describe academic success in Taiwan and indicate the related factors.



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Education is one of the basic factors contributing to the development of a society. The educated or literate people could realize their potential livelihood. By extending education in Africa, the people may improve their cultural attitudes. This essay will describe the education system in Africa.

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What is academic success in our country? Many factors to describe it can be found. As this topic mentioned, its importance depends on the following: intelligence, teaching methods, the policy of the government, the system of education, support system, and facilities. At first, I would like to define the meaning, before answering this question. When this question—what kind of fact is regarded as academic success in Japan—is asked, most Japanese will answer that it is to graduate from a high-grade university. There is a good reason to say so. In Japanese society, there is the fact that an academic career decides a students' future life. If they obtain a high grade in their school career, probably it will mean success in their future. After graduating, most of them will be able to enter a prestigious company. Generally, this is a useful occupation and its conditions are good. Therefore, many people take much time to prepare for passing school exams. Some children have to study hard before they attain the school age. Under these circumstances, it seems that they forget the meaning of studying subjects. This essay mentions motivation to study and tries to clear up the meaning of academic success in our culture.

Edited extracts from authentic student material

**3.6** Imagine you are writing an essay on the following three topics. Write a suitable introduction for each one of them. (Note that you are not going to write the whole essay.)

- a) The education system in one's own country.
- b) Traveling broadens the mind. Discuss.
- c) The rapid development of electronic communications may mean that people will have fewer social skills. Discuss.

**3.7** When you write the second draft of your essay *What are the aims of academic study and how can they be achieved?* make appropriate changes to the introduction, and other parts, according to your peer feedback session.

#### Study tip

Spend time on your introduction as it plays a crucial role in the essay. It should provide the reader with a clear indication of the main areas you are going to discuss.

## Unit summary

In this unit you have reflected on your attitudes and approach to academic writing skills. You have thought about the different stages of the writing process and practiced planning, writing a first draft, and giving peer feedback. You have also looked at how to write effective introductions to your essays.

- 1 Match the words and phrases in the box to their definitions below. They are all procedures and techniques that form part of the writing process.**

drafting brainstorming peer feedback organizing ideas adopting a critical stance

- a) Generating and noting down initial ideas about a topic without ordering them
- b) Putting ideas together in a logical sequence
- c) Deciding on and expressing your viewpoint after examining and judging possible opinions
- d) The process of writing and putting your essay together. Most essays will have two or more drafts and will be revised and edited after each draft.
- e) Comments on your essay from other students

- 2 Complete the sentences below on writing an academic text using some of the words from Ex 1.**

- a) When you are given a writing task, it is important to start by

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- b) When you write the first draft you should

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- c) Before you hand in your final draft

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- 3 After working on this unit, write down ways in your notebook of how you improved your knowledge of academic writing.**

For web resources relevant to this unit, see:

[www.englishforacademicstudy.com/us/student/writing/links](http://www.englishforacademicstudy.com/us/student/writing/links)

Text 1-1: The influence of class size on academic achievement

## THE INFLUENCE OF CLASS SIZE ON ACADEMIC ACHIEVEMENT



Education is a pillar of modern society and the subject of endless, often passionate arguments about how it can best be improved. In the U.S., there is heated  
5 debate following revelations that the country's secondary school students perform poorly relative to many Asian and European students. The news coincided with increasing concern over the nation's urban and  
10 lower-income suburban schools, too many of which are languishing at achievement levels far below those of middle-class and upper middle-class suburban schools.

Of all the ideas for improving education,  
15 few are as simple or attractive as reducing the number of pupils per teacher. With its uncomplicated appeal and lack of a big, powerful group of opponents, class-size reduction has lately developed from a sub-  
20 ject of primarily academic interest to a key political issue. In the United States, more than 20 states and the federal government

have adopted policies aimed at decreasing class sizes, and billions of dollars have been  
25 spent or committed in the past few years. The demand for smaller classes is also growing in Canada, Australia, the United Kingdom, and even Japan, whose record of secondary school performance is the envy of  
30 most other developed countries.

The most obvious drawback to class-size reduction is the huge cost. It requires more teachers, more classrooms, and more classroom equipment and resources. These  
35 expenses can dwarf the price of alternative schemes, such as testing teachers or increasing their pay as a means of attracting better candidates. The state of California, for example, has been spending more than  
40 \$1.5 billion annually over the past several years to reduce class size to 20 or fewer for children in the four- to seven-year-old bracket. On the other hand, if smaller classes really do work, the economic benefits could be huge.

45 They would accrue not just from the benefits of a better-educated workforce but also from other sources, such as the avoided medical costs and sick days of a healthier, more informed populace.

50 The surge of interest in smaller classes has spurred fresh analyzes of the largest, most conclusive study to date, which took place in Tennessee in the late 1980s. At the same time, new data are flowing from 55 various initiatives, including the California program and a smaller one in Wisconsin. These results and analyzes are finally offering some tentative responses to the questions that researchers must answer before 60 legislators can come up with policies that make educational and economic sense: Do small classes in fact improve school achievement? If they do, at what age level do they accomplish the greatest good? What kind of 65 students gain the greatest benefit, and most importantly, how great is the benefit?

### WHAT ARE THE BENEFITS OF SMALLER CLASS SIZES?

Educators have a multitude of explanations 70 for why smaller class sizes might be expected to improve academic performance, although frequently the ideas are anecdotal. Fewer students in the classroom seem to translate into less noise and disruptive 75 behavior from students, which not only gives the teacher more time for class work but also more freedom to engage students creatively—by, for example, dividing them into groups for specific projects. In addition, 80 smaller classes make it more likely that the teacher can give greater individual attention to struggling students. Smaller classes also allow teachers to encourage more discussion, assign more writing, and closely examine 85 their students' written work. In other words, much of the benefit of reduced class size may depend on whether the teachers adapt their methods to take advantage of

smaller classes. Finally, some analysts 90 believe that the very youngest age group in smaller classes are more likely to develop good study habits, higher self-esteem and possibly other beneficial cognitive traits—which may very well persist for years, even 95 after the students have gone back to more normal-sized classes.

One way investigators have attempted to analyze the effects of class size is by reviewing existing data, such as records kept by the 100 U.S. Department of Education. These show that between 1969 and 1997, the average number of pupils per teacher in American public and private elementary schools fell from 25.1 to 18.3, a decline of greater than 105 27%. In secondary schools, the number also fell, from 19.7 to 14.0. Of concern, however, is the fact that despite these steep drops in pupil-teacher ratios, the improvement in academic performance was negligible. Data 110 from the National Assessment of Educational Progress—a series of tests that is the only United States-wide indicator of student knowledge in reading, mathematics, science and other subjects—show no significant 115 gains. In some specific age and subject categories, such as 17-year-olds and science, performance actually decreased slightly.

### WHAT THE RECORD SHOWS

However, these findings do not necessarily 120 mean that class size makes no difference. For a variety of reasons, most researchers, including the writers, pay little attention to these figures (Figure 1). For instance, schools strive for more than just high test 125 scores; they also usually try to keep their dropout rate low. In fact, the dropout rate for students aged 16–24 fell from 15 to 11 percent over the period. Because dropouts generally come from the low end of the 130 achievement distribution, a reduction in dropout rate could be expected to pull down average test scores in the upper grades.

**Text 1-1:** The influence of class size on academic achievement cont.

**FIGURE 1: MILESTONE STUDIES IN CLASS SIZE**

PROJECT	STATE	STUDENTS PARTICIPATING	APPROX. COST	SMALL CLASS SIZE	KEY FINDINGS
STAR 1985–89	Tennessee	10,000	\$12m	13–17	Significant performance benefit of 0.2 standard deviation; larger gains for minority pupils
Class size reduction	California	1.8m	\$5 billion	Less than 20	Small performance gain of about 0.05 to 0.1 standard deviation; no greater gains for minorities
SAGE	Wisconsin	64,000	£103m	12–15	Significant performance advantage of 0.2 standard deviation; larger gains for minority pupils

Another reason for discounting these data goes right to the heart of the difficulties in this field of study: it is hard to isolate the effects of class size from the myriad factors that influence student performance. The reality is that in 1995 only 68% of American students came from families with two parents in the home—down from 85% in 1970. The fraction of children who had difficulty speaking English rose from 2.8% in 1970 to 20.2% in 1995. There was some good news: the median level of education among parents increased slightly during that time period, as did the level among teachers, whose average amount of experience also went up.

Basically, demographic shifts make it very difficult to assess the effect of reductions in pupil–teacher ratios. Well-designed experiments attempt to cancel out the influence of those other factors by randomly assigning students and teachers to different class sizes and by including a large sample. Over the past 35 years, hundreds of studies and analyses of existing data have focused on class size. Most found evidence that smaller classes benefit students, particularly at the youngest level, and especially children in danger of becoming underachievers.

Unfortunately, most of these studies were poorly designed. Teacher and student assignments were rarely sufficiently random; a number of studies were simply too brief or too small, and too few had independent evaluation. The notable exception was the Tennessee study. The distinguished Harvard University statistician, Frederick Mosteller, has called it “one of the greatest experiments in education in United States history.” The Student–Teacher Achievement Ratio, better known as Project STAR, was a state-sponsored, \$12 million demonstration program (see Figure 1). Students entering kindergarten were randomly assigned to one of three kinds of classes: a small class of 13 to 17 children, a normal-sized class of 22 to 26 children, or a normal-sized class with both a teacher and a full-time teacher’s assistant. The students remained in whatever category they had been assigned to until they had reached the third grade, after which they joined a normal classroom in the fourth. To ensure that teaching quality did not differ, teachers were randomly assigned to small and normal-sized classrooms. Few teachers received any special training for working with small classes, and there were no new curricular materials.

## A CASE STUDY: SHINING STAR

After the study ended in 1989, researchers conducted dozens of analyses of the data. One of the few points analysts agree on is that the teacher's assistants did not make any difference to academic performance. Researchers disagree about how long students have to be in smaller classes to get a benefit, how big that benefit is, when it becomes noticeable—in other words, the collected findings have yielded no consensus on the issues of real interest to policymakers.

Jeremy Finn of the State University of New York and Charles M. Achilles of Eastern Michigan University found “an array of benefits of small classes” in their review. Finn calculated that students in the small classes outperformed their counterparts in normal-sized classes by a fifth of a standard deviation, and that this sizable jump in achievement generally appeared by the first grade. Best of all, this advantage seemed to persist into upper elementary levels even after students returned to larger classes. In order to appreciate how big a difference there is in terms of a fifth of a standard deviation, it is necessary to compare two pupils first starting school who are as average as it is possible to be statistically. Both are in the 50<sup>th</sup> percentile, meaning that half of the other pupils perform better than those two and that half perform worse. One student should be placed in a small class, and the other in a normal-sized class. After a year, the pupil in the small class will be in the 58<sup>th</sup> percentile—in other words, the student will be doing better than nearly 60% of his or her peers—while the other student will still be doing better than only 50%. Finn and Achilles also found that the effect was stronger for ethnic minority students, by a factor of two

or three. In other words, black or Hispanic children improved by two-fifths to three-fifths of a standard deviation—a significant finding from a policy point of view, because minorities typically score about one standard deviation below their peers on standard tests.

A few analysts, notably Eric Hanushek of Stanford University's Hoover Institute, criticize STAR and some of the key conclusions reached by its proponents. Hanushek agrees that students can gain an initial benefit from small classes. But, he argues, the STAR data cannot be used to prove that the gains persist for years after a student has returned to normal-sized classes. If a child is still doing well years later, it is hard to know how much of the performance stems from other factors, such as a supportive home. Hanushek also disagrees with an analysis indicating that the benefits of small classes accumulate—that students who stay in such classes for several years widen the performance gap with their peers in large classes year by year. When he studied the four-year gains of STAR students who were in smaller classes from kindergarten until they reached grade three, he did not find the gains to be larger than those logged in kindergarten. He and others have also shown that during the study, too many children migrated from the regular to the small classes, probably because school personnel caved in to parental demands. Hanushek further asserts that STAR had insufficient checks to ensure good randomization of teacher and student placement in classes. These are good points, but they do not really undermine the findings of STAR of a statistically significant benefit of being in a class of between 13 and 17, rather than 23, students.

The Authors: RONALD G. EHRENBURG, DOMINIC J. BREWER, ADAM GAMORAN and J. DOUGLAS WILLMS collaborated on a paper surveying studies of class size and academic performance for the May 2001 issue of *Psychological Science in the Public Interest*. Ehrenberg is the Irving M. Ives Professor of Industrial and Labor Relations and Economics at Cornell University and the author of *Tuition Rising: Why College Costs So Much* (Harvard University Press, 2000). Brewer, who specializes in the economics of education, is the director of Rand Education, which analyzes programs and policies on education issues, and is a visiting professor of economics at the University of California, Los Angeles. Gamoran, a former Fulbright scholar, is a professor of sociology and education policy studies at the University of Wisconsin – Madison. Willms is a professor of the Canadian Research Institute for Social Policy at the University of New Brunswick.

Source: Ehrenberg, R.G., Brewer, D.J., Gamoran, A., & Willms, J.D. (2001). Does class size matter? [Electronic version]. *Scientific American*, 285(5), 78–85.

**Text 1-3:** The Asian paradox: Huge classes, high scores

# THE ASIAN PARADOX

## HUGE CLASSES, HIGH SCORES



**BY GLENN ZORPETTE**

Study after study ranks schoolchildren in Japan and other developed Asian countries among the best in the world, particularly on standardized tests of mathematics and science. American high school students, meanwhile, have slipped somewhere below those in Greece, Lithuania, Taiwan, and Singapore in advanced mathematics and science. However, classes in Asia are large; forty students for one teacher would be normal in most of the region. In contrast, elementary school class sizes in the United States average about 24, according to the U.S. Department of Education.

The question is why Asian children do so well in such large classes. In Japan, for example, the discipline is legendary. Such discipline is not imposed by fearsome teachers, according to Catherine Lewis, an expert on the Japanese educational system and a senior researcher at Mills College. Instead, students are honored to be chosen to lead lessons, and they take turns calling the class to order, experiencing firsthand

what it is like to quieten down an unruly group of students. As a result, teachers manage the class by relying on “the cumulative general power of self-reflection, rather than by punishing and rewarding,” Lewis explains. Japanese teachers and students also spend much more time together—the usual year is about 40 days longer than in the United States—and more time bonding with one another at school festivals and on field trips and hikes. “There’s an incredibly strong emphasis on class, group and school being meaningful entities for the children,” Lewis says. Japan’s prowess in academic achievement is also sustained by something it does not have: ethnic and linguistic diversity. Finally, Asian parents are far less likely than Americans to be divorced and are more likely to be involved in their children’s education.

The downside of the Asian system is that the rigid national standards do not do much to foster creativity. At the same time, in Japan some children strive hard to excel partly because they become burdened early on by the fear of failing.

Given the deep cultural differences, it is not clear which parts of the Asian formula could work in other countries such as America. However, the Asian experience does demonstrate what can be done when discipline grows from the bottom up. In that kind of environment, elementary school teachers can focus on “creating happy memories,” as one Japanese teacher described her main purpose to Lewis.

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Source: Zorpette, G. (2001). The Asian Paradox. In R.G. Ehrenberg, D.J. Brewer, A. Gamoran, & J.D. Willms, *Does class size matter?* [Electronic version]. *Scientific American*, 285(5), 78–85.