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UNIT 1

Choosing a Topic

In this unit, you will learn how to:

- ask probing questions in critical thinking;
- have a better understanding of basic elements of research papers;
- choose a particular topic for your research;
- formulate research questions;
- write a working title (暂定标题);
- avoid plagiarism;
- use citations;
- use sources by quoting and summarizing.

1 Critical Reading

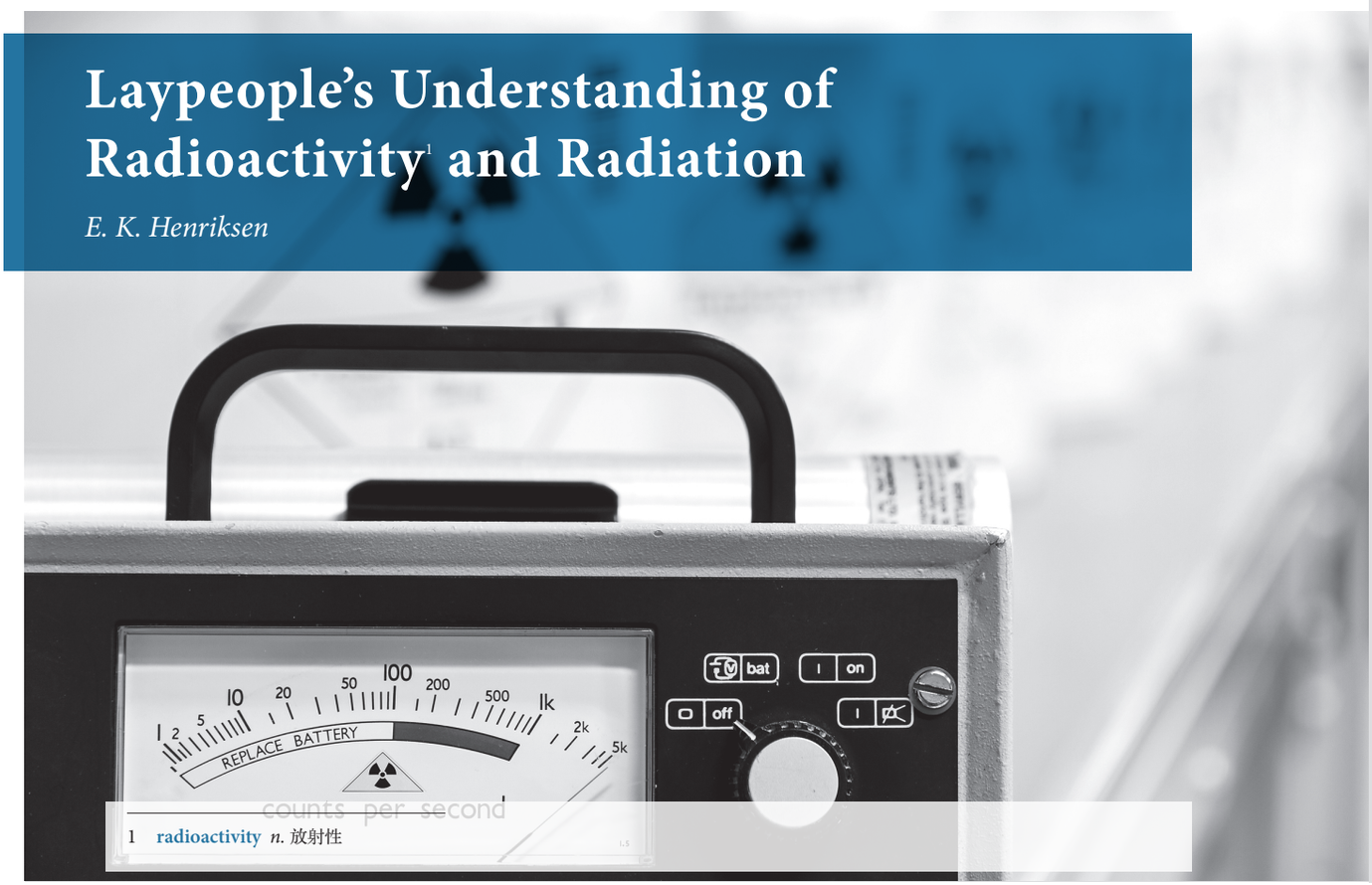
Understanding the text

TASK 1 Skim the text and complete the table below.

Key words	
Objective	
Methods used	

Laypeople's Understanding of Radioactivity[1] and Radiation

E. K. Henriksen



1 **radioactivity** *n.* 放射性

Introduction

1 Since the discovery of X rays in 1895, ionising radiation[2] has been a part of our life and consciousness. From the very beginning, radiation has been shrouded in myths—of exaggerated expectations as well as excessive fear[(1)]. Radiation has been characterised partly as a life force, partly as a doomsday power destined to cause the ultimate destruction of mankind. In our own time, fear seems to be the prevalent characteristic of the public perception of radiation phenomena, and the treatment in the media of incidents like the Chernobyl accident[3] has greatly contributed to the spreading of uneasiness and fear.

2 Why should we expect the public to know something about radioactivity and radiation? There may be many answers to this question; three of the most evident are the following:

1) The pragmatic reason

People should be capable of protecting themselves from the harmful effects of radiation as well as avoiding excessive fear.

2) The democratic reason

People should be capable of informed judgments in political matters involving radiation phenomena, nuclear energy, waste disposal, exposure limits etc.

3) The educational reason

The individual derives pleasure and fulfilment from knowing something about the world around him / her.

3 How can knowledge about radiation phenomena be effectively communicated to laypeople? In the constructivist approach[4] to learning, the learner is viewed as actively creating his / her own understanding in an interaction between the notions he / she already holds and the input provided by external sources such as the teacher, peers or the mass media. Within this understanding of learning, the learner's ideas and conceptions prior to instruction are seen as important factors in the learning process. This principle also holds true in the field of radiation, and a number of publications have dealt with pupils' and laypeople's conceptions of radiation phenomena. For instance, Lijnse et al.[(2)] described concepts of radioactivity and radiation held by 15- and 16-year-old pupils in the Netherlands, and Eijkelhof and Millar[(3)] analysed British newspaper reports of the Chernobyl accident to identify features of the lay understanding of radiation phenomena.

4 The present survey was conducted to investigate the understanding of radiation phenomena and risk among Norwegians with a reasonable level of general education, but lacking specialisation in physical science.

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2 **ionising radiation** 电离辐射
3 **Chernobyl accident** 切尔诺贝利核事故
4 **constructivist approach** 建构主义方法

Methods

Respondents

5 The survey was administered in the form of a questionnaire given to 270 students in an elementary physics course at the University of Oslo[5]. This group was chosen for two main reasons: 1) The group was fairly large and easily accessible; and 2) the group mainly consisted of first-year students who had completed secondary education, but had not received formal instruction on radiation since leaving school. This student group can in no way be said to represent the general public. Nonetheless, it can be assumed that the results are indicative of conceptions and attitudes found among those with a general, secondary education in the direction of natural sciences, but no specialisation.

6 Of the 270 students 191 (71%) completed the questionnaire. Of the respondents 53% were women, 45% were men and 2% did not state sex. It cannot be excluded that the 29% who did not respond differed from the respondents in relevant respects. Since this survey does not aim to establish percentages of persons holding this or that conception, but rather aims to identify a few commonly held conceptions of radiation phenomena among non-specialists, the possible bias from non-respondents should not render the results irrelevant.

The questionnaire

7 The questionnaire consisted of 13 questions. Two of these gave background information about gender and background in secondary school, seven measured knowledge and understanding of radioactivity and radiation, and four were designed to give information about radiation fear and attitudes. Most questions were connected to real-life examples that the students might know from the media coverage of current issues related to radiation. The questions which are referred to in the paper are presented in Table 1 on the next page.

Coding and analysis

8 The answers to the open-ended questions in most cases fell into one of 5-10 categories, defined after reading the answers from about 20% of the respondents. All answers were then assigned to the appropriate categories and coded.

9 To obtain a measure of each respondent's level of understanding, a point system was developed. Each of the questions concerning knowledge and understanding was appointed a maximum number of points, adjusted to the presumed difficulty of the question. For each question, points ranging from zero to maximum were awarded to respondents according to their degree of understanding as judged by the investigator.

5 Oslo 奥斯陆（挪威首都）

Table 1 Questions and point assignments

No.	Questions and Max No. of Points
1	(a) Are you afraid of being exposed to radiation in your daily life? *If yes:* (b) Where do you think this radiation comes from?
2	(a) Do you think there are radiation sources (radioactive substances[6]) in the house where you live? *If yes:* (b) Which ones?
3	Radiation from radioactive substances may be divided into three main types. (a) What are they called? (2 points) (b) What constitutes the radiation in each case? (4 points)
4	After the reactor accident in Chernobyl in 1986, radiation could be detected from a range of Norwegian foodstuffs, particularly mutton and reindeer[7] meat. How had the food become radioactive? (2 points)
5	After the Chernobyl accident, restrictions were imposed on the sale of mutton meat with radioactivity exceeding 600 Bq / kg. Radioactivity is measured in becquerel[8] (Bq). What is the definition of 1 Bq? (3 points)
6	The radioactive substance caesium-137[9], which was found in mutton after the Chernobyl accident, has a half-life[10] of 30 years. What is meant by this? (3 points)
7	Many types of spice are irradiated in order to kill bacteria. We say that the radiation is absorbed in the spice. What do you think happens in the spice when radiation is absorbed? (3 points)
8	What sorts of injuries can be found in the people who have been exposed to radiation from radioactive substances? (See below*)
9	In Sweden, more than half the electric energy is supplied by nuclear power. Do you think this should continue? Give a reason for your answer.
10	The Russian submarine *Komsomolets* sank near the island of Bjørnøya in 1989. Many people think that the sub should be raised. (a) Do you think that the *Komsomolets* is a threat to the environment in the northern seas? *If yes*: (b) In what way?

* *Points were awarded according to the number of radiation injuries mentioned; 1 point for each type of injury listed (when correct). Exception: 2 points were awarded for mentioning mutations[11] when these were explicitly connected with the initiation of cancer.*

6 **radioactive substance** 放射性物质
7 **reindeer** *n.* 驯鹿
8 **becquerel** 贝克（勒尔）（放射性活度单位）
9 **caesium-137** 铯–137（铯的放射性同位素，简写为^{137}Cs）
10 **half-life** *n.* 半衰期
11 **mutation** *n.* 突变

The sum of the points from all knowledge questions was taken as a measure of each respondent's level of understanding. The maximum number of points obtainable for each question is presented in Table 1. To find out whether the level of understanding influenced respondents' attitudes and level of radiation fear, the respondents were divided into two groups: those who scored lower than median on the knowledge questions (the low-score group), and those who scored higher than median (the high-score group). The data were analysed using SPSS[12] Version 6.1 for Windows. A significance level of 95% was applied.

Results and discussion

Knowledge of the radiation process

10 A major aim in the survey was to get an overview of the respondents' understanding of central concepts concerning radioactivity and radiation phenomena. From the answers to Question 3, it appeared that 89% of the respondents knew of the three radiation types (alpha[13], beta[14] and gamma[15]), whereas only 34% could correctly state what the radiation consisted of in each case. The definition of one becquerel (Question 5) was known to 25%. It should not be regarded as very alarming that most respondents were unable to define particular concepts such as the becquerel or α, β and γ radiation. These concise definitions are for expert use. More important, in view of the reasons for knowing stated in the introduction (the pragmatic, the democratic and the educational reason), is the lack of understanding of central features and processes related to radioactive decay and absorption of radiation.

11 A prevalent tendency among the respondents was the lack of differentiation between the concept of radioactive material and that of radiation, most apparent in the answers to Question 4:

> *"Radiation from the ruined reactor in Chernobyl had gone into the lichen on which the sheep and reindeer grazed."*

It has previously been observed that laypeople have difficulties distinguishing the concept of radiation from that of radioactive material[(2)(4)]. The difficulty is a serious obstacle to understanding the nature of radiation hazards and the appropriateness of countermeasures.

12 When asked about the concept of the half-life (Question 6), 74% of the respondents gave a definition which might be called correct. However, some of the acceptable answers might conceal a misunderstanding:

12 **SPSS (Statistical Product and Service Solutions)** 统计产品与服务解决方案软件
13 **alpha** 希腊字母表中第一个字母 α
14 **beta** 希腊字母表中第二个字母 β
15 **gamma** 希腊字母表中第三个字母 γ

"It [a half-life of 30 years] means that it takes 30 years for 1 kg of ^{137}Cs to be reduced to 1/2 kg. The mass decreases because the substance gives away alpha irradiation, which is particles."

The answer betrays a lack of understanding that disintegration of a radioactive atom involves the creation of a new nucleus[16]. Many answers of the type "The amount of radioactive material is halved" might conceal a similar misunderstanding.

13 To find out if the respondents knew what was meant by "absorption of radiation", an example was used concerning the absorption of radiation in spice which is irradiated to kill bacteria (Question 7). The question appeared to be difficult—only 55% attempted an answer. Ten percent of the respondents answered that "the radiation is taken up by the spice", and some of these added that the radiation was "stored" in the spice, which gave reason to suspect that they really meant that the radiation made the spice radioactive. Twelve percent said explicitly that the radiation made the spice radioactive. This concept is probably a consequence of the lack of differentiation between radiation and radioactive material.

14 The survey also dealt with the radiation sources to which we are exposed in our daily lives and the health consequences of exposure to ionising radiation. When asked whether they believed that there were radiation sources in their home (Question 2), 62% answered in the affirmative. It appeared from the answers that there was considerable confusion concerning what a source of radiation is. Many seemed to regard this as an expression for almost any undesirable agent[17] in buildings: electric and magnetic fields[18], asbestos[19], toxic chemicals[20] in building materials etc. Confusion between sources of radiation and other environmental hazards has also been described in the literature. For instance, Durant et al.[(5)] found that almost 50% of the respondents in a survey of public understanding of science believed that nuclear power stations could cause acid rain.

15 The respondents had clear perceptions of the kinds of change that ionising radiation can cause to the human body, and a wide variety of answers was given to the question concerning this (Question 8). The most frequent answer was cancer (mentioned by 75%), whereas mutations were mentioned by 49% and genetic damage[21] by 36%. Other effects mentioned included birth defects, damage to cells and organs, death, sterility[22] or decreased reproductive capacity[23], skin damage, hair loss and burns. The results gave no information about the extent to which the respondents imagined these effects to appear (or after what kind of doses). It is worth mentioning that the most important effect, from an expert point of view, is cancer, presumed to be initiated by mutations. Genetic effects have so far been detectable in animal experiments, not in humans.

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16 **nucleus** *n.* 原子核
17 **agent** *n.* 能因；使然力
18 **magnetic field** 磁场
19 **asbestos** *n.* 石棉
20 **toxic chemical** 有毒化学品
21 **genetic damage** 基因损伤
22 **sterility** *n.* 不孕不育
23 **reproductive capacity** 生殖能力

16 No significant difference was found between women's and men's level of understanding as measured by the total score on the knowledge questions. This is in contrast to Lucas'[6] finding that significantly more men than women were able to give acceptable answers to radiation questions in a survey of the British public. The contrast may be due to differences in the populations examined: Whereas all respondents in the present survey had completed secondary school and begun university studies in natural sciences, Lucas' respondents were a sample of the general population where it may be assumed that women on the average had a lower level of education than men.

17 To sum up, the investigation revealed an incomplete understanding of some central concepts concerning radiation phenomena. However, knowledge of the biological effects of radiation was reasonably good.

Radiation fear and attitudes

18 Central aims in this survey were to detect whether respondents feared radiation and to investigate their attitudes to the applications of radiation. It appeared that whereas 62% believed that there were sources of radiation in their home (Question 2), only 16% were afraid of being exposed to radiation in their daily life (Question 1). Significantly more women than men were afraid ($\chi^2 = 5.37$; $p = 0.02$), whereas no significant difference was found between the high- and low-score group in the proportion of respondents who were afraid of radiation. Those who were afraid regarded nuclear power and nuclear submarines as the greatest hazards.

19 There was a small majority of antagonists to Swedish nuclear power among the respondents: When asked whether Sweden should continue its production of nuclear power (Question 9), 36% answered "yes" and 43% "no", whereas 14% were uncertain and 7% failed to answer. A significantly higher proportion of women than men were negative to nuclear power ($\chi^2 = 17.08$; $p = 0.00004$). A small, but significant difference was found between the high-score group and the low-score group in their attitude to Swedish nuclear power, the high-scorers being the more positive ($\chi^2 = 4.76$; $p = 0.03$). Half of the protagonists (50%) gave as a reason that the control of plants in Sweden was so good that the risk of accidents was minimal, whereas 26% claimed that nuclear power was an environment friendly alternative. Of the antagonists, 69% gave the risk for accidents as a reason for their standpoint, whereas 21% mentioned problems concerning storage of nuclear wastes. The risk of leakages was also mentioned. It was evident that whereas Swedish nuclear power was regarded as relatively safe, the attitude to nuclear energy in general was sceptical, and it was often presented as a necessary evil.

20 Atomic energy[24] resistance in the Scandinavian population has been reported by Löfstedt and Ringius[7] and by Skjåk and Bøyum[8], who showed that 50% of the Norwegian population regarded nuclear power as "extremely or very dangerous to themselves and

24 **atomic energy** 原子能

their families". Radiation and radioactivity are, for many people, associated with danger and fear, and surveys have shown that atomic energy and radioactive contamination rank high among people's conceptions of risks[8][9]. This is probably closely connected to earlier observations that it is the aspects of uncontrollability, catastrophic potential and involuntary exposure which give radiation its aura of dread. These characteristics of radiation are especially prevalent in connection with nuclear power[9].

21 Another matter of interest was the respondents' attitudes to radioactive wastes, exemplified by the Russian submarine *Komsomolets* which sank in the Barents Sea in 1989 (Question 10). The respondents were asked whether they personally believed the sub to be a threat to the environment in the northern seas; 57% answered "yes" and 17% "no", whereas 13% were uncertain and 13% failed to answer. There were significantly more women than men who believed that the *Komsomolets* was a threat ($\chi^2 = 8.64$; $p = 0.034$), whereas no difference was found between the high- and low-score groups. Of those who answered "no", some stated that the amount of radioactive material was too small to be a real threat; others thought that the contamination around the sub would be very localised, making a very small contribution to the overall state of the area. Of those who did judge the sub to be a threat, 34% stated that it was a danger to the marine flora and fauna[25] in the area. "Contamination / Irradiation of the environment" was given by 27% as a reason for fearing *Komsomolets*, whereas 15% thought the radioactivity would contaminate fish and thereby constitute a health hazard to people and 8% said simply that the fish would become radioactive.

22 In the present investigation of attitudes to radiation and its applications, women tended to be more worried about radiation and more sceptical about nuclear power than were men. This tendency has also been demonstrated in similar studies[7][8][10], and seems to represent a general difference in women's and men's cautiousness towards a range of perceived risks such as electromagnetic fields[11], car exhaust[26]and chemicals used in food production[8].

Implications for improving public understanding of radioactivity and radiation

23 It is evident from the above discussion that the lay model of radiation phenomena differs significantly from the expert model. How has the lay model of radioactivity and radiation arisen? Lucas[12] has reviewed literature indicating that the informal mass media are important sources of scientific knowledge for the public. A comparison between the mass media's treatment of radiation phenomena after the Chernobyl accident and pupils' conceptions about such phenomena seemed to indicate that the press played a considerable role in forming non-experts' understanding of such phenomena[2]. Indications of the role of the media were found also in the present study, for instance in statements such as "becquerel is radioactivity per kilogram of meat" (clearly related to the press treatment of the sales limits for contaminated meat after the Chernobyl accident).

25 **marine flora and fauna** 海洋动植物群落
26 **car exhaust** 汽车尾气

Also, typical wording from newspaper headlines, such as "the threat from the East" (referring to nuclear reactors in Russia), appeared in the respondents' answers.

24 In the constructivist approach to learning, the learner's ideas and conceptions prior to instruction are seen as important prerequisites for learning. A typical example from mechanics is the notion that an object will come to rest unless it is kept in motion by a force. This is contrary to Newton's first law and the scientific view of motion—but it works in daily life! With reference to this theory of "everyday conceptions", Lijnse et al.[(2)], after studying lay conceptions of radiation, claimed that in areas where satisfactory "everyday conceptions" exist (often conveyed through the mass media), people do not feel the need to apply "school knowledge" to phenomena they encounter in real life. Thus, formal knowledge about radiation phenomena, acquired in a classroom context, will not be applied in order to understand the situations arising in the "real world", as for example after the Chernobyl accident.

25 This tendency could also be observed in the answers given in the present survey. For instance, one of the respondents was able to give excellent "classroom" definitions of becquerel, but nevertheless stated in a subsequent question that meat became radioactive after the Chernobyl disaster "because the animals ate food which had been irradiated", thereby betraying that the confusion between radiation sources and radiation was still present. Thus, the answers to the questions concerning real-life situations which had been treated in the media might not measure what the school education had taught the students, but rather what the media had taught them. The gap between the "real world" and the realm of school knowledge could also be identified in answers to the questions regarding the sources of radiation exposure in everyday life. When asked which sources of radiation the respondents feared, they mostly mentioned sources that are frequently highlighted in mass media and by environmentalists and that have a threatening ring in most people's ears: nuclear power plants, nuclear submarines, radiation through a depleted ozone layer[27] and so forth.

26 How can the gap be bridged between the lay and the expert models of radioactivity, radiation and risk? How can the desired level of knowledge in the population (refer to the reasons for knowing stated in the introduction) be attained? As already mentioned, lay ideas are amazingly persistent, even after formal instruction. Thus, Eijkelhof[(13)] reported that a number of lay ideas concerning radiation were maintained by secondary school pupils in the Netherlands after a course unit on radioactivity. The lack of success of school courses and information campaigns in the past may have been partly due to lack of consideration for the preconceptions of the learners. Millar et al.[(4)] developed a teaching unit on radioactivity and ionising radiation that explicitly took into account the pupils' preconceptions in the field. Hopefully, this and similar programmes may in the future contribute to improving the public understanding of such phenomena.

27 **ozone layer** 臭氧层

27 According to the reasons stated in the introduction, to educate the public on radiation issues, a sufficient level of knowledge should ensure democratic decisions and personal safety. Is there any evidence that an individual's level of knowledge actually has an effect on his / her political considerations and judgments? The findings from the present survey do not lend much support to such a hypothesis. There was no significant difference between the high-score group and the low-score group with respect to the degree of radiation fear or the attitude to the submarine *Komsomolets*; however, a small, but significant difference was found between the two groups in the proportion who were positive about Swedish nuclear power. Lucas[(6)] found that there was little relationship between knowledge about the nature of radioactivity and attitudes to nuclear power policy.

28 In view of these findings, the prospects for attaining the objective presented in the introduction seem gloomy indeed. If information and knowledge don't have the power to influence attitudes, how can rational decisions and personal well-being then be secured? The way out of this impasse may lie in taking the lay conceptions into account and increasing the integration between factual information and practical / political considerations when designing teaching and information materials for use in schools, seminars and mass media, so that the connection between factual knowledge and the "real world" is clarified. Within school curriculum development, this is called the STS (Science, Technology and Society) approach. The unit developed by Millar et al.[(4)] and similar approaches in the teaching of radiation topics show some promise. However, further research is needed to establish the best ways of presenting information on radiation topics in various seminars and to various parts of the population.

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TASK 2 **Read the text and answer the following questions.**

1 How much do the respondents know about radiation?
2 What is their attitude to nuclear power?
3 What is the major reason for their lack of correct understanding of radiation?
4 How can laypeople's understanding of radiation be improved?

TASK 3 **Match the following academic words with their definitions or synonyms.**

Paras. 1-2

_____	**1**	shroud	**a**	direct toward a given destination
_____	**2**	exaggerate	**b**	end of the world
_____	**3**	doomsday	**c**	existing very commonly or happening frequently
_____	**4**	destine	**d**	the act of getting rid of sth. useless or used up
_____	**5**	prevalent	**e**	hide information or keep it secret and mysterious
_____	**6**	perception	**f**	overstate
_____	**7**	pragmatic	**g**	solving problems in a realistic way
_____	**8**	disposal	**h**	insight

Paras. 3-6

_____	**1**	laypeople	**a**	sb. who answers questions, esp. in a survey
_____	**2**	interaction	**b**	manage; organize
_____	**3**	external	**c**	coming from the outside
_____	**4**	prior	**d**	before a particular time or event
_____	**5**	respondent	**e**	easy to obtain or use
_____	**6**	administer	**f**	showing or suggesting sth.
_____	**7**	accessible	**g**	cause to become
_____	**8**	assume	**h**	mutual effect
_____	**9**	indicative	**i**	non-objective consideration of an issue or a situation
_____	**10**	bias	**j**	suppose
_____	**11**	render	**k**	nonprofessional

Para. 7

_____	**1**	coverage	**a**	groceries; food product
_____	**2**	refer	**b**	the reporting of news
_____	**3**	constitute	**c**	mention
_____	**4**	foodstuff	**d**	seasoning
_____	**5**	spice	**e**	a ship which can travel under water
_____	**6**	bacteria	**f**	microscopic single-celled organisms
_____	**7**	submarine	**g**	clearly and exactly
_____	**8**	explicitly	**h**	form; establish

Paras. 8-11

_____	**1**	assign	**a**	give; designate
_____	**2**	appoint	**b**	(cause animals to) eat grass
_____	**3**	maximum	**c**	distinction

_____	**4**	presume	**d**	danger
_____	**5**	overview	**e**	counteraction
_____	**6**	decay	**f**	allocate
_____	**7**	differentiation	**g**	the process of becoming gradually damaged, worse or less
_____	**8**	lichen	**h**	a general view
_____	**9**	graze	**i**	the largest amount allowed or possible
_____	**10**	hazard	**j**	a grey, green or yellow plant-like organism that grows esp. on rocks, walls and trees
_____	**11**	countermeasure	**k**	suppose

Paras. 12-18

_____	**1**	irradiation	**a**	the word "yes" or a sign that you agree with sth.
_____	**2**	betray	**b**	substance that produces an effect or a change
_____	**3**	disintegration	**c**	start; lead off
_____	**4**	absorption	**d**	exposure to a large amount of radioactivity
_____	**5**	affirmative	**e**	a part of the whole
_____	**6**	agent	**f**	the process of some substance being taken in
_____	**7**	initiate	**g**	the state of losing unity as if by breaking into parts
_____	**8**	proportion	**h**	unveil

Paras. 19-20

_____	**1**	antagonist	**a**	choice; option
_____	**2**	protagonist	**b**	viewpoint; stance
_____	**3**	alternative	**c**	supporter
_____	**4**	standpoint	**d**	be good, bad, important, unimportant etc. compared with other similar things
_____	**5**	leakage	**e**	not done by choice; unconscious
_____	**6**	rank	**f**	atmosphere
_____	**7**	catastrophic	**g**	opponent
_____	**8**	involuntary	**h**	extremely harmful; destructive
_____	**9**	aura	**i**	gas, water etc. escaping from a hole or crack

Paras. 21-28

_____	**1**	exemplify	**a**	carefulness
_____	**2**	localize	**b**	a sound like a bell
_____	**3**	cautiousness	**c**	use up (resources or materials)
_____	**4**	prerequisite	**d**	having reason or understanding
_____	**5**	realm	**e**	a difficult situation of which there is no way out
_____	**6**	ring	**f**	the act of combining things to work together
_____	**7**	deplete	**g**	without much hope of success
_____	**8**	gloomy	**h**	requirement for sth. to happen or exist
_____	**9**	rational	**i**	illustrate
_____	**10**	impasse	**j**	limit sth. to a particular area
_____	**11**	integration	**k**	domain

TASK 4 **Match each of the following main ideas (summarized from Paras. 1-28) with the appropriate paragraph number of the text.**

No.	Main Ideas	Para.
1-5	The survey has been conducted for three reasons.	
	The students in an elementary physics course are chosen as subjects for two reasons.	
	The objective is to study the understanding of radiation and risk among general Norwegians.	
	Radiation has been viewed as a serious threat to health and hence a source of fear.	
	People's prior knowledge of radiation has a big effect on how well they learn about radiation.	
6-10	The respondents' level of understanding is measured in a scientific way.	
	Most questions were open-ended and connected to real-life examples.	
	Most respondents knew of the radiation types but failed to understand the key information about radioactive decay and absorption of radiation.	
	Some respondents' failure to answer the questionnaire will not affect the results.	
	The answers were categorized and coded.	
11-15	There was a lack of knowledge about "absorption of radiation" among respondents.	
	Respondents were aware of the effect of radiation on health.	
	Respondents had difficulties distinguishing between radiation and radioactive materials.	
	There was confusion about the source of radiation among respondents.	
	There was some misunderstanding about the concept of the half-life.	
16-20	Fear of radiation from nuclear power was still popular in Norwegians.	
	There was a bigger proportion of respondents who don't support Swedish nuclear power.	
	Only a small number of respondents feared the exposure to radiation.	
	Although respondents knew the harmful health effects of radiation, they had a limited understanding of some central concepts of radiation.	
	Men and women had almost the same knowledge of radiation.	
21-25	Mass media tend to influence people's judgment and conception of radiation.	
	Mass media play a very important role in the misunderstanding of radiation.	
	Most respondents feared the contamination of nuclear wastes.	
	Everyday conceptions are more influential than school education.	
	Women were more worried than men about radiation and nuclear power.	
26-28	Sufficient knowledge of radiation has little to do with one's political considerations and judgments.	
	Taking the lay conceptions into account and integrating factual knowledge and practical / political considerations may be a solution to the problem.	
	Analyzing preconceptions about radiation may improve the public understanding of radiation phenomena.	

TASK 5 **Paraphrase the following sentences. Read the model carefully before the exercise.**

> ***Model***
>
> From the very beginning, radiation has been shrouded in myths—of exaggerated expectations as well as excessive fear.
>
> **Key:** From the start, there has been a myth about radiation, which has generated overstated anticipation and extreme fear.

1 The answer betrays a lack of understanding that disintegration of a radioactive atom involves the creation of a new nucleus.

_____

_____

2 In the constructivist approach to learning, the learner's ideas and conceptions prior to instruction are seen as important prerequisites for learning.

_____

_____

3 The way out of this impasse may lie in taking the lay conceptions into account and increasing the integration between factual information and practical / political considerations…

_____

_____

TASK 6 **Summarize the main idea of the following paragraph closely related to the text in theme, using one sentence only. Read the model carefully before the exercise.**

> ***Model***
>
> One of the possible acute effects of exposure to high levels of radiation over a small period of time is Acute Radiation Syndrome (ARS) or radiation sickness. For an exposed individual to develop ARS, the radiation must be penetrating and cover the whole body. The radiation doses that lead to ARS hover around one sievert (Sv)—about 300 times the average annual dose (three millisieverts) of background radiation. ARS is associated with damage to the bone marrow, and at higher doses (>10 Sv) other organs may be affected. Other acute health problems that can result from high exposure to radiation include premature aging, male sterility, birth defects, and possible death.
>
> **Key:** Exposure to high doses of radiation can lead to a broad range of acute health problems such as the impairment of the organs.

Iodine-131, plutonium-239, caesium-137, and strontium-90 are the four most harmful radioactive elements involved in the Japanese nuclear disaster. Iodine-131 has a half-life of eight days—meaning that it is half as radioactive after eight days, thus making its effects relatively short-lived. Exposure to iodine-131 can cause thyroid cancer. With half-lives of 30

and 29 years, respectively, caesium-137 and strontium-90 both stay in the environment for longer periods of time. Caesium-137 can travel through the food chain in milk or vegetables and can increase the risk of various cancers; strontium-90 is absorbed into bones and teeth and can increase the risk of leukemia or bone cancer. Plutonium-239 is toxic if inhaled.

TASK 7 **Write a paragraph of about 120 words to summarize the main idea of the text.**

Enhancing language ability

TASK 1 **Read the words and phrase below, paying attention to the pronunciation. Use the scale to give yourself a score for each word or phrase.**

1	I still don't understand this word or phrase after learning the text.
2	Now I understand this word or phrase when I see it or hear it, but I don't know how to use it.
3	I know this word or phrase and can use it in my own speaking and writing.

Academic Words and Phrase

○ prevalent	○ characterize	○ proportion	○ prerequisite
○ constitute	○ hazard	○ betray	○ exaggerate
○ derive	○ expectation	○ characteristic	○ render
○ perception	○ external	○ indicative	○ administer
○ accessible	○ initiate	○ assign	○ maximum
○ minimal	○ overview	○ presume	○ perceive
○ assume	○ alternative	○ standpoint	○ rank
○ exemplify	○ gloomy	○ integration	○ preconception
○ objective	○ secure	○ prior to	○ attempt
○ rational	○ conception		

TASK 2 **Replace the underlined words or phrases with the academic words or phrase in the above box. Change their forms where necessary.**

1 The answer <u>shows</u> a commonly held <u>belief</u> of radiation.
2 Although the questionnaires were given to over 200 students, the poor sampling <u>makes</u> the survey invalid.

3 The fear could be illustrated by the public understanding of the accident of the Japanese power plant.
4 The widespread tendency among students is to find profitable jobs.
5 Children's knowledge before formal education has a big influence on their judgment.
6 A larger number of students try to speak good English, but the prospects for a marked improvement seem sad.
7 Their failure to act suggests that there is no other means at present.
8 The event is featured by violence which is considered a health danger to people.
9 According to the doctors, smoking is placed high among the leading preventable causes of death.
10 Correct citation of outside sources is required as a condition for academic writing.

TASK 3 **Group the words and phrases in the box according to their similarity in meaning to the words in bold. Pay attention to the variety of expressions in writing.**

comprise	credible	weighty	fundamental	peril	spotlight
illuminate	embrace	threat	accentuate	incompatible	various
consist of	rationalize	explicate	emphasize	conflicting	explain
attach importance to		spur	represent	give prominence to	
move	justify	essential	accent	evoke	narrate
inconsistent	well-grounded		underlying	contradictory	elucidate
incongruous	feature	portray	underline	discrepant	item
rational	induce	ingredient	inspire	motivate	element
jeopardy	characterize	stimulate	impel	instigate	stress
account for	depict	sensible	be composed of		prime
give priority to		diverse	prompt	primary	constituent
outline	encompass	well-founded		viable	cogent
urge	plausible	hazard	menace	convincing	contributor
risk	contain	contrary	clear up	underscore	component
powerful	root				

1 **include**: _____
2 **valid**: _____
3 **basic**: _____
4 **danger**: _____
5 **describe**: _____
6 **different**: _____
7 **cause**: _____
8 **clarify**: _____
9 **highlight**: _____
10 **factor**: _____

TASK 4 **Read the academic sentence patterns in the box below, paying attention to the parts in bold. Use the scale to give yourself a score for each sentence pattern.**

1	I still don't understand this sentence pattern.
2	I can memorize this sentence pattern, but I don't know how to use it.
3	I can now apply this sentence pattern to my writing.

Academic Sentence Patterns

1 … **has been a part of** our life and consciousness.
2 … radiation **has been shrouded in myths—of exaggerated expectations**…
3 Radiation **has been characterised partly as a life force**…
4 … has greatly **contributed to the spreading of uneasiness and fear**.
5 The individual **derives pleasure and fulfilment from** knowing something about the world around him / her.
6 This principle also **holds true** in the field of radiation…
7 **The survey was administered in the form of** a questionnaire given to 270 students…
8 … **identify a few commonly held conceptions** of radiation phenomena…
9 … the possible bias from non-respondents should not **render the results irrelevant**.
10 **A prevalent tendency among** the respondents **was**…
11 The difficulty is **a serious obstacle to** understanding the nature of radiation hazards and the appropriateness of countermeasures.
12 The answer **betrays a lack of understanding**…
13 … there was **considerable confusion concerning**…
14 … **rank high among people's conceptions of risks.**
15 … **exemplified by** the Russian submarine…
16 … **constitute a health hazard** to people…
17 … **differs significantly from** the expert model.
18 … seemed to indicate that the press **played a considerable role in** forming non-experts' understanding…
19 How **can the gap be bridged between**… **and**…?
20 The lack of success… and… **have been partly due to** lack of consideration…
21 The findings from the present survey **do not lend much support to** such a hypothesis…
22 … a small, but significant **difference was found between** the two groups…
23 … the prospects for attaining the objective… **seem gloomy indeed**.
24 … **how can** rational decisions and personal well-being then **be secured?**
25 **The way out of this impasse may lie in** taking the lay conceptions into account…

Critical thinking (asking questions)

Critical thinking (CT) is essentially a questioning or challenging approach to knowledge and perceived wisdom. It involves conceptualizing, applying, analyzing, synthesizing, and evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication. To be a critical reader, you have to read between the lines and make inferences about the author's attitude which might be hidden in the passage. Asking probing questions is the most effective way to get to know and follow the author's train of thought in academic reading. Read the objectives and corresponding questions you may ask.

Objectives	Questions
Identifying the author's motives or the purpose of writing	What is the theme / main argument of…? Is the author trying to persuade the readers or merely providing information? Might the author have a hidden purpose? What are the author's presumptions and bias? Does the author support one side of a controversy or appear impartial? Does the author's attitude lie implicit in the text?
Identifying the author's stance and tone	What is the author's stance and how do you work it out? What language (such as wording) is used? Is the author being serious or playful, humorous or somber? Is the author angry or tranquil, ironical or sincere? Does the author appeal to the readers' emotion (through the use of emotion-arousing words, slogans, rhetorical questions and parallel structures)? Does the author merely appeal to the readers' reasoning by using facts and statistical evidence instead of propaganda? What particular evidence and example does the author select?
Finding evidence and checking whether it is relevant and reliable	Is there sufficient evidence for an argument or a claim? Has any evidence been missed out if a reliable argument is to be formed? How is evidence (such as examples and statistics) used and interpreted? Are the sources of information reliable? Does the author intentionally hide some facts or information which fails to support his / her arguments? Are there any gaps or inconsistencies in the argument? Could the argument be better or differently supported? How does the author reach his / her conclusion?
Reaching your own conclusion about the issue or the article	Do you agree with the outcomes? What is your opinion of…? Do you agree with the position the author is presenting? Why or why not? How would you prove / disprove…? Could the conclusion be different if different facts or methods are used? Would it be better if…? What would happen if…? Can you propose an alternative…?

TASK 1 **Read the Critical Reading text and raise as many questions as possible about: 1) the purpose of the study; 2) the methods used; and 3) the main ideas and findings. Then compare your questions with the questions below and try to answer them.**

1 What is the author's purpose in carrying out the survey? Do you think the three reasons the author offered are valid?
2 Do you think that the methods are appropriate to the objective of the study? And can you suggest better alternatives?
3 The survey was conducted among students in Norway. Would the same conclusion be reached if you should conduct the same survey in your university, using the same 10 questions?
4 Do you agree with the author that our misconception of radiation is often derived from the mass media? What do you think of the role the mass media plays in our knowledge?
5 Do you believe the knowledge of science like radiation and genetically modified foods will influence the citizens' political considerations and judgments?

TASK 2 **Read the final section (Paras. 23-28) of the Critical Reading text and raise as many questions as possible about the validity and reliability of: 1) the conclusion of the study; 2) the reasons and evidence behind; 3) the methods and approaches used; 4) the explanations offered for the results; and 5) the suggestions made. Then compare your questions with the questions below and try to answer them.**

1 What is the conclusion of the author?
2 What reason does the author offer to support the conclusion?
3 What is the evidence underlying the reason?
4 Do you think the reason is valid and the evidence is sufficient?
5 Do you think the constructivist approach can adequately explain the inconsistency between the lay model and the expert model?
6 What explanations would you offer for the gap mentioned above?
7 Why did the past efforts to bridge the gap tend to fail?
8 Does the present study prove that a sufficient level of knowledge has an effect on one's political considerations and judgments? What is the evidence?
9 What would happen if you change the method of the study (questionnaires and interviews) or the samples (the students)?
10 How can rational decisions and personal well-being be secured in your opinion?
11 What suggestions does the author offer? Do you agree that schools and universities should offer the course STS (Science, Technology and Society)?
12 Is the proposal reasonable that factual information and political considerations should be combined into the curriculum and classroom?
13 Have you mastered the skills of critical questioning listed on Page 20 and can you apply them when you read and evaluate an article?

Doing research projects

TASK 1 **Watch Lecture 1 and answer the questions.**

1 What agents are mentioned in the lecture that could attack the DNA?
2 How do the cells repair themselves after the DNA damage?
3 What is the difference between determinist effects and stochastic effects?
4 Why would the radiotherapy cause a second cancer?
5 What principle is the radiation protection based on?

TASK 2 **Watch Lecture 1 again. Search for more lectures and articles about radioactivity and radiation and brainstorm some research questions which you can answer by doing research (e.g., reading more reference articles or conducting surveys using questionnaires or interviews).**

TASK 3 **Divide the class into five or six groups. Each group is to choose one of the research topics listed below. Search for a minimum of three related articles about radioactivity and radiation and write a short report (using as many patterns from the Academic Sentence Patterns as possible). Present your report in class with the help of PPT.**

1 A survey of the knowledge of Chinese university students as laypeople about radioactivity and radiation. Use the same questionnaires as that in the Critical Reading text.
2 A survey of laypeople's understanding of radioactivity and radiation, or a study of laypeople's attitude toward building nuclear power plants.
3 An investigation of the accident of the Fukushima Daiichi nuclear power plant. What happened? What are the serious effects?
4 An investigation of the Chernobyl accident. What happened and what effects has it produced, both physically and psychologically?
5 A study of the advantages of building nuclear power plants.
6 A study of the potential dangers to health or environment a nuclear power plant may produce.
7 A study of iodine-131, plutonium-239, caesium-137, and strontium-90. How do they produce harmful effects on health?

Academic Writing 2

Understanding a research report or paper

Research can be done by both children and scientists. While a child may carry out a simple experiment to understand the nature of gravity, a scientist may take years of systematic investigation to advance the understanding of radiation. According to its definition, research is "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of humans, culture and society, and the use of this stock of knowledge to devise new applications".

In short, scientific research is a systematic way of gathering data, aiming at increasing or revising current knowledge or explaining the nature and the properties of the world by discovering new facts, developing new theories, or reaffirming the results of previous work, solving new or existing problems.

In academic studies, students are often required to do project work and write a project-based report or a research paper. Writing a research report or paper is to turn the results or findings of your research into written work.

TASK 1 **Read the Critical Reading text and discuss the following questions.**

1 What are the differences between research papers / reports and college essays which you have written in the past in terms of purpose, content, organization and language? List as many of them as possible.
2 How many sections does a research paper contain? What are they? Why should it be divided into "Introduction", "Methods" and other sections?
3 How many articles or research papers does the author cite?
4 What are the characteristics of the language of a research paper? Is it formal and objective or informal and subjective?
5 Do you think it is necessary to learn how to read and even write research papers? Why?

TASK 2 **Read the following article and answer the following questions.**

1 How many basic elements are there in a research report or paper? What are they?
2 Why is a good knowledge of previous studies of the topic necessary?
3 Why is the procedures section important?

4 What are the contents of the discussion section?
5 What are the major requirements of a research paper in terms of style?

Research Reports for Technical Writing

Wayne Losano

Introduction

1 A surprising amount of one's time as a student and professional is spent reporting the results of one's research projects for presentation to teachers, managers and clients. Indeed, without basic research skills and the ability to present research results clearly and completely, an individual will encounter many obstacles in school and on the job. The need for some ability is felt nearly equally by college students in all fields, engineering and science as well as the humanities. Graduate study often makes great demands on the student's research-writing skills, and most professions continue the demand; education, advertising and marketing, economics and accounting, science and engineering, psychology, anthropology, the arts and agriculture may all require regular reporting of research data.

Elements of a research report

2 A standard research report, regardless of the field or the intended reader, contains four major sections. These sections may be broken down into a variety of subsections, and they may be arranged in a variety of ways, but they regularly make up the core of the report.

3 Problem Section. The first required section of a research report is the statement of the problem with which the research project is concerned. This section requires a precise statement of the underlying question which the researcher has set out to answer. In this section there should be an explanation of the significance—social, economic, medical, psychological, educational, etc.—of the question; in other words, why the investigation was worth conducting. Thus, if we set out, for example, to answer the question "What is the effect of regular consumption of fast foods on the health of the American teenager?" we must explain that the question is thought to have significant relevance to the health of this segment of the population and might lead to some sort of regulations on such foods.

4 A frequent subsection of this problem section is a review of past research on the topic being investigated. This would consist of summaries of the contributions of previous researchers to the question under consideration with some assessment of the value of these contributions. This subsection has rhetorical usefulness in that it enhances the credibility of the researcher by indicating that the data presented is based on a thorough knowledge of what has been done in the field and, possibly, grows out of some investigative tradition.

5 Procedures Section. The second major section of a research report details, with as much data as possible, exactly how the study was carried out. This section includes description of any necessary equipment, how the subjects were selected if subjects were used, what statistical

technique was used to evaluate the significance of the findings, how many observations were made and when, etc. An investigation of the relative effectiveness of various swimming strokes would have to detail the number of swimmers tested, the nature of the tests conducted, the experience of the swimmers, the weather conditions at the time of the tests, and any other factors that contributed to the overall experiment. The goal of the procedures section is to allow the reader to duplicate the experiment if such were desired to confirm, or refute, your findings.

6 Results Section. The third, and perhaps the most important, section of a research report is the presentation of the results obtained from the investigation. The basic rule in this section is to give all data relevant to the research question initially asked. Although, of course, one's natural tendency might be to suppress any findings which do not in some way support one's hypothesis, such dishonesty is antithetical to good research reporting in any field. If the experiments undertaken fail to prove anything, if the data was inadequate or contrary to expectations, the report should be honestly written and be as complete as possible, just as it would be if the hypothesis was totally proven by the research.

7 Discussion Section. The final required section of a research report is a discussion of the results obtained and a statement of any conclusions which may be drawn from those results. Of primary interest in technical research reports is the validity of the results as the bases for company decisions: Will our planned construction project meet federal environmental guidelines and be approved for building? Will this new program attract skilled personnel to our company? Will this new oil recovery technique be financially feasible? Thus, the discussion section of the research report must evaluate the research results fully: Were they validly obtained? Are they complete or limited? Are they applicable in a wide range of circumstances? The discussion section should also point out what questions remain unanswered and perhaps suggest directions for further research.

Style of research reports

8 Research reports are considered formal professional communication. As such, there is little emphasis on a lively style, although, of course, there is no objection to writing that is pleasing and interesting. The primary goals of professional communication are accuracy, clarity, and completeness. The rough draft of any research report should be edited to ensure that all data is correctly presented, that all equipment is listed, that all results are properly detailed. As an aid to the reader, headings indicating at least the major sections of the report should be used, and all data should be presented under the proper headings. In addition to their function of suggesting to the reader the contents of each section, headings enhance the formal appearance and professional quality of the report, increase to some degree the writer's credibility by reflecting a logical and methodical approach to the reporting process, and eliminate the need for wordy transitional devices between sections.

9 Research data should be presented in a way that places proper emphasis on major aspects of the project. For different readers different aspects will take on different degrees of importance, and some consideration should be given to structuring research reports differently for different audiences. Management, for example, will be most concerned with the results of a

research project, and thus the results section should be emphasized, probably by presenting it immediately after the problem section and before the procedures section. Other researchers would be most interested in the procedures section, and this should be highlighted in writing up research projects for publication in professional journals or for presentation at professional conferences. For non-technical readers, the implications of the results might be the most important consideration, and emphasis should be placed on the discussion of the results for this readership.

10 For additional clarity and emphasis, major results should be presented in a visual format—tables, charts, graphs, diagrams—as well as in a written one.

11 Beyond checking the report for clarity and accuracy in the presentation of technical data, the writer of a research report reviews for basic grammatical and mechanical accuracy. Short sentences are preferable to long ones in the presentation of complex information. Listings should be used to break up long passages of prose and to emphasize information. The research writer should try to use the simplest possible language without sacrificing the professional quality of the report. Although specialized terms can be used, pretentious jargon should be avoided. A finished research report should be a readable and useful document prepared with the reader in mind.

Conclusion

12 Although we struggle with research reports in high school, dread them in college, and are often burdened by them in our professional lives, learning to live comfortably with them is a relatively easy task. A positive attitude (i.e., one that sees the oral or written presentation of research results as of equal importance to the data-gathering process), an orderly approach which includes prewriting (i.e., before any actual research is done, the researcher should try to get down on paper as much about the subject under investigation as possible), a formal research report structure as the framework for the investigation, and a reasonable approach to the actual writing process including editing for accuracy and clarity, will help one to produce effective research reports efficiently.

Deciding on a topic

The first step of working on a project or writing a research paper is to decide on an appropriate topic. Choosing a topic, however, is not easy and it requires careful consideration and even investigation. A topic that is too general or too specialized may bring many problems in terms of the time you can devote to the research or the sources of information available on the topic. How to choose a topic which is possible to research? There are three principles to achieve "AIM".

1) Adequate. You may ask the question: Has the topic I am going to choose been researched in previous studies? Investigate the related literature and make sure that there are adequate source materials available on the topic. Avoid a topic that has very limited information, for it is difficult to carry out your research without previous studies.
2) Important. You also have to consider the value of the topic you are likely to choose, both academic and social. That is, the topic you are addressing should be problem-orientated, aiming to solve a particular problem. A research paper without practical or theoretical value will be of little importance.
3) Manageable. Narrow your topic down to make your paper manageable. For example, if you want to discuss the history of a disease, it may be impossible for you to cover all the important ideas in a short report, or a literature review of about 1,500 words.

TASK 1 **Skim the Critical Reading text and discuss whether the topic is appropriate according to the "AIM" principles.**

TASK 2 **Narrow down the following topics step by step and tell the feasibility of each topic. Read the model carefully before the exercise.**

Model

Radiation→The Effects of Radiation→Radiation and Its Effects on Health→ Laypeople's Knowledge of Radiation and Its Effects on Health

A study of radiation's effects, even its effects on health, takes a long time and needs humans or animals as its subjects in experiments. It is impossible to finish the project within six months or a year without adequate time or money. But an investigation of laypeople's knowledge entails only questionnaires and interviews.

1 Genetic Engineering →
2 Breast-feeding Practice →
3 Internet Technology →

TASK 3 **Choose one of the following topic areas and narrow it down to three or four appropriate topics. Then discuss with your partner. Read the model carefully before the exercise.**

Model

Academic Dishonesty

My narrower topics:

1) Factors Influencing College Students' Decisions to Cheat
2) Academic Dishonesty: A Plague on Our Profession
3) Academic Dishonesty: Zero Tolerance in USA
4) Faculty Perceptions of Students' Academic Dishonesty in China

1 Global Warming

My narrower topics:

1) _____

2) _____

3) _____

4) _____

2 Genetically Modified Foods

My narrower topics:

1) _____

2) _____

3) _____

4) _____

3 Nuclear Energy

My narrower topics:

1) _____

2) _____

3) _____

4) _____

4 Science Fraud

My narrower topics:

1) _____

2) _____

3) _____

4) _____

Formulating research questions

An appropriate, specific topic is determined by your research questions. A research question is a statement that identifies the focus of your topic. Only a clear, focused and specific question could form the basis of a research paper.

It is the question that your project or your paper wants to answer. For example, you may develop it into the following research questions if your topic is "Threats of Building a Nuclear Power Plant":

1) What kind of threat may human beings face when building a nuclear power plant?
2) What are the advantages and disadvantages of building a nuclear power plant?
3) How can we reduce the potential dangers and harmful effects of nuclear power plants?

A research question, therefore, serves two purposes:

1) It identifies the specific objectives your project or your paper will address. You can check whether you answer it completely when you finish your project or your paper.
2) It determines the size of your research or the length of your paper. Obviously your paper will be shorter if you answer only the third question (How can we reduce the potential dangers and harmful effects of nuclear power plants?).

Hence raising research questions will make your topic more specific, more tangible and more focused. (Note that the research question should be answered by doing research rather than by simply consulting dictionaries.)

TASK 1 **Turn the following topics into more specific ones by asking yourself some wh-questions such as Why, What, How, Who. Then share your topics with your partner and discuss which questions are worth researching and can be researched. Read the model carefully before the exercise.**

Model

Academic Dishonesty

1) Why is academic dishonesty prevalent on Chinese campuses?
2) What are potential effects of academic dishonesty on students: academic or ethical?
3) How to fight against academic dishonesty on Chinese campuses?
4) Who should be responsible for academic dishonesty on Chinese campuses?

1 Nuclear Wastes

1) _____
2) _____
3) _____
4) _____

2 Threats of Artificial Intelligence

1) _____
2) _____
3) _____
4) _____

3 Global Warming and Its Effects

1) _____
2) _____
3) _____
4) _____

4 Genetically Modified Foods

1) _____
2) _____
3) _____
4) _____

TASK 2 **Brainstorm in groups for a potential topic you are going to research in your project in this course and then answer the following questions.**

1) Why do you choose the topic? For example, is it adequate, important, or manageable in source materials?
2) What research questions do you want to answer in your research?

Complete the following table.

My Topic	
My Reasons	1 2 3
Research Questions	1 2 3

Writing a working title

A working title refers to the title you think of initially for the project or paper which you are going to write. It may be changed as you carry out research and become more involved in the subject of your project.

A successful title should meet the following requirements:

1) It should indicate the topic of the study by using the key words about contents and methods.
2) It should indicate the scope of the study (e.g., "Laypeople's Understanding of Radioactivity and Radiation").
3) It should be self-explanatory to readers in the chosen area.
4) Sometimes it summarizes the results (e.g., "Students Who Smoke Get Lower Grades").

Two things are normally included in the title: method and content. The former has key words like *comparison*, *analysis*, *contrast*, *investigation*, *discussion*, *explanation*, *study* and *assessment*, key words which tell the readers the research task. The latter includes key words which tell the reader what the topic is, such as *health risks*, *smokers*, *research report*, *computer hackers*, *lung cancer*, *nuclear power plant* and *energy*.

A good title may also include two variables. A variable is any characteristics that can be measured or influenced. For example, a variable such as age, sex, education, family background or traits may influence another variable such as your academic or career success. The more variables you study, the more complex your research paper will be. The limiting words like *causes*, *effects*, *advantages*, *benefits* or *effectiveness* will limit the size of the topic and make the topic workable. Hence a typical title is composed of:

method words + content words + limiting words

As English titles tend to use phrases instead of sentences, we will have such titles as:

- A Survey of Laypeople's Understanding of Radioactivity and Radiation
- A Study of Factors Influencing College Students' Decision to Cheat in the Examination
- A Study of the Environmental Impact of Pollution on Urban Areas
- An Analysis of Psychological Motivation of Computer Hackers
- A Comparison of the Effectiveness of Two Approaches to Lung Cancer
- An Analysis of Environmental Effects of Nuclear Power Plants

In most cases, however, key words about the method could be omitted for conciseness. The following, therefore, are appropriate titles:

- Laypeople's Understanding of Radioactivity and Radiation
- Factors Influencing College Students' Decision to Cheat in the Examination
- The Environmental Impact of Pollution on Urban Areas
- Psychological Motivation of Computer Hackers
- The Effectiveness of Two Approaches to Lung Cancer
- Environmental Effects of Nuclear Power Plants

TASK 1 **Read the three titles in the box and discuss the questions below.**

Title 1 Laypeople's Understanding of Radioactivity and Radiation

Title 2 Using Interactive Technology to Support Students' Understanding of the Greenhouse Effect and Global Warming

Title 3 The Impact of Urbanization and Socioeconomic Status on Infant-feeding Practices in Lagos, Nigeria

1 Are the titles phrases or sentences?
2 Can the titles inform the readers of the main topics and the problems to be addressed?
3 Does each of them contain two or more variables? What are they?
4 What is the relationship between the two variables? Can the relationship be studied?
5 Why do the titles of research papers tend to become a little long?

TASK 2 **Suppose that you are going to write a research article about climate change. Now discuss with your partner the following titles and decide on the most appropriate ones you will choose. Read the model carefully before the exercise.**

Model

A Study of Causes and Effects of Climate Change
(*No, because one can write a whole book on this topic.*)

1 What Are the Economic Effects of Climate Change?
2 The Melting Poles: the Greatest Danger from Global Warming
3 Three Effects of Global Warming on China
4 A Study of Socioeconomic Effects of Global Warming on Agriculture
5 Global Warming Effects on Mental Health
6 A Possible Role of Ozone Depletion in Climate Change
7 Potential Impact of Climate Change on World Food Supply

TASK 3 **Divide the class into five groups. Each group chooses two of the titles to do the following tasks.**

1) Analyze the titles and their research questions.
2) Discuss whether they are appropriate according to the methods to be used.
3) Write down your improved titles and research questions.

Remember: A qualified university student should be able not only to raise research questions when faced with a topic or project, but to design appropriate methods to address the questions.

Titles	Research Questions	Methods to Be Used
A Study of the Public's Attitude Toward Garbage Classification in Shanghai	1) What are the public's attitudes toward garbage classification? 2) Why can't garbage classification be effectively implemented? 3) What are suggestions for improvement?	Surveys (questionnaires and interviews) conducted among residents and sanitation workers
A Study of Pedestrian Winds Around Tall Buildings	1) What are the characteristics of the pedestrian winds around tall buildings? 2) What are their effects on pedestrians nearby? 3) What are the causes of their formation?	Experiment conducted, using a smoke visualization test to simulate the wind environment around tall buildings
Water Pollution near Some Chemistry Factories and Its Impacts	1) What is the situation of water resources near some chemistry factories? 2) What are the characteristics of polluted water resources? 3) In what ways do the pollutants disseminate and finally affect health?	Experiments (four parallel tests) conducted with 78 fish divided into six groups and raised in different solutions from the rivers near some chemistry factories
A Study of Domestic Use of Solar Energy in Shanghai	1) What is the current situation of the domestic use of solar energy in big cities? 2) What factors lead to the difficulties in promoting the use of solar energy?	Survey conducted: a) questionnaires distributed in residential areas; b) interviews with families with different incomes and related factories
Approaches to Extending Battery Life of Hand-held Devices	1) What are the main consumption patterns of battery energy? 2) What is the relationship between the way people use hand-held devices and energy consumption? 3) What are the energy-saving strategies in the use of hand-held devices?	Survey (questionnaires) conducted among the users of hand-held devices; Experiment conducted to test different patterns in terms of energy-saving

TASK 4 **Write a working title and its research questions according to the topic you have chosen for your paper, and discuss with your partner whether it is appropriate.**

The working title for my paper: _____

The research questions: _____

_____

Literacy Skills 3

Avoiding plagiarism

In research writing you may use the data obtained by performing an experiment, taking a survey, or having an interview. But most probably you may use sources by researching your topic in a library or on the Internet. Look at the books and articles the authors listed in the reference list of the text in Critical Reading and you will find the paper could not have been written without them. However, you should be careful when using sources. If you do not deal with it correctly, it is easy to fall into the trap of plagiarism, intentionally or unintentionally. Plagiarism is a kind of theft, referring to the use of others' findings, arguments, data, and words without appropriate citation or referencing a published or unpublished source. Hence, a better understanding of academic conventions is extremely critical to university students.

TASK 1 **Consider the following situations and decide if they are plagiarism or bad citation. Mark "Y" (Yes) or "N" (No) in the box.**

1 I use another person's ideas without referencing or acknowledging the source. ☐
2 I follow another person's example in terms of design and method without referencing. ☐
3 I use another person's manner of expression or research methods without referencing. ☐
4 I copy a few sentences but change several words without referencing. ☐
5 I take ideas, materials and pictures from the Internet without referencing. ☐
6 I copy a few sentences with referencing, but no quotation marks. ☐
7 The idea is what I have learned in class or textbooks without referencing. ☐
8 I use another person's line of thinking, not exact words or sentences without referencing. ☐
9 I use another person's sentences but change them significantly without referencing. ☐
10 I use what the teachers said in class without referencing. ☐

TASK 2 **Read the following definitions of plagiarism and discuss your answers to the questions in TASK 1.**

1 Plagiarism is the "wrongful appropriation" and "stealing and publication" of another author's "language, thoughts, ideas, or expressions" and the representation of them as one's own original work. —Wikipedia

2 Basically plagiarism means taking ideas or words from a source without giving credit (acknowledgement) to the author. It is seen as a kind of theft, and is considered to be an academic crime. —*Academic Writing: A Handbook for International Students*

3 Plagiarism is theft. If you use another person's ideas, words, manner of expression, or research and pass that material off as your own, you are guilty of plagiarism. Whether intentionally or unintentionally, plagiarism can result in serious penalties, including failing an assignment, a course, or expulsion. —*Patterns for a Purpose: A Rhetorical Reader*

TASK 3 **Discuss and decide which of the following is not common knowledge and needs referencing.**

1 Generally, there are two kinds of light pollution: ecological pollution and astronomical light pollution.
2 The negative effects of GM crops have been shown on animals in many studies.
3 Nanorobots can be programed to attack cancer cells and reconstruct the molecular structure.
4 There have been about 400 cancer deaths among 100,000 Japanese nuclear bomb survivors.
5 The Academic Motivation Scale is used to measure students' motivation for attending college.

Citation

To provide evidence and exemplification from sources to support an argument is citation. Citation plays a very important role in the writing of research articles as it is often used to give definitions, introduce theories and models, describe the previous studies, give examples, synthesize sources, establish the links between sources, borrow the research methods and compare one's own findings or interpretations with other sources. Hence, it mainly occurs in the introduction section, the methods section and the discussion section. Citations are ethical because they are forms of acknowledging intellectual property and therefore expected conventions of academic discourse. There are three citation methods: **paraphrasing** (rewriting what the writer said in your own words), **quoting** (copying exactly the same as the original text) and **summarizing** (using only the most important ideas).

Coupled with citations are referencing skills. There are two components to referencing: the in-text reference and the end-of-text reference. The combination of both the in-text reference and the bibliographic entry constitutes what is commonly thought of as a citation or reference.

In-text referencing is a brief parenthetical acknowledgement in the text. The formats are often discipline specific. For example, the in-text references of the text in Critical Reading of this unit are different from those in the rest of the book. Footnotes or endnotes are not frequently used in scientific writing as they are in the humanities and the social sciences. Natural scientists most often use the name-year system. That is, in-text references with the author(s) and the date of publication are placed immediately after the borrowed information, usually at the end of a

sentence, before the final period. Look at the following examples:

- Two methods of measuring unemployment are emphasized by Sloman (2006).
- According to Wang (2001), education is the key aspect underlying the successful economic development in a society.
- Indeed attempts should be made to reproduce such environments to promote consumption and economic development (Mitchell, 2011).
- It is important to debate local history and cultures and engage in neighborhood improvement projects (Evans, 2001; Borrup, 2006; Grodach, 2008).

Generally, in some referencing styles, if there are up to three authors in a source, list the last names of all the authors; if there are more than three authors in a single source, simply use the first author's last name, followed by et al., Latin for "and others":

- There is growing concern over the use of psychological testing in elementary schools (Albright & Glennon, 1982).
- The popularity of the book is "due to its focus on the issue of animal rights" (Clinton et al., 1999).

When the cited information comes from different sources, the in-text reference should include all the sources:

- Cheating is more prevalent in online than face-to-face classes (Grijalva, Nowell & Kerkvliet, 2003; Heberling, 2002; Kennedy et al., 2001).

When sources do not have an author, use the key words of the title of the article you are going to cite. The complete information of the sources will appear in the full references at the end of your paper:

- "Ethiopia has addressed this issue by implementing price control over a wide range of daily necessities."("Enhancing", 2008)
  Reference: "Enhancing Pan-continental Aid Efficiency in the 21st Century". Aid Initiative Foundation. Global Recovery Initiative, Apr. 2008. Retrieved 10 June 2011 from http://www.imf.org/external/publicdomaindocuments/eng/doc.html

TASK **Identify the citations and in-text references used in the following paragraph. Discuss the role of citations in developing the topic sentence at the beginning of the paragraph.**

Numerous research studies demonstrate consistently that content-based second language teaching promotes both language acquisition and academic success (Grabe & Stoller, 1997; Kasper, 1994; Krueger & Ryan, 1993; Snow & Brinton, 1997; Stryker & Leaver, 1997; Wesche, 1993). Students receiving linked instruction perform better in language courses than those not receiving such instruction (Kasper, 1997). They reap the benefits of significant gains in the second language, e.g., in the receptive skills of listening and reading (Burger et al., 1997; Ready & Wesche, 1992) and in the productive skills of writing (Burger, 1989) and speaking (Burger & Chrétien, 2001). They also achieve comparable or even better mastery of disciplinary content than ESL students or native English-speaking students not receiving content-based language instruction (Andrade & Makaafi, 2001; Babbitt, 2001; Kasper, 1994; Winter, 2004).

Quoting

Among the three citation methods—paraphrasing, quoting and summarizing, the most convenient way is to quote words, sentences and paragraphs directly from the original texts. The general convention in academic writing, however, is that direct quotations should be used as little as possible. Whenever possible, use your own words to express the idea you are going to use. The exception is when the source is so eloquent or so peculiar that you really need to share the original language with your readers, such as strongly stated definitions or opinions.

There are two versions of quoting: author-focused and information-focused. Author-focused quoting places emphasis on the author's name, showing more authority. Information-focused quoting is used, however, when you want to focus on the information cited instead of the author. The former uses the author's name at the beginning of the quote, while the latter puts the reference at the end of the quote. For example, based on the following original text, we can have two ways of quoting.

The original text

Cheating is seeking to gain unfair advantage or breaking a regulation; plagiarism is one form of cheating. Students often reverse this relationship, using the word "plagiarism" to describe all academic dishonesty, so time spent clarifying definitions is usually time well spent.

Carroll, J. (2002). *A Handbook for Deterring Plagiarism in Higher Education.* Oxford, UK: Oxford Centre for Staff and Learning Development.

Author-focused version:

- Carroll (2002) claims that it is necessary to spend time clarifying the definition of plagiarism because it is often wrongly used by students "to describe all academic dishonesty."
- According to Carroll (2002), the word "plagiarism" is often wrongly used by students "to describe all academic dishonesty," so "time spent clarifying definitions is usually time well spent."

Information-focused version:

- It is necessary to spend time clarifying the definition of plagiarism, because it is often wrongly used by students "to describe all academic dishonesty" (Carroll, 2002) .
- We all agree that "time spent clarifying definitions is usually time well spent," because the word "plagiarism" is often wrongly used by students "to describe all academic dishonesty" (Carroll, 2002).

When you want to quote, you must precisely indicate the copied words by placing quotation marks around the text if it is less than three lines long, or indent the text as a block if it is over three lines long. Look at the following example:

- Plagiarism is increasingly popular on campuses. Cheating especially draws the attention of many scholars. Carroll (2002, p. 11) claims:

  Cheating is seeking to gain unfair advantage or breaking a regulation; plagiarism is one form of cheating. Students often reverse this relationship, using the word "plagiarism" to describe all academic dishonesty, so time spent clarifying definitions is usually time well spent.

TASK 1 **Use the author-focused and information-focused versions to quote the following original text. Read the model carefully before the exercise.**

Model

The original text: Despite potential benefits of such techniques, serious concerns have been raised concerning the potential environmental and medical consequences of GMOs. In May 1999, the British Medical Association published a statement on GMOs addressing three areas over potential health effects of genetically modified (GM) foods (BMA Science Department, 1999).

Lack, G. Clinical Risk Assessment of GM Foods, *Toxicology Letters* **127**: 337-340 (2002)

Author-focused version: Lack (2002) claimed that "serious concerns have been raised concerning the potential environmental and medical consequences of GMOs" though people enjoy their benefits.

Information-focused version: Although GMOs are gaining popularity in many countries, "serious concerns have been raised concerning the potential environmental and medical consequences" (Lack, 2002).

1 **The original text:** For most Nigerians, urban existence is synonymous with extreme individual and community poverty. Implicit in this is a great pressure on mothers to spend more time trying to augment the family income at the expense of caring adequately for their children.

Rosemary, C. et al. The Impact of Urbanization and Socioeconomic Status on Infant-feeding Practices in Lagos, Nigeria. (1983) http://archive.unu.edu/unupress/food/8F071e/8F071E05.htm

Author-focused version: _____

_____

Information-focused version: _____

_____

2 **The original text:** Perhaps more lasting benefits will be achieved by emphasizing the education of mothers on how to prepare and use hygienically acceptable supplementary foods from relatively inexpensive but nutritious, locally available staple foods.

Rosemary, C. et al. The Impact of Urbanization and Socioeconomic Status on Infant-feeding Practices in Lagos, Nigeria. (1983) http://archive.unu.edu/unupress/food/8F071e/8F071E05.htm

Author-focused version: _____

_____

Information-focused version: _____

_____

TASK 2 **Compare and discuss the following ways to integrate quotations.**

1 The very first lines of Chapter I in The Charter of the United Nations are "To maintain international peace and security, and to that end: to take effective collective measures for the prevention and removal of the threats to the peace, and for the suppression of acts of aggression or other breaches of the peace" (United Nations, 1945. p. 3).

2 The very first lines of Chapter I in The Charter of the United Nations clearly state that sometimes any means can be used to achieve a higher ideal: "To maintain international peace and security, and to that end: to take effective collective measures for the prevention and removal of the threats to the peace, and for the suppression of acts of aggression or other breaches of the peace." (United Nations, 1945. p. 3)

3 "To maintain international peace and security" are the first words of Chapter I in The Charter of the United Nations, but the text immediately continues, "and to that end: to take effective collective measures for the prevention and removal of the threats to the peace, and for the suppression of acts of aggression or other breaches of the peace" (United Nations, 1945. p. 3).

Summarizing

Direct quotations are not encouraged because this is the most superficial integration of someone else's ideas into your writing. Although it is difficult to decide plagiarism according to similarity index (http://www.turnitin.com.cn), longer quotations should be avoided and summarizing will be used. Summarizing is a mixture of reducing a long text to a short one and selecting the most important information. In short, it restates briefly the main points of the original source in your own words.

Summarizing is useful because it helps you:

1) have a better understanding of the text, especially in identifying the main ideas;
2) cite the ideas of previous studies in your literature review and support your own view.

There are two kinds of summaries: global (to summarize the whole text) and specific (to summarize the parts). The following steps may be useful for a successful summary:

1) Read what you want to summarize carefully and make sure you understand it.
2) Highlight topic sentences and concluding sentences if any.
3) Identify the key points or main ideas if there are no topic sentences.
4) Make notes by paraphrasing those main ideas.
5) Organize the notes according to the importance of the ideas and your purpose of using them.
6) Write up them by using accurate reporting verbs to show the author's attitude such as *argue*, *claim*, *assert*, *explain*, *suggest*, *analyze*, *examine* and so on.
7) Go back to the text and check your work. Make sure that the meaning is the same and your summary doesn't include your personal comments.
8) Provide a reference and document other people's work.

The following are some rules of summarizing:

1) Focus: Include the main idea and important ideas only.
2) Paraphrasing: Make sure no more than four words in a row taken directly from the original text.
3) Language: Maintain the same style as the original text and avoid grammar errors.

TASK 1 **Read each of the following summaries of the original text and decide: a) which one retains the main idea with vocabulary and structure changed; b) which one is too similar compared with the original text in sentence structure and vocabulary choice; c) which one includes unnecessary details; and d) which one summarizes wrong ideas. Then exchange your answers with your partner. Read the model carefully before the exercise.**

Model

Art does not evolve by itself. The ideas of people change, and art changes in order to express these ideas. If an artist changes his way of expressing himself, it means that his way of thinking and seeing reality has changed. If the change is consistent with the changing ideas of his time, then his work has improved; if not, then it has deteriorated or failed.

[a] An artist's work will be accepted only if it expresses the changing ideas of his society.
[c] Art should change with the change of people's ideas. If the change corresponds to the changing ideas, the artists' work has been considered good, otherwise it has failed to be accepted by people.
[d] Art develops with the passage of time. Therefore artists should adapt their work.
[b] If the artists' work is consistent with the changing ideas of people in their time, their work has been welcomed.

1 The number of overweight children is predicted to rise significantly around the world by the end of the decade. Research conducted in 25 countries has concluded that almost every country showed significant increases in childhood obesity. Almost 50% of children in the US, Canada and Latin America will be overweight by 2020; in China, this figure is estimated to be one in five. Scientists believe this will mean that health care services will be seriously affected in the future. Many obese children will become obese adults, which will result in many of them suffering from heart disease, stroke, and other weight-related ailments.

☐ A survey conducted in 25 countries has showed that the number of overweight children will increase greatly worldwide by 2020. Scientists fear that this will affect health care services in the near future because many obese children will suffer weight-related problems when they become adults.
☐ Since the number of overweight children will increase around the world, health care services will be seriously affected in the future.
☐ The increasing number of obese children worldwide will cause serious problems to medical services.
☐ There will be a significant rise in the number of obese children around the world by the end of the decade.

2 The need for sophisticated equipment is not the only obstacle limiting the use of modern medical science. Traditional medicine, which uses a wide variety of inexpensive, easily accessible, and familiar natural ingredients and techniques, is preferable for many people.

Traditional medicines are normally created from local plants, animals, and minerals. Techniques often include socially bonding physical contact between patient and healer like rubbing or massaging, and spiritual experiences which may involve trances, music, and scents. In Africa, for instance, an estimated 80% of people rely on traditional medicine for almost all their health care. Similarly, in many other parts of the world, particularly in Asia and Latin America where modern facilities are available, this approach to medicine is still highly valued because it is effective, inexpensive, and culturally significant.

- ☐ Many people around the world prefer traditional medicine because it is effective, inexpensive and culturally significant.
- ☐ Traditional medicine enjoys more popularity in the world because of its effectiveness, low cost and cultural value.
- ☐ In Africa, Asia and Latin America, traditional medicine is considered better than modern medical science because the former is considered effective, easily accessible and uses familiar natural ingredients and involves physical contact between the doctor and the patient such as rubbing and massaging.
- ☐ Traditional medicine is less expensive, easily accessible, and culturally significant.

3 In every corner of the globe, aboriginal and traditional cultures are slowly disappearing. From the 18th century onward, the process of industrialization and the settlement of new people have had a dramatic effect on aboriginal groups such as the Australian Aborigines, the Teleut people of Siberia and the Ainu of Japan. These traditional cultures have survived for hundreds, sometimes thousands of years and their languages, music and other customs display a rich and wide variety of human culture. Yet these cultures risk being lost forever, as the old ways gradually die out and are replaced by more modern, industrialized lifestyles.

- ☐ The twin processes of industrialization and migration have led to the demise of traditional cultures around the world, with many languages and customs potentially vanishing forever.
- ☐ Aboriginal cultures, such as those in Australia or Japan, are valuable because they represent a wealth of musical, linguistic and ceremonial traditions.
- ☐ Today the cultures of indigenous groups such as the Teleut in Siberia or the Ainu in Japan are under threat. For around the last 200 years, industrialization and migration have weakened the cultures and customs of these groups. As a consequence, the survival of many different lifestyles is uncertain and the world risks losing forever its valuable diversity.
- ☐ Because of the process of industrialization and the settlement of new people, aboriginal and traditional cultures are slowly disappearing.

TASK 2 **Summarize each of the following paragraphs into one sentence. Read the model carefully before the exercise.**

Model

The climatic conditions prevailing in the British Isles show a pattern of alternating and unpredictable periods of dry and wet weather, accompanied by a similarly irregular cycle of temperature changes.

Key: The weather is changeable in the British Isles.

1 One of the most noticeable phenomena in Chinese big cities, such as Beijing and Shanghai, is the steadily increasing number of vehicles, some in private ownership, others belonging to the public transport system, which congest the roads and render rapid mobility more difficult year by year.

2 It is not uncommon to encounter sentences which, though they contain a great number of words and are constructed in a highly complex way, nonetheless turn out on inspection to convey very little meaning of any kind.

3 The constructivist theory rests on the assumption that knowledge is constructed by learners as they attempt to make sense of their experiences. Learners, therefore, are not empty vessels waiting to be filled, but rather active organisms seeking meaning.

4 Some educators maintain that choosing a major is the most crucial decision for students entering college, whereas others argue it is not especially important. Paul Harrington, Neeta Fogg, and Thomas Harrington argue in *College Majors Handbook* that as the world becomes more competitive, those students with a clear path on entering college have an obvious advantage over those who do not. Those who want to pursue high-paying careers such as medicine or engineering ought to focus on their career goal as early as possible. It is a mistake for students to start college with the aim of working out what they want to do for the rest of their lives, the authors argue. However, Donald Asher in his book, *How to Get a Job with Any Major*, disagrees. The choice of major often does not limit a student's career options. Although there are certain majors that clearly prepare students for particular careers, most students ultimately pursue careers unrelated to their chosen major. Asher believes that students can best spend their time in university finding their true interests because, on average, people switch careers, often to something completely unrelated, three to five times in their working lives.

5 What is becoming clearer is the disjuncture between advancing technology and our ability to manage its wider repercussions. Social networking services (SNS) like Facebook and LinkedIn increasingly dominate people's time online. Data shows that 66% of the 80% of Americans who use the Internet use SNS; and of the 95% of teenagers in the U.S. on the Internet, 80% of them use SNS. Social networks have started to supplement, even replace, face-to-face relationships. For many of Facebook's 901 million monthly worldwide users, the role of SNS in friendship goes beyond simply getting in touch and keeping in touch. Social networking online involves a level of public display and self-promotion entirely new to the majority of people. SNS leave the nuances of emotion unexplored or

unarticulated, and the gradual process of getting to know someone—the true beauty of friendship—is fast-tracked, as everything, quite literally, is on their SNS profile.

6 In their theory about the nature and origin of crime, Travis Hirschi and Michael Gottfredson dismiss the older notion of "indirect control," the "psychological presence" parents possessed in the minds of their children, to explain the inherent barriers to deviancy. Instead, the centrality of "self-control" in explaining the propensity to commit or refrain from crime is advanced. The authors maintain that this accounts for all factors—whether age, culture, sex, or circumstances—in determining whether someone commits a crime or not. A child develops self-control through direct parenting, when the parent closely monitors the child's behavior and punishes deviancy when it occurs. Without it, lack of self-control develops naturally. People who develop low self-control in childhood are more likely to act on an urge to break laws, should the opportunity exist. Crucially, an individual's tendency to commit crime is shaped by his / her lack of self-control, not the ease and availability of opportunities to engage in crime. Further, low self-control promotes an outlook on life as a "permanent present" in which immediate gratification is central. To such people, crime supplies immediate risks, thrills, and rewards.

TASK 3 **Summarize each of the following paragraphs into one or two sentences. Then exchange your answers with your partner. Read the model carefully before the exercise.**

Model

In times past, it was possible to leave a stressful workplace, go home, and relax. Since less work was mental and more was physical, it was relatively easy to remove oneself—physically and mentally—from it. The sophisticated communication technology available today was not yet developed. In contrast to "the good old days," it is no longer possible for busy men and women to go home or go on vacation and truly "get away from it all." It becomes difficult to relax when you are carrying a mobile phone that may go off any minute. The result is higher levels of stress in men and women because technology enables others to "find them anywhere." (Hockfield, 2001)

Key: Hockfield (2001) argues that modern technology makes it more difficult to truly separate oneself from work.

1 For most people, writing is an extremely difficult task if they are trying to grapple in their language with new ideas and new ways of looking at them. Sitting down to write can be an agonizing experience, which doesn't necessarily get easier with the passage of time and the accumulation of experience. For this reason you need to reflect upon and analyze your own reactions to the task of writing. That is to say, the task will become more manageable

if you learn how to cope with your own particular ways avoiding putting off the moment when you must put pen to paper. (Gordon & Taylor, 1989)

2 Technology has significantly transformed education at several major turning points in our history. In the broadest sense, the first technology was the primitive modes of communication used by prehistoric people before the development of spoken language. Mime, gestures, grunts, and drawing of figures in the sand with a stick were methods used to communicate—yes, even to educate. Even without speech, these prehistoric people were able to teach their young how to catch animals for food, what animals to avoid, which vegetation was good to eat and which was poisonous. (Frick, 1991)

3 Teachers will not know what the students do not understand if there are elements of cheating among the students. It will be difficult for the teachers to regulate their approaches of instruction as they will assume the students are all doing fine, which might not be true. Cheating hurts the students and prevents teachers from providing the necessary and relevant feedback to their students in the learning process. This should be true to all the teachers who may be interested in providing useful information on what the students are doing or who want to make use of the information they receive from their students to prepare for classroom intervention programs. (Hewitt, 1996)

4 Why are the citizens of some nations rich while the inhabitants of others are poor? It is surely true that ample energy, timber, and fertile land all help raise wealth. However, it turns out that natural resources are only a very small part of the answer. Far more important in determining the wealth of the people are the fundamental political and legal institutions of a nation. Institutions such as political stability, secure private property rights, and legal systems based on the rule of law create the incentives that encourage people to make investments in improving land, and other forms of physical and human capital. These investments raise the capital stock, which in turn provides for more growth long into the future. The cumulative effects of this growth over time eventually yield much higher standards of living: They make the citizens rich. (Edelso, 2002)