大学专业英语系列教材

管理学专业英语教程

A COURSE IN MANAGEMENT-BASED ENGLISH

高等学校文科教材

主编 邱东林 华宏鸣
康志峰

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大学专业英语系列教材

前　言

《大学专业英语系列教材》是根据教育部最新颁布的《大学英语教学大纲》的基本要求，为大学英语学习四年不断线而编写的一套教材。该套教材的编写得到教育部高等教育司的大力支持。

本套教材分法学专业英语、经济学专业英语、管理学专业英语、人文科学专业英语四个系列，每一系列包含三个分册，每一分册供一个学期使用。全套教材由复旦大学、中国人民大学、南京大学、对外经济贸易大学联合编写，南京大学杨治中教授担任总主编。法学专业英语教程由赵建、夏国佐教授主编；管理学专业英语教程由邱东林、华宏鸣教授主编；经济学专业英语教程由翟象俊教授主编，参加编写的有张勇先、王学文教授等；人文科学专业英语教程由谌馨荪教授主编，参加编写的有郭庆民、章安祺教授。全书由专业英语教师和公共英语教师共同编写。

本系列教材具有如下特点：

一、考虑到我国大学生学完两年后的实际水平，课文的选材、注解和练习以《大学英语教学大纲》所要求的四级为基础。

二、教材在内容和语言上贯彻循序渐进的原则。在内容上，第一册主要涉及本专业的原理和基础知识，第二、三册主要涉及本专业的历史及专家论点；其要旨在于帮助学生完成从基础英语到专业英语的过渡；在语言上，选材从难度、可读性等方面出发，贯穿了由浅入深的原则。

三、考虑到《大纲》对专业英语学时和阅读量的要求，我们采用了“主、副”课文制，对主课文从注解和练习两方面进行了重点处理，用作教师课内重点讲解的内容，副课文主要供学生课后自学，以便对主课文从语言和知识两方面起到巩固作用。

四、本教材强调理解的准确性和学生的应用能力，因此，练习针对这两方面进行了重点编写，配有理解、语言应用（包括词汇应用、语篇应用）练习，理解题强调准确理解、思考、分析、评价、讨论，每课练习中所采用的例句从知识和语言上均与主课文或已学过的课文有关。

五、为方便自学，书后提供了主课文的参考译文和练习答案。

六、全套四种教材在遵循总的编写原则的同时，又根据各自课程的知识特点自成体系。

由于本书编写仓促，不足之处在所难免，敬请读者指正是幸。

编　者

1999年6月

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Unit One

Text: The Five Concepts of Analytical Thinking

How can you best think about an important and puzzling decision dilemma? What should you do when faced with a decision that you believe is worth some serious, systematic thought? Using a few basic concepts and some methods based on these concepts, a decision maker can think analytically about a decision problem to make the best use of the limited time and information available. The essence of these concepts is contained in the five basic imperatives for intelligent analysis.

1. Think!

The time you spend on a decision problem is divided between two basic tasks: (1) thinking, and (2) gathering and processing information. Most people devote 99 percent of their decision-making time to gathering and processing information — talking to people about the problem, reading relevant material, developing complex models or theories, or carrying out elaborate chains of calculations. Although these activities may be useful, you can usually reach a more intelligent decision if you spend a greater proportion of your time thinking hard, trying to pin down the essence of the dilemma you face. In most cases, it makes sense to devote at least half the time available to thinking.

"Model simple; think complex," admonishes Garry D. Brewer of the Yale School of Organization and Management. The difficulty with much analysis, especially analysis done by "quantitative types", is that the analysis is so complex that its relationship to the problems to be solved is obscure — even to the analyst. The model itself (that is, the structure of the analysis) becomes the driving force. A great deal of time is devoted to developing an elaborate model and to car-

rying out lengthy calculations, and relatively little time is devoted to thinking intelligently about the problem at hand. Complex models often prevent complex thinking.

Professor Donald C. Eteson of Worcester Polytechnic Institute has characterized the use of complex calculations without appropriate thinking as the "brute force and ignorance technique." Eteson often used this phrase to ridicule students who had developed silly, complicated solutions to his electrical engineering problems. Reliance on "brute force and ignorance" often leads to the wrong answer — or to the right answer to the wrong question. In analyzing a decision, you should continually think about the appropriateness of your analysis in terms of your actual dilemma, the resolution of which, after all, is the purpose of all your work.

Often such thinking requires the ability to use simple numbers, to add a few together and understand their implications. Today, most Americans are "literate." But how many are "numerate"? How many can make calculations and interpret simple numbers? How many corporate executives can read and understand the tables and charts prepared by their planning staffs? How many U. S. senators can make useful back-of-the-envelope calculations to check the statistical arguments made by lobbyists? How many are in the habit of doing so? Observes Steven Muller, the former president of Johns Hopkins University, "In the 20th Century anyone who is mathematically illiterate is as bad off as someone who can't read."

Professor Richard Zeckhauser of Harvard argues that "one of the best tools of policy analysis is long division". Why? Because it is the simplest method for answering the question: "How much did I accomplish for how much?" Thinking analytically about most decisions requires an ability to handle simple numbers — a fluency in the elementary language of mathematics.

2. Decompose!

"Analysis" is usually associated with sophisticated mathematical manipulation of complex data sets. The word "analysis", however, is derived from the Greek αυαλνω, one meaning of which is "to resolve into its elements." Thus, analysis is a mode of thinking. To analyze a problem is to decompose it, to break it down into its component parts. This is a key to resolving any puzzling decision:

decompose it into its most important components, work individually with those components, and then recombine the results to make the decision.

This process of decomposition is what most people employ to multiply multi-digit numbers. If they were to multiply four-digit numbers in their heads, few of them would expect to get the right results; consequently, they are willing to do the simple work of systematically decomposing the problem, using pencil and paper, to be sure of getting the correct answer.

A decision maker should also be willing to organize his thinking about a decision dilemma by writing each of its components down on a piece of paper in a systematic way. Unfortunately, most people are reluctant to decompose, consciously and systematically, their own problems. Maybe they believe that decision making is a natural talent that does not require structure. Or perhaps they feel a little silly and self-conscious about organizing their thinking on paper. Apparently, they are confident that their own minds — in some mysterious yet wonderful way — can make consistent, intelligent choices every time.

Unfortunately, research in cognitive psychology is proving just the opposite. Ever since George A. Miller of Harvard University discovered "the magical number of seven, plus or minus two" — that is, the inability of the human mind to hold more than five to nine bits of information in short-term memory — there has developed an increasing recognition of the human mind's limitations for processing information. There are, writes Herbert A. Simon of Carnegie-Mellon University, "limits to human rationality." To emphasize these limits, Simon developed his "principle of bounded rationality":

> *The capacity of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectively rational behavior in the real world — or even for a reasonable approximation to such objective rationality.*

It is, in part, for his work on uncovering and describing the limits to human cognitive abilities that Simon was awarded the Nobel Prize in Economics.

When making a decision, these limitations can produce biases, inconsistencies, and distortions. Intellectual self-discipline is required to avoid ignoring important alternatives, uncertainties, decisions, or trade-offs. For this, the analytical framework of quick analysis is most valuable. It helps the decision maker identify the most important components of the decision — the ones that create the

dilemma — and concentrates attention on them. Then with the further assistance of those wonderful tools of man, pencil and paper, it is possible to work with each component individually, while keeping track of the others.

3. Simplify!

Most important decision puzzles are so complicated that it is impossible to analyze them completely. To undertake a complete analysis, the decision maker would be required to:

1. specify all possible decision alternatives.
2. predict all possible consequences of every alternative.
3. estimate the probability of every consequence.
4. appraise the desirability of every consequence.
5. calculate which decision alternative yields the most desirable set of consequences.

As Simon's principle of bounded rationality makes clear, however, such an ideal rationality can never be attained because of the limits of time, information, and intellectual capacity. For example, to decide how much money to place in the federal budget for cancer research, a complete analysis would have to include, among other things, consideration of all the other possible ways this money might be used, and all the possible implications of these alternatives.

If any decision problem is to be resolved in a limited amount of time, it is impossible to take into account all of the possible relevant factors. You must simplify. You must decide what is really important and what is inconsequential; you must decide which few factors to include in your first-cut analysis, and which additional factors to include in your second-cut analysis — if there is time for a second cut. The objective is to isolate the most critical factors and describe their essential relationships.

The "logic of simplification" is, for most people, a difficult concept. All of us feel uncomfortable leaving things out. Moreover, the idea of simplification carries some unfortunate connotations: to do a simplified analysis implies that our thinking is simplistic — unworthy of the true talents of our mind. Consequently, we try to consider as many factors as possible in the time we have available. Even if a decision maker attempts to think about a hundred different factors influencing a decision, however, the choice will inevitably be based on very few, perhaps on-

ly one or two. Along with other psychologists, Herbert Simon has devoted much of his work to identifying how people go about "simplifying the choice problem to bring it within the power of human computation."

Analytical simplification works for several reasons. First, the human mind is only capable of doing simplified analysis. The limitations to our cognitive talents prevent us from swiftly performing a comprehensive analysis. Since people can consider only a limited number of factors anyway, it only makes sense to select explicitly and carefully those few on which to concentrate.

Indeed, this is the second reason why simplification works: a structured yet simplified analysis can be based on the decision maker's judgements about which factors are important and which are not. Once it has been decided that certain factors are peripheral — that they do not create the dilemma or affect its essence — they can be safely ignored, at least until the results of the first-cut analysis suggest that one or two of them may, in fact, be important.

Finally, simplification works because it encourages the decision maker to use intuition to its best advantage. Indeed, an analytical decision maker must exploit his intuition at every point in the analysis: in deciding why the decision is a dilemma; in determining what factors are most important and breaking the problem down into these components; in specifying his beliefs about uncertainties and his preferences for outcomes; and in rethinking the results to see if they make sense or warrant further analysis. Simplification provides a clear structure for making intuitive but explicit judgments about each of the important factors, concentrating the decision maker's intuition where it will make a difference.

The question is not whether to simplify. Any decision maker must — and will. The only question is whether this process of simplification will be unconscious or conscious, disorganized or analytical.

4. Specify!

Decisions depend upon judgments — judgments about the nature of the dilemma, the probabilities of events, and desirabilities of consequences. Decision making is inherently subjective, but that does not mean it must be vague. The more specific the judgments made while thinking about a decision, the more helpful they will be.

Consider the case of probability judgments. For many important, puzzling

decisions, the decision maker is uncertain about the future consequences of some or all of the alternatives. Often, this uncertainty is so important that the decision maker will want to consider explicitly what the chances are for realizing the most significant outcomes of each alternative. In certain circumstances a decision maker may have some statistical data available that can be used to calculate these probabilities. For example, previous experience may indicate that the probability of a spare part being defective is 0.005. In such a case, it clearly makes sense to work with this statistical probability.

For most decision problems, however, relevant statistical data will not be available. Here, the decision maker must rely on judgmental probability assessment. Such assessments are based on data, although not on statistical data that can be processed by formal mathematical methods. Rather, the data consist of relevant bits and pieces of information the decision maker has in his head or can look up.

Most people state such probability assessments with words or phrases like "probably", "unlikely", or "almost certainly". Unfortunately, such words and phrases are ambiguous. Most people use the word "probably" to describe a wide range of uncertainties. Various studies have shown that some people use "probably" to mean something like a 50-to-60-percent chance, while other people interpret "probably" as meaning at least a 90-percent chance. Numerical — though still judgment — probabilities have the advantage over such probability phrases, for they are much more specific and unambiguous. Furthermore, numerical probability assessments permit a decision maker to perform certain arithmetic calculations that may help determine the preferable decision.

Although those who are unable or unwilling to use numbers may lose themselves in a maze of imprecise thought, those who insist on basing a decision upon only those factors that can be measured bias their analyses in a futile search for the grail of objectivity. By ignoring those factors that cannot be measured, "quantitative" decision makers let their technical capabilities be a substitute for their own judgments. Decisions should be based upon those factors that the decision maker believes to be most important, not upon ones about which it is easiest to find data. That is why we discuss the imperative of simplification before the imperative of specification. You cannot specify your judgments about the important elements of a decision until you simplify your problem so that you are dealing

only with its most important features.

To undertake a quick analysis, a decision maker begins by deciding what is important: Why is this decision a dilemma? What are the key factors that create the dilemma? Once you have identified the important uncertainties, you will find it difficult to ignore those for which there exist no data. When you have identified the important consequences, you cannot disregard those that are intangible. Quick analysis is a way to avoid the measurement trap because it focuses attention on the important components of a decision rather than the easily quantifiable ones.

To use quick analysis, you must decide what uncertainties and what outcomes will most directly influence your decision, and then you must make explicit, to yourself if not to others, what your predictions and preferences are. Obviously, when specifying probabilities for future, uncertain events and preferences for possible consequences, you will have to make subjective, intuitive judgments. We do not deny this; indeed, we stress it. For if the decision is yours to make, it is your judgments that are important. The purpose of specifying these judgments with a few numbers is to force yourself to think carefully about your own values and beliefs.

In dealing with decision problems where measurable data are not available, it is frequently useful to specify your subjective judgments by using numbers, though these numbers should not be the product of arbitrary quantification. You should exploit numbers, when it makes sense to do so, to specify your understanding of your decision problem as completely and precisely as possible. Do not let the numbers push you around. Push the numbers around.

5. Rethink!

The "Catch-22" of decision making is this: decision problems worth solving do not have a solution. As we emphasized in the discussion of simplification, all decision analyses are incomplete. Time, information, and cognitive capabilities limit the scope and detail of any analysis. Thus, it is impossible to obtain "the correct solution" to any real life decision dilemma.

From this catch follows an important corollary: No real life decision can be made objectively. Because no analysis can be made complete, the subdecisions about what to include and what to ignore depend upon a number of personal, sub-

jective judgments. Thus, the overall decision ultimately depends upon these judgments, too.

Because all analyses are incomplete and are ultimately based on subjective judgments, decision making is best viewed as a creative process of discovery. The first stage in this process is to think about your decision dilemma, decompose it into its basic elements, simplify these elements so the problem is manageable, specify your judgments concerning the likelihood and desirability of the most important possible outcomes of the few decision alternatives you have considered, and then work with this structure and these judgments to reach a first-cut decision.

The second stage in this creative process is to rethink your problem and your analysis of it. Your first cut, based on your original judgments, does not provide the ultimate answer to your decision problem. If you have more time — and if the decision warrants more analysis — you will want to think more carefully about your assumptions and your judgments, change them as you see fit, and, perhaps, perform some side calculations and collect some additional information.

If you have more time available and are still puzzled about the decision, you can rethink the problem again by doing a third-cut analysis and perhaps even a fourth cut. At no point will you ever reach the best decision, because you will never be able to analyze your problem completely. The more you work on the problem, though, the more you will discover and the better your decision will be.

This does not mean that you should keep on rethinking about a decision indefinitely. The general rule, as stated by Professor John Rawls of Harvard, is that "we should deliberate up to the point where the likely benefits from improving our plan are just worth the time and effort of reflection." A decision maker should continue to analyze a decision only as long as the expected costs of further analysis are less than the expected benefits.

A dilemma, by definition can never be solved. There is no objective answer, no correct solution. Rather, within the limits of time and information, a dilemma is "resolved" to the degree warranted by its importance. Consequently, analysis is a search for an acceptable resolution — a dynamic process, not a mechanical procedure. A decision maker must constantly rethink his definition of the problem, his judgments about its components, and his assessment of their relationships until he is satisfied with his decision.

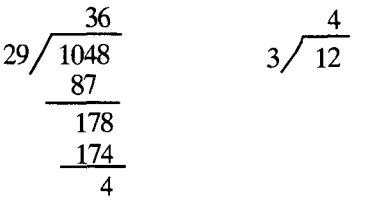
New Words and Phrases

pin down	make (someone) be clear
imperative/im'perətiv/*n*.	something that must be done
decompose/ˌdi:kəm'pəuz/*vt*.	(cause to) break up and separate into simple parts
admonish/əd'mɔniʃ/*vt*.	warn or speak with gentle disapproval
obscure/əb'skjuə/*a*.	hard to understand; not clear
polytechnic/ˌpɔli'teknik/*a*.	having to do with or dealing with many crafts or sciences
ridicule/ 'ridikju:l/*vt*.	laugh unkindly at; declare the foolishness of
numerate/ 'nju:mərit/*a*.	having a general understanding of calculations with numbers; able to do arithmetic mathematics
senator/ 'senitə/*n*.	a member of a senate, the smaller and higher ranking of the two parts of the central law making body in the US
lobbyist/ 'lɔbiist/*n*.	a person employed by a particular interest to influence (law-makers, etc.) in the formation of policy
bad off	in a state of poverty, need or distress
resolve (into) /ri'zɔlv/*v*.	separate or cause to separate (into) constituent parts or elements
bias/ 'baiəs/*n*.	a tendency to be in favor of or against something without knowing enough to be able to judge fairly
distortion/dis'tɔ:ʃən/*n*.	twisting out of shape; anything twisted out of shape
appraise/ə'preiz/*vt*.	judge the worth, quality or condition of; find out the value of
connotation/ˌkɔnəu'teiʃən/*n*.	(any of) the feeling or ideas that are suggested by a word, rather than the actual meaning of the word
peripheral/pə'rifərəl/*a*.	of slight importance by comparison; not central or closely related
intuition/ˌintju'iʃən/*n*.	the power of understanding or knowing something without reasoning or learned skill
warrant/ 'wɔrənt/*vt*.	cause to appear right or reasonable; justify
defective/di'fektiv/*a*.	not working properly; faulty
ambiguous/æm'bigjuəs/*a*.	having more than one possible meaning or interpretation; unclear

maze/meiz/*n*.	a network of paths or passages, especially one with high hedges in a garden; designed to puzzle those walking through it
catch *n*.	a hidden problem or difficulty
corollary/kə'rələri/*n*.	something, such as a statement or course of action, that naturally follows something else
deliberate/di'libəreit/*v*.	consider carefully, especially in formal meetings with other people

Notes

1. it makes sense to devote...: it is reasonable or understandable to devote...
2. quantitative types: those who tend to devote a great deal of time to developing elaborate models and to carrying out lengthy calculations
3. long division: a method of dividing numbers in which each step of the division is written out. It is used to divide large numbers:



long division　　short division

4. while keeping track of the others: while keeping the other components within sight; being at the same time conscious of the other components
5. it will make a difference: it will matter; it will have an effect or influence; it will be important
6. Do not let the numbers push you around: Do not let the numbers bully you.
   To push about / around is an informal phrase meaning to order (somebody) to do this and that in a bullying tone.
7. Catch 22: a situation characterized by obstacles that defeat all attempts of the victim to escape from it; any paradoxical rule or condition. It is the title of a novel by an American writer Joseph Heller (1961). In the novel, Catch 22 is the name given to an absurdly paradoxical Air Force rule applied to combat pilots.