

高等院校信息管理与信息系统专业系列教材



信息管理 英语教程

李季方 傅欣 冯启华 编著

清华大学出版社



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北 京

内 容 简 介

本书是用英文编写的信息管理教材。本书选用24篇英语原文文章,分成6个部分:(1)信息、信息管理和信息专业人员;(2)信息处理;(3)信息过程;(4)信息资料设备管理;(5)与信息管理有关的重要学科;(6)新趋势新挑战。每篇文章探讨一个中心题目。每篇文章之后设有注释、新词短语、课文练习和练习答案,以便帮助读者更好地学习课文内容和英语语言。虽然本教材专门为学习信息管理的學生编写,但由于本教材内容新颖,题材引人入胜,语言流畅,有很高的可读性、知识性和趣味性,其他英语专业的学生和 Information 专业人员选读本教材时,也会获益良多。

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出版说明

20 世纪三四十年代,一直摸索着前进的计算技术与刚走向成熟的电子技术结缘。这一结合,不仅孕育了新一代计算工具——电子计算机,还产生了当时谁也没有料到的巨大效应:电子计算机——这种当初为计算而开发出来的工具,很快就超出计算的范畴,成为“信息处理机”的代名词;人类开始能够高效率地开发并利用信息;信息对人类社会的作用得以有效地发挥,并逐步超过材料和能源成为人类社会的重要支柱;信息产业急剧增长,信息经济高度发展,社会生产力达到了新的高度;人们的信息化意识不断加强,人类在信息资源方面开始更加激烈地竞争,社会发展走上信息化轨道。

文化是时代的精髓,是特定的人群在一定的历史时期、一定的地域范围对其生产和生活模式、思维和行为方式的觉悟和理性化,它伴随着人类创造和使用工具能力的提高而不断发展。文者,经天纬地也;化者,变化、改变、造化、习俗、风气也。也可以说,文化作为社会的人们在生产生活中思维和行为方式的理性化,是文治和教化的结果。因此,文化具有区域性、群体性和时代性。在信息时代的帷幕刚刚拉开、新时代的气息开始弥漫社会各个角落的 20 世纪 70 年代,先贤们就已开始创办以加速信息化的进程为宗旨、以培养信息资源开发人才为目标的信息管理与信息系统专业。

从与信息有关的学科纵向来看,信息管理与信息系统专业处于信息学、信息技术、信息管理、信息经济、信息社会学这个层次结构的中间,它下以信息学和信息技术为基础,上与信息经济和信息社会学相联系。从其涉及的学科横向来看,它处在管理学、信息科学与技术及有关专业领域的交叉点上。它对技术有极高的要求,又要求对组织有深刻的理解,对行为有合理的组织,反映了科学与人文融合的特点。这种交叉与融合正是信息管理与信息系统专业的最重要的特征,是别的学科或专业难以取代和涵盖的。

我国的信息管理与信息系统专业创建于 20 世纪 70 年代末。在近 20 年的时间里,已发展到 151 个点,成为培养信息化人才的重要领域。其发展速度之快、影响之深远已令世人和学术界刮目相看。然而作为一个新的、特别是与各行各业关系极为密切的专业,其课程体系、教学内容以及教学方法、手段,都要经历一个逐步完善、逐步成熟的过程,其教材体系的建设更需要较长期的实践和探索。没有这样一个过程,具有专业特点、符合中国实际的教材体系是不会被建立的。近 20 年来,大家一直在课程体系的完善和建设有自己专业特点的教材方面不断进行探讨。1991 年全国 10 所财经类院校的经济信息管理专业的负责人在太原召开第一次研讨会。以后,1993 年在大连、1995 年在武汉、1997 年在烟台,又有更多的院校参加到这一研讨之中。这些研讨活动得到了国家教委有关部门的赞许和支持。通过研讨,大家在建设具有专业特点的教材体系、改变简单照搬其他专业教材上取得了共识。在武汉会议之后,即着手进行系列教材的编写工作。经协商,由张基温教授担任主编,由魏晴宇教授、陈禹教授担任顾问。

这套教材是我国信息管理与信息系统专业的第一套教材。尽管编写者为它付出了很多心血,但在实践中我们还是深深地感到了时代的鞭策、工作的难度和个人能力的局限。一方

面,席卷全球的信息化大潮已经使信息、信息管理、信息系统成为全社会关注的热点,人们对其期望和要求越来越高;另一方面,在世纪之交的今天,作为现代社会先导技术的信息技术和相关学科的更新速度在不断加快,多种社会因素相互渗透、相互影响,前所未有的新情况、新问题给专业建设带来很大的困难。当然,这对专业的发展和建设也是一种动力和机遇。为此,在这套教材问世之际,我们再一次表示一个心愿:希望与全国的同行共勉,在教材和专业建设上齐心协力,做出更大贡献。也由于如上种种,这套教材不会是完美的,一定存在这样或那样的不足和错误,我们将会不断补充,不断修改,不断完善。对于它的任何建设性意见,都是我们非常期盼的。为此,这一套教材将具有充分的开放性:每一本教材都是一个原型,每一位有志者对它的建设性意见都将会被采纳,并享有自己的知识产权,希望通过群策群力使它们逐步成为时代的精品。

全国高等院校计算机基础教育研究会
财经信息管理专业委员会
信息管理与信息系统专业系列教材编委会

1997年8月

前 言

信息管理英语教程是一门信息管理概论课。许多大学的课程设置中都有这门新设课程,但是用英文选读的形式教学还属首例。本英语教程提供 24 篇英语原文文章,帮助读者深入了解信息管理这门新型学科。文章主要是为那些希望能用英文通读本学科概况的信息管理学生编写的,但是,由于文章内容非常新颖,题材引人入胜,本教程编写者相信英语专业的学生以及信息工作者和研究人员会对本教程产生兴趣,从中获益。

在本书中,学科的各类定义和范围得到了讨论和论证。读者会发现虽然定义各异,但大家一致同意这个理念,即一个企业单位的信息资源和其他战略资源一样重要,信息管理就是要在企业单位有限的现有资源条件下应用一项信息政策实现各项信息目标。这就要涉及信息获取、信息存储和应用,还有信息开发、流通、预算以及注意信息技术的发展和应用。

在美国,信息管理学科与信息资源和信息资料设备管理这门新兴学科密切相关。信息资料设备管理指的是对用于信息管理的必需资料设备的管理。它和信息资源管理形成对照。信息资源管理关注的是对信息内容的管理。信息处理是与信息管理密切相连的一个概念。它或多或少地从某些方面改变信息的内容或形式。信息管理实际上存在信息处理的整个过程中,从信息获取、信息分析和存储到信息传播和检索,信息总是被改变形态传送异地。

信息管理关系到进行信息管理所必需的一切资料设备的管理,其中包括资料档案管理,图书馆馆藏管理,数据库管理,网络管理等。读者也可以发现信息管理发展成为一门独立学科完全得益于有关的其他学科,例如,信息学、图书馆学、计算机学、通信学、商务原则等。

由于信息和通信技术高速发展的结果,社会发展中出现新的趋势,给信息专业人员带来了新的挑战。那些在家工作的人、那些通过电子政府和电子世界工作的人、那些在国际互联网和企业单位内部网上工作的人创造了大量信息和知识。如何管理好这些信息和知识,特别值得信息工作者们的注意。

本英语教程共分 6 个部分,分别探讨不同的题材和概念,构成信息管理理论的主线。第一部分讨论了信息、信息管理和信息专业人员的定义和范围。第二部分集中探讨能使信息内容发生某些变化的信息处理,因为这正是信息管理的核心部分。第三部分围绕信息处理过程,进行信息管理,以便进行信息获取、信息分析和存储、信息传播和检索。第四部分涉及到用于信息管理的资料设备管理。第五部分提出一些构成信息管理基础的有关学科。第六部分介绍了社会发展新动向,给信息管理提出了新挑战的几个方面。

为了把所有的题材和概念协调地串起来,本书编写者在每部分开始之前附上编者按语,

总结本部分要点。所有的按语加在一起构成信息管理概论的主题线。所有文章都有很好的可读性,其内容丰富新颖。每篇文章之后附有注释、新词短语、整套练习以及练习答案。练习里有多种选择题、填空题、原文替换题以及段落翻译。这些练习旨在帮助读者学好本课程内容和英语语言。

李季方

2003 年 9 月于北京

Foreword

This textbook of selected readings is to serve as an introduction to Information Management, a new subject course that is available in many university curricula. It aims to help readers to explore into the subject by providing them with 24 reading passages in the original language. Although these reading passages are selected mainly for information management students who hope to orientate in their field in the English language, the textbook compilers believe that, owing to their latest content and popular topics, English major students as well as information workers and researchers may find it interesting and beneficial to read them.

In these reading passages, definitions and scopes are defined and illustrated. Though readers may find that definitions are verified, that information is as strategic a resource as any other resources of an enterprise and information management is the application of an information policy to meet information objectives within the overall constraints of its available resources is agreed upon. In the United States, information management is closely associated with the emerging discipline of information resource management and information resources management. The latter relates to all the resources required to manage information, as opposed to the former, which is concerned solely with content (Dennis Lewis, 1989). Information processing is an associated concept of information management that does something to information to make it into something else (Jennifer Rowley, 1998), that is, to change content or form of information. Information management, as a matter of fact, exists in the whole process of information, from information acquisition, analysis and storage to information dissemination and retrieval, in which information is transformed and transferred.

Information management relates to all the resources required to manage information, of which records management, library collection management, database management, network management could be included as fine examples. Readers may also find that information management is established as an independent subject out of several related disciplines, such as information science, library science, computer science, communication science, and even marketing.

As a result of the fast development of information and communication technology, new trends have come up in the development of society posing new challenges to and deserving special attention of information professionals as how to manage information that is produced by those working at home, or through eGovernment and cyberspace, or on the Internet and the Intranet.

The textbook consists of six parts dealing with various topics and concepts that make up mostly the theory of Information Management. Part One discusses what information is, what information management is, and what the information professional does. Part Two, which

comprises an essential part of information management, concentrates on some aspects of information processing that changes content to certain extent. Part Three centers round the process of information in which information management is done as to acquire, analyze and store, disseminate and retrieve information. Part Four relates to information resources management, that is, material and equipment that are required for managing information. Part Five brings up some related academic subjects that compose the basis of information management. Part Six introduces some new trends in the society that pose new challenges to information management.

In order to relate to each other all the topics and concepts in harmony, the textbook compilers attach to each part a compiler's note to summarize the main points of the part. All the notes put together serve as the theme of this introduction to Information Management. All the reading passages are expected to be of high readability and content satisfaction. To each reading passage, attached are notes, new words and expressions, exercises and key to exercises. Doing exercises is a double-edged activity in learning the course; to help to learn both content and language well. Exercises include multiple-choice questions, filling in blanks, replacing italicized parts, and paragraph translation.

Jifang Li, BFSU

September, 2003

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Part One

Definitions and Scopes

Definitions and Scopes: What is information? What is information management? And who does information management as a profession? These questions must be answered before anybody moves into information management studies. Though there are no definite answers to the questions, as different people from different fields may have different views, readers will be brought to the starting point of learning the subject; information management. Three articles on information, information management, and information professionals are selected here in this part to help to put readers quickly in the picture of the subject.

1 What Is Information?

1. Information is part of all human experience. Acquiring and processing information are fundamental aspects of life itself. Current interest in a “science” of information has developed as the result of the complexity of life’s problems. The rapid development of technology, the growth of knowledge, and the fast pace of the modern world create an increasing awareness of the importance of information and the need for professionals dedicated to studying and understanding it.

The Nature of Information

2. The late scholar Fritz Machlup (1983) carefully assessed the different meanings associated with information. Some interpretations that have been made from these sources are as follows:

Something one did not know before.

A clue.

Something that affects what one already knows.

How data are interpreted.

Something useful in some way to the person receiving it.

Something used in decision making.

Something that reduces uncertainty.

The meaning of words in sentences.

Something that provides more than what is stated.

Something that changes what a person who receives it believes or expects.

3. Our understanding of the basic nature of information is clouded by the fact that the word is used in a variety of different contexts in our daily speech. The most prevalent of these everyday uses are discussed below.

4. *Information as a Commodity.* This refers to an item in a book, in someone's head, in a corporate file, or a statistic. When information is regarded as a commodity, it often assumes economic value. Management of the commodity becomes paramount. The meaning of the expression "information (or knowledge) is power" becomes obvious. If an individual or organization has sole possession of a particular body of information/knowledge, that information/knowledge may enable whoever holds it to achieve objectives. Information/knowledge can thus provide control over objects and persons.

5. *Information as Energy.* Those who view information as energy regard it as a quantifiable physical entity whose presence or absence can be verified experimentally. It can be argued that information is transmitted by, or embedded in, ordinary forms of energy. The information provided by sound waves emitted by a train whistle is one example of how it can be described in terms of energy.

6. *Information as Communication.* Information is often considered to be synonymous with communication. When one person is communicating with another, the person initiating the exchange of data is moving or transferring his or her understanding of the data (together with the actual data) to the other person (the receiver). When the data are received the person becomes informed. Being informed, therefore, is the result of communication, or *information transfer*. If we remove the understanding of the data (its meaning) and only move the actual data, we then have *data transmission*, the physical denoting or movement of signals.

7. *Information as Facts.* Information is often thought to be the same as fact. What is today's date? When is your birthday? How much are your monthly wages? When the term information is used in this way, it does not necessarily mean that there is any implied or actual use of the fact, although one usually wonders about birth-dates, for example, for some purpose: to arrange a party, to purchase a gift. Everyone possesses facts about events and objects for which no direct need (at least at the moment) is suggested. When given to you, a fact arouses your interest—you are aware, but that is often the extent of your concern. Unless the fact is placed in context, it remains just that—a fact and nothing else.

8. *Information as Data.* Information is often thought to be the same as data. This may seem to reiterate the previous discussion regarding information as fact, but the difference lies in the definition of the words *fact* and *data*. Data are the products of symbols that are organized according to established rules and conventions. For example, when you arrange letters and numbers (symbols) in certain ways, these letters and numbers become data. A fact is one or many data elements embedded in some context. A fact has meaning. The symbols EVL495 are data. They could mean anything or nothing. In the context of a vehicle registration form, they

become a license plate number—a fact. Thus, when we think of information as synonymous with data, we mean that it may sometimes be convenient for us to discuss information in the absence of meaning or context.

9. *Information as Knowledge.* Information is often used interchangeably with knowledge. Knowledge implies a state of understanding beyond awareness. It represents an intellectual capability to extrapolate beyond facts and draw original conclusions. Knowledge must be deduced, not simply sensed. What we “know” or “think” is often called “information”.

Definition of Important Terms

10. As the definitions above point out, the word information can be applied to a continuum of cognitive states, from sensory awareness to synthesis of ideas. If we are to deal scientifically with ambiguous words such as data, information, and knowledge we need a more thorough understanding of what they mean. In defining such words we face problems inherent in the definition of all terms. One problem is that it is difficult to say what anything is, in terms that will stand up to rigorous tests of logic. Determining the basic nature of something requires considerable study and effort. Another difficulty concerns the problem of consensus: definitions based on consensus depend on agreement among those who use the term. Individual viewpoints and opinions can lead to great differences in how we view terminology.

11. In a review of the terminology of information science Trauth (1978) found that the twenty definitions she examined could be categorized into four groups of meaning. The first category stresses the external movement of the information itself. The second category proposes that information is a process-oriented concept in that movement from source to destination is internal to both sender and receiver. This implies that no physical change in state takes place. The third category views information as an object operating within some dynamic process, such as decision making or problem solving. The final category refers to information seen as fact or discrete data elements. This wide variety of perspectives illustrates that data, information, and knowledge are used quite differently depending on context and intention. At times the context and intention are not clear, or are in opposition to other equally valid contexts and intentions.

12. Another basic problem with the use of these words is that they can be used interchangeably. We often change the way we used the word depending on what we are thinking—our point of reference. Data, information, knowledge, and wisdom can be viewed as part of a continuum, one leading into another, each the result of actions on the preceding, with no clear boundaries between them.

13. As a matter of fact, there is a knowledge spectrum. An event occurs that brings about some condition or change in the state of the world. This state of condition has to be represented if we humans are to deal with it. So we invent *symbols*—numbers, letters, glyphs, or pictures, which become representations of the event. When we use rules to organize such representations, we generate a *datum* (singular) or data (plural). Both our number system and our language are such representations.

14. We receive data when they stimulate one or more of our senses. When we are exposed to these stimuli, we become aware (a state of consciousness) of data about the event. At this point, most of us say that we have acquired *information*. What we really mean is that we are now informed. Being informed means that we are aware of some occurrence, but nothing else. We can respond to this information in a number of ways: we can store it in our minds (we call this memory) or we can jot it down on a piece of paper. This physical or cognitive representation of data about which we are aware is *information*.

15. When we apply meaning or understanding to our awareness, higher cognitive processes are involved. When we apply such processes, we sense that we understand, and can apply what we understand those things that require resolution. This understanding enables us to analyze situations and to put things into their proper perspective. It enables us to pass judgment on these situations and conditions and the facts that influence them. Thus, when we go beyond awareness (by our own intellectual actions), we can say that we have *knowledge*. Now we can do with knowledge what we did with information. Knowledge can be part of our thinking, our memory, our way of looking at the world. We can give our knowledge physical representation by packaging it in books, records, and the like. The ultimate step in the knowledge spectrum is *wisdom*, which always involves the inclusion of values in judgment.

16. If we have access to knowledge, we can build on it, applying values, ethics, and reason to what we know until we arrive at a conclusion that benefits and elevates ourselves and others. To elevate oneself and others through knowledge, values, ethics, and reason is to be wise. The productive output of the wise is wisdom. States beyond wisdom are perhaps more of the spirit than the mind, and so are outside the knowledge spectrum.

17. The transformations from data to information, knowledge, and wisdom can be represented as part of a spectrum of cognition that characterizes human competence in dealing with life's events. This spectrum is hierarchical. Each transformation (e. g., event to symbols, symbols to data, data to information) represents a step upward in human cognitive functioning.

18. An information system makes possible the transformation of data to information. A *knowledge system* is a greater system of which an information system is only a part. A knowledge system describes the transformations that take place within human social networks whose goal, stated or otherwise, is to increase the sum of human wisdom. For example, scientists in a given discipline derive data from theories and experiments, leading to information about specific events. By sharing this information in journals, conferences, and so forth, others become informed, and an understanding of a phenomenon emerges. This understanding eventually leads to greater knowledge of related events. At some point, it is hoped, humankind is wiser with respect to the universe of events of which we are a part.

19. It is because of the ambiguity of the terms implicit in the knowledge spectrum that standards for the use of terms that seems desirable when attempting to develop professional skills specifically oriented to information and information systems. The following definitions round out our explanation of the concept of the knowledge spectrum. They also summarize the basic

position and assumptions of the authors relative to the terminology that forms the foundation of the science of information.

Data: Letters, numbers, lines, graphs, and symbols, etc., used to represent events and their state, organized according to formal rules and conventions.

Information: The cognitive state of awareness (as being informed) given representation in physical form (data). This physical representation facilitates the process of knowing.

Knowledge: The cognitive state beyond awareness. Knowledge implies an active involvement and understanding and the ability to extend the level of understanding to meet life's contingencies. Knowledge can also refer to the organized record of human experience given physical representation (books, reports).

Wisdom: Implies the application of knowledge as contained in human judgment centered around certain criteria or values that are generally accepted by the culture or society.

I. Notes

1. This reading passage is adapted from the first chapter, the Perspective of the book entitled Information Science: an Integrated View, by Anthony Debons, Esther Horne, and Scott Cronenweth, published in 1988 by G. K. Hall & Co.

II. New Words and Useful Expressions

1. New Words.

ambiguous: *adj.* /æm'bigjuəs/; not clearly defined, having more than one possible meaning or interpretation 含混不清的, 模棱两可的

assess: *v.* /ə'ses/; examine critically and estimate the significance of 审视, 评估

assume: *v.* /ə'sju:m/; suppose to have, take for granted, undertake 假定有

awareness: *n.* /ə'weənɪs/; realization, noticing 认识, 注意

boundary: *n.* /baundəri/; dividing line; line that makes limits 界线, 分界, 区别点

clue: *n.* /klu:/; fact or idea which helps to solve a mystery or problem 解决疑难或问题的事实和想法, 线索

cognitive: *adj.* /'kɒgnitiv/; of cognition, cognizing 认识的, 认知的

commodity: *n.* /kə'mɒditi/; good, a piece of article for sale 商品

context: *n.* /'kɒntekst/; circumstance, situation, but compared with the meaning of what comes before and after a word, a sentence, or a statement 情况, 情境, 上下文

continuum: *n.* /kən'tɪnjuəm/; continuous whole, thing whose parts can not be separated 连续 (统一体)

convention: *n.* /kən'venʃən/; practice or custom based on general consent in a society 习俗, 常规

corporate: *n.* /'kɔ:pərit/; (large or big) company (大的)公司

destination: *n.* /,desti'neiʃən/; place to which sb or sth is going or being sent 目的地

discrete: *adj.* /dis'krit/; discontinuous; individually distinct, separate, distinct 独特的, 显著的, 离散的

dynamic: *adj.* /dai'næmik/; forceful, active, energetic, motional or changing, opposed to static 具有活力的, 变化的(与静止不变的相反)

embed: *v.* /im'bed/; fix firmly, be contained 固定在, 存在于

emit: *v.* /i'mit/; give out, or send out 放射, 传出

entity: *n.* /'entiti/; something that has real existence 实体

ethics: *n.* /'eθiks/; science of morals compared to ethic (singular), which mean a system of moral, principles or rules 伦理观, 伦理学

extent: *n.* /iks'tent/; degree 程度

extrapolate: *v.* /eks'træpəleɪt/; predict from facts, infer from, or calculate 推测, 推断

file: *n.* /faɪl/; place or case for keeping papers together and in order for reference purposes 档案, 文件

glyph: *n.* /glɪf/; any symbol instead of a name that gives information, like an arrow on the road-sign telling people where to turn 提供信息的标志, 如路牌上的箭头告诉人们何处转弯

hierarchical: *adj.* /haɪə'rɔ:kikəl/; being arranged into higher and lower ranks, grades, or classes 按高低地位, 等级, 类别排列的

inherent: *adj.* /in'hɪərənt/; existing as a natural or permanent part or quality of 固有的, 内在的

initiate: *v.* /i'nɪʃieɪt/; set something (a plan or scheme) working or start something 启动

interchangeable: *adj.* /ɪntə'tʃeɪndʒəb(ə)/; that can be changed or replaced with each other 可互换的

interpretation: *n.* /ɪn.tə:prɪ'teɪʃən/; explanations, meanings 理解, 解释, 含义

package: *v.* /'pækɪdʒ/; place or put things into or fill sth. with things 打包, 收集

paramount: *adj.* /'pærəmaʊnt/; supreme, superior in power than 至高无上的, 高于一切的

perceive: *v.* /pə'si:v/; become aware of 意识到

perspective: *n.* /pə'spektɪv/; view, prospect 观点, 看法

possession: *n.* /pə'zeʃən/; possessing, holding, or ownership 拥有

process-oriented: *adj.* /prə'ses-'ɔ:riəntɪd/; adjusted to process or with emphasis on process 面向处理过程, 以加工处理过程为重点, 或为方向

quantifiable: *adj.* /'kwɒntɪfaɪəbl/; being measurable in quantity, that can be measured/quantified 可量化的

reiterate: *v.* /ri:'ɪteɪt/; do again for several times 三番五次地进行(做)

representation: *n.* /,reprɪzen'teɪʃən/; things or symbols used to represent or describe sth 象征物, 示意物

rigorous: *adj.* /'rɪgərəs/; strict, severe, or harsh 严格的

sole: *adj.* /səʊl/; restricted to an individual or an organization 专利独有的

spectrum: *n.* /'spektrəm/; wide range or sequence originated from the image of a band of