

研究生英语创新教育系列教材

—— 主编 郭继荣 白靖宇 顾问 何福胜 ——

科技英语文献阅读

3
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XI'AN JIAOTONG UNIVERSITY PRESS

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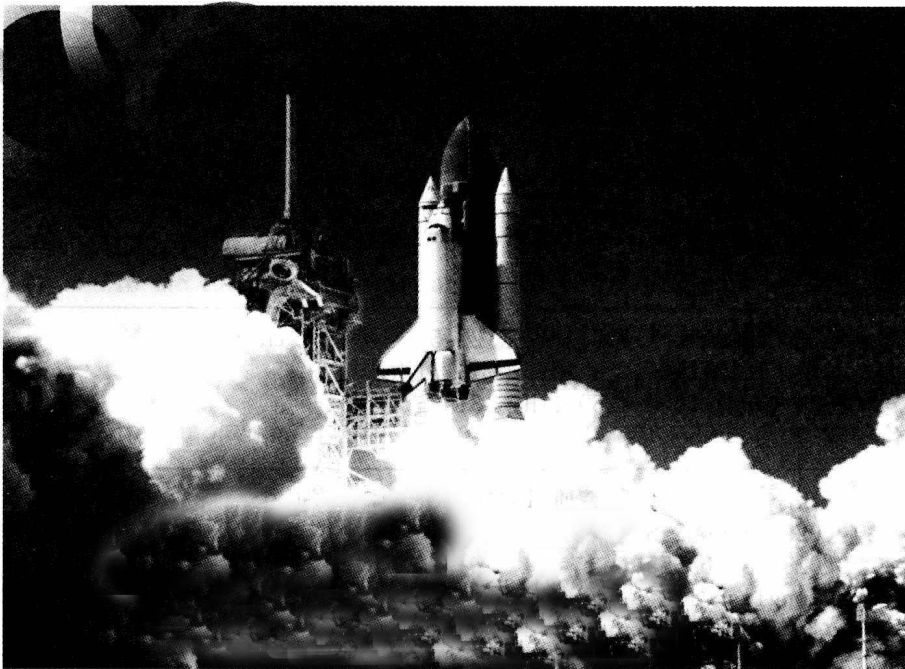
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总序

Preface

随着21世纪经济全球化、信息网络化和文化多元化的不断发展,世界各国的研究生教育正在面临着国际化创新能力教育的巨大压力与挑战。目前,我国的研究生教育也正处在从传统教育向现代教育转型的重要时期,正在实现由知识教育向创新教育的转变。在这一背景下,研究生英语教育必须改变传统观念,要“以研究生为本”,建立以“英语创新教育”为核心的新理念,融入培养创新型人才和建设创新型国家的时代潮流。为此,我们组织编写了这套“研究生英语创新教育”(Graduate English for Innovative Education)系列教材。

本系列教材是以教育部研究生创新教育计划西部研究生教育创新平台建设为依托,开发编写的一套全新的研究生英语系列教材,其宗旨是确立研究生英语创新教育的新理念,在研究生英语教学中实施自主学习的理论,激发研究生创新思维能力,提高研究生英语教学质量和水平,培养高层次创新型人才。

◎本系列教材的特点

1.建立“研究生英语创新教育”的新理念。现代教育强调教育教学过程是一个高度创造性的过程,以点拨、启发、引导、开发和训练学生的创造才能为基本目标。因此,研究生英语教育必须改变传统的教学观念和方式,确立新的教学目标,挖掘利用新的教学资源 and 手段,采取不同的教学评价体系。本系列教材的建设和编写符合当前研究生创新能力教育的理念,有助于研究生英语教育实现启发式和讨论式的教学,有利于研究生英语综合能力的提高和自主学习能力的培养,在开拓认知视野的同时激发研究生的创新思维。

2.实施“以研究生为本”的自主学习理论。语言学习自主性这一概念是当代语言教学理论中的一个热门问题,深刻地影响了世界范围内的教育改革,其理论基础为美国奈塞尔(U. Neisser)的认知心理学和马斯洛(A. Maslow)、罗杰斯(C. R. Rogers)

等人为代表的人本主义心理学。根据研究生的心理和学习特点，他们具有较为完整的知识结构、较强的独立意识和自主学习能力，因此自主学习的模式在研究生英语教育过程中是十分可行的，也是非常必要的。同时，我们倡导的“以研究生为本”的理念，就是强调在英语教学活动中要采取启发式、讨论式、研究式等各类方法，要求研究生主动参与，发挥他们在英语学习过程中的主体作用，突出对他们创新意识的培养和实践，使英语教育成为他们人生发展过程中的一个重要因素。另外，本系列教材是一种开放性、立体式的现代化教材，包括纸质教材、多媒体光盘和网络系统，以适应在现代信息技术条件下研究生英语自主学习的新需求。

3. 语言材料具有思想性、真实性和时代感。选材在英语教材编写和教学中具有重要意义，是决定教材质量优劣的关键。本系列教材以研究生英语创新教育为理念，在语言材料选择中把文章内容的思想性放在第一位，注重选择思想性好和情感品位高的文章，激发和调动研究生思考问题的积极性，培养他们的创新思维能力和提高他们的思想素养。同时，本系列教材文章的选择非常注重语言材料的真实性和时代感。根据现代教材理论，真实材料指社会上流通和人们日常接触到的各种语言材料。本系列教材的文章均选自外国报刊、杂志、网络、书籍和辞典，保证了语言材料的“原汁原味”（in original），并以最新的语言材料为主，反映多学科发展的前沿信息和当前社会的精神面貌，具有强烈的时代感。

4. 教材练习设计具有多样性和实践性。教材练习设计是英语教材编写和教学中的一个重要环节。一方面，对于学习者来说，它有利于巩固所学的知识，发展运用英语的能力和提高了英语水平；另一方面，对于教师来讲，它有利于检查教学效果，帮助教师进一步改进教学和促进教学效率。据此，本系列教材练习根据不同种类的教材，设计了多种多样的练习形式，使研究生有足够的练习量来巩固和提高所学的语言知识。更重要的是，新的英语教学理念强调学习者要成为语言信息的加工主体和知识的构建者。这就要求研究生要从依靠教师课堂讲授中解脱出来，积极主动参与到语言实践中去，从一个被动的语言信息接受者转变成为一位语言学习的实践者，通过对本系列教材练习部分的多听多说多练，在大量反复的实践中巩固和掌握所学英语语言知识和技能，切实提高英语水平。

◎本系列教材的构成体系

根据当前研究生英语教学和学习的实际情况，本系列教材分为必修课教材和选修课教材两大类、博士和硕士两个层次。

必修课教材

1. 英语综合教程共3册：1册供博士使用，学习时间为半年；2册供硕士使用，学习时间为1年。该教程以课文和练习为核心，主要是培养综合运用英语的能力。每册共有10~12个单元，每单元课文分为A、B两篇。每册教材都配有教师用书和录音光盘。另外，《硕士英语综合教程》还配有一本学习指导书，供自主学习使用。

2. 口语、听说教程共3册：1册供博士使用，学习时间为半年；2册供硕士使用，学习时间为1年。该教程以英语口语、听说训练为主，主要是培养口头运用英语的能力。每册共有16个单元，每单元分为课堂教学和自主学习两部分。每册教材后都配有练习答案、录音原文和光盘。

选修课教材

研究生英语创新教育的核心是改革研究生英语课程设置，在研究生英语课程体系中开设选修课是势在必行，也是这次研究生英语创新教育系列教材开发编写的重点，其目的主要是培养研究生的语言实际应用能力，推动研究生专业知识的学习，特别是提高研究生在本专业领域的国际学术交流能力，同时增强研究生的英语文化知识和培养研究生的人文素质。

选修课教材实行硕士、博士一体化设置，以实用性和通用性为基本原则，分为三大类8种：

1. 英语文化知识类选修课教材，共2种：《西方文化简史》和《英美名著赏析》，主要涵盖英语国家文学、文化知识。

2. 英语语言技能类选修课教材，共4种：《科技英语文献阅读》、《英语媒体时文选读》、《学术论文写作与发表》和《口译技能与实践》，主要包括英语阅读、写作技能等。

3. 英语情景交流类选修课教材，共2种：《国际学术交流英语》和《经典影视赏析》，主要涉及英语在交流场合中的实际应用。

研究生英语选修课的开发与设置是一个十分复杂的问题，受到各校学科门类、专业设置、培养机制、师资力量和生源质量等条件的制约。所以，一种教材很难适合不同类别的研究生，各高校可以结合本校的学科专业，开发出具有本校特色的选修课教材，以满足教学的需求和研究生的实际需要。

本系列教材在编写和出版过程中汇集各方面的智慧和力量，是团结合作的结晶。本系列教材由陕西省学位与研究生教育学会研究生外语教学工作委员会统一协调，邀请清华大学研究生院副院长、英语教学和教材专家何福胜教授担任学术顾问，以在陕西的国家985、211工程高校、驻陕西的军队院校和省属重点大学的教授、博士为骨干力量，组织全省各研究生培养高校有丰富教学经验的教师合作编写。

本系列教材在教材编写出版过程中，西安交通大学出版社的各级领导和编辑人员给予了全力支持和积极配合，做了许多卓有成效的工作。同时，本系列教材的编写得到了陕西省教育厅和学位办的领导、各研究生培养单位的领导和广大研究生英语教师的大力支持，在此一并表示衷心的感谢。另外，本系列教材的编写参考了一些国外的报刊、杂志、图书和网站上的文章，也在此向原作者表示感谢。

由于我们水平有限，在编写中难免有疏漏和错误之处，希望广大师生和读者在使用中批评指正和提出宝贵意见，我们对此表示诚挚的欢迎和虚心的接受，使本系列教材在以后的出版中力求达到臻善臻美。

编者
2012年

前言

Foreword

广大研究生迫切希望通过英语语言介质了解他们研究领域的前沿信息。为了满足他们的需求，我们组织编写了《科技英语文献阅读》。该书旨在提高学生文献查阅、检索、收集和综述等能力，帮助他们积累专业词汇、掌握英文文献写作和翻译技巧与方法，从而达到提高科技英语写作水平的目的。

在编写过程中，编者注重选择与主题或专业相关的、能够体现专业基本特性的文章，同时又兼顾学科的前沿性。所选的材料语言规范，时代性强，具备一定的思辨特征。

本书共有8个单元，每单元两篇文章，每个单元都围绕一个主题选材、编写，每篇文章的篇幅在6000字左右。各单元同时增加英语论文写作练习和与主题相关的科技英文翻译练习。共选取了六大学科门类，分别是管理学、医学、理学、工学、教育学和文学。

本教材具有以下几个特点：一是选材新、时代感强、内容覆盖面广。本教材选文均从各相关领域的权威期刊的最前沿研究成果选取，内容涉及物理、数学、医学、信息、管理等主干学科，突破了仅限于单一专业或者仅限于理工类专业的传统做法，适用于在各类院校的所有专业的研究生使用。二是注重实践能力的培养。传统科技英语材料单纯强调阅读能力，本教材从篇章的角度出发，在突出阅读能力的同时，对相关的写作、翻译等基础知识进行了一定的介绍和拓展练习，尽可能培养学生能够通过自主学习阅读论文最终获得写作的论文的能力。三是一线教师参与多，所有参与编写的老师都曾担任科技英语的教学任务，编写理念体现了他们的教学心得。

本书选取了近年来出现在国内、外书刊上的一些文章。编者们对原文作

者表示最诚挚的谢意，他们的文笔和智慧使更多的人有机会实现提高自我的理想。

在编写过程中，全体编写人员付出了辛苦的劳动。尽管如此，由于知识的局限性，漏、误难免，恳请同行和使用本书的师生不吝赐教，使之至臻至美。

编者

2012年4月

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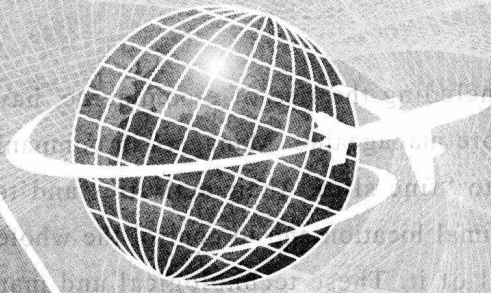
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Unit 1 Management

Text A International Integration and Coordination in the Global Factory

Abstract

The new institutional form known as “the global factory” is the key to understanding changes in the configuration of the world economy. The evolution of the global factory requires managers to act as orchestrators or coordinators across the system of globally inter-connected firms. Managerial styles need to accommodate these changes. Integration and coordination in the global factory are critical success factors. Control of information is central to these roles. Location and control are still key variables but extra degrees of freedom in location of activities and non-ownership forms of control are increasing in importance.

Key words: Global factory, International management, Multinational enterprise, Global strategy, Internalisation theory

Introduction

1 The new institutional form known as “the global factory” is the key to understanding the changes in, and configuration of, the global economy. This paper examines globalisation and the growth of the global factory as a response to changing external circumstances and managerial innovations. It pays particular attention to the need to coordinate activities across the global factory and examines the changes in management style that are required to ensure success in a competitive global economy.

2 Technological changes, including the rise of e-commerce, have made global operations cheaper and more manageable. Managers in companies with global operations have learned to “fine slice” their activities and to locate each “stage” of activity in its optimal location and to control the whole supply chain, even when not owning all of it. These technological and managerial drivers have been augmented by political changes towards far more openness in previously closed economies. Even local factors can be seen to support global development. For instance, biases in the local capital market in China discriminate against whole swathes of local activity in the domestic private sector and make foreign ownership more likely than the growth of smaller indigenous firms. The nature of the global factory varies over time and space. There have been three major step changes in the geographical separation of previously connected activities. (See Table 1) These are: (1) trade; the geographical separation of production and consumption, (2) foreign direct investment through the MNE; the geographical separation of (internalised) stages of value adding activities, (3) offshoring; the geographical separation of specific tasks through the global factory. The last separation may be reconnected through internalised or contract relations (captive or non captive offshored facilities). Differences in industrial systems across countries have been frequently noted. Particular differences can be noted in the degree of vertical integration (or internalisation of the value chain) as between Japanese and U.S. industry, the rest of Italy versus the Emilia-Romagna region, and the British and U.S. textile industries in the first half of the 19th century. In all these examples, the first half of the pairing is much less vertically integrated.

Table 1 Three Historic Geographical Separations of Activities

Unbundling	Resulting from	Policy focus	Policy responses
Trade—geographical separation of production and consumption (trade)	Falling costs of trading (mostly) completed goods (affected most sectors equally)	Industrial sectors, broad labour groups e.g. skilled/unskilled	Focus on education and skill upgrading. Move to an “information society”. Sectoral protectionism
Unbundling	Resulting from	Policy focus	Policy responses

Production— geographical separation of stages of value-added (foreign direct investment)	Falling costs of managing productive resources and coordination (differential impact on sectors)	Industrial sectors, stages of value adding e.g. R&D, assembly	Focus on the attractiveness of the business environment, incentives etc. Business strategies with “limited” separation e.g. Maquiladora twin plants, Asian offshoring from Japan
Tasks—geographical separation of specific tasks (offshoring)	Falling costs of trading ideas (subject to nature of task and task interconnections)	Labour market flexibility, manifested as falling wages or rising unemployment	Problem of understanding comparative competitiveness by task. Compounded by the problem of high trade costs with some tasks

3 The progress — and the differential speed of progress across different geographical areas and types of market — of globalisation has co-evolved with faster and cheaper transportation and has led to far higher degrees of interspatial specialisation. This nexus of innovation and globalisation is driven by the actions of multinational enterprises. This article analyses the integration and responsiveness of MNEs as embodied in the global factory structure and examines the role of “place” and “distance” in their strategies.

The Global Factory — The Model

4 The model analyses a representative MNE that exploits an internationally transferable intangible public good, such as knowledge. It is assumed that this knowledge is embodied in a unique product (or product variety) which is monopolised by the firm usually protected by a brand. Whilst the product has competitors, alternative products are imperfect substitutes. The firm therefore faces a downward-sloping demand schedule in each market. The firm defends its intellectual property by internalising



the exploitation of this intangible asset. This means that the firm owns its own production facilities — it does not license or subcontract production — and it controls its own marketing—it does not franchise to independent distributors. The firm can, in principle, produce and sell in any part of the world. Any given market may be sourced by local production, or by imports, or a combination of the two. Any production plant may serve just the local market, or export markets too; in the limiting case it may become an “export platform” which produces only for export.

5 If markets were fully integrated then MNEs would be obliged to charge the same price for the same product in every country, because if they did not then arbitragers would buy up their product in the cheaper markets and export it to the more expensive ones. Some countries have introduced competition policies to encourage arbitrage of this kind (e.g. Internet retailing of motor car imports). In practice, though, many MNEs retain effective control over the pricing of their products — especially when products are branded, patented, or otherwise unique. It is assumed in this model that whilst the firm’s internal market is fully integrated, its home and foreign markets remain sufficiently distinct that it can set a different mark-up on the common internal price in each market.

6 By contrast, the firm has no power to impose discriminatory process on customers in a given country. It can set different prices in different countries, but must charge the same price to all customers in the same country. This contrasting treatment is designed, not to simplify the model, but rather to reflect reality. In a typical industry there are normally more customers for the product than suppliers of production sites, and customers are more reluctant to enter into long-term contracts than suppliers. To achieve the same degree of control over a customer that it has over its production site a firm would normally need to integrate forward through acquisition of its customer’s business, which is often completely impractical, and usually uneconomic.

7 The competitive advantage of interconnected firms arises from the ability of the focal firm to extract rents from assets that it does not necessarily own. Such assets may be quasi-internalised. This idea can be traced to

Penrose's point that it is not the resources themselves, but the services that they provide, that generate value for the firm. Forsgren et al. refer to the "embedded multinational" to reflect the close interconnection between firm and environment.

8 The dynamics of the global factory are a response to the modern global economy. Shocks are the norm. Failure is the norm. Only companies that can build resilience into their systems and their management systems will be able to survive more than one economic cycle. The global factory is rarely in equilibrium — it is constantly responding to exogenous shocks through a series of feedback loops. Although complex in detail, the key analytical decisions in the global factory are very simple — control and location. The manager of the global factory has to ask two very straightforward questions of each activity in the global network. Where should this activity be located? How should this activity be controlled? The first question of the optimum location for each activity is of course complicated by managing the interrelationships between activities. The relocation of one piece of the global network will have profound effects on many others as the links in Fig. 1 illustrate, but the principles of least cost location are paramount. The second question concerns the means of control. Should the activity be managed by the market via a contract and price relationship or should it be internalised and controlled by management? There are of course important mixed methods such as joint ventures which have elements of market relationships and elements of management fiat.

9 It is of course essential to realize that these decisions are taken in a volatile, risky and dynamic situation, that the decision making process is information intensive and the environment and competitive pressures are constantly changing. These decisions have to be revisited on a continuing basis. However the principles should never be overwhelmed by detail. The need for flexibility, for judicious collection and use of information and for a knowledge management strategy are complements to the key decisions of location and control.

