



# Research Development Made Easy

——A Computer-based Design  
System for Academic  
Writing



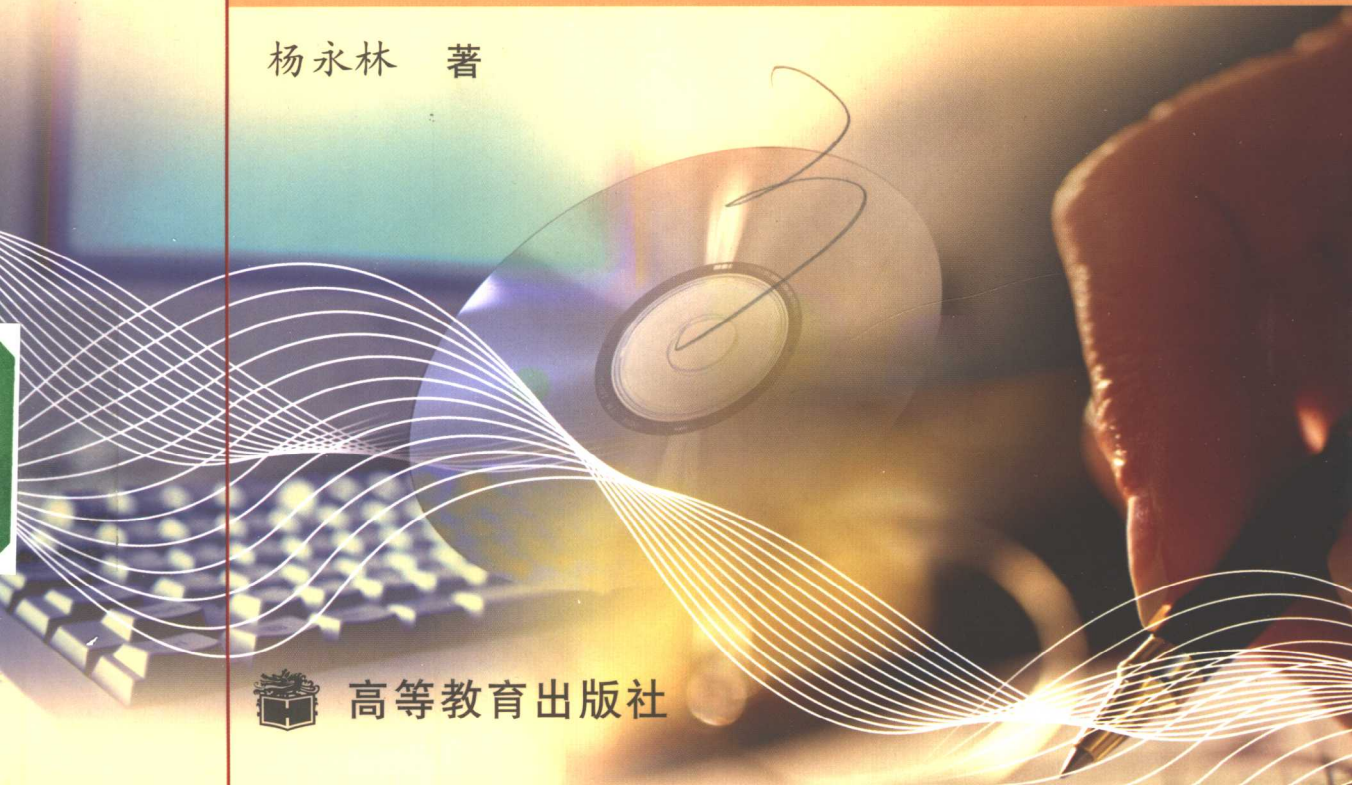
“易得”

—— 论文设计与学术写作专家系统

杨永林 著



高等教育出版社



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图书在版编目 (CIP) 数据

易得: 论文设计与学术写作系统 / 杨永林著. —北京:

高等教育出版社, 2005. 8

ISBN 7 - 04 - 013932 - 4

I. 易... II. 杨... III. 英语 - 论文 - 写作 - 专家  
系统 IV. H315

中国版本图书馆 CIP 数据核字 (2005) 第 003224 号

总 策 划 刘 援 贾 巍 杨永林  
责任编辑 贾 巍  
版式设计 孙 伟  
责任校对 贾 巍

项目编辑 贾 巍  
封面设计 周 末  
插图选配 贾 巍 杨永林  
责任印制 韩 刚

出版发行 高等教育出版社  
社 址 北京市西城区德外大街 4 号  
邮政编码 100011  
总 机 010 - 58581000

购书热线 010 - 58581118  
免费咨询 800 - 810 - 0598  
网 址 <http://www.hep.edu.cn>  
<http://www.hep.com.cn>  
网上订购 <http://www.landaco.com>  
<http://www.landaco.com.cn>

经 销 北京蓝色畅想图书发行有限公司  
印 刷 高等教育出版社印刷厂

开 本 787 × 960 1/16  
印 张 18.5  
字 数 410 000

版 次 2005 年 8 月第 1 版  
印 次 2005 年 8 月第 1 次印刷  
定 价 42.40 元(含光盘)

本书如有缺页、倒页、脱页等质量问题,请到所购图书销售部门联系调换。

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物料号 13932 - 00

# PREFACE

## 前 言

20 世纪 90 年代以来,随着世界经济一体化、科学技术全球化、技术人才国际化、信息技术产业化、文本信息数字化、学术成果网络化进程的加快,英语写作在外语学习中的重要地位,不断得以提升,逐渐成为评价学习者个体语言能力水平的一个必要参数,普遍得到认可。考察外语评估体系的演变过程,更能说明问题:一个显而易见的事实是,能否客观科学、准确全面地评估学习者的写作水平,不但已经成为国际三大英语测试体系(即 GRE、TOEFL,以及 IELTS)所关注的重要内容,同时也是国内“大学英语四、六级考试”、“英语专业四、八级考试”所面临的一项重要改革内容。譬如,美国的“托福”(TOEFL)考试,原来没有写作,后来增加了英语写作考试的内容。英国和澳大利亚共同开发的“雅思”(IELTS)考试,一直重视英语写作能力,使其成为语言整体评估体系中的一个不可或缺的重要参数,同时也成为这一考试系统中体现人性化特色的一个显著标志,深受考生的欢迎。近年来,“美国研究生入学考试”(GRE)也在不断增加写作能力在其评估体系中的权重,通过“分析性写作”(Analytical Writing)的引入,更为科学合理地考查考生通过英语写作解决实际问题的能力水平。

跟踪国外写作教学与研究发展动向,针对我国英语写作教学的难点问题,从 20 世纪 90 年代中期开始,我们就一直关注着这方面的研究工作。新世纪以来,我们又和高等教育出版社合作,开发了一个立体化、数字化、开放式的英语写作训练系统。《“易得”(RD)——论文设计与学术写作系统》(Research Development Made Easy—A Computer-based Design System for Academic Writing)本身,即是构成这个训练平台的基石之一,体现了“格物致用”的哲学思想,发挥了“技术精巧”的重要作用。作为这个系统的研发者,我愿借此机会,结合写作教学中的一些理论问题和现实情况,有针对性地谈谈“易得”软件的总体设计、研发理念和基本功能,以便大家能够了解问题所在,找出对应之策,熟悉这一“文章利器”,带着一种体验“快乐写作”的心境,打开自己的个人电脑,随着指尖掠过键盘的动感韵律,一路走来,品味“学术初恋”(first intimate contact with research)的快感,感受“自主学习”(autonomous learning)的真谛,探索“论文写作”(thesis writing)的奥秘,达到“学术创新”(scholastic creativity)的目的。

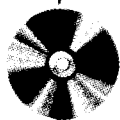
面对中国语境中的英语写作,特别是英语学术写作的问题,如何协调“宏观思维”(thinking globally)与“在地行动”(acting locally)之间的关系,找出应对策略,疏缓“学术写作之痛”,显然是新时期英语教学改革的一个难点所在。在这个问题的探索过程中,我们认识到,通过语言技术的应用,进行英语文本生成系统的开发与研究,体现了一种“格物致用”的哲学思想和教学理念,代表了一种新兴的学术力量,不但有助于拓展应

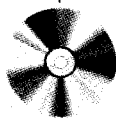


用语言学的研究视野，同时也有助于快速有效、大面积地提高中国学生学术英语写作水平，值得特别关注。“易得”软件系统的研发，体现了这样一种理念与实践，旨在探索如何通过理论学习、方法改良、技术研发手段，达到降低培养成本、激发科研潜势、提高论文质量的目的，从而有助于解决学术写作训练过程中一些令人头痛的难点问题。

针对这些实际问题，我们在“易得”软件系统的开发过程中，通过语言技术与信息科学的有机结合，在理论模式和技术手段方面，引入了以下新元素，较好地解决了“人机交流”（man-machine communication）过程中的信息接口（interactive interface）问题，使得自主性“数字化学术写作”（digital academic writing）成为可能。总体而言，“易得”学术写作训练系统，有以下几个方面的特色：

1. 在人才培养模式的探索中，走出了一条新路子，较好地解决了“知识积累”（knowledge accumulation）和“创新发展”（creativity development）之间的矛盾。
2. 在理论框架的构建上，采用了“突出主题理念”（highlight thematic points）和“建立相关联系”（establish relevant factors）的模式。
3. “主题理念”和“相关联系”模式的提出，引入了一种跨学科研究的机制，使得自然科学研究和人文社会科学的研究在元认知结构的分析层面上得到了统一。
4. 在话语模式和文本结构的处理上，引入了“解构主义”（deconstructionism）的理念。具体而言，就是采用了“洋葱剥离”（an onion-peeling model）模式，解决了学术论文各个有机组成部分，如何实现数字化控制与管理的问题。
5. 在文本信息的处理上，依据我们在“易得”姊妹软件——“易觅”文摘文本生成系统（Electronic Abstract Made Easy — A Question-driven & Mirror-image Simulating Framework for Abstract Generation）开发方面的成功经验，继续沿用了“问句驱动”（a question-driven model）和“镜像模拟”（a mirror-image simulating model）两种文本生成模式，有效地解决了学术英语写作过程中话语模式的选择、篇章结构安排、语法句式的处理，以及语言表达等多方面的问题。
6. 在论文设计与学术写作训练的过程中，引入了“社会认知”（socio-cognition）的理论，采用内置专家系统的方法，借助于计算机的帮助，可以引导写作者完成大到“学术话语”构建，小至“参考书目”编写这样一些具体的写作任务，比较充分地解决了数字化学术写作训练过程中，有效实现“言传身教”（apprenticeship）的问题。
7. 在文本生成的过程中，体现了一种“数字化写作”（digital writing）的理念，有效地降低了任务强度，提高了写作者的工作效率，使得过程化写作成为可能。
8. 借助于“英语写作教学与研究关键词库”（A Key-word Database for the Teaching of English Writing & Research）的构建，“易得”系统还为大家提供了一种文献资料处理和研究方法探索方面的导引指南。





了解“易得”软件系统的设计理念和基本功能的目的在于更新教学理念，用好“文章利器”，提高写作者的创新能力，促进英语写作，完成学术训练。作为这个系统的研发者，结合自己在清华大学英语写作课堂的教学实践，特别是英语学术写作训练的工作，我个人认为，“易得”学术文本生成系统的使用，可以帮助写作教师和学生作者解决以下几个方面的实际问题。

1. 师资准备的问题；
2. 学术话语的问题；
3. 科研素养的问题；
4. 学术公正的问题；
5. 学习心理的问题；
6. 结构意识的问题；
7. 文体选择的问题。

新世纪以来，理论语言学的发展和教育技术的进步，为应用语言学和语言教学研究，引入了新的理念，提供了新的视野，注入了新的活力。与此同时，信息工程，计算机科学和网络技术日新月异的发展，为语言技术的研发和虚拟教学模式的推广提供了广阔的应用平台，各类数字化语言训练平台应运而生。科学的昌明，技术的进步，对于教育的推动作用，自不待言。作为语言教师和学生研究者，如何面对科学技术的挑战，了解学科范式(paradigm shifts)的变化，把握信息化社会的命脉，探究数字化写作的奥秘，是这个伟大时代赋予我们的光荣使命。另一方面，我们也注意到，挑战与机遇并存。新理念、新技术、新模式、新介质、新方法的应用，为广大的语言教师和学习者提供了自我发展的良好契机，使我们有可能在弘扬优良传统的同时，学会数字化生存的本领，构建新的教学理论、探索新的学习方法、寻求新的教学手段，缓解扩招带来的压力，繁荣我国的外语教学，提升我国学生英语学术论文的写作水准。这不但是我们构建体验英语写作平台的企盼，更是开发系列英语写作软件，缓解“学术写作之痛”的实践。从这个意义上来说，“易得”系统既可以满足从事高级英语写作、英语论文写作、学术英语写作的一线教师对于新理念、新技术、新方法的需求，也可以成为本科高年级学生、硕士生、博士生撰写学期论文和学位论文、发表学术文章的“文章利器”，还可以是科研工作者撰写各类研究报告和科学论文的“研发平台”。是为序，愿与同侪共勉，希望大家喜欢，多提宝贵意见！

杨永林

2005年初夏于荷清苑

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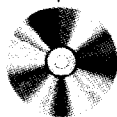
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英语写作教学与研究关键词库

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## Introduction To The RD System

### 系统简介



#### *P*REVIEW

#### 内容介绍

**F**or a long time, instructors and practitioners in different fields have been bitterly bothered by a rather challenging issue concerning efficiency in research and development training. A question repeatedly raised in this situation is: Is it possible to make research development and academic writing less demanding jobs for a novice researcher? After a lengthy pursuit in this direction, one thing has gradually become clear; that is, while answers are many, problems are more (cf. Bell et al., 2002). As time goes on, our conceptualization about research training has been sharpened. A new dilemma is emerging: How can we maximize research output by minimizing research cost? Clearly, an optimality theory is beginning to step in and is becoming a driving force to advocate a new value in the academic world (杨永林, 1999; cf. Archangeli & Longendoen, 1997; Sperber

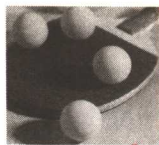


& Wilson, 1995[1986]). Under this pressure, research trainers must look for alternative approaches to help trainees internalize some basic skills so that a more successful survival in this digital epoch can be achieved academically, economically, and technically.

Following suit, we have devised a gadget dubbed “EAME” or “易觅” in Chinese (An Electronic Abstract Made Easy System; See the relevant section of this book for more information). The initial success of EAME has given us not only confidence and experience (杨永林, 2000; 杨永林、杨芳、杨莉, 2002; 杨永林, 2004a), but also a new momentum to develop a comprehensive training system of a similar kind for research development and academic writing. And the final product of this endeavor is the publication of this book and its companion — the RD system you can run in your PC at home.

By having a quick read of this book, you will have an opportunity to know more about scientific research and academic writing; by using the software, you will have a chance to experience all the fun in doing research and appreciate the joy of becoming a writer. At present, all you need to do is to note the following general instructions and go on with your reading.

1. *Read our step-by-step instructions and demonstrations closely and don't skip any process without good reason.*
2. *Go over each mini-lecture and relevant discussion we introduce to explore some important theories, principles, factors, and techniques related to the formation of the RD system.*
3. *Try to take an active role and form, from your own unique perspective and in relation to your specific research project, an interactive understanding of the innovative training model.*



## FRAMEWORK OF INTRODUCTION TEXT

### 框架结构

1. What are major problems and possible solutions in research development & academic writing? 问题与对策
2. What unique features does the RD system possess? 系统特征
3. How can you use the RD system and make your research work easier? 科研帮手
4. What tips can help you deepen your understanding of the RD system? “易得” 攻略

## 1 What are major problems and possible solutions in research development & academic writing?

### 问题与对策

Writing an English composition is not an easy job for most Chinese university students. Writing an academic paper is a rather demanding task even for most successful language learners in any language learning context. Realizing these facts, you may wonder: What makes academic writing so difficult? A quick reflection on the question brings about the following understandings.

In the first place, we recognize that academic writing is a unique type of writing that involves more than just some language issues. A good academic piece puts much emphasis on its logic (逻辑性), objectivity (客观性), professionalism (专业性), purposefulness (目的性), structure (结构性), and expressiveness (表述性), other things being equally maintained and emphasized. Clearly, these special requirements form a group of conspicuous problems for any novice researcher.

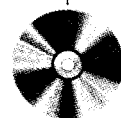




In the second place, we acknowledge that when we are involved in academic writing, we must provide a feasible solution to each of the problems identified above. Functionally speaking, these problems have their own characteristics which can be further specified as follows.

- 1) As far as logic is concerned, we may ask the question: Does the internal organization of a given academic piece reflect a high degree of logical reasoning? The pursuit of this requirement is dependent on logical reasoning (逻辑推理的问题).
- 2) When it comes to objectivity, we may inquire: Does a certain thesis guarantee a high degree of objectivity in its situation description, problem identification, argument setting, data collection, evidence giving, analysis making, and finding presentation? An appropriate approach to this question will address the issue of how to develop an objective and scientific attitude in research (客观科学的问题).
- 3) When the issue of professionalism is taken into account, we may examine the problem: Does a research article pay enough attention to some fundamental issues that dominant research paradigms want to address in a given field? A satisfactory answer to the question will relate to the issue of professionalism (专业素养的问题).
- 4) If the problem of purposefulness becomes the main concern, we may question: What communicative purposes does a research report want to meet? An attempt to deal with this problem will address the question of why to write (为何而写的问题).
- 5) When we turn to structural organization, we may ask: How can we introduce a discourse pattern suitable for a scholastic piece like a thesis? The treatment of this problem will immediately focus on the selection of a suitable discourse pattern (学术话语模式的问题).
- 6) When the problem of expressiveness arises, as it is often the case in a foreign language learning situation, we may query: What linguistic resources are available for non-native speakers to compose an appropriate academic piece in English? Any solution to the problem will inevitably relate to the question of how to write (怎么写的).





In the third place, we feel that a plausible theoretical framework is needed a priori if we are looking for an innovative and optimal training model so that all these problems identified in the process of research development and academic writing can be systematically examined and efficiently solved. To encourage a healthier interaction in a cross-disciplinary setting, we adopt an eclectic philosophy in our theory selection (Yang, 1995). Consequently, a question-driven plus mirror-image simulating model (杨永林, 1999), a di-process-developed model (杨永林、杨芳、杨莉, 2002), a socio-cognitive model (杨永林, 2002a, 2002b), and a natural way of learning theory, namely, community of practice theory (Lave & Wenger, 1991) are taken collectively to construct a framework that can ensure that the whole process of research development and academic writing is well controlled in an electronic setting. More specifically, this theoretical framework is designed that if you follow it, you can expect to complete a scholarly piece in a much easier way than what you have previously imagined. Our experience in academic training tells us that in the initial phase of training, too much talk in theory will do more harm than good — it will choke up a green hand in research. Consequently, we prefer to adopt an alternative approach in theorizing. We would like to use a streaming pattern by regarding the whole process of training as a theory study course, thus delivering theoretical points when necessary and relevant.

## 2 What unique features does the RD system possess?

### 系统特征

Academically, we have to interpret scientific research and academic writing in an absolute sense as a holistic and

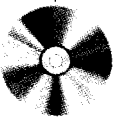
sophisticated process mandatory at a higher intellectual level of training in versatile university programs. Following this line of argumentation, we may accept two important and innovative concepts in the exploration of the nature of genre or text. First, we notice that as purposeful and communicative devices, genres take on the features of intertextuality and network (Bazerman, 1994; Miller, 1997). Second, in a highly academic context such as we may find in universities, scientific institutions, and other education or research units, a taxonomic model can be utilized to further examine the relationships between different genres and their initial purposes and expected functions. Table 1-1 below tabulates three major genre types. More detailed explanation will be given soon.

*Table 1-1 The academic genre system (after Swales, 1990, 1996)*

Primary genres	Secondary genres	Occluded genres
Research article	Lecture	Grant proposal
Journal abstract	Textbook	Recommendation letter
Conference abstract	Introductory text	Request letter for material/advice
Oral presentation	Post-introductory text	Application letter
Thesis	Tutorial	Submission letter
Dissertation	Course description	Cover letter
Book		Research proposal
Monograph		Evaluation letter or tenure/promotion
Chapter		Referee's review of book/article
Case report		Referee's grant proposal review
Review		Memo to dissertation committee
Review article		Editorial correspondence

(Source: Giannoni, 2002: 3)

The list includes both written and oral forms of discourse, divided according to the kind of audience addressed: those developed for peer-communication are classified as



*primary* or research-process genres, whereas those serving a didactic purpose are considered *secondary* or derived genres. There is a third category of texts produced for private or semi-private use, defined as interstitial or occluded genres: though less evident, these are essential to the exchange of material, advice and information between researchers, publishers, and university administrators. Taken together, the academic genres form a spider's web, at whose centre stands the research article (Giannoni, 2002: 2-3).

Clearly, it will be well justified if we regard the formation of an academic paper as a series of inter-textual genres or texts that are logically and structurally strung together to serve a scholastic communication purpose. The onion-peeling approach suggested in this system indicates this new perspective. In this framework, any text constituent, such as a cover sheet, an abstract, a paper proper, or a reference, will be treated as an independent genre or text that will occupy a specific "slot" in the layout of an academic product.

Functionally speaking, this system is designed to offer maximal service in comprehensiveness and flexibility so that student researchers may complete a variety of academic writing independently. For this reason, a thorough deconstructionist approach has been incorporated into this work. Practically speaking, you don't need to follow each of the steps specified in this system, if you feel everything is still under your control. In fact, you may occasionally find it structurally difficult to draw a clear-cut line between two relevant sections, depending on the purpose of your writing. These concerns are truly understandable and justifiable, as what is promoted in the expertise system is something brand new. Its design is closely related to our research concerns in other cases. More specifically, as a part of our pursuit in