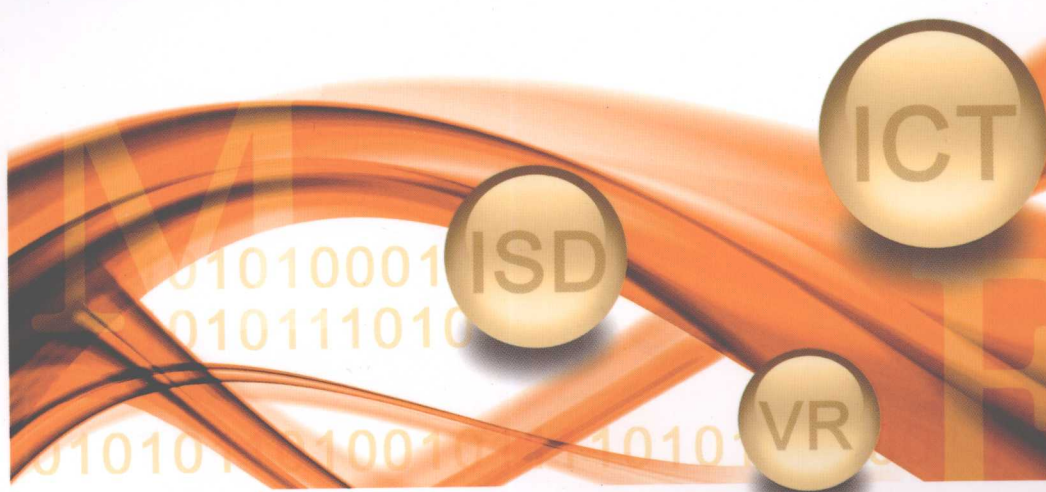




普通高等教育“十一五”国家级规划教材

◎ 刘世清 关 伟 王肖虹 等编著

教育信息技术 专业英语



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教育信息技术专业英语

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内 容 简 介

本书精选教育信息技术 28 篇专业英文文献, 试图全面反映教育信息技术发展的历史和现状, 使学习者不仅能掌握大量教育信息技术专业术语的英文表达方法, 而且能够比较系统地学习权威专家最新的研究成果, 同步提高教育信息技术专业能力和专业英语水平。

全书分为 6 章: 教育技术的历史与基本理论、教学设计、绩效技术、远程教育、信息化环境与资源建设、信息技术与学科教学。书中原文配有词汇、专业术语、参考译文、思考与练习、给教师的建议和给学生的建议等。书末附有教育技术大事记、国外教育技术专家等七方面的相关资源。

本书可作为教育信息技术专业本科生、研究生的专业英语教材, 也可作为教育信息技术、数字媒体技术和绩效技术等相关领域从业人员的学习用书。

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前 言

《教育信息技术专业英语》是在原版《教育技术专业英语》(2004, 电子工业出版社)的基础上, 总结四年教学实践经验, 结合教育信息技术专业发展动态, 经过大幅增删调整、精心加工和修改而成的。本书特别针对教学中“如何教”和“如何学”的问题, 增加了“对教师的建议”和“对学生的建议”。与上一版相比, 本书的专业知识面更广、内容更丰富, 使用更实用而有效。

本书继承了上一版的特点, 并有所发展:

1. 把专业英语和专业知识的学习结合起来。学生通过学习书中的专业英语文献, 不仅能掌握本专业各种术语的表达方法, 而且能学习权威专家最新的研究成果, 使专业能力得到进一步提高。

2. 尽可能为教和学提供便利。本书对原文的解读处理, 除了有参考译文外, 还有词汇、专业术语、思考与练习、给教师的建议和给学生的建议等。书后附有比较丰富的教育信息技术相关资源, 以便于教学的顺利进行。

3. 本书内容逐步递进, 适合不同层次的使用者。教材中的每一章都分为两部分, 前半部分主要提供给本科学生, 后半部分提供给研究生。本科生可以根据个人喜好研修后半部分内容; 对于研究生, 希望能全面学习和研究本教材的内容, 从整体上把握教育信息技术的整体框架和最新发展动态。

4. 本书内容覆盖面广, 对入选文章进行精心选择。书中的内容几乎涵盖了教育信息技术涉及的所有领域, 基本能反映教育信息技术发展的历史全貌和当前的研究现状; 原文大部分为国际权威专家的研究成果, 由于有些原文过长, 我们在不影响原文整体质量和结构的基础上进行了适当的删节处理, 以利于在实际教学中有效地利用。

本书的编写力争实现以下目标: 一是为教育信息技术专业的学生学习专业英语提供良好的教材; 二是帮助学习者通过学习专业英语来获得内容比较全面、体系比较完整的专业知识; 三是为教育信息技术及相关人员提供查找相关资源的工具。

本书的编写成员以宁波大学教师为主, 还有兄弟院校的同行积极参加, 对他们的辛勤劳动, 表示衷心的感谢! 我们在编写过程中, 收集到许多老师使用前版教材的意见和建议, 正是得到他们无私的帮助, 才使得我们能顺利地完成本书的编撰工作, 在此表示诚挚的谢意! 由于我们水平有限, 难免还有不足与错误之处, 恳请各位老师和读者不吝赐教。

本书共选用了教育信息技术领域多位专家的 28 篇力作, 我们与各位原文作者进行了各种形式的联系, 大部分作者同意把他们的论文选入本书, 以推动教育信息技术的发展, 对他们的爱心和诚意我们表示深深的感谢。但至今仍然和少部分作者未能取得联系, 请他们见到本书后联系我们: lsqemail@sohu.com。

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第 1 章 教育技术的历史与基本理论

1 A History of Instructional Design and Technology

Part I A History of Instructional Media

给教师的建议:

1. 让学生整理中外“媒体发展时间表”，并进行对比。
2. 让学生研究 AECT94 定义和 05 定义的原文，学习用英文表述定义的方法。

给学生的建议:

学习完本节内容后，请尝试总结教学媒体发展过程中所表现出的特点。

相关资源:

1. 请到期刊数据库查找“论现代教学媒体的本质、发展规律与应用规律”和“解析美国教育技术的三条历史发展线索”两篇文章，详细阅读以帮助理解本篇文章。
2. 请到 <http://www.adprima.com/ijim.htm> 《教学媒体国际杂志》上查找相关资料。

This is the first of a two-part article that will discuss the history of the field of instructional design and technology in the United States. A definition of the field is provided and the major features of the definition are identified. A rational account for using instructional design and technology as the label for the field is also presented. Events in the history of instructional media, from the early 1900s to the present day, are described. The birth of school museums, the visual and audiovisual instruction movements, the use of media during World War II, and the interest in instructional television, computers, and the Internet are among the topics discussed. The article concludes with a summarization of the effects media have had on instructional practices, and a prediction regarding the effect computers, the Internet, and other digital media will have on such practices over the next decade.

Approximately 15 years ago I wrote a history of the field of *instructional technology* (Reiser, 1987), which appeared as a chapter in a book edited by Robert M. Gagne. Since that time, many innovations and new ideas have affected the nature of the field. For example, recent technological advances, new ideas and theories regarding the learning process, and new views of how to promote learning and performance in classrooms and in the workplace have all had an influence on the field. In light of all the changes that have taken place, it seems appropriate to update the earlier history. This article and another that will appear in the next issue of *Educational Technology Research and*

Development serve as an update of my description of the history of the field I now refer to as instructional design and technology.

Before I begin to discuss the history of the field of instructional design and technology, and before I provide my reasons for labeling it as such, let me provide a definition of field:

The field of instructional design and technology encompasses the analysis of learning and performance problems, and the design, development, implementation, evaluation and management of instructional and non-instructional processes and resources intended to improve learning and performance in a variety of settings, particularly educational institutions and the workplace. Professionals in the field of instructional design and technology often use systematic instructional design procedures and employ a variety of instructional media to accomplish their goals. Moreover, in recent years, they have paid increasing attention to non-instructional solutions to performance problems. Research and theory related to each of the aforementioned areas is also an important part of the field. (Reiser, in press)

What are the major features of this definition? In many ways it is similar to the most recent Association for Educational Communication and Technology (AECT) definition of the field (Seels & Richey, 1994). Like the 1994 AECT definition, the definition presented in this article mentions five categories of activities or practices: (a) *design*, (b) *development*, (c) *utilization or implementation*, (d) *management*, and (e) *evaluation*, often associated with the field; and adds a sixth category, (f) *analysis*. Moreover, like the 1994 definition, the current definition relates those activities or practices to processes and resources for learning. In addition, the current definition indicates that research and theory, as well as practice, play an important role in the field.

In several respects, however, the current definition goes beyond the 1994 AECT definition. For example, the current definition makes specific reference to some of the performance technology concepts that have recently expanded the nature of the field (e.g., *analyzing performance problems in the workplace* and employing *non-instructional* solutions, as well as instructional solutions, to solve those problems). Moreover, the current definition highlights two practices that have, over the years, formed the core of the field. These two practices are (a) *the use of media for instructional purposes* and (b) *the use of systematic instructional design* procedures (often simply called instructional design). Although many have argued about the value of employing these practices, they remain as the key defining elements of the field of instructional design and technology. Individuals involved in the field are those who spend a significant portion of their time working with media, or with tasks associated with systematic instructional design procedures, or with both.

Why use the term *instructional design and technology*, rather than *instructional technology*, as the label for the field? Because in spite of the many efforts to clearly define the broad meaning of the latter term (Reiser & Ely, 1997), most individual outside of the profession, as well as many inside it, when asked to define the term *instructional technology* mention computers, videos, CD-ROMs, overhead and slide projectors, and other types of hardware and software typically associated with the term *instructional media*. In other words, most individuals equate the term *instructional technology* with the term *instructional media*. In light of this fact, perhaps it is time to reconsider the label we

use for the broad field that encompasses the areas of instructional media, instructional design and performance technology. While any of a number of terms come to mind, I like instructional design and technology (IDT). This term, which has been employed by one of the professional organizations in our field (Professors of Instructional Design and Technology), directly refers to the key concepts mentioned earlier—instructional design and instructional technology (i.e., instructional media). Moreover, as my description of the history of instructional design will indicate, in recent years many of the concepts associated with the performance technology movement have been regularly employed by those individuals who call themselves instructional designers.

As stated earlier, this history of the field will appear in two articles in succeeding issues of this journal. This article focuses on the history of instructional media, and the second article will focus on the history of instructional design. This is a natural separation because, from a historical perspective, most of the practices related to instructional media have occurred independent of developments associated with instructional design.

It should also be noted that although many important events in the history of the IDT field have taken place in other countries, the emphasis in this article and the one that will follow will be on events that have taken place in the United States.

History of Instructional Media

The term *instructional media* has been defined as the physical means via which instruction is presented to learners (Reiser & Gagne, 1983). Under this definition, every physical means of instructional delivery, from the live instructor to the textbook to the computer and so on, would be classified as an instructional medium. It may be wise for practitioners in the field to adopt this viewpoint; however, in most discussions of the history of instructional media, the three primary means of instruction prior to the 20th century (and still the most common means today)—the teacher, the chalkboard, and the textbook—have been categorized separately from other media (cf. Commission on Instructional Technology, 1970). In order to clearly describe the history of media, this viewpoint will be employed in this article. Thus, instructional media will be defined as the physical means, other than the teacher, chalkboard, and textbook, via which instruction is presented to learners.

School Museums

In the United States, the use of media for instructional purposes has been traced back to at least as early as the first decade of the 20th century (Saettler, 1990). It was at that time that school museums came into existence. As Saettler (1968) has indicated, these museums “served as the central administrative unit(s) for visual instruction by (their) distribution of portable museum exhibits, stereographs (three-dimensional photographs), slides, films, study prints, charts, and other instructional materials” (p. 89). The first school museum was opened in St. Louis in 1905, and shortly thereafter, school museums were opened in Reading, PA, and Cleveland, OH. Although few

such museums have been established since the early 1900s, the district-wide media center may be considered a modern-day equivalent.

Saettler (1990) has also stated that the materials housed in school museums were viewed as supplementary curriculum materials. They were not intended to supplant the teacher or the textbook. Throughout the past 100 years, this early view of the role of instructional media has remained prevalent in the educational community at large. That is, during this time period most educators have viewed instructional media as supplementary means of presenting instruction. In contrast, teachers and textbooks are generally viewed as the primary means presenting instruction, and teachers are usually given the authority to decide what other instructional media they will employ. Over the years, a number of professionals in the IDT field (e.g., Heinich, 1970) have argued against this notion, indicating that (a) teachers should be viewed on an equal footing with instructional media—as just one of many possible means of presenting instruction; and (b) teachers should not be given sole authority for deciding what instructional media will be employed in classrooms. However, in the broad educational community, these viewpoints have not prevailed.

The Visual Instruction Movement and Instructional Films

As Saettler (1990) has indicated, in the early part of the 20th century, most of the media housed in school museums were visual media, such as films, slides, and photographs. Thus, at the time, the increasing interest in using media in the school was referred to as the “visual instruction” or “visual education” movement. The latter term was used at least as far back as 1908, when the Keystone View Company published *Visual Education*, a teacher’s guide to lantern slides and stereographs.

Besides lantern slide projectors and stereograph viewers, which were used in some schools during the second half of the 19th century (Anderson, 1962), the motion picture projector was one of the first media devices used in schools. In the United States, the first catalog of instructional films was published in 1910. Later that year, the public school system of Rochester, NY, became the first to adopt films for regular instructional use. In 1913, Thomas Edison proclaimed: “Books will soon be obsolete in the schools. It is possible to teach every branch of human knowledge with the motion picture. Our school system will be completely changed in the next ten years” (cited in Saettler, 1968, p. 98).

Ten years after Edison made his forecast, the changes he had predicted had not come about.

However, during this decade (1914—1923), the visual instruction movement did grow. Five national professional organizations for visual instruction were established, five journals focusing on visual instruction began publication, more than 20 teacher-training institutions began offering courses in visual instruction, and at least a dozen large-city school systems developed bureaus of visual education (Saettler, 1990).

The Audiovisual Instruction Movement and Instructional Radio

During the remainder of the 1920s and through much of the 1930s, technological advances in

such areas as radio broadcasting, sound recordings, and sound motion pictures led to increased interest in instructional media. With the advent of media incorporating sound, the expanding visual instruction movement became known as the audiovisual instruction movement (Finn, 1972; McChuskey, 1981). However, McChuskey, who was one of the leaders in the field during this period, indicated that while the field continued to grow, the educational community at large was not greatly affected by that growth. He stated that by 1930, commercial interests in the visual instruction movement had invested and lost more than \$50 million, only part of which was due to the Great Depression, which began in 1929.

In spite of the adverse economic effects of the Great Depression, the audiovisual instruction movement continued to evolve. According to Saettler (1990), one of the most significant events in this evolution was the merging, in 1932, of the three existing national professional organizations for visual instruction. As a result of this merger, leadership in the movement was consolidated within one organization, the Department of Visual Instruction (DVI), which at that time was part of the National Education Association. Over the years, this organization, which was created in 1923, and which is now called AECT, has maintained a leadership role in the field of instructional design and technology.

During the 1920s and 1930s, a number of textbooks on the topic of visual instruction were written. Perhaps the most important of these textbooks was *Visualizing the Curriculum* (Hoban, Hobart, & Zissman, 1937). In this book, the authors stated that the value of audiovisual material was a function of their degree of realism. The authors also presented a hierarchy of media, ranging from those that could only present concepts in an abstract fashion to those that allowed for very concrete representations. Some of these ideas had previously been discussed by others, but had not been dealt with as thoroughly. In 1946, Edgar Dale further elaborated on these ideas when he developed his famous Cone of Experience. Throughout the history of the audiovisual instruction movement, many have indicated that part of the value of audiovisual materials is their ability to present concepts in a concrete manner (Saettler, 1990).

A medium that gained a great deal of attention during this period was radio. By the early 1930s, many audiovisual enthusiasts were hailing radio as the medium that would revolutionize education. For example, in referring to the instructional potential of radio, films, and television, the editor of publications for the National Education Association stated that "tomorrow they will be as common as the book and powerful in their effect on learning and teaching" (Morgan, 1932, p. ix). However, contrary to these sorts of predictions, over the next 20 years radio had very little impact on instructional practices (Cuban, 1986).

World War II

With the onset of World War II, the growth of the audiovisual instruction movement in the schools slowed; however, audiovisual devices were used extensively in the military services and in industry. For example, during the war the United States Army Air Force produced more than 400

training films and 600 filmstrips, and during a two-year period (from mid-1943 to mid-1945) it was estimated that there were more than four million showings of training films to United States military personnel. Although there was little time and opportunity to collect hard data regarding the effect of these films on the performance of military personnel, several surveys of military instructors revealed that they felt that the training films and filmstrips used during the war were effective training tools (Saettler, 1990). Apparently, at least some of the enemy agreed; in 1945, after the war ended, the German Chief of General Staff said: "We had everything calculated perfectly except the speed with which America was able to train its people. Our major miscalculation was in underestimating their quick and complete mastery of film education" (cited in Olsen & Bass, 1982, p. 33).

During the war, training films also played an important role in preparing civilians in the United States to work in industry. In 1941, the federal government established the Division of Visual Aids for War Training. From 1941 to 1945, this organization oversaw the production of 457 training films. Most training directors reported that the films reduced training time without having a negative impact on training effectiveness, and that the films were more interesting and resulted in less absenteeism than traditional training programs (Saettler, 1990).

In addition to training films and film projectors, a wide variety of other audiovisual materials and equipment were employed in the military forces and in industry during World War II. Those devices that were used extensively included overhead projectors, which were first produced during the war; slide projectors, which were used in teaching aircraft and ship recognition; audio equipment, which was used in teaching foreign languages; and simulators and training devices, which were employed in flight training (Olsen & Bass, 1982; Saettler, 1990).

Post-World War II Developments and Media Research

The audiovisual devices used during World War II were generally perceived as successful in helping the United States solve a major training problem—namely, how to train effectively and efficiently large numbers of individuals with diverse backgrounds. As a result of this apparent success, after the war there was a renewed interest in using audiovisual devices in the schools (Finn, 1972; Olsen & Bass, 1982).

In the decade following the war, several intensive programs of audiovisual research were undertaken (e.g., Carpenter & Greenhill, 1956; Lumsdaine, 1961; May & Lumsdaine, 1958). The research studies that were conducted as part of these programs were designed to identify how various features, or attributes, of audiovisual materials affected learning; the goal is being to identify those attributes that would facilitate learning in given situations. For example, one research program, conducted under the direction of Arthur A. Lumsdaine, focused on identifying how learning was affected by various techniques for eliciting over student response during the viewing of instructional films (Lumsdaine, 1963).

The post-World War II audiovisual research programs were among the first concentrated efforts to identify principles of learning that could be used in the design of audiovisual materials. However,