

IT6750: CURRENT TRENDS AND ISSUES IN INSTRUCTIONAL TECHNOLOGY

# **Introduction to the Field of Instructional Design and Technology**

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## Definitions and Core Models

The field of Instructional Design and Technology has undergone several definition changes in recent years. The definition of **educational technology** currently published by the Association for Educational Communications and Technology (AECT) is as follows: “Educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources” (Januszewski, 2008). The definition is explained in an extensive commentary that goes over the intended meaning of each word in the definition. This new definition and the accompanying commentary demonstrate the paradigm shift in education changing from teacher centered instruction strategies to more student centered learning strategies. The use of phrases such as “facilitating learning” and “improving performance” demonstrates the importance of the learner in the field of instructional technology.

There are several terms used in the field such as **educational technology**, **instructional technology**, **instructional design**, and **human performance technology**. Each term has a specific meaning but often they are used interchangeably even within the field.

First, **instructional technology** and **educational technology** are often used interchangeably. There are differences of opinion on the actual definitions and on which term encompasses the other, but the most common description is that **educational technology** encompasses **instructional technology** because education is more broad than just instruction (Januszewski, 2008). A further distinction is also included in the *Educational Technology* Wikipedia article. It states, “Educational technology encompasses instructional theory and learning theory. Instructional technology covers processes and systems of learning and instruction, [while] educational technology includes other systems used in the process of developing human capability ([http://en.wikipedia.org/wiki/Educational\\_technology](http://en.wikipedia.org/wiki/Educational_technology)).

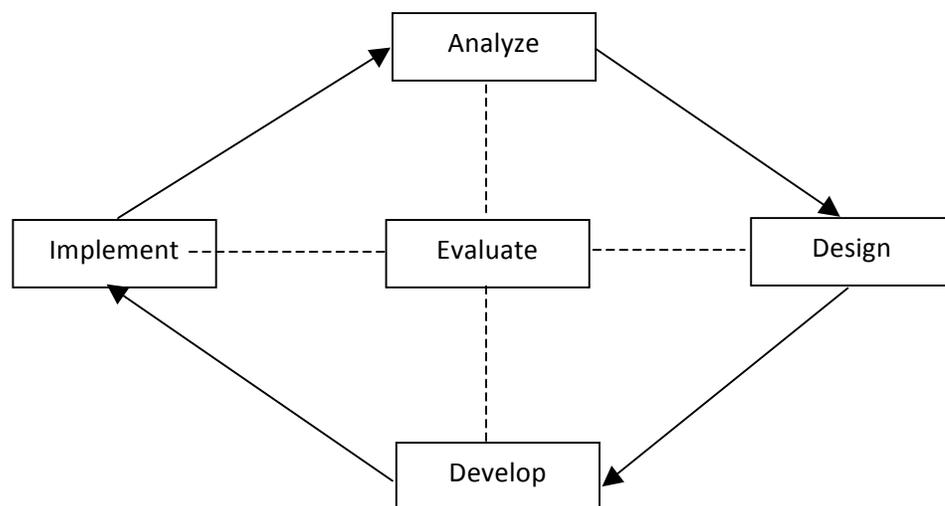
Another common term in the field is **instructional design**. Wikipedia’s definition is the “practice of arranging media (communication technology) and content to help learners and teachers transfer knowledge most effectively” ([http://en.wikipedia.org/wiki/Instructional\\_design](http://en.wikipedia.org/wiki/Instructional_design)). This process includes determining the current state of understanding, defining the end goal of instruction, and creating some “media-based intervention” to assist in the instruction. The University of Michigan put together a list of definitions on instructional design that gives further insight to the difference between **instructional design** and **instructional technology**. It states that **instructional technology** is made up of instructional design together with instructional development, which they define as the process of implementing the design plans (<http://www.umich.edu/~ed626/define.html>).

Finally, **human performance technology** is defined as a new form of **instructional technology** that focuses on performance problems as they relate specifically to corporations rather than to educational institutions.

So, to summarize the differences between the various terms in the field, **educational technology** and **instructional technology** are often used interchangeably but **educational technology** is the broader term, encompassing **instructional technology** and other technologies not specifically associated with instruction but relating to education. **Instructional design** is even more specific than **instructional technology** in that **instructional design** covers only the design of instructional materials, while

**instructional technology** also includes the implementation of these plans. **Human performance technology** is a specific type of **instructional technology** that focuses on corporations.

There are a number of core models associated with the field of educational technology that help organize the field. One very common model is the ADDIE model which is used frequently in the University of Colorado Denver educational program. ADDIE is an acronym for the steps of a process know as “instructional system design,” or “instructional system development” both abbreviated to ISD. The purpose of ISD or ADDIE is a development process that can be used to create effective instructional materials. According to AECT, it is different from traditional lesson planning in that it “is based on scientific thinking and incorporates empirical data gathering in the process” (Januszewski, 2008). ADDIE was developed by breaking the planning process for instructional materials into small steps, putting these steps in a logical order, and having the results from one step become the input for the next step. The word “ADDIE” stands for the names of the five major steps in this process which are Analysis, Design, Development, Implementation, and Evaluation. A diagram that demonstrates how these steps fit together in the process is shown below.



The ADDIE model is important to the field of educational technology because it makes sure that instructional materials are based on scientific thinking and are supported by data, which makes them more likely to be effective. It is also important because it provides a uniform schema for those in the field to communicate about desired outcomes, data collection and analysis, choosing appropriate technology, implementing plans, etc.

## History of the Field

The ideas behind instructional design are rooted far back in history. When considering the definitions for instructional design, it makes sense that many consider the great philosophers of ancient Greece to be some of the earliest contributors to this field of study. In fact, anyone who has critiqued education for the purpose of bettering its efficacy has engaged in instructional design. Nevertheless, certain events and people have had tremendous impact on shaping this ancient art, which has only been considered a formal discipline for the last half century.

As a major turning point in world history, the industrial revolution brought with it a newfound desire to teach job specific skills to large numbers of workers quickly and efficiently. During this period, educational behaviorists, such as Sidney Pesse, delved into figuring out how people learn and employed technology in the learning process (Leigh, n.d.).

Interestingly, World War II is often credited as the impetus for instructional design procedures (Reiser, 2001). Enlisting the help of psychologists and educators for the purpose of maximizing training efficiency, the military was attempting to systematically design and analyze instruction. Training videos became one major technique of instruction, once again tying technology to this field.

The 1950s saw several important advancements. B.F Skinner's *The Science of Learning and the Art of Teaching* and Bloom's Taxonomy added crucial information to the discussion of how people learn and demonstrate knowledge at various levels. During this period, the cold war acted as a catalyst in the field of instructional design. America and the west wanted to strengthen their educational system so as to avoid being outdone by the Soviet Union.

When public education in America showed signs of weakness during the 1960s with high failure rates, behaviorists, psychologists, and educators forged ahead in an effort to better the system (Leigh, n.d.). One major contributor to the field was Robert Glasser, who introduced the concept of "instructional design." This model created a direct link between the learner and the instruction. Glasser's work on Individually Prescribed Instruction and his writing on the usefulness of criterion-referenced-tests continue to be points of focus in public education.

Profound advancements in technology greatly affected instructional design during the 1970s and especially in the 1980s. Professional education departments were created and instructional design also found its way into the private sector. The use of the personal computer gave instructional design a new means for conveying and assessing knowledge. Furthermore, desire on the part of businesses to improve worker training and production increased the desire to improve instructional design.

Internet availability and internet resources have been crucial in shaping the most recent trends in the field. Technologies such as database programs, intranets, and groupware have enabled both the public and private sector to engage in "knowledge management" (Reiser, 2001). Businesses are constantly finding new ways to transmit and assess information via technology. Schools today often act as testing grounds for the latest ideas in instructional design and as this field forges ahead there is no doubt that technology will have an integral role in the delivery and assessment of effective instruction.

## Organizations and Journals

Throughout the history of Instructional Design and Technology (IDT), one can see the emergence of professional organizations. Such organizations bring IDT professionals together through sponsorship of conferences and various other networking opportunities. The organizations also serve as one centralized voice for this convergence of professionals to the general public and government officials.

The responsibilities of these organizations are many. Professional organizations set standards and best practices guidelines for individuals in the IDT professions. These organizations encourage members to improve their knowledge by offering continuing education programs. Such organizations also promote research in the field and publish journals and books to communicate this information.

IDT organizations share similar objectives like those described above, however each is different depending upon the organization's focus. Some professional organizations cater to more traditional education settings, while others serve professionals in the corporate environment.

One such professional organization is the ASTD (American Society for Training and Development). The mission of the ASTD is that "through exceptional learning and performance, we create a world that works better" ([www.astd.org](http://www.astd.org)). The organization's focus on adult workplace learning and linking that learning to performance results began at a 1942 training committee meeting of the American Petroleum Institute.

Today, the ASTD's reach is global and it is the largest organization of its kind. Members come from over 100 countries and include adult learning professionals from corporate settings, government settings and independent consultants. The ASTD sponsors both global and regional groups to advance adult learning. ([www.astd.org](http://www.astd.org))

The ASTD focuses on adult learning in work settings but there are organizations that cater to the more traditional academic settings. The International Society for Technology in Education (ISTE) concentrates its efforts on transforming learning at the pre-kindergarten to 12<sup>th</sup> grade level and improving teacher education. Members include classroom teachers, administrators and school technology coordinators from all over the world. The ISTE also extends membership to companies that develop technology for the classroom environment.

The ISTE is a well-recognized non-profit organization serving its membership of over 85,000 educators worldwide. As an advocate for technology in the classroom, the ITSE researches and develops methods to leverage technology to improve teaching and learning. One goal of the ISTE is to communicate its findings in meaningful ways to its membership (<http://www.iste.org>).

One meaningful way to communicate information to members is through a journal. The following table contains examples of journals and articles that IDT professionals may find interesting.

Journal	Website	Purpose	Article of Interest
<i>JRTE - Journal of Research on Technology in Education</i>	<a href="#">JRTE</a>	Published by ISTE. A quarterly journal reporting current and potential future technology trends in education. Designed with pre-kindergarten to 12 <sup>th</sup> grade teachers, administrators and technology personnel in mind.	The <i>JRTE</i> recently ran an article detailing a study conducted by Chrystalla Mouza comparing performance of underprivileged minority students in classrooms with and without laptop computers (Mouza, 2008).
<i>Innovate Journal of Online Education</i>	<a href="#">Innovate</a>	This bi-monthly journal focuses on the use of Information Technology to enhance education in multiple settings. <i>Innovate's</i> philosophy is that groundbreaking technology has carryover impact to all facets of learning including adult learning in the workplace as well as learning in the academic setting. Because of this philosophy, <i>Innovate</i> reaches a very wide range of IDT professionals.	In the article titled <i>Experiencing Knowledge</i> , the authors predict vast changes in way individuals learn because of improvements in technology by the year 2010 and how individuals need to make use of these technologies second nature (Norris, Mason, & Lefrere, 2004).
<i>Journal of Interactive Media in Education</i>	<a href="#">JIME</a>	A web-based journal created to reach educators in academic and corporate settings throughout the world, to study the issues caused by interactive media, and to improve the use of media to educate individuals.	In a study of Finnish youth and senior citizen cell phone users, Oksman concludes that cell phones may become a future tool for delivering mobile learning (Oksman, 2006).

## Blogs and Websites

The following list is a selection of websites that target education and training professionals. These are useful resources for practitioners of the field of instructional design, providing a variety of articles, news, product information, and social networking opportunities related to the use of technology in the corporate training environment. These websites were selected based on the quantity and quality of the content available and the high value that they provide as resources for the instructional designer.

- [The Rapid E-Learning Blog](http://www.articulate.com/rapid-elearning) – This is a blog for individuals and organizations that are designing and implementing elearning content. The blog includes a wide variety of topics relevant to the elearning practitioner. This includes design topics, such as how to create effective navigation in online courses and an overview of effective graphic design principles. Also included are many posts about the impact of elearning on the 21<sup>st</sup> century learner (<http://www.articulate.com/rapid-elearning>).
- [Learning Circuits](http://www.learningcircuits.org) – Learning Circuits is the ASTD’s online mechanism for disseminating topical news, articles, links, helpful resources, and product demonstrations and reviews. Additionally, Learning Circuits implements several web 2.0 tools including a blog and discussion forum that provide an extensive amount of information and support to the field of IDT (<http://www.learningcircuits.org>).
- [International Journal of Instructional Technology & Distance Learning](http://itdl.org) – The IJITDL is a free online academic journal focused on advancing the fields of education and training. The journal is published monthly and includes papers about instructional design, technology in education, distance learning, research, theory, and much more (<http://itdl.org>).
- [Centre for Learning & Performance Technologies](http://www.c4lpt.co.uk) – C4LPT is a subscription-based online resource focusing on “trends, technologies and tools” for education and training professionals. This includes instructional articles about elearning and the tools and technology required to implement it. Much of the content is only available via subscription but the site does include some free content. Of particular interest is a free feature titled [Top 100 Tools for Learning 2008](#). This is a list of recommended web development, web 2.0, and elearning tools, many of which are free, compiled from lists submitted by industry professionals (<http://www.c4lpt.co.uk>).

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