

Instructional Design State-of-the-Art in Japan

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ABSTRACT

This paper reports current status regarding Instructional Design (ID) research and capacity building in Japan. The goal of ID is to make instruction more effective, efficient, and appealing. ADDIE model represents general processes of creating e-Learning materials and systems, which deals not only with the design, but also techniques for needs analysis, development, implementation, and evaluation. Many ID models for the design phase have been proposed, based on learning psychology, so as to determine building blocks of instruction and strategies to facilitate learning. Design of e-Learning should take into account both solutions by teaching and by not teaching directly, assuring learners' initiatives in e-Learning environment.

ID has captured attention in Japan through the advancement of e-Learning in recent years. Several books have been translated into Japanese that depict instructional design processes. Several books have also been written by Japanese scholars and practitioners that include "ID" in their titles. However, ID seems to be narrowly understood as rigid process models for instructional development. No connections have been stressed between ID models and underlying theoretical backgrounds. Specialist education and certification for professionals in the area of instructional design are not satisfactory for corporate and higher education scenes. One university is in the process of creating a graduate program for e-learning professionals with an emphasis in ID, which claims itself being "the first attempt to train e-Learning specialists in Japan at graduate level." E-Learning Consortium Japan has announced to start up series of certificate programs for e-Learning Professionals, which evolved from its trial program "E-Learning Fundamentals" in 2003.

KEY WORDS

Instructional design, e-Learning, ADDIE model, ID models

1. Introduction

This paper reports current status regarding Instructional Design (ID) research and capacity building in Japan. Although it has been a major research and practice area among American and European communities, ID has captured attention in Japan through the advancement of e-Learning in recent years. Several books have been translated into Japanese that depict ID processes (Dick, Carey & Carey, 2005; Lee & Owen, 2002). Several books have also been written by Japanese scholars and practitioners that

include “ID” in their titles (Akahori, 2004; Shimamune, 2004; Uchida, 2004). However, ID seems to be narrowly understood as rigid process models for instructional development. The purpose of this paper is to describe the current status of e-Learning in relation to the ID, in the hope that ID will play a major role in assuring the quality of e-Learning for higher education.

2. What is Instructional Design?

ID models are practical summing of psychological as well as other researches, for helping those who create educational and training materials. The goal of ID is to make instruction more effective, efficient, and appealing. Therefore, ID models should utilize research findings of how human learns, how we are interested in learning, and how to make new materials or systems ready to operate to meet their expectations.

ID has different connotations to different people. Sometimes ID represents the processes of instructional material development, such as Dick & Carey Model (Dick, Carey & Carey, 2005) and ADDIE model (i.e., Analysis, Design, Development, Implementation, and Evaluation) (Piskurich, Beckschi, & Hall, 2000). ID, at other times, represents a framework and strategies for the final instructional product, or “blue print” of instruction (Reigeluth, 1983), so as to improve the effectiveness and appeal of the learning resources. The former may also be called ID process model, or Instructional System Development (ISD) model, whereas the later may be called ID theory. Systems science forms the basis of the former (i.e., formative feedback, plan-do-see project management cycle, clear statement of learning objectives, etc.), whereas psychology-related to human learning forms the basis of the later (i.e., information processing model of human learning, motivation theories, usability design, message design, etc.).

Reigeluth (1983) was among the first ID researchers who made clear the distinction between systematic process (ISD) models and ID theories. He prefers to call the former Instructional Development Model to distinguish from the ID (Design) Model, although the word ID has been used for both ID process models and design theories. Reigeluth’s 1983 book, which is often called “The Green Book”, was a major milestone in the history of ID research. He made available and easy to compare eight dominant ID (design, not development) models at that time, with his extensive editor’s footnotes. The most well known ID model, Gagne’s Nine Events of Instruction (Gagne, *et.al.*, 2005), was included in the Green Book (Aronson & Briggs, 1983), as the model that has the strongest psychological underpinnings. Gagne, who turned himself from an established psychologist to one of the founders of ID field, well represents the close relationship between psychology and ID. Keller’s (1983) ARCS Motivational Design Model was among the 8 models in the Green Book, which summarizes major motivational theories into the four categories: Attention, Relevance, Confidence, and Satisfaction.

Following the major shift of learning theories from cognitive psychology to constructivist one, a lot of new ID theories have been emerged. Reigeluth's (1999) "Second Green Book" has more than twenty such theories, which was published in 1999 under major influence of constructivist psychology. Schank's Goal-based Scenario (GBS) (Schank, Berman & Macpherson, 1999) was one of the new ID theories in the Green Book II, which has made a major influence in the practice of making instructional materials and programs both in higher education and corporate sector. Schank was also influential in making new discipline called Learning Science, which made learning psychologists interested in research questions in prescriptive nature.

Merrill (2002) sees common features among the newly proposed ID theories to be the following five aspects, which he calls the first principles of ID: (1) instruction should be made around Real-world tasks, (2) learners past experiences should be activated, (3) demonstration should consist of not telling abstract rules, but showing concrete examples, (4) application should be encouraged to give the learner ample opportunities, and (5) integration should be a part of instruction so newly learned knowledge and skills should be incorporated in real-life performance. The third Green Book is in preparation (to be published in 2006-7) based on Merrill's first principles to propose common ground of ID theories in the area of e-Learning (Merrill, in press)..

3. e-Learning in Japan from ID perspective

According to the white paper from the Economist Intelligence Unit, Japan was ranked the 23rd in the 2003 e-learning readiness ranking. The rank was based not only connectivity, but also capability of delivering and consuming e-learning, content quality and pervasiveness of learning materials, and culture including the number of institutions supporting e-learning. South Korea ranked Number 5, and Singapore Number 6, among Asian countries. For Japan, as a world-leading economy, 23rd ranking out of 60 in e-learning readiness is not certainly as high as anyone had expected.

Jung & Suzuki (in press) point out three possible explanations may be possible: (1) Japan was late in the development and implementation of a comprehensive national ICT strategic plan and in the use of ICT in education, (2) Japan seem to value synchronous face-to-face modes of education more than any other countries, and (3) Extensive use of mobile phones in personal communications and information search could have slowed down the use of the desktop PC-based Internet in teaching and learning.

From an ID perspective, lack of ID related professionals can be seen as one of the major drawbacks in Japan to advance e-Learning readiness. "e-Learning White paper 2005-2006" (METI, 2005) stated the

summary of their survey as follows:

Looking at human resource fields among the types of jobs in e-Learning that should be strengthened in the future, there is a strong inclination to strengthen human resources in sales, instructional designers (IDers), and system creators. If satisfaction is strengthened for these human resources, it is believed that the introduction of e-Learning accelerates in accordance with user's needs. (p.42)

If we don't have enough number of ID professionals working at e-Learning vendors or higher education institutes, then the quality of e-Learning materials may not as good as we would like to see. Less than maximum experiences with low quality e-Learning would disappoint the potential or beginning users of e-Learning, thus weaken the advancement of e-Learning utilization and continuation. In Asia, on the other hand, the White paper (METI, 2005) points out that instructional design education is implemented in Korea and Singapore. Singapore has been implementing a Strategic Manpower Conversion Programme (SMCP) as an e-Learning field since 2001 to train experts in e-Learning (instructional designers in particular).

So, why we don't have enough ID specialists in Japan? Many reasons can be identified, but the most influential seems to be lack of higher education programs that specifically deal with producing educational specialists for higher education and corporate education. Although we have many colleges of education, they tend to focus on teacher education for elementary and secondary schools by providing the graduates teachers certificates. No college of education, for example, has specialized in training specialists in higher education or human resource development.

Based on their experience with AEN (Asia e-Learning Network) project, a campus-wide e-Learning specialist training program is in preparation that consists of 26 courses for seniors and juniors for all colleges at Aoyama University (Hashimoto, Horiuchi & Tamaki, 2005). Claiming as the first ID centered e-Learning professional program at graduate level (master course), Kumamoto University (2005) is in the process of preparing its new graduate program to be started in April 2006. As more and more Japanese universities are preparing centers for teaching excellencies to promote better quality classes, demands will be expected to increase for ID specialists. Starting e-Learning program will play a role of trigger to see ID specialists as the key factor for succeeding such an endeavor. E-Learning Consortium Japan has announced to start up series of certificate programs for e-Learning Professionals, which evolved from its trial program "E-Learning Fundamentals" in 2003 (Suzuki, et.al., 2003).

It is this author's hope that more ID specialists will be trained through both undergraduate/graduate

education and from certificate programs. Quality of e-Learning programs is to be assured by professional activities of well-trained ID specialists. Only by a growing body of ID specialists, e-Learning become a power to change the quality of higher education.

References

- Akahori, K. (2004). *Instructional design as basis for classroom teaching* [Jugyo no kiso tositeno instructional design]. Japan Association for Audio-visual Education, Tokyo [in Japanese]
- Aronson, D.T., & Briggs, L.J. (1983). Contributions of Gagne and Briggs to a Prescriptive Model of Instruction. In C.M. Reigeluth (Ed.), *Instructional-design theories and models: An overview of their current status*. Lawrence Erlbaum Associates, U.S.A.
- Dick, W., Carey, L., & Carey, J. O. (2005). *The Systematic Design of Instruction* (6th Ed.). Boston, MA: Allyn-Bacon.
- Gagne, R. M., Wager, W. W., Golas, K. C., & Keller, J. M. (2005). *Principles of instructional design* (5th Ed.). Wadsworth/Thomson Learning
- Hashimoto, S., Horiuchi, T., & Tamaki, K. (2005). Design of instructional design introductory courses for e-Learning specialist training [e-Learning senmonka ikusei no tameno instructional design nyumon kamoku no sekkei]. A paper presented at 21st National Conference of Japan Society for Educational Technology, 1a-307-2, Tokushima University.
- Jung, I. S., & Suzuki, K. (in press). Blended learning in Japan and its application in liberal arts education In C. J. Bonk, & C. R. Graham (Eds.), *The Handbook of Blended Learning Environments*. Pfeiffer, U.S.A.
- Keller, J. M. (1983). Motivational design of instruction. In C.M. Reigeluth (Ed.), *Instructional-design theories and models: An overview of their current status*. Lawrence Erlbaum Associates, U.S.A.
- Kumamoto University (2005). Plan for “e-Learning development department” at Kumamoto University Graduate School [Kumamoto Daigaku Daigakuin “e-Learning Kaihatsu Kenkyuka (kashou)” Kosou]. Available on-line: http://el-lects.kumamoto-u.ac.jp/far37ghpg46smg/daigaku_in.html (in Japanese).
- Lee, W.W., & Owen, D. L. (2002). *Multimedia-based Instructional Design*. Pfeiffer, U.S.A.
- Merrill, M. D. (2002). First principles of instruction. *Educational Technology Research and Development*, 50(3), 43-59.
- Merrill, M. D. (in press). First Principles of Instruction. Instructional. In C. M. Reigeluth and A. Carr (Eds.). *Instructional Design Theories and Models: Building a common knowledge base* (Vol. III). Lawrence Erlbaum Associates Publishers.
- METI (Ministry of Economy, Trade and Industry, Japan) (2005). *e-Learning White paper 2005/2006* English Version, METI, Japan.

- Piskurich, G.M., Beckschi, P., & Hall, B. (Eds.) (2000). *ASTD handbook of training design and delivery: Instructor-led, computer-based, and self-directed*. McGraw-Hill.
- Reigeluth, C. M. (1983). Instructional design: What is it and why is it? In C.M. Reigeluth (Ed.), *Instructional-design theories and models: An overview of their current status*. Lawrence Erlbaum Associates, U.S.A.
- Reigeluth, C. M. (Ed.) (1999) *Instructional-design Theories and Models: A New Paradigm of Instructional Theory* (Vol. II). Hillsdale, NJ: Lawrence Erlbaum Associates , U.S.A.
- Schank, R. C., Berman, T. R., & Macpherson, K. A. (1999) . Learning by Doing . In Reigeluth, C. M. (Ed.), *Instructional-design Theories and Models: A New Paradigm of Instructional Theory* (Vol. II). Lawrence Erlbaum Associates, U.S.A.
- Shimamune, S. (2004). *Instructional design: A rule book for teachers* [Instructional design: Kyoshi no tameno rule book]. Yoneda Shuppan, Japan [in Japanese]
- Suzuki, K., Mitsuishi, T., Hatano, K., & Komatsu, H. (2003). Contents and methods for intensive lecture “e-Learning Fundamentals” that emphasizes instructional design [instructional design ni jutten wo oita shuchu kogi “e-Learning kisoron” no naiyou to hohou]. A paper presented at a research meeting of Japan Society for Information and Science in Education, Aoyama University.
- Uchida, M. (2004). *Instructional design in practice: Educational design by cases* [Jissen instructional design: Jirei de manabu kyoiku sekkei]. Tokyo Denki University Press [in Japanese].

BIOGRAPHY



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