

Making Instructional System Design Authentic and Alive: With a Focus On Analyzing Adult Learners' Needs and Developing Practices of Learning

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I. Introduction

Recent buzz words such as 'learners as customers vs. teachers as facilitators', 'contextualized learning', 'networking', 'process-oriented', 'holistic learning', 'autonomy', 'knowledge worker', 'learning community', 'blended e-learning', 'ubiquitous learning' and many other expressions

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adequately represent the phenomena of our current education paradigm shift.

As the instructional technology has been disseminated into the education field and has begun playing an essential role especially in the field of higher education, the needs for the newly defined roles of teachers and learners and the newly developed instructional approach and design have been strongly addressed.

Paralleled with this educational trend and needs, the attempt to analyze the adult learners' needs and develop some learning activities based on Dick & Carey's ISD model has been made in the present study.

The rationale for selecting Dick & Carey's ISD model as a research framework is that it is based on more than 25 years of research in instructional process (Carlton, Kicklighter, Jonnalagadda, & Shoffner, 2000).

Rooted in the integrative learning perspectives associated with Behaviorism, Cognitive Theory, and Constructivism (Chang, 2006), Dick & Carey's model of instructional design is a recursive, reflective, iterative and systematic approach and "offers congruency from objectives through evaluation" (Carlton, Kicklighter, Jonnalagadda, & Shoffner, 2000, p.556). Acknowledged as one of the most appropriate instructional design models according to 2000 ITFORUM, Dick Carey's model provides practical insights into the creative instructional design and web-based instruction to both experienced and in experienced teachers (Chang, 2006).

The research has been conducted in an adult & continuing education

program and the target group is composed of 40 K-6 English teacher candidates whose educational background is diverse. Ironically, as the market for the private English sectors has been expanded dramatically pacing with the recent trend of globalization and the nationwide obsession with English, more applicants lacking in both English competence and experience have entered into the program without pre-entry screens, which frequently has lead to counterproductive side-effects to the improvement of instructional practice. In order for the teacher training program to function properly and support these learners, the systematic instructional design pertinent to learners' needs appears imperative.

Considering the context of our program, analyzing the learners and their educational needs is regarded as a fundamental step within the model. With the shift toward more learner-centered environment especially where self-directed adult learners take more responsibility for their own learning, a variety of independent and cooperative learning opportunities will trigger adult learners' motivation and lead to their educational success in the long term(Artino, 2004).

This paper does not attempt to provide a comprehensive review of all the facing issues and the integrative methods of instructional system design that should be explored in the near future.

Instead, this paper focuses on four issues that seem most pertinent to the current context:

- 1) discussion of the concept and value of Dick & Carey's ISD model,
- 2) analysis of the students' needs,
- 3) design some usable practices of learning, and

- 4) discussion of the benefits and implementations of learning communities and learning activities.

II. Purpose

1. The purpose of this study is fourfold:

- 1) To study Dick & Carey's ISD model in terms of the concept and practices of each component, the interrelatedness between each step, and the benefits of the model.
- 2) To conduct the adult learners' needs analysis derivative from the Dick and Carey's principles of systematic instructional design.
- 3) To plan and develop some structures and methods for practices of learning based on the information obtained from the analysis of learners' needs.
- 4) To offer some suggestions providing a "how-to guide and facilitate" for implementing those concepts of practices of learning.

III. Research Questions and Methods

1. The research questions are:

- a. How does Dick & Carey's ISD model work and which components of the model will be implemented for the purpose of the present study?
- b. Which factors from the analysis of learners' needs are critical to the quality of the programs?

c. What practices of learning are to prepare adult learners better for the job market of English education ?

d. How would the learners' needs be geared to reestablishing the vision and goals of the program?

e. What implications and suggestions should be made for the future research?

2. Methods

The research has been conducted in an adult & continuing education program and the target group consists of 40 K-6 English teacher candidates. The group is diverse in their competency in English, educational background, field experience, and ages. The analysis of adult learners' needs has been conducted through a variety of methods such as class observation, interviews, questionnaires, e-mail surveys, group discussion and student feedback during the first semester.

During the analysis stage, the following questions have been asked:

- 1) general information about adult learners such as educational background, learning preferences, and personality
- 2) their readiness for the program in relation to their English competence, teaching skills and prior experience
- 3) their plan and wish for the future
- 4) their satisfaction level toward the quality of the program, the overall design and organization of curriculum, the content of the subjects, the composition of students, and the instructors in terms of their knowledge, delivery methods, and leadership

- 5) the aspects and qualities that they need to look for to be a qualified English teacher
- 6) what types of instructional softwares or teaching methods they prefer to implement in their teaching environment: what they think about CAI(Computer Assisted Instruction)
- 7) what they expect from the program and the instructors
- 8) some major obstacles that they face in participating in the program
- 9) other comments

IV. Literature Review

1. Concept and History of ISD

“All the world will look like a nail to a child with a hammer: the child has to find a specific nail matching with his hammer”
(Gustafson, 2002, p.60.)

The perspective of the instructional technology has shifted its focus from instructional media, and process to the learning science rooted in the constructive theory: and this movement well reflects the current IT trend which highlights the learners, the process, and the context more than the teachers, designers, and the products.

In accordance with IT trend and on the basis of systems theory, communication theory, and learning theory, Instructional Systems Design(ISD) has evolved into one major discipline in the field of educational technology(엄우용, 2000).

‘Instructional design’, ‘instructional development’, ‘instructional systems

design(ISD)’ or ‘instructional systems design and development’ all can be defined as a systematic process that integrates the creative and scientific knowledge of technology into developing education programs.

The three main functions of ISD models are as follows: “to provide the conceptual and communication tools that we can visualize, direct, and manage processes for generating episodes of guided learning; to allow us to view both the linear and concurrent aspects of instructional development, and to allow us to select or develop appropriate instructional tools”(Gustafson, 1997, p.18.). Although there are numerous instructional design models, all ISD models include “the key elements of analysis, design, development, implementation, and evaluation(ADDIE) to ensure congruence among goals, objectives, strategies, and evaluation, and the effectiveness of the resulting instruction”(Gurtafson & Branch, 2007, p.11.).

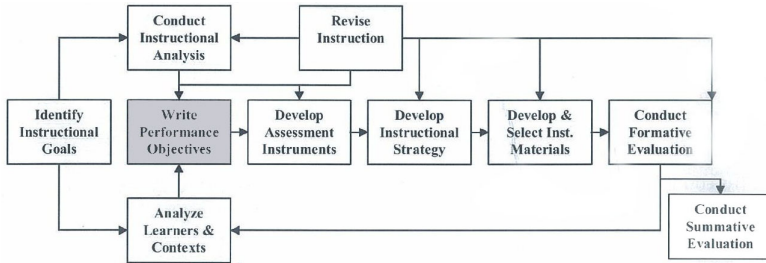
Two approaches of system design, which are systematic and systemic view, have to be clarified and intertwined in selecting and implementing the ISD model. Whereas the systematic approach refers to a linear process in which each stage follows a prescribed, logical order, the systemic approach is a holistic, multidirectional, and creative process to the instructional design(Thomas, Mitchell, & Joseph, 2002). The insights of how our body or cars function effectively might help ISD designers understand the importance of balancing both systematic and systemic processes in their instructional design. Orchestrating three aspects of art, science, and humans in the process will lead to the successful instructional design and its application.

2. Dick & Carey's ISD Model

Dick & Carey's systemic and systematic view of instruction is that every instructional component such as teacher, students, materials or media, and learning context is interrelated and affect each other. And the interdependency of each component exchanging the input and output is geared to the operation of the entire instructional system and the feedback to determine if the instructional goals have been reached (Dick & Carey, 1996).

In order for the whole instructional system to bring about the desired learning outcomes, all the components should play an explicit and implicit role in the process and interact effectively(Dick & Carey, 1996). Dick & Carey's ISD model as a procedural approach describes the instructional system in view of analysis, design, development, implementation, and evaluation(Dick & Carey, 1996).

Dick & Carey's ISD model consists of nine interconnected components or steps of instruction: 1) determining instructional goal, 2) analyzing the instructional goal, 3) analyzing learners and contexts, 4) writing performance objectives, 5) developing assessment instruments, 6) developing instructional strategy, 7) developing and selecting instruction, 8) designing and conducting the formative evaluation of instruction, and 9) revising instruction. Conducting summative evaluation, though an important step, is not regarded as the part of the design process(Dick & Carey, 1996).



Pattern-coded Dick and Carey ISD Model (modified from Dick & Carey, as cited in Gustafson & Branch, 1997)

The following is a more detailed description of each step of Dick & Carey’s ISD model.

The first step of identifying instructional goal is the most critical event since it sets the direction for the entire instructional process. At this stage, what the teacher wants learners to achieve and what kind of outcomes the teacher would expect from learners after the whole learning will be described(Dick & Carey, 1996).

At the second step of analyzing the instructional goal, what skills and knowledge regarded as 'entry behaviors' the learners should equip will be determined(Dick & Carey, 1996).

At the third step of analyzing learners and contexts, learners’ skills, background, and attitudes are examined along with the analysis of context wherein both instruction and application will be processed. This information will contribute to shaping the succeeding steps of the ID, and especially the instructional strategy(Dick & Carey, 1996).

The fourth step of writing performance objectives requires teachers to write specific statements of what the learners are to achieve after the instruction, based on the instructional analysis and the findings of entry behaviors(Dick & Carey, 1996).

At the fifth step of developing assessment instruments, the assessing tools and criteria measuring the learner's ability in relation to the performance objectives will be developed(Dick & Carey, 1996).

The sixth step of developing instructional strategy requires teachers to identify what strategies they plan to use to achieve the instructional goals and objectives. The strategies including pre-instructional activities, presentation, practice and feedback, and follow-through activities and are based on current knowledge of the learning process, instructional content, and learners' characteristics(Dick & Carey, 1996).

At the seventh step of developing and selecting instruction, teachers use the instructional strategy to produce the instruction, referring to the learner's manual, instructional materials and guide, and tests(Dick & Carey, 1996).

The eight step is the stage of designing and conducting the formative evaluation of instruction. In order to identify how to improve the instruction, the three types of evaluation, which are 'one-to-one evaluation', 'small-group evaluation', and 'field evaluation' are conducted (Dick & Carey, 1996).

The final step is to revise the instruction with the data obtained from the formative evaluation. The data are not only used to revise the instruction but are used to reexamine the validity of the instructional analysis and the assumptions about learners' entry behaviors(Dick & Carey, 1996).

Although the summative evaluation is not considered as an integral part of ID process, it evaluates the absolute value or effectiveness of the instruction and occurs after the formative evaluation and the

sufficient revisions(Dick & Carey, 1996).

Dick & Carey(1996) have concluded three main advantages of systematic approaches to instructional design. The first advantage is that planning and implementing steps can be adequate and effective with the precise statement of the instructional goals. Next, "the linkage between each component, especially the relationship between the instructional strategy and the desired learning outcomes" is geared to the synergistic effect on the success of the whole instruction(Dick & Carey, 1996, p.8). And last but not least, the greatest value of ISD is that it is pragmatic, experimental, creative, modifiable, and revisable (Dick & Carey, 1996).

In summary, teachers can use Dick & Carey's ISD model as both a conceptual and practical framework to develop their own ISD model adjusted to their learners, instructional resources, and the environment as when people create their own recipe after applying the recipes of the cookbook to their own kitchen context(Dick & Carey, 1996).

3. Analysis of Learners' Needs

"Identifying the learners' needs and their characteristics is crucial because different types of audiences will influence the method of instruction, the selection of content, the functionality for products, and the level of simplicity design"(Brinck, Gergle, & Wood, as cited in Roh, 2004, p.215.). Offering the scenario of a group of monks who are novice learners to the technology, Roh(2004) uses the pertinent metaphor highlighting the significance of analyzing learners' needs.

Analysis of the learners, their educational needs, and the context in which they will use the information are all essential steps within the model that ensure that the target population's needs will be addressed (Carlton, Kicklighter, Jonnalagadda, & Shoffner, 2000). The information obtained through the analysis of adult learners' needs will foster the students' meaningful, self-directed, and constructive learning experience (Leh, 2002).

In conclusion, analysis of learner's needs should be viewed as fundamental composition of ISD so their needs should determine the choice of instructional activities and not vice versa (Panasuk, & Todd, 2005). To make the best of instructional system design, learners should be regarded as good resources, not as the concept of traditional learners, and knowledge of subject areas as well as technology expertise should be well balanced (Leh, 2002).

V. Findings and Discussion

Through the needs analysis, the following information has been gathered:

- 1) Over 90% of the students have expressed that they have had an urgent need to improve their English competence to better prepare for the job market in the near future.
- 2) They have had an intention to open either an English institute or an English kindergarten, or to work as an English teacher at English-related private institutes.
- 3) Their readiness for the program has revealed such an extreme

gap in terms of English proficiency and field experience so it seemed skeptical to satisfy all their various needs to their full content. The discrepancy between the curriculum and their competence has often made both instructors and students feel frustrated and ineffective.

- 4) Approximately 80% of learners have answered that they are satisfied with the overall program, the curriculum, the content of the subjects, and the instructors.
- 5) About one fifth of learners have answered that they feel comfortable at applying some instructional softwares to their teaching context; and the rest of the learners have mentioned that they need to develop their competence in instructional technology.

The information obtained through the analysis of adult learners' needs has proposed that creating a learning community and activating blended e-learning activities outside the class should foster the students' meaningful, self-directed, and constructive learning experience(Leh, 2002). Through needs analysis, we have reached the conclusion that improving their English competence was the most urgent need so that building a learning community and creating appropriate learning activities should be prerequisites, and essential to their achievement.

In identifying the learners' needs and the rationale for the learning activities, the need to choose either on-line or off-line learning activities has emerged. The interesting finding of the present study was that most young learners preferred the synchronous learning activities such as instant messengers, chat rooms, and phone meetings to the asynchronous learning activities such as e-mails, sharing journals, and ENIE(English Newspaper In Education).

Types of activities discussed include writing e-mails in English, collaborative writing activities, discussion on the phone, ENIE, and utilizing TV programs; yet we have decided to begin with two activities, which are, e-mailing in English and utilizing TV programs. Considering their temporal and geographical limitations, and their learning preferences, they have agreed that blended e-learning activities would be more appropriate and allow them to capitalize on the benefits of both.

All the learners have shown great interest and comfort in utilizing TV programs contrary to the instructor's interest in utilizing English newspaper. As ENIE programs haven't made noteworthy efforts to adapt to the educational trend and new technologies, there have been some innovative wave to integrate television into the school curriculum from the 70's(Shapley, 1991).

Many adult students spend much of their time watching television, so guiding them how to view actively and analytically and how to grasp and interpret the messages of the TV programs in English seems more appropriate and realistic than ENIE(Shapley, 1991). Therefore, it has been decided to make the trailblazing attempt to develop an effective instructional technology for teaching "mass media literacy, the ability to read and interpret the mass media which pervades our culture and lives" for the 21st century(Shapley, 1991, p.2.). This small but challenging action will enable learners to take advantage of the potential of television to improve their English competence.

Especially, blended e-learning activities have a potential to provide "the right information to the right people at the right times and

places”(Bialawski & Metcalf, 2003, p.13.). These blended e-learning activities performed by a learning community will offer effective and viable benefits. Additionally, they offer privacy, availability, social interaction, teamwork, knowledge construction, and self-paced, individualized learning and properly match the adult learner's self-directed, internally motivated, and experienced characteristics (Carlton, Kicklighter, Jonnalagadda, & Shoffner, 2000). Some of the benefits of student-centered e-learning activities also include "increased motivation to learn, greater retention of knowledge, and more positive attitude toward the subject being taught" in rich contexts(Felder & Brent, 1996, as cited in Artino, 2004, p.24.).

Then, how we should group students and how to structure the learning activities have been discussed. After the group has been determined, the instructor let each group decide more detailed procedures for performing the activities; each group has established individual roles, set the time, assignments, and the rules. Since they have lacked experience in TV program activities, the detailed methods and specific guidelines have been discussed fully and decided by the group.

Finally, it has been discussed how the instructor is going to facilitate, monitor, and give some feedback. Although assessing their activities and evaluating their improvement seem also crucial, providing just regular feedback has been chosen since these activities are learner-centered extra activities rather than teacher-directed regular activities. Additionally, if collaborative learning activities increase instructor workload and require a time commitment too great from the

beginning stage, more side effects would be predicted to happen. Thus, it seems more appropriate and feasible to give the learners the full autonomy and responsibility for those learning activities while providing frequent feedback to make all participants keep motivated and to let them know if they are on the right track.

VI. Conclusions and Implications

Throughout the entire development process and beyond, users (learners) play a critical role in the design of easy-to use products (practices of learning). After all, who knows more about which products are easy to use than the people who use them?(IBM, 2004, as cited in Roh, 2004, p.210.).

Although Clark & Dunn(1991, as cited in Panasuk, & Todd, 2005) underscored “planning is a psychological process of envisioning the future, and considering goals and ways of achieving them”, planning the instruction without properly comprehending the learners’ needs will become just a castle in the air. The focus of the Instructional System Design process should always be on the learners’ needs; if giving more attention to the learners’ characteristics, needs, and concerns rather than highlighting new exciting technologies, the ISD program will turn out authentic and alive(Roh, 2004).

The present study has attempted to focus on diagnosing the students’ needs that could become a starting point and hold some promise for developing the well modified instructional system design

rather than to provide a complete prescription for the quality and effectiveness of teachers and programs. The present study also has reflected only the partial perspective of Dick & Carey's ISD model.

Future study should integrate the other components of ISD into program development while remembering the fact that the perfect ISD model never exists, and that refinement is an ongoing process. The adult educators should continually modify the original ISD model, communicate with the students, and customize to their needs, expectations, and concerns to make ISD optimal.

Whether the target group participating in this learning community will continue those learning activities and making a continuous effort to improve their English competence remains unanswered, yet the following suggestions have been made to activate the function of students' learning community with the common goal of "collective inquiry"(이상수 & 김희수, 2003, p.99.).

- 1) All members should contribute to creating and sharing new knowledge and experiences with utilizing learning resources.
- 2) They should be autonomous and responsible for shaping their own learning culture and group identity and vision.
- 3) Learning activities should be flexible, practical, and beneficial to the members.
- 4) The continuous efforts are to be made to support the high standard of sustaining interaction, and communication.

Learning communities will provide the learner with the quality learning context where learners will be actively engaged in collaborative, meaningful, and democratic process of learning; and this will lead to

the achievement of main goals corresponding to the current needs of adult and continuing education(Choi, 2005). In addition, learning communities can improve a knowledge management system that has recently influenced the field of instructional design; especially instructional technology that has enabled organizations to manage, gather, filter, diffuse the useful knowledge(Gustafson, 2002). Future research efforts should focus on building a better organized and solid learning community that promotes “the exchange of knowledge, experiences, culture and information in the field of education through the human network”(Choi, 2005, p.160.).

The recent demands for upgrading or eliminating teacher education programs seem timely for research and development of policies, programs, and practices to enhance teacher quality and effectiveness; we have a “window of opportunity” to bring about significant contributions to the adult education program and to the education of children(Hawley, 1985, p.7.). Adult educators should continue to develop the instructional system capitalized adult learners’ experience and needs.

It is hoped that what is presented here will provide useful insights for understanding the importance of needs analysis, instructional design and development, and the production process in the field of higher education. Further, that it will serve as a stepping stone to design the optimal ISD for adult learners in the program, and to create more effective and desirable learning communities and blended e-learning activities.

〈국문초록〉

실제적이고 효과적인 교수설계를 위해

– 성인학습자의 요구분석과 학습의 실천을 중심으로

최근 영어 사교육 시장의 극적인 팽창과 더불어 영어능력이나 교사경력이 부족한 많은 성인학생들이 영어를 가르치는 직업분야에 관심을 집중하고 있다. 본 논문은 성인교육 원칙과 맥을 같이 하는 최근의 영어교육방법론에 대한 인식의 전환과 교수설계기법(Instructional System Design)의 통합을 목적으로 삼았다.

본 논문은 다음 네 가지 이슈에 초점을 맞추었다:

첫째, Dick & Carey의 ISD 모형의 개념과 가치를 규명하기,

둘째, Dick & Carey의 ISD 모형에 기초해 40명의 영어교사 후보자들의 요구를 분석하기

셋째, 성인학습에 대한 실천적 방안을 계획하기

넷째, 학습공동체와 학습활동에 대한 장점과 실행방안을 논하기

특히 본 논문은 교수설계자로서의 성인교육자들이 실질적 교수활동뿐만 아니라 교육목표와 교수환경에 대한 계획을 수립할 때 학습자의 요구를 최우선으로 고려해야 한다는 확신을 갖고 ISD 설계 과정의 각 단계에 성인학습자의 요구를 반영시키려고 시도했다. 성인학습자의 요구분석에 근거한 본 연구는 성인학습자의 영어능력을 신장시키는 것이 최우선 과제라는 것을 규명했고, 따라서 학습공동체와 블렌디드 이러닝 활동을 장려하는 것이 자기 주도적이고 의미 있는 학습경험을 제공한다는 결과를

도출했다.

주제어 : 요구분석, 교수설계, 자기 주도적 성인학습자, 혼합형 이 러
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〈Abstract〉

Making Instructional System Design Authentic and Alive

: With a Focus On Analyzing Adult Learners' Needs and
Developing Practices of Learning

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Recently the market for the private English sectors has been expanded dramatically, more adult students lacking in both competence and experience are being attracted to teaching English. Reflecting some important phenomena of the current education paradigm shift and the trend of instructional technology holding the spotlight in the field of adult education, this paper has focused on four issues:

- 1) discussing the concept and value of Dick & Carey's ISD model, 2) analyzing 40 English teacher candidates' needs based on Dick & Carey's ISD model,
- 3) designing some effective practices of learning, and
- 4) discussing the advantages and implementations of the learning community and learning activities.

Especially, the present study has attempted to place adult learners at the center of ISD process with a strong belief that learners' needs should be considered first when adult educators as instructional system designers establish goals, objectives, contexts as well as all aspects of

the instructional tasks.

The findings of the study shows that the analysis of adult learners' needs has proposed that creating a learning community and activating blended e-learning activities outside the class should foster the students' meaningful, self-directed, and constructive learning experience(Leh, 2002). The present study implies that improving their English competence was the most urgent need so that building a learning community and creating appropriate learning activities should be prerequisites, and essential to their achievement.

Key words : needs analysis, Instructional system design, self-directed adult learner, blended e-learning, learning communities

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