

# A Study of Model-Building for the Introduction of Instructor-Systems on Business

Ching-Wen (Steven) Pai, Shao-Tzy (Janet) Lin\*

Assistant Professor, Department of Recreation Business Management, De Lin Institute Technology.

Ph. D student, Department of Industrial Technology Education, National Taiwan Normal University.\*

## Abstract

This study has tried to build a strategic, practical model for the introduction of instructor-systems on business in order to help businesses planning such programs. The research method could be summarized into three categories: the literature longitudinal research method included literature review, expert interview. Initial model with the Delphi method, research used questionnaire survey to set up the hierarchical structure of instructor system indicators. The researcher not only reclaimed, summarized, and analyzed the data, but also gave Delphi experts feedback with the second questionnaire. The last method was another expert questionnaire investigation method. The research used Analytic Hierarchy Process (AHP) method to establish the relative weight of instructor system indicators. This research developed three levels (system dimension, main section, and indicator) to establish the model, which are the system dimension of instructor indicators on business included analyze the demands of corporate instructor, confirm the purpose of instructor system, define the role of instructor, planning instructor systems and training programs, implement instructor practical teaching, and evaluation instructor establishing programs. The instructor-system indicators could be divided into six system dimensions, including 16 main sections which were consisted with 54 indicators. Finally the research completed the relative weights of instructor-system indicators for business. Research provided concrete suggestions to corporate and those who were interested in the related topics.

**Keyword:** instructor-system, model-building, indicators, relative weight

## 企業導入內部講師制度模式之研究

白景文、林韶姿\*

德霖技術學院休閒事業管理系助理教授、台灣師範大學工業科技教育系博士班研究生\*

## 摘要

本研究嘗試建構策略性實務模式，協助企業導入內部講師制度，研究目的為以系統研究方法建立內部講師模式、建立對企業實用的發展程序，以及提供企業導入內部講師系統的整合性參考。研究方法運用了文件分析、深度訪談、德懷術問卷與階層分析程序法。本研究發展三個層次（包含系統構面、主要構面與指標）建構模式，系統構面為分析企業內部講師的需求、確認內部講師系統的目的、定義內部講師角色、計畫內部講師系統與訓練方案、實施內部講師實際教學，以及評鑑內部講師建立的方案。最後獲致的結論為內部講師系統應符合企業策略的目的和規劃為不同的層面，整理後的內部講師系統模式分為六個系統構面與五十四個指標可資運用，導入企業內部講師系統應按照生命週期以符合企業的需求。

**關鍵字：**內部講師制度、建立模式、內部講師、相對權重

## I. INTRODUCTION

In the study of training subject, instructors often play the key role for breeding the next generation. Corporate have expect instructor who know organization culture, learning how to learn, because they are teachers in the company.

A lot of manufacturing and service industry own their unique production technology, know-how and know-why. They don't only rely on outside trainer, but also look for inner instructor. Instructor must be asking for more useful and effective, they will receive a serial of training courses. For example, corporate will arrange need assessment, design, development, implement, evaluate the instructor training programs.

This study has tried to build a strategic, practical model for the introduction of instructor-systems on business in order to help businesses plan such programs. Therefore, the purpose of this study is as follow:

- A. To build an instructor-model with systematic research methods.
- B. To establish a developmental process can be utilized for business.
- C. To offer integrated references for the introduction of instructor-systems on business.

The paper is organized as follows: section two proposes a research development based on the study of instruction design, curriculum development and training development theory; section three describes the research methods used in this study; section four describes the analytical method employed herein and presents the results of data analysis. Finally, section five, research summarizes the results of statistical analysis and present some discussions and suggestions.

## II. LITERATURE REVIEW

Model building has many advantages: a. the process could be systemized and categorical; b. the fundamental element has connection with process; c. support management programs and control process tools; d. provide to verify the theory integration and practice application; e. when the future designers apply the process, they will plan according to the model (Seels & Glasgow, 1990).

This research based on the reference prototype of instruction design, curriculum development and training development models. These models will be introduced as follows:

Walter & Schuller (1973) design the IDI Model (figure 1). It describes instruction design in three stages and nine steps. The first stage called define, it contains three steps: identify problem, analyze setting and organize management. Second, the next stage called develop, it includes three steps: identify objectives, specify methods and construct prototypes. Last stage called evaluate, there are three steps: test prototypes, analyze results and implement recycle. IDI Model circulates in process to further the knowledge of instruction design.

Air Force Model is also an instruction design model since 1975(figure 2). The model contains five elements: (Seels & Glasgow, 1990)

- A. Analyze system requirements.
- B. Define education/training requirements.
- C. Develop objectives and tests.
- D. Design instruction process and materials.
- E. Conduct and evaluate instruction.

As the figure 2, the model shows feedback and interaction connects each element with others. Therefore, Air Force Model based on design of system concept. The model attaches great importance to information feedback and interaction with elements.

Dick & Carey (1985) argued the concept of instruction design (figure 3). At first, Identify

instructional goal makes sure the program and title then start object analysis of conduct instructional analysis and identify entry behaviors or characteristics. Write performance objectives, develop criterion-referenced test item, and develop instructional strategy is next three steps. After that, develop and select instructional materials, implement the programs. Finally, design and conduct formative and summative evaluation. Dick & Carey Model discuss the range and format of evaluation especially.

Another model, Seels & Glasgow Model, is still instruction design has 10 steps (figure 4) as follows: (Seels & Glasgow, 1990)

- A. Program analysis
- B. Task and instructional analysis
- C. Objectives and tests
- D. Instructional strategy
- E. Media decisions
- F. Materials development
- G. Formative evaluation
- H. Implementation maintenance
- I. Summative evaluation
- J. Dissemination diffusion

At last, this research summarizes these models and theories, model-building for the introduction of instructor-system should be contain several elements as follows:

- A. Demand of plan
- B. Objective of Plan
- C. System plan
- D. Training program plan
- E. Implement plan
- F. Evaluation plan
- G. Feedback plan

### III. RESEARCH METHOD

For the purpose of this research, the research method is literature review, expert interview, questionnaire survey of Delphi, and Analytic Hierarchy Process (AHP).

On the basis of literature review, this research looks for 10 persons who are human resource managers and training academic professors to take expert interview in Taiwan. They support the content and initial model of the research. Another Delphi method focus the subject of research, researcher implement several round of surveys from the expert, scholar and practitioner.

Key characteristics of the Delphi technique include (Loughlin & Moore,1979; Whitman,1990):

- A. The use of a panel of 'expert' for obtaining data.
- B. Participants do not meet in face-to-face discussions
- C. The use of sequential questionnaires and/or interviews.
- D. The systematic emergence of a concurrence of judgment/opinion.
- E. The guarantee of anonymity for subject's responses.
- F. The use of frequency distributions to identify patterns of agreement.
- G. The use of two or more rounds between which a summary of the previous round is communicated to and evaluated by panel members.

The researcher collects the final consistence information to receive the effective path of problem solving. Hence, Delphi method can help the model-building more complete. The Delphi questionnaires

were carried out four times. The pools of Delphi experts include the following:

- A. Scholars or experts who have deeply explored the issue with instructors.
- B. Professionals who have much experience in instructor-training.
- C. Instructors in the business.
- D. Consultants with much experience in introducing instructor systems.

After that, researchers invite 14 experts who participate in the questionnaire survey of Delphi.

AHP, introduced by Satty, is based on the idea that a complex issue can be effectively examined if it is hierarchically decomposed into its parts (Satty, 1980). AHP implement entails a hierarchy whose top level reflects the overall objective: the flows. Criteria on which the focus is dependent are listed at intermediate levels, while the lowest level includes the alternatives. An element at a higher level is said to be a governing element for those elements at lower level. Elements at a certain level are compared to each other with reference to their effect on the governing element (Khorramshahgol & Moustakis, 1988).

In this research, AHP method support to weight three levels. There are indicators, main-sections and system dimensions in the instruction model. Research had invited 60 experts for AHP question, received 55 questionnaires at last. AHP use Consistency Ratio (C.R.) evaluate consistent of paired comparative matrix.  $C.R. = C.I./R.I.$  (C. I. means Consistency Index & R. I. means Random Index). Satty(1980) suggest that  $C.R. \leq 0.1$  means consistency of the matrix can accept and has reliability; otherwise, can not accept and hasn't reliability. After consistence test of single level,  $C.R.H.(\text{Consistency Ratio of Hierarchy}) = C.I.H.(\text{Consistency Index of Hierarchy}) / R.I.H.(\text{Random Index of Hierarchy}) \leq 0.1$  means consistency of the all hierarchies can accept and have reliability; otherwise, can not accept and hasn't reliability.

In the validity, this content of questionnaire from literature review, expert revise and 3 rounds of Delphi experts correct the results. It has content validity and expert validity.

## IV. RESEARCH RESULTS

Initial model made from literature review and expert interview (figure 5). There are 7 system dimensions and 42 indicators from initial model describe Round 1 questionnaires (table 1, left side).

Delphi method collected expert opinions after Round 1, researchers revised the content of model and prepare questionnaire for Round 2. There are 6 system dimensions and 55 indicators describe Round 2 as follow (table 1, right side).

Delphi method collected expert opinions after Round 2&3, researchers revised the indicators of model for Round 3(table 2, left side) and Round 4(table 2, right side). From Round 2 to Round 4, the expert did not change system dimension. After Round 4 of Delphi questionnaire received, 14 experts had common consensus and no comment at any element of the model. At the end, the process of Delphi method stop, this research had developed the final model include 6 system dimensions and 54 indicators (table 3, left side).

Before implement AHP method, research found many dimension has 8-10 indicators. G. A. Miller, in 1956, found human can not comparative things over 7 at the same time. Green and Yoram, in 1973, also mansion quality of judgment should not over 7 (citation from Deng, Z. U. & Tseng, K. S., 1989). If a complex issue has n indicators, paired-comparison should do  $(n-1)/2$  judgments. Therefore, indicators are less than 7, paired-comparison will go effective, easy, and gain best consistence.

The final model has 6 system dimensions and 54 indicators. For the reason of AHP, the model will become 6 system dimensions, 16 main sections and 54 indicators (table 3, right side). The results of AHP, every C.R. of system dimensions and main sections are less than 0.1. and  $C.R.H. = 0.07015$  is less than 0.1, too (table 4). Every system dimension, main section and indicator has its relative weight. The weight of indicator, for example 1-1-a. (table 4), is  $0.052=0.271$  (relative weight of system

dimension 1) × 0.414 (relative weight of main section 1-1) × 0.447 (relative weight of indicator 1-1-a), etc.

Table 3. The Final Model compare with AHP Questionnaires

The Final Model	AHP Questionnaires
1. Analyze the demands of corporate instructor 1-1. analyze corporate strategy 1-2. analyze technological ability of business 1-3. analyze being a instructor ability of employee 1-4. analyze employee aspiration be a instructor 1-5. analyze corporate culture 1-6. analyze budget or other resource can be used 1-7. analyze implement instructor system of other corporate experience	1. Analyze the demands of corporate instructor 1-1. need for organization 1-1-a. analyze corporate strategy 1-1-b. analyze corporate culture 1-1-c. analyze implement instructor system of other corporate experience 1-2. need for team 1-2-a. analyze budget or other resource can be used 1-2-b. analyze technological ability of business 1-3. need for employee 1-3-a. analyze being an instructor ability of employee 1-3-b. analyze employee aspiration be a instructor
2. Confirm the purpose of instructor system 2-1. make sure training policy and topic of corporate 2-2. build up learning culture of corporate 2-3. supporting core technology of business 2-4. raising inner teach quality of corporate 2-5. reduce outside training cost of corporate 2-6. second professional specialty training for the instructor 2-7. support employee improve workflow and raise performance 2-8. support employee make sure career objective 2-9. help employee self-development 2-10. cohere employee common consensus and culture of corporate	2. Confirm the purpose of instructor system 2-1. corporate goals 2-1-a. make sure training policy and topic of corporate 2-1-b. build up learning culture of corporate 2-1-c. supporting core technology of business 2-1-d. raising inner teach quality of corporate 2-1-e. reduce outside training cost of corporate 2-2. employee goals 2-2-a. second professional specialty training for the instructor 2-2-b. support employee improve workflow and raise performance 2-2-c. support employee make sure career objective 2-2-d. help employee self-development 2-2-e. cohere employee common consensus and culture of corporate
3. Define the role of instructor 3-1. professional knowledge guidance 3-2. work ethics and attitude guidance 3-3. corporate culture and operating guidance 3-4. training information integrator 3-5. training materials developer 3-6. training performance evaluator 3-7. problem finder and improving solver 3-8. communicator of corporate policy and employee demand 3-9. employee counseling consultant 3-10. inner corporate management consultant	3. Define the role of instructor 3-1. strategy consultant 3-1-a. inner corporate management consultant 3-1-b. employee counseling consultant 3-1-c. corporate culture and operating guidance 3-1-d. communicator of corporate policy and employee demand 3-2. training practitioner 3-2-a. training information integrator 3-2-b. training materials developer 3-2-c. training performance evaluator 3-3. knowledge expert 3-3-a. problem finder and improving solver 3-3-b. professional knowledge guidance 3-3-c. work ethics and attitude guidance

Table 3. The Final Model compare with AHP Questionnaires (continued)

The Final Model	AHP Questionnaires
<p>4. Plan instructor systems and training programs</p> <p>4-1. formulate the qualifications of instructor</p> <p>4-2. divide instructor with level and category</p> <p>4-3. formulate training and employment rules of instructor</p> <p>4-4. establish the rights and responsibilities</p> <p>4-5. revise other corporate rules</p> <p>4-6. select the candidates of instructor</p> <p>4-7. design the training programs of instructor</p> <p>4-8. look for outside or academic training resources</p> <p>4-9. look for inside training resources</p> <p>4-10. evaluate practicable training programs</p>	<p>4. Plan instructor systems and training programs</p> <p>4-1. system planning</p> <p>4-1-a. formulate the qualifications of instructor</p> <p>4-1-b. divide instructor with level and category</p> <p>4-1-c. formulate training and employment rules of instructor</p> <p>4-1-d. establish the rights and responsibilities</p> <p>4-1-e. revise other corporate rules</p> <p>4-2. training program</p> <p>4-2-a. select the candidates of instructor</p> <p>4-2-b. design the training programs of instructor</p> <p>4-2-c. look for outside or academic training resources</p> <p>4-2-d. look for inside training resources</p> <p>4-2-e. evaluate practicable training programs</p>
<p>5. Implement instructor practical teaching</p> <p>5-1. understanding characteristics and demand of learner</p> <p>5-2. comprehend the character and goal of program</p> <p>5-3. prepare teaching plan for learner and business purpose</p> <p>5-4. develop materials fulfill teaching</p> <p>5-5. lay out properly teaching environment</p> <p>5-6. construct effective situation of learning</p> <p>5-7. use well-arranged teaching method</p> <p>5-8. use teaching aids adequately</p> <p>5-9. proceed instruction evaluation to tie in curriculum goals</p>	<p>5. Implement instructor practical teaching</p> <p>5-1. prepare teaching</p> <p>5-1-a. understanding characteristics and demand of learner</p> <p>5-1-b. comprehend the character and goal of program</p> <p>5-1-c. prepare teaching plan for learner and business purpose</p> <p>5-1-d. develop materials fulfill teaching</p> <p>5-1-e. lay out properly teaching environment</p> <p>5-2. instructor practices</p> <p>5-2-a. use well-arranged teaching method</p> <p>5-2-b. use teaching aids adequately</p> <p>5-2-c. proceed instruction evaluation to tie in curriculum goals</p> <p>5-2-d. construct effective situation of learning</p>
<p>6. Evaluate instructor establishing programs</p> <p>6-1. evaluate need analysis of instructor</p> <p>6-2. evaluate the objective of instructor training system</p> <p>6-3. evaluate role function of instructor</p> <p>6-4. evaluate instructor system and training program</p> <p>6-5. evaluate the performance of instructor</p> <p>6-6. evaluate cost-benefit analysis of program</p> <p>6-7. evaluate information feedback system</p> <p>6-8. evaluate the instructor system aligned organization strategy</p>	<p>6. Evaluate instructor establishing programs</p> <p>6-1. context evaluation</p> <p>6-1-a. evaluate need analysis of instructor</p> <p>6-1-b. evaluate the objective of instructor training system</p> <p>6-2. input evaluation</p> <p>6-2-a. evaluate role function of instructor</p> <p>6-2-b. evaluate instructor system and training program</p> <p>6-3. process evaluation</p> <p>6-3-a. evaluate the instructor system aligned in organization strategy</p> <p>6-3-b. evaluate information feedback system</p> <p>6-4. output evaluation</p> <p>6-4-a. evaluate the performance of instructor</p> <p>6-4-b. evaluate cost-benefit analysis of program</p>

## V. CONCLUSION

Regarding the results, the conclusion is described below:

- A. Instructor systems were expected to be all-purpose of corporate policy.
- B. Instructor systems were planned with several sequences.
- C. The Instructor-systems model of this research has 6 system dimensions, 16 main sections, and 54 indicators. System dimension included analyze the demands of corporate instructor, confirm the purpose of instructor system, define the role of instructor, plan instructor systems and training programs, implement instructor practical teaching, and evaluate instructor establishing programs
- D. There were differences in life cycle and degree of demand for businesses in the implementation of instructor systems. Indicators sequence at no.1 to 10 will support plan and model-building of corporate.

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## APPENDIX

Table 1. Round 1& Round 2 Delphi questionnaires

Round 1: Delphi method questionnaire	Round 2: revised questionnaire after Round 1
1. Analyze the demands of corporate instructor	1. Analyze the demands of corporate instructor
1-1. operating concept communication	1-1. analyze organizational strategy
1-2. support professional knowledge	1-2. analyze technological ability of business
1-3. support technique continue education	1-3. analyze competition of business
1-4. support growth of employee ability	1-4. analyze employee competency
	1-5. analyze employee aspiration for training
	1-6. analyze corporate culture
	1-7. analyze budget
	1-8. analyze benchmarks or other's experience
2. Define instructor	2. Confirm the purpose of instructor system
2-1. professional knowledge guidance	2-1. make sure training policy and topic
2-2. work ethics and attitude guidance	2-2. build up learning culture
2-3. corporate culture and operating guidance	2-3. supporting core technology of business
2-4. training information integrator	2-4. raising teach quality
2-5. training materials developer	2-5. reduce outside training cost
2-6. training performance evaluator	2-6. second professional specialty training
2-7. problem finder and improving solver	2-7. training be a instructor
	2-8. improve workflow and raise performance
	2-9. employee make sure career objective
	2-10. help employee self-development
	2-11. cohere common consensus and culture
3. Building up instructor issue	3. Define the role of instructor
3-1. make sure business policy and topic	3-1. professional knowledge guidance
3-2. maintain business ethics	3-2. work ethics and attitude guidance
3-3. breed up talent	3-3. corporate culture and operating guidance
3-4. build up learning culture	3-4. training information integrator
	3-5. training materials developer
	3-6. training performance evaluator
	3-7. problem finder and improving solver
	3-8. communicator of corporate policy and employee demand
	3-9. employee counseling consultant
	3-10. inner corporate management consultant
4. Setting up learning culture	
4-1. transfer professional knowledge and skills	
4-2. raising teach quality	
4-3. reduce outside training cost	
4-4. team building and collaboration experience	
4-5. second professional specialty training	
4-6. supporting and sharing work experience	
4-7. find question, tools and solution	
4-8. employee make sure career policy	
4-9. training be a instructor	

Table 1. Round 1& Round 2 Delphi questionnaires (continued)

Round 1: Delphi method questionnaire	Round 2: revised questionnaire after Round 1
5. Plan instructor programs	4. Plan instructor systems and training programs
5-1. formulate the qualifications of instructor	4-1. formulate the qualifications of instructor
5-2. divide instructor with level and category	4-2. divide instructor with level and category
5-3. set up implement rules of instructor	4-3. formulate training and employment rules of instructor
5-4. establish the rights and responsibilities	4-4. establish the rights and responsibilities
5-5. revise a complete set of performance appraisal and promotion	4-5. revise other corporate rules
	4-6. select the candidates of instructor
6. Implement instructor teaching	4-7. design the training programs of instructor
6-1. understanding characteristics of learner	4-8. look for outside or academic training resources
6-2. comprehend the character of program	4-9. look for inside training resources
6-3. write teaching plan for business purpose	4-10. evaluate practicable training programs
6-4. prepare materials fulfill teaching	
6-5. use well-arranged teaching method	5. Implement instructor practical teaching
6-6. use teaching aids adequately	5-1. understanding characteristics of learner
6-7. proceed instructor evaluation	5-2. comprehend the character of program
6-8. control class situation and atmosphere	5-3. prepare teaching plan for business purpose
	5-4. write materials fulfill teaching
7. Evaluate instructor establishing programs	5-5. lay out properly teaching environment
7-1. administration support evaluation	5-6. use well-arranged teaching method
7-2. work process evaluation	5-7. use teaching aids adequately
7-3. cost-benefit analysis	5-8. proceed instructor evaluation
7-4. leaner satisfaction evaluation	
7-5. evaluate the training evaluation	6. Evaluate instructor establishing programs
	6-1. evaluate need analysis of instructor
	6-2. evaluate the objective of instructor training system
	6-3. evaluate role function of instructor
	6-4. evaluate instructor system and training program
	6-5. evaluate the performance of instructor
	6-6. evaluate cost-benefit analysis of program
	6-7. evaluate information feedback system
	6-8. evaluate organization strategy

Table 2. Round 3 & Round 4 Delphi questionnaires

Round 3: revised indicators after Round 2	Round 4: revised indicators after Round 3
1. Analyze the demands of corporate instructor	1. Analyze the demands of corporate instructor
1-1. <u>analyze corporate strategy</u>	1-1. <u>analyze corporate strategy</u>
1-2. analyze technological ability of business	1-2. analyze technological ability of business
1-3. analyze employee ability	1-3. <u>analyze being an instructor ability of employee</u>
1-4. <u>analyze employee aspiration be a instructor</u>	1-4. analyze employee aspiration be a instructor
1-5. analyze corporate culture	1-5. analyze corporate culture
1-6. <u>analyze budget or other resource can be used</u>	1-6. analyze budget or other resource can be used
1-7. <u>analyze implement instructor system of other corporate experience</u>	1-7. analyze implement instructor system of other corporate experience
2. Confirm the purpose of instructor system	2. Confirm the purpose of instructor system
2-1. <u>make sure training policy and topic of corporate</u>	2-1. make sure training policy and topic of corporate
2-2. <u>build up learning culture of corporate</u>	2-2. build up learning culture of corporate
2-3. supporting core technology of business	2-3. supporting core technology of business
2-4. <u>raising inner teach quality of corporate</u>	2-4. raising inner teach quality of corporate
2-5. <u>reduce outside training cost of corporate</u>	2-5. reduce outside training cost of corporate
2-6. <u>second professional specialty training for the instructor</u>	2-6. second professional specialty training for the instructor
2-7. training be a instructor	2-7. support employee improve workflow and raise performance
2-8. <u>support employee improve workflow and raise performance</u>	2-8. support employee make sure career objective
2-9. <u>support employee make sure career objective</u>	2-9. help employee self-development
2-10. help employee self-development	2-10. cohere employee common consensus and culture of corporate
2-11. <u>cohere employee common consensus and culture of corporate</u>	
*2-12. support or train managers to be a team coach	
3. Define the role of instructor	3. Define the role of instructor
3-1. professional knowledge guidance	3-1. professional knowledge guidance
3-2. work ethics and attitude guidance	3-2. work ethics and attitude guidance
3-3. corporate culture and operating guidance	3-3. corporate culture and operating guidance
3-4. training information integrator	3-4. training information integrator
3-5. training materials developer	3-5. training materials developer
3-6. training performance evaluator	3-6. training performance evaluator
3-7. problem finder and improving solver	3-7. problem finder and improving solver
3-8. communicator of corporate policy and employee demand	3-8. communicator of corporate policy and employee demand
3-9. employee counseling consultant	3-9. employee counseling consultant
3-10. inner corporate management consultant	3-10. inner corporate management consultant

Notes: 1. Revised indicators will draw underline. Added indicators will show “\*”.

2. Delete indicators at Round 3: 1-3 (from Round 2);

Delete indicators at Round 4: 2-7 & 2-12 (from Round 3).

Table 2. Round 3 & Round 4 Delphi questionnaires (continued)

Round 3: revised indicators after Round 2	Round 4: revised indicators after Round 3
4. Plan instructor systems and training programs	4. Plan instructor systems and training programs
4-1. formulate the qualifications of instructor	4-1. formulate the qualifications of instructor
4-2. divide instructor with level and category	4-2. divide instructor with level and category
4-3. formulate training and employment rules of instructor	4-3. formulate training and employment rules of instructor
4-4. establish the rights and responsibilities	4-4. establish the rights and responsibilities
4-5. revise other corporate rules	4-5. revise other corporate rules
4-6. select the candidates of instructor	4-6. select the candidates of instructor
4-7. design the training programs of instructor	4-7. design the training programs of instructor
4-8. look for outside or academic training resources	4-8. look for outside or academic training resources
4-9. look for inside training resources	4-9. look for inside training resources
4-10. evaluate practicable training programs	4-10. evaluate practicable training programs
5. Implement instructor practical teaching	5. Implement instructor practical teaching
5-1. <u>understanding characteristics and demand of learner</u>	5-1. understanding characteristics and demand of learner
5-2. <u>comprehend the character and goal of program</u>	5-2. comprehend the character and goal of program
5-3. <u>prepare teaching plan for learner and business purpose</u>	5-3. prepare teaching plan for learner and business purpose
5-4. <u>compile materials fulfill teaching</u>	5-4. <u>develop materials fulfill teaching</u>
5-5. lay out properly teaching environment	5-5. lay out properly teaching environment
*5-6. construct effective situation of learning	5-6. construct effective situation of learning
5-7. use well-arranged teaching method	5-7. use well-arranged teaching method
5-8. use teaching aids adequately	5-8. use teaching aids adequately
5-9. proceed instruction evaluation to tie in curriculum goals	5-9. proceed instruction evaluation to tie in curriculum goals
6. Evaluate instructor establishing programs	6. Evaluate instructor establishing programs
6-1. evaluate need analysis of instructor	6-1. evaluate need analysis of instructor
6-2. evaluate the objective of instructor training system	6-2. evaluate the objective of instructor training system
6-3. evaluate role function of instructor	6-3. evaluate role function of instructor
6-4. evaluate instructor system and training program	6-4. evaluate instructor system and training program
6-5. evaluate the performance of instructor	6-5. evaluate the performance of instructor
6-6. evaluate cost-benefit analysis of program	6-6. evaluate cost-benefit analysis of program
6-7. evaluate information feedback system	6-7. evaluate information feedback system
6-8. evaluate organization strategy	6-8. <u>evaluate the instructor system aligned organization strategy</u>

Notes: 1. Revised indicators will draw underline. Added indicators will show “\*”.

2. Delete indicators at Round 3: 1-3 (from Round 2);

Delete indicators at Round 4: 2-7 & 2-12 (from Round 3).

Table 4. Results of AHP

System Dimensions, Main Sections and Indicators	C.R.	Relative Weight	Weight	Sequence	
1. Analyze the demands of corporate instructor	0.050	0.271			
1-1. need for organization	0.070	0.414			
1-1-a. analyze corporate strategy			0.447	0.05024	1*
1-1-b. analyze corporate culture			0.312	0.03508	6*
1-1-c. analyze implement instructor system of other corporate experience			0.240	0.02699	13
1-2. need for team	0.000	0.302			
1-2-a. analyze budget or other resource can be used			0.522	0.04283	3*
1-2-b. analyze technological ability of business			0.478	0.03915	5*
1-3. need for employee	0.000	0.283			
1-3-a. analyze being an instructor ability of employee			0.620	0.04761	2*
1-3-b. analyze employee aspiration be a instructor			0.380	0.02922	10*
2. Confirm the purpose of instructor system	0.000	0.108			
2-1. corporate goals	0.090	0.628			
2-1-a. make sure training policy and topic of corporate			0.243	0.01647	22
2-1-b. build up learning culture of corporate			0.189	0.01280	32
2-1-c. supporting core technology of business			0.217	0.01469	29
2-1-d. raising inner teach quality of corporate			0.203	0.01379	30
2-1-e. reduce outside training cost of corporate			0.149	0.01009	40
2-2. employee goals	0.372	0.372			
2-2-a. second professional specialty training for the instructor			0.151	0.00607	54
2-2-b. support employee improve workflow and raise performance			0.244	0.00979	42
2-2-c. support employee make sure career objective			0.188	0.00756	51
2-2-d. help employee self-development			0.172	0.00689	52
2-2-e. cohere employee common consensus and culture of corporate			0.245	0.00984	41
3. Define the role of instructor	0.047	0.128			
3-1. strategy consultant	0.075	0.312			
3-1-a. inner corporate management consultant			0.233	0.00934	45
3-1-b. employee counseling consultant			0.236	0.00945	44
3-1-c. corporate culture and operating guidance			0.214	0.00857	49
3-1-d. communicator of corporate policy and employee demand			0.317	0.01269	33
3-2. training practitioner	0.050	0.422			
3-2-a. training information integrator			0.342	0.01851	19
3-2-b. training materials developer			0.307	0.01657	21
3-2-c. training performance evaluator			0.351	0.01897	18
3-3. knowledge expert	0.040	0.266			
3-3-a. problem finder and improving solver			0.476	0.01625	23
3-3-b. professional knowledge guidance			0.257	0.00878	47
3-3-c. work ethics and attitude guidance			0.267	0.00910	46

Notes: C.R.H. = C.I.H. / R.I.H. = 0.07015 ≤ 0.1  
 Indicators sequence at no.1 to 10 will show “\*”.

Table 4. Results of AHP (continued)

System Dimensions, Main Sections and Indicators	C.R.	Relative Weight	Weight	Sequence
4. Plan instructor systems and training programs	0.000	0.119		
4-1. system planning	0.071	0.558		
4-1-a. formulate the qualifications of instructor			0.242	0.01608 25
4-1-b. divide instructor with level and category			0.164	0.01090 38
4-1-c. formulate training and employment rules of instructor			0.188	0.01254 34
4-1-d. establish the rights and responsibilities			0.183	0.01219 35
4-1-e. revise other corporate rules			0.223	0.01481 28
4-2. training program	0.085	0.442		
4-2-a. select the candidates of instructor			0.160	0.00842 50
4-2-b. design the training programs of instructor			0.219	0.01152 37
4-2-c. look for outside or academic training resources			0.164	0.00865 48
4-2-d. look for inside training resources			0.202	0.01061 39
4-2-e. evaluate practicable training programs			0.255	0.01343 31
5. Implement instructor practical teaching	0.000	0.146		
5-1. prepare teaching	0.073	0.407		
5-1-a. understanding characteristics and demand of learner			0.271	0.01609 24
5-1-b. comprehend the character and goal of program			0.200	0.01189 36
5-1-c. prepare teaching plan for learner and business purpose			0.252	0.01496 27
5-1-d. develop materials fulfill teaching			0.164	0.00973 43
5-1-e. lay out properly teaching environment			0.113	0.00668 53
5-2. instructor practices	0.078	0.593		
5-2-a. use well-arranged teaching method			0.353	0.03058 8*
5-2-b. use teaching aids adequately			0.178	0.01539 26
5-2-c. proceed instruction evaluation to tie in curriculum goals			0.205	0.01772 20
5-2-d. construct effective situation of learning			0.264	0.02284 15
6. Evaluate instructor establishing programs	0.045	0.228		
6-1. context evaluation		0.220		
6-1-a. evaluate need analysis of instructor	0.000		0.550	0.02750 12
6-1-b. evaluate the objective of instructor training system			0.450	0.02254 16
6-2. input evaluation	0.000	0.243		
6-2-a. evaluate role function of instructor			0.483	0.02667 14
6-2-b. evaluate instructor system and training program			0.517	0.02858 11
6-3. process evaluation	0.000	0.234		
6-3-a. evaluate the instructor system aligned organization strategy			0.587	0.03125 7*
6-3-b. evaluate information feedback system			0.413	0.02198 17
6-4. output evaluation	0.000	0.304		
6-4-a. evaluate the performance of instructor			0.426	0.02943 9*
6-4-b. evaluate cost-benefit analysis of program			0.574	0.03972 4*

Notes: C.R.H. = C.I.H. / R.I.H. = 0.07015 ≤ 0.1

Indicators sequence at no.1 to 10 will show “\*”.

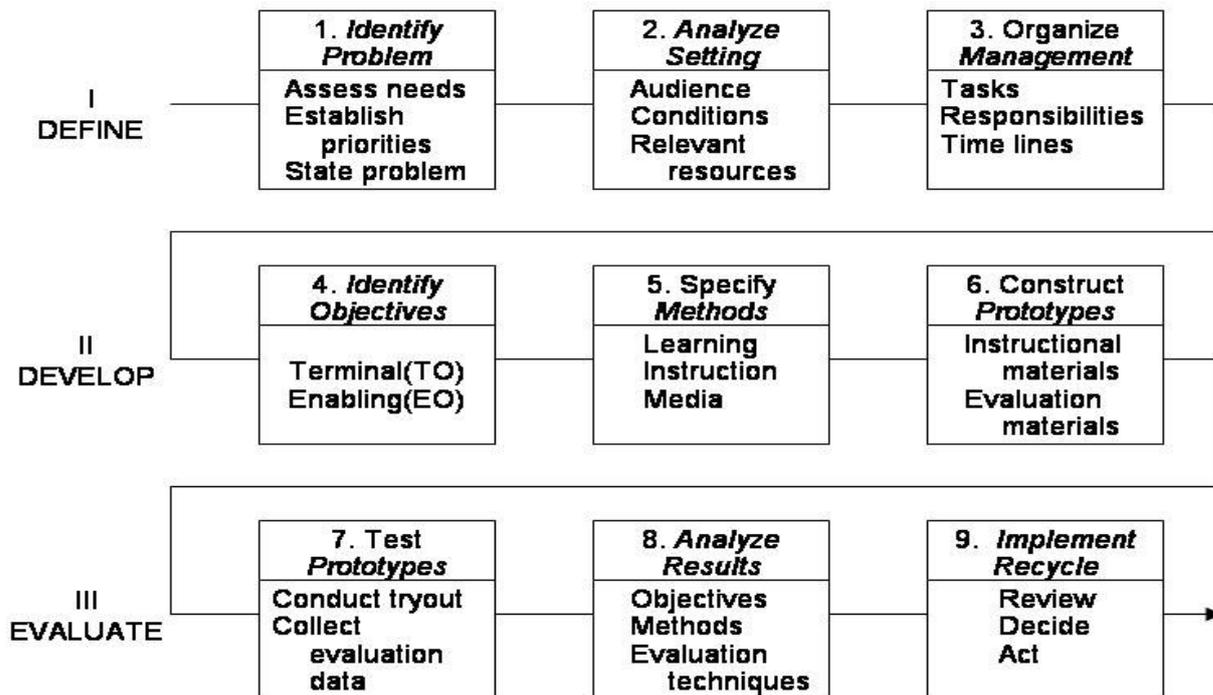


Figure 1: Walter, & Schuller develop IDI Model  
 (Source: Walter, W.A. & Schuller, C.F.(1973) *Instructional Technology: Its Nature and Use*, 5<sup>th</sup> ed, p.633.)

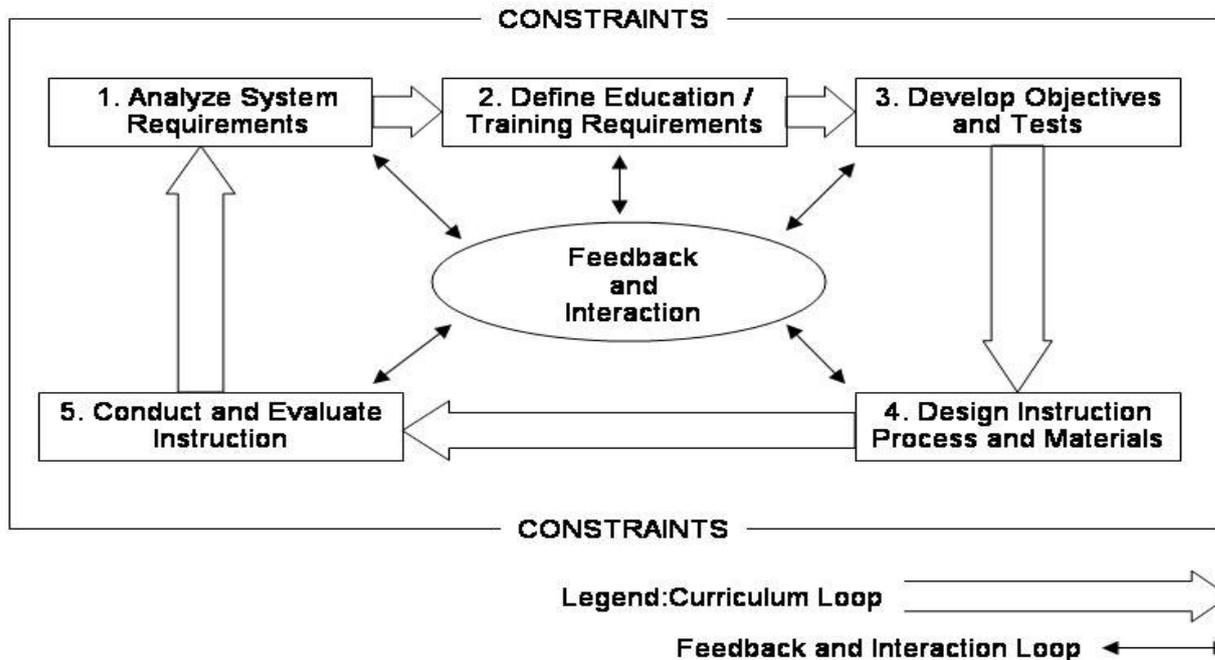


Figure 2: Air Force Model  
 (Source: Seels, B. & Glasgow, Z.(1990) *Exercise in Instructional Design*: Columbus, OH: Merrill.)

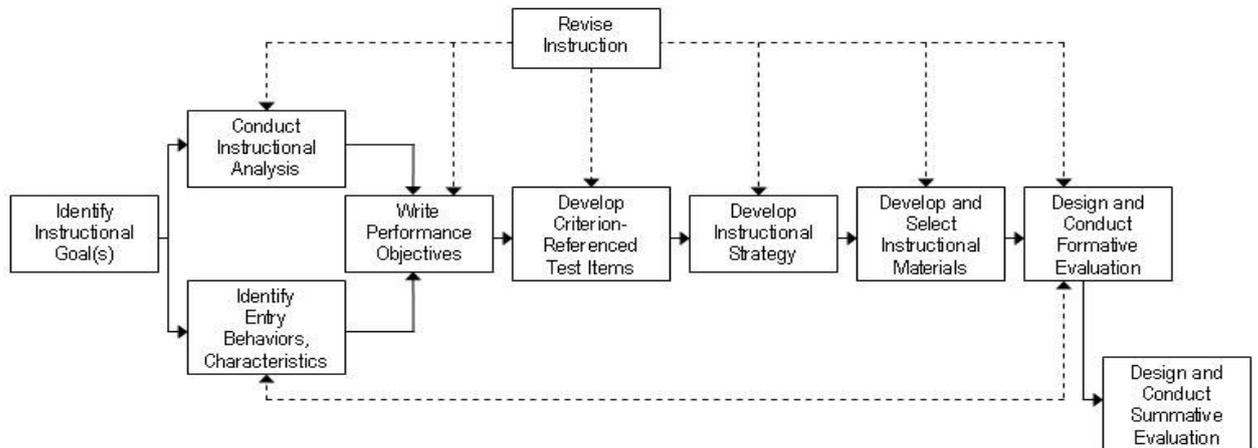


Figure 3: Dick & Carey Model

(Source: Dick, W. & Carey, L.(1985) *The System Design of Instruction* , Glenview IL: Scott, Foresman & Company, p.2-3.)

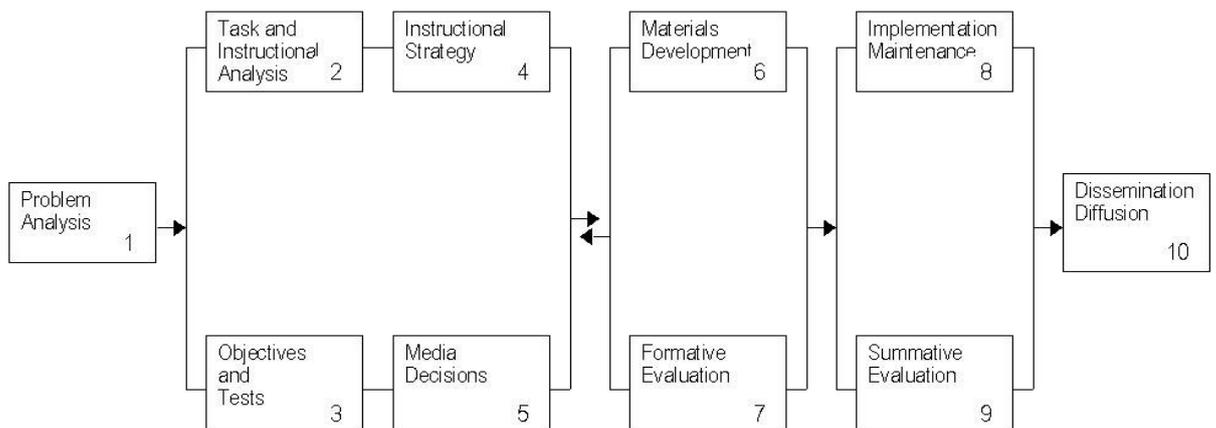


Figure 4: Seels & Glasgow Model

(Source: Seels, B. & Glasgow, Z.(1990) *Exercise in Instruction Design*, Columbus, OH: Merrill Publishing Co.)

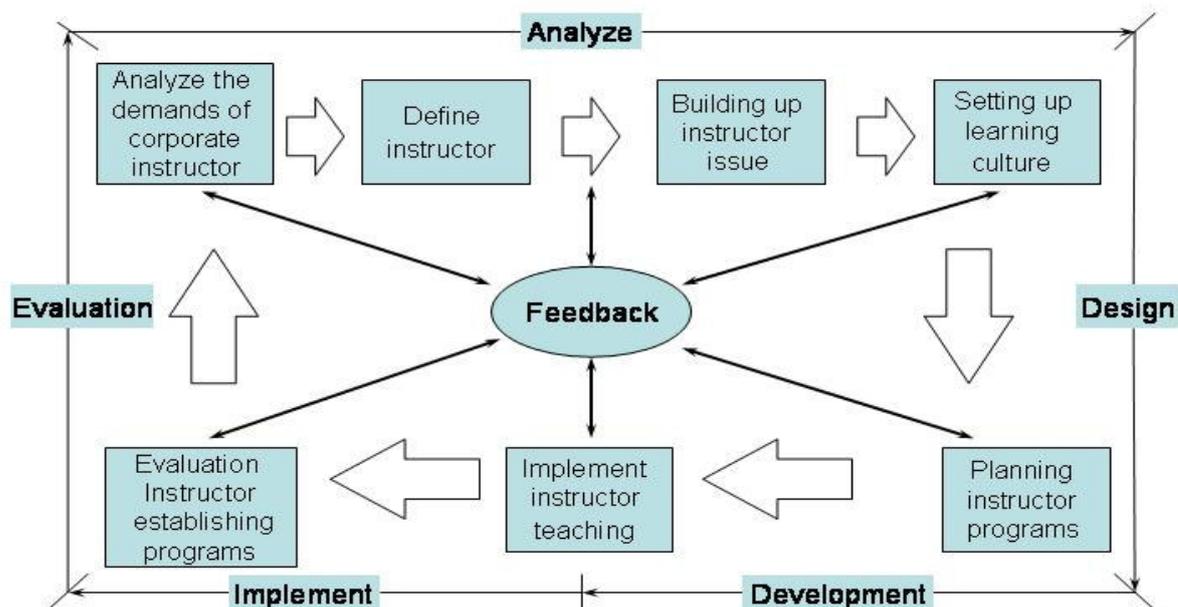


Figure 5: Initial Instructor-System Model  
(Source: results of this research.)

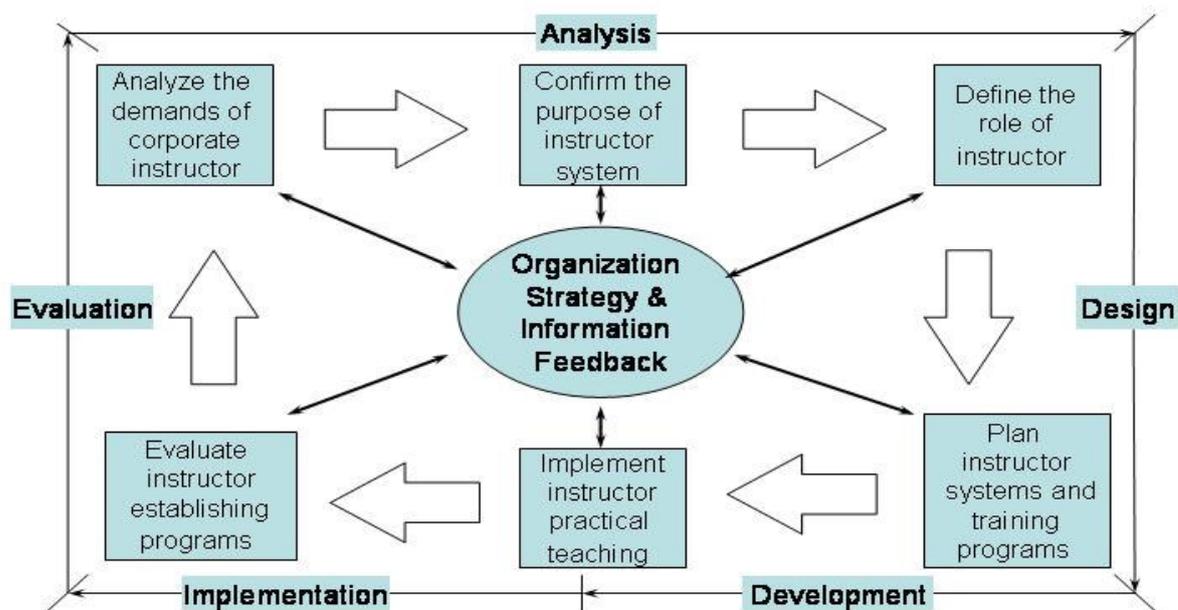


Figure 6: Final Instructor-System Model  
(Source: results of this research.)