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DESIGN OF AN INSTRUCTIONAL SYSTEMS DEVELOPMENT PROCESS
FOR KOREAN EDUCATION IN HARMONY WITH KOREAN CULTURE

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DESIGN OF AN INSTRUCTIONAL SYSTEMS DEVELOPMENT PROCESS
FOR KOREAN EDUCATION IN HARMONY WITH KOREAN CULTURE

DISSERTATION

Presented in Partial Fullfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

So Oak Kim, B.A., B.S., M.A.

The Ohio State University

1983

Reading Committee:

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Dr. Daniel B. Lee

Approved By

John C. Belland

The College of Education
DEDICATION

I would like to dedicate this dissertation to my family, first my parents, and second my wife, Hae Young, and children, Christie Ah-young, Esther Ka-young, and Lydia Na-young.
ACKNOWLEDGMENTS

I wish to take this opportunity to extend my grateful appreciation to those individuals who provided assistance during the preparation of this study. Special gratitude is extended to Dr. John C. Belland, my adviser, who provided guidance and encouragement throughout the writing process and my entire graduate program at The Ohio State University.

Special recognition is also extended to Dr. William D. Taylor and Dr. Daniel B. Lee, for all their advice and guidance in the development of this study, and to the many other authorities consulted during the writing of this paper.

Special thanks are expressed to the Institute of International Education for a Fulbright Scholarship grant and assistance to study in the United States of America.

Warm appreciation is forwarded to the staff of the Microcomputer lab of the Edgar Dale Media Center of the College of Education at The Ohio State University for helping me to print this manuscript.

Finally, further appreciation is extended to my family members and my brother-in-law, Dr. David C. Suh and Dr. Jung H. Kim and their families, my sister-in-law, Hae-kyung Choi, friends, and colleagues for their encouragement, understanding and support.
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"Teaching Method in English conversation." Air Review, Air College, Seoul, Korea, 1977


"On the Transformational Grammar in English." Yonsei University, Seoul, Korea, 1971

FIELDS OF STUDY

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Professor Keith A. Hall

Studies in Radio and Television education
Professors Keith Tyler and Robert Monaghan

Studies in English education
Professors F. Zidonis and M. Geis

Studies in comparative education
Professor Robert Sutton
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CHAPTER I

INTRODUCTION

Orientation to the Problem

Korean education reached a major turning point in 1980 beginning with the drastic policies implemented by the new government to achieve educational innovation. Measures such as improving the university entrance examination system have been taken to normalize classroom education (Education in Korea, 1981).

Korea concentrates its energy on the challenges of educational development, because education is the fundamental basis for its preparation for future generations and because Korea's rapid social, economic, and political development owes much to its system of education, which has faithfully fulfilled its own functions and mission under difficult circumstances.

Korea is embarked on a dynamic process of national development under the banner of modernization. The pressing task is to achieve a viable economy, while seeking harmony in a new dynamic way of life. Industrialization is vigorously promoted as a major vehicle for modernization. The process of industrialization must be supported by scientific and technological development. The future of the nation attaches crucial importance to the development of productive human
resources. As society becomes technologically more advanced, the need for popularization of education in knowledge, skills, and attitudes becomes integrated education. So the reform of instructional system development will be promoted. In recent years there has been considerable concern for the simultaneous pursuit of equality of opportunity and the improvement of the quality of instruction in the educational system in Korea.

For centuries of years man has recorded his ideas and theories about how people learn and how they should be taught. He has developed communication tools ranging in sophistication from a piece of coal to modern telecommunication systems and learning materials and media in many different forms. He has experimented with many different teaching modes and techniques and performed countless research studies hopeful of adding some bit of knowledge that will prove useful to the educational process. And from his experience and research he has developed models, both simple and complex, to guide him in the design, implementation, and evaluation of learning experiences (Haney and Ullmer, 1975).

Educational technology as the systematic, rational, and problem-solving approach to education, is a potentially powerful tool for instructional development and a process of instructional systems design that involves a systematic approach to the planning and development of a means to meet instructional needs and goals, where all the components of the system are considered in relation to each other in an orderly but flexible sequence of process, the resulting delivery
system is tried out and improved before wide spread use is encouraged (Briggs and Gagne, 1974).

Essentially educational technology is a way of thinking schematically and systematically about learning and teaching. It is concerned with the design, implementation, and evaluation of curricular and learning experiences. Educational technology is a product of American and western European thinking and this may not be appropriately applied in other cultural traditions.

Statement of the Problem

The educational system is a product of the political, economic, cultural, and social milieus in society in Korea. In view of the current trend of development in Korean society, Korean education in the 1980s is expected to serve a dynamic function of guiding national development. Such a function demands that educational goals be linked effectively to paramount national goals, and that they should be organized into specific programs at the school and classroom levels. Educational content and methods should be derived from educational goals. So it is important to ensure consistency among goals, contents, and instructional processes.

Korea has placed special emphasis on the development of scientific and technical education which is intended to facilitate Korea's development into a technological-industrial society. Educational research has been given impetus in response to the need for the modernization and improvements in the teaching of science and
technology. Research should increase the productivity of education to meet the growing demands for skilled manpower and learning outcome.

A national survey of industrial technology education in Korea pointed the problems of poorly defined content. Over 75% the teachers were dissatisfied with the industrial technology curriculum because it is too job-oriented and too specific to be a part of general education. This has had far reaching impact on both school learning and teaching (Lee, 1977).

Since the secondary and college entrance examination was abolished in recent years, the schools in Korea receive a large number of and a more heterogeneous group of students than before. In the period 1969-1978, the number of middle school students increased two-fold and the percentage of primary school graduates advancing middle schools rose from 58.4% in 1969 to 96.6% in 1981. If this trend continues, the ratio of primary school graduates going to middle school will probably rise to 98.5% in 1986. This calls for large increases in the number of competent teachers and media specialists to cope with the growth of the student population and also calls for enough facilities and appropriate materials for effective teaching and learning. It is difficult for the teachers to carry out effective instruction in the classroom cramped with 50 or 70 students with inefficient processes of instruction resulting from insufficient planning.

Despite the universal movements to modernize educational techniques and materials and media, the focus of instructional planning in Korea is what the teacher will do rather than on what happens to learners. Most educators have a traditional concept about instruction
only transmitting content. Teacher-centered instruction cannot provide learners with much opportunity to play a more active role in their own learning. Instruction should be geared to developing learner competences, not to covering content. Therefore a new concept of instructional planning is needed to develop and facilitate Korean students' learning by effectively arranging human, temporal, material, and spatial resources to bring about effective instruction (Belland, 1976).

In the United States and in western Europe, instructional systems technology has proven useful in improving instruction in many different content areas at all educational levels (Popham, 1971; Briggs and Gagne, 1974). However, this technology is used most consistently in those areas related to scientific and technical training — the very areas that are emphasized in Korean social policy. Thus it is proposed to analyze instructional systems thinking, and attempt to adapt this thinking to the Korean context in harmony with Korean culture. The problem of this study is therefore: can instructional systems development models, theories, and techniques be adapted to Korean culture and to the Korean educational system to provide for improved instructional planning?

Objectives of the Study

Improving the instructional system of Korea is a most urgent task and this should be based on a good theoretical framework. The purposes
of this study, therefore, are threefold:

1. To discuss the major forces influencing educational planning, instructional development, and curriculum decisions with sociocultural, psychological, and technological factors;

2. To conceptualize a instructional systems model from a new perspective to meet Korean situation;

3. To apply the model to utilization of instructional media and materials for instruction with analysis of social, cultural, and economic situations of Korea.

**Basic Assumptions**

This study is based on some assumptions about educational technology like the following:

1. Man has been and remains curious about education, its materials and media, instructional process, and media programs.

2. Education, as a major source of national development, has been and should be a subject of systematic study.

3. Sound development of educational technology will contribute to the development of cognitive, affective, and psychomotor abilities of students.

4. Educational technology is an useful approach for general and special education purposes.

5. An instructional system can be developed according to a well-defined model in harmony with the culture of a country.
6. Instruction is a process that can be approached in a systematic or technological manner, so the numerous variables relevant to the efficiency of instruction can be identified, analyzed and manipulated.

7. Technology must be appropriate. It must be suited to the factor of costs of economy where it is to be used. The appropriateness must surely be a function of local appreciation of what is relevant, how learners will behave and how the conventions of the classroom or workplace can be used or stretched to accommodate a positive learning situation.

8. Instructional systems development increases educational opportunities matched with equality of opportunity for quality education, enhances the relevance of the content, reforms teaching methods and evaluation, upgrades the quality of learners and teachers, and improves materials and media and facilities and services.

9. Educational technology will ensure the balanced development of education which means a balance in education quality among regions, between public and private schools.

Limitations of the Study

The following limitations will be taken into consideration in the interpretation of data in this study.

1. This research is based on Korean culture and official policy,
therefore its findings may not be interpretable in other developing countries.

2. The investigation focuses on the process of instructional systems development. It should not be assumed, that if instructional systems development is found to be applicable, it should become the exclusive instructional planning method.

Organization of the Report of This Study

This report consists of five chapters, appendices and bibliography.

The first chapter discusses the problems facing the educational system in Korea by establishing a need for the study. Included are the problem statement, basic assumption, purpose of the study, limitation of the study, organization of the study, and research procedures.

The second chapter deals with a review of selected pertinent literature on instructional systems development through comparison and contrast.

The third chapter discusses the major forces influencing educational planning, instructional development, and curriculum decisions of Korea. Sociocultural, psychological, and technological forces are also included.

The fourth chapter presents a model of instructional systems development which is presumed to be appropriate for Korean educators. Then the model is applied to utilization of instructional media and
materials for instruction.

The last chapter presents a summary of the study, the conclusions from the study, and the recommendations of the study both for educational practice and further research. Appendices and bibliography follow this chapter.

Research Procedures

This study is analytic. The writer studied the research and scholarly literature dealing with various aspects of the problem. In order to determine the major theoretical framework of the study, the literature dealing with instructional systems development was reviewed for the purpose of determining: 1) conceptions of educational technology as systems approaches, 2) progress and problems in instructional development, 3) approaches to instructional systems development, and 4) culture in learning and education.

The literature on Korean culture was analyzed to identify elements of Korean culture which would be the most important criteria for design of a culturally compatible instructional systems design process. An extensive review of literature dealing with previous efforts in educational technology was prepared to suggest the need for the present study. Cultural criteria were then applied to instructional systems design theory to produce a model of ISD which can be presumed to function well in Korean education.

The flow chart of research procedures as presented in Figure 1 is
Figure 1. Flow Chart of Research Procedures
provided to illustrate the procedural steps utilized in this study. As shown in Figure 1, this study was carried out through the six phases described below.

The first phase of this study included (1) a detailed description of the problem, (2) the development of an appropriate research procedures in solving the problem.

The second phase of the study involved locating, retrieving, analyzing, synthesing and evaluating ideas gathered from the literature, personal experience, and interviews.

The third phase of the study involved the analysis of Korean cultural factors influencing learning and education.

The fourth phase of the study determined basic principles and procedures of instructional systems development models.

The fifth phase of the study developed the instructional systems development model compatible with the selected aspects of Korean culture.

The final phase of this study involved two procedures: (1) development of recommendation for application of research on the model, and (2) presentation of implications for ISD in other developing countries.
CHAPTER II
REVIEW OF THE LITERATURE

Technology has been applied in education in a variety of ways. Many educators seem to view educational technology in terms of the use of the latest equipment or hardware that other systems have supplied to the educational institution. But educational technology is not only invention and machinery but also a process and a way of thinking. Educational technology is a field involved in the facilitation of human learning through the systematic identification, development, organization, and utilization of a full range of learning resources, and through the management of these processes.

In this chapter, various conceptions of educational technology, historical progress in educational technology, and problems in instructional development will be reviewed. Based on the problems identified, a scientific approach to instructional systems development will be discussed in consideration with culture in learning and education for Korean education.

Conceptions of Educational Technology

The basic characteristic of the world for which the school must be preparing its students is change. It is clear that education is faced
with an unprecedented challenge by the radically transformed nature of the world of work. These changes must be taken into account if education is not to be totally irrelevant to the needs of individuals and societies. The impact of technology on the processes of education can be focused to provide truly individualized conditions of learning for each student and to improve the efficiency of instruction.

Many educators seem to view educational technology in terms of the use of the latest equipment or hardware that other technologies have supplied to the educational institution. But Finn (1960) pointed out that technology is more than invention and machinery, that is also a process and a way of thinking. Educational technology is the application of some underlying science to educational tasks. Deterline (1965) suggested that educational technology is the application of behavioral technology to the systematic production of specified behaviors for educational purposes.

When technology (the systematic application of scientific or other organized knowledge to practical tasks) is applied to education, it is viewed as a process at a sufficiently high level of abstraction. Educational technology can be applied at all levels of educational practice as an approach to solving practical problems (Galbraith, 1967).

As the solutions to problems in education take the form of all the learning resources that designed, selected, and utilized to bring about learning, these resources are identified as message, people, materials, devices, techniques, and settings. Those resources have been specifically developed as instructional systems components in order to
facilitate learning and they are logically called instructional systems or instructional system components.

The Definition & Terminology Committee of AECT (1977) defines instructional system as "a combination of instructional systems components and a specified management pattern which is prestructured in design or selection, and in utilization, to bring about purposive and controlled learning, and which: a) is designed to achieve specified competencies; b) includes the instructional methodology, format and sequence called for in the design; c) manages the contingencies of behavior; d) includes a complete set of management procedures for using the system; e) is replicable and reproducible; f) has been developed through the complete instructional development process, and g) has been empirically validated".

Ullmer (1973) provides a definition of educational technology as "the systematic body of information and the process and communications capabilities available to accomplish instructional functions." Thus, educational technology is viewed as a complex of resources including knowledge, media, principles, models, or standards for curriculum design and implementation. This concept of it is much more comprehensive than either the "use of machines" or "application of knowledge" orientations.

Instruction is the process of developing instructional specifications, materials and strategies for the achieving of instructional functions. Essentially, educational technology involves the management of ideas, procedures, money, machines, and people in the instructional process. As such, educational technology can be
considered two kinds of patterns—techniques and process.

Silverman (1973) detected a pattern of differences between relative technology and constructive educational technology. According to him, relative educational technology deals with procedures and devices; it makes use of what is available and seeks to apply the available to problems instruction. Constructive educational technology is more basic; it deals with (1) the analysis of instructional problems; (2) the selection or construction of measuring instructions needed to evaluate instructional outcomes; and (3) the construction or selection of techniques or devices to produce the desired instructional outcomes. In this definition an educational technology can not thrive unless it can develop its own techniques and its own principles. Ely and Glaser interpreted educational technology as the branch of educational theory and practice concerned primarily with the design and use of messages which control the learning process.

In this view, educational technology can be considered to be a theoretical construct which includes sets of ideas and principles about how education should be carried out through the use of technology, and as a field of endeavor that the application of the theoretical ideas and principles to solve actual problems in education.

The Association for Educational Communication and Technology (1977) offers a summing definition: "Educational technology is a complex, integrated process involving people, procedures, ideas, devices, and organization, for analyzing problems and devising, implementing, evaluating, and managing solutions to those problems, involved in all aspects of human learning."
The concept of educational technology is integrative. It provides a common ground for all professionals and permits the rational development and integration of new devices, materials, and methods as they come along (Finn, 1965). Educational technology is not only invention and techniques but also a process and a way of thinking for effective instruction.

**Progress in Educational Technology**

Educational Technology which is essentially a young field of study began in the early 1920's with visual instruction (Finn, 1967). The visual instruction movement was based on the concept of using visual materials to make the abstract ideas being taught more concrete. It introduced the idea of classifying, rather than listing, the type of visuals and emphasized the need to integrate the visual materials with the curriculum, rather than using them in isolation. However, it emphasized on the materials themselves with a lack of emphasis on the design, development, production, evaluation, and management of the materials. And it saw materials as an aid to the learner rather than as providing units of instruction by themselves.

With the advent of sound recording and sound motion pictures, the visual instruction movement expanded to audio-visual instruction. Audio-visual instruction emphasized the values of realistic experience in the learning process, where other forms of instruction stress verbal or symbolic experience. They were modern technological means of
providing rich, concrete experiences for students (Dale, Finn, and Hoban, 1949).

While the audio-visual instruction movement added the "audio" component to the materials of the visual instruction movement, it added little conceptually. It kept the notions of the abstract-concrete continuum and of classifying, rather than listing, in the cone of experience (Dale, 1954). It also continued to emphasize the idea that audio-visual materials needed to be integrated with the curriculum.

The audio-visual instruction concept also continued the two basic weaknesses of the movement from which it evolved. It was concerned more with the materials than with the processes of developing and using them, and it continued to view audio-visual materials as aids to the teacher's instruction.

By the end of World War II, a new trend had begun in the audio-visual field — a change of perspective from audio-visual to two parallel new conceptual frameworks, communications theory and early systems concepts. A fruitful approach to better understanding and greater efficiency in the audio-visual field lay in the concept of communication.

The communications orientation to educational technology concentrated on the process of communicating information from a source to a receiver and it is the dynamic model which demonstrates the two concepts: a) the entire process of transmitting a message from a source to a receiver; and b) the elements involved in the process their dynamic interrelationships. While the transition in emphasis from
audio-visual instruction to communications was occurring, a separate, but somewhat related, transition was occurring in parallel.

The early systems concept of educational technology introduced several important new concepts to the field. It stressed that the basic unit or product of the field was not individual materials but rather complete instructional systems. Individual materials were seen as components of an instructional system, not as isolated aids to the teacher's instruction. Most indicative of product-oriented early systems concepts was the notion of combining mass and individual instruction with conventional instruction into an instructional system.

Audio-visual communication was that of branch educational theory and practice concerned primarily with the design and use of messages which control the learning process. Its practical goal is the efficient utilization of every method and medium of communication which can contribute to the development of the learner's full potential. The concept of process dictates the relationship between events as dynamic and continuous. The approach of combination of the elements of design implies a systems approach (Ely, 1963).

Thus, the audio-visual communications field synthesized the concepts of communications, systems, and design of a system as shown in the Figure 2. This process combined the process orientation of communication and learning theory with system-as-product orientation. It emphasizes that the learner is an integral part of the process of educational technology and brings in concepts from learning theory by adding to the communication model the elements of response by the learner and evaluation of that response. The process shows dynamic,
Figure 2. AV Relationships to Educational Communication Process

(Adopted from Ely, 1963)
continuous, and interactive nature of the audio-visual communication process. It shows the components classified by type rather than listing each individual component. It also needed two newer concepts that are the methods of utilizing "media-instruments" considered as components of the system and the environment in which the "media-instruments" are used.

While this process represents a major paradigm change for educational technology and synthesized most of the concepts that had evolved from previous orientations, as well as introducing new concepts to the field, it has a weakness in that not all the elements of a systems approach are included as part of the "audio-visual communication design subsystem," i.e., "...Message selection occurs outside the context of the audio-visual design system" as do goal specification and feedback analysis (Ely, 1963). In a true systems approach, all elements would be included within the system. The weakness was to be corrected by the next theoretical framework for educational technology -- a systems approach to education.

Hinst (1971) mentioned: "More recent thinking conceives of educational technology as a systems approach to the teaching-learning process which centers around (sic) the optimal design, implementation, and evaluation of teaching and learning as such." It posits educational technology as process, and specifies that educational technology uses a systems approach to instruction stressing process rather than product -- a departure from earlier systems applications in audio-visual instruction.

Heinich (1965) said "systems approach requires examination of a
process as an entity with cognizance of the relationships involved in and among all components. It starts with specification of objectives, proceeds through the necessary operations, and evaluates the end product in terms of these objectives and modifies the system if found wanting."

Educational technology is a systematic way of designing, carrying out, and evaluating the total process of learning and teaching in terms of specific objectives based on human learning and communication, and employing a combination of human and nonhuman resources to bring about more effective instruction. In this sense, educational technology is more than the sum of its parts by combining all the functions and resources in the systematic process. The systems approach to designing instruction was carried a step further by the instructional development movement. AECT (1977) gave the theoretical framework of instructional development as a systematic approach to the design, production, evaluation, and utilization of complete systems of instruction, including all appropriate components and a management pattern for using them.

The theoretical framework of instructional development serves to synthesize and formalize the concepts, process, systems approach, and functions. It is also helpful in expanding and indicating some relationships among behavioral objectives, criterion-referenced tests, use of appropriate human and nonhuman resources, appropriate use of individualized and self-instruction, development of complete instructional systems, emphasis on the learner, evaluation and revision on the instructional system and products based on tryouts with
learners, and systematic management.

However, this model does not deal with the total educational process such as the determination of curriculum, the functions involved in distributing and using instructional systems once they are developed. And it also accepts current instructional and organizational constraints placed upon the design of instruction, rather than questioning and revising them to fit the new instructional systems, and the types of resources which could be used.

Therefore the theoretical framework of educational technology brings a whole new outlook to how educational technology fits instruction and is related to society. Educational technology involves the management of ideas, procedures, machines, people, and money in the instructional process.

Educational technology is a field involved in the facilitation of human learning through the systematic identification, development, organization, and utilization of a full range of learning resources, and through the management of these processes. It is a complex, integrated process that synthesizes all the concepts previously mentioned.

Problems in Instructional Development

Technology has been applied in education in a variety of ways. Computers, television and radio, videodisc, telephonics, and an array of audio-visual materials now do the job once accomplished solely by
the teacher. But with these new forms of classroom communication came new problems, for neither the teaching effectiveness of these new media, nor the extent of their efficient use, has been fully determined.

Add to this indeterminancy the fact that developing countries must choose a technology that is appropriate to their resources, and the problem is compounded. Further, using appropriate technologies in Korean settings is an urgent need, and the calls for appropriate technology are insistent today.

Darrow and Pam (1976) contend that "the appropriate technology approach... emphasizes that a community should use imported techniques only if they can be understood and reproduced locally. This is based on the belief that the faith of people in their own capabilities is the basis for all development and progress. The idea of self-reliance is a central part of the concept of appropriate technology. The creative ingenuity of people to devise appropriate solutions in response to their needs and requirements should be encouraged rather than suppressed."

Davies (1977) also argues "the mere expenditure of vast sums of money on machines is not necessarily the best way of expanding and developing educational programs..." While the concept "appropriate technology" normally refers to economic and production processes with emphasis on efficiency in the use of personnel, materials, capital, facilities, etc., it is an useful reference in context of the culture as well.

Gagne (1980) points out the importance of new developments which
may be quite valuable; namely, the areas of metacognition and the learners' prior knowledge. He indicates that designers may want to incorporate into their instruction to learners as to how they can best master these materials. In other words, designers should attempt to influence the cognitive learning strategies used by learners, as well as incorporate various strategies into the instruction itself which could facilitate their learning. So the instructional designer should consider the prior knowledge which students bring to a learning situation to make influences about how human learning can be improved.

Generally one aspect of the problems in instructional development is a serious lack of collaborative participation in decisions by all persons affected (Brien and Towle, 1977; Spack, 1971). A weakness in describing the related tasks of subject matter specialist and the instructional designer at each step of the process can be overcome with the addition of a third person to the instructional development team who may provide the bridge between the instructional design activities and the subject matter to be taught. Closely related to the human resources, physical resources and facilities should be considered as success factors in instructional development necessary for the design, production, implementation and evaluation of new teaching resources and programs.

As another aspect of the problems in instructional development, there appears to be a great unevenness in the methodological precision within the various components of instructional systems development. For example, there is little theoretical basis for the needs assessment area. Instead, needs assessment is an empirical process which is
carried out to determine what goals should be addressed by a project or an organization. While same theoretical bases exist for needs assessment, it is worthwhile to develop more examples of needs assessments which exemplify both internal and external approaches to the process.

The field of educational technology attempts to guide teachers in the fulfillment of its promise of greater efficacy in teaching. This need is greater in developing countries because much existing research, already done in developed countries, has to be adapted and validated for application in the context of different social and cultural realities in less developed countries.

As the educational processes involved are quite complicated and often the empirical research itself is difficult, many educational researchers in Korea are more interested in historical and philosophical studies on education. Therefore the utilization of educational technology in terms of process is not highly developed at all levels of education in Korea even though studies on the teaching behaviors and instructional improvement are becoming more widespread. However, it is necessary for Korean educators to improve educational processes through accumulating the facts and experiences gained from a systematic approach to design, implementation, and evaluation of instructional systems.

Scientific Approach to ISD

In recent years, systematic efforts to design instruction have
come to be identified as exemplifying "the systems approach." This
type of planning has become familiar to managers of business concerns,
industrial and military operations, and school systems. While not
enough time has elapsed for emergence of a widely accepted and
standardized meaning for this phrase, generally it may be said that the
contents of the present volume are compatible with a systems approach
to instructional systems design. This is particularly evident in this
emphasis upon learning outcomes as the goals of an instructional
systems, and in its attempts to bring to bear systematic knowledge of
the learning process on the design of instruction.

According to Gagne and Briggs (1974), the purpose of the
systematic approach is that "it encourages the setting of a design
objectives, and it provides a way to know when that objective has been
met." Designing an instructional system utilizes a kind of knowledge
called educational technology in the process of planning an
instructional system.

Use of knowledge involving more than installation of media
facilities concerns the determination of learning goals and objectives
to be achieved, and the capacity of students to achieve them. Further,
teaching staff must learn both how to use instructional media, and also
how to coordinate their own teaching methods with available technology.

Sound preplanning is one of the most important elements in a
teaching staff's work. No amount of "fancy footwork" in the classroom
can compensate for the lack of a valid design for instruction. And the
design of effective instruction is a more complex process than is
generally supposed. So six important principles underlying systematic approaches to instructional development can be considered.

First, instruction should be learner-centered. This means that the focus of instructional planning should be on what happens to learners and on what they will do rather than on what the teacher will do. Learner involvement is a key factor in the learning process.

Second, instruction should be geared to developing learner competencies, not to covering content. Transmitting content is no assurance that learning is taking place.

Third, the learner should have as much understanding as is possible of what competencies are expected of them. This means that course objectives should be specified in writing and made available to learners.

Fourth, the teacher should establish a positive, cooperative environment in the teaching situations. Prior to delivering the instruction, the various sequences of instructional events must be carefully designed. The most important operational factors which must be considered in planning implementation of the instruction are the arrangement of temporal, personnel, material, and spatial resources to facilitate student learning.

Fifth, learners should be evaluated against a criterion of mastery in terms of the accomplishment of objectives with a view to revising and reevaluating any phases of the plan that need improvement. Evaluation design should include what evidence should be gathered, and through what means, to aid in judging the extent to which learners actually reach goals?
Sixth, all human beings are alike in some ways and yet each human being is unique. All nations of the world have some common cultural factors and yet each country has unique culture. As learners are different developmentally, intellectually, perceptually, emotionally, physically, and culturally, each country is also different politically, socially, culturally, and economically. Therefore the designer should seriously study relevant cultural differences of nations for the design of instructional systems development.

Considering these underlying principles, one can think of many ways to approach the task of designing instruction. One might devote principal attention to the procedures to be employed by teachers for achieving different sorts of educational goals or outcomes. Some of approaches best known to teachers and curriculum planners have been summarized by Joyce and Weil (1972) as "models of teaching." Each of these models incorporates a major type of educational outcome sought or valued, along with the teaching procedures considered most effective, realizing this outcome. Some of the major types of outcomes sought by such models may be described as "personal development," "social interaction," "basic skills," "scientific method." These carry some implications that different types of outcomes may be best fostered by different sets of teaching and learning conditions. This is necessary to distinguish between a model of teaching and an instructional system. It appears that the purpose of a model of teaching is to provide a conceptual link between a desired outcome and an appropriate teaching method or set of methods. The purpose of an instructional system, however, is to provide the necessary means for achieving all the types
of outcomes called for in the curriculum or course being considered. The design of an instructional system is drawn from the accumulated wisdom contained in teaching models, learning theory, and other relevant disciplines and experiences (Gagne and Briggs, 1979).

Instructional systems designing utilizes a kind of knowledge as a part of educational technology. There is a growing tendency to relate educational technology to the process of planning by which an instructional system is developed, implemented, controlled, and evaluated.

The development of an instructional system involves a series of procedures. Often, these procedures and their relations to each other are depicted in flow charts and diagrams. Gagne and Briggs (1974, 1979) list the steps involved in instructional system development and describe the ways in which they are related as procedures as the following:

1. Analysis and identification of needs.
2. Definition of goals and objectives.
3. Identification of alternative ways to meet needs.
4. Design of system components.
5. Analysis of (a) resources required, (b) resources available, and (c) constraints.
6. Action to remove or modify constraints.
7. Selection or development of instructional materials.
9. Field testing; formative evaluation and teacher training.
10. Adjustments, revisions, and further evaluation.
11. Summative evaluation.

12. Operational installation.

In general, these twelve steps take place in the order shown, but in practice there are both feedback and "feedforward" relationships among them. Decisions made in early stages influence those made in later stages, and insights gained in later stages lead to revision of plans made earlier. This cyclical, or iterative, characteristic of instructional system design, while costing time and effort, is actually one of the strengths of the method. New information, new conceptions, and "second thoughts" are often better than earlier plans which are tentatively made. The exact timing and frequency of such recycling cannot be fully represented in any general form, because the situation is different for each system designed (Gagne and Briggs, 1979).

It is apparent, then, that the "systems approach" to the design of instruction is based on one hand in logical, systematic thinking and planning, making use of all theory and research evidence available, and on the other hand upon empirical test and fact-finding. The combination of systematic thinking, use of theory, use of facts from evaluation studies, and recycling represents an improvement over earlier ways of planning for instruction. Thus, what the systems approach does make possible is a verification of whether or not the system has achieved its design objectives -- that is, whether student performance shows that the need was met. This provides the basis for an accountability system by means of which educators can report to the public the extent to which design objectives have been attained.
Culture in Learning and Education

Definition of Culture

Culture is all encompassing. It is complex, abstract, and pervasive. Culture is the result of accumulation of the social heritage of human race. Margaret Mead says "Culture means the whole complex of traditional behavior which has been developed by the human race and is successively learned by each generation." It can mean the forms of traditional behavior which are characteristic of a given society.

One becomes civilized through education, and one becomes humane through further education. Culture is transmitted through education. Some of its aspects help to influence or determine communicative behavior.

Culture will be expressed eventually within the field of technological and industrial development. Few can deny the practical theory that all culture including literature and art, should be enhanced in a parallel sense with economic growth and rural development in developing countries.

Industrialization affects human value, cultural change and behavior patterns. Technological development creates affluence, which in turn generates further changes. In developing countries, changes will occur generally corresponding to the rate of industrial and
technological development. Cultural and historical values will have to be modified and adapted to suit new conditions.

Culture has been defined as the relationships of man with the nature surrounding him taken as a whole, in a conceptual and spiritual framework which enables man to act as a relatively autonomous agent in relation to ecological and social constraints.

In this way, culture influences all aspects of a society, shaping individuals' orientations and perceptions of reality as well as the methods of organizing institutions. Culture can be studied by observing the following dimensions:

1. The structure of families and the roles played by members.
2. The patterns of communicating thoughts.
3. Religion including the objects, times, places, and events which people hold sacred.
4. The value system, a set of interrelated ideas, practices and behaviors around which people have developed strong positive or negative feelings and orientations.
5. The contrastive structural and functional characteristics in language influencing the different ways of thinking.

In the above, one can see that culture is a dynamic value system of learned elements, with assumptions, conventions, beliefs and rules permitting members of a group to relate to each other and to the world, to communicate and to develop their creative potential (Canadian Commission for Unesco, 1977). Indeed culture refers to the learned repertory of thoughts and actions exhibited by the members of social
groups—repertories transmissible independently of genic heredity from one generation to the next. The cultural repertories of particular societies contribute to the continuants of the population and its social life (Harris, 1979).

Knowledge of Local Culture

There have been many social, political, and educational programs that failed in many developing countries. The major reasons for these failures were either that the media people misjudged or that they misunderstood the local culture. Foster (1962) reported that there was a major effort in Bolivia to introduce a new "maize" which seemed in every way superior to the old variety. The new maize grew well in the tropics, had more food value, produced a higher yield, and was less subject to insect attack. Thus, the prospects for improving the diet and health of the locals and their animals were very good. As it turned out, the maize was very hard to grind by hand, and the villagers did not want to haul it to the mill in town. But it proved to make excellent commercial alcohol. So the campaign resulted not in improving the local diet and health but in promoting alcoholism. This is an example of lack of knowledge of local culture.

Being local is being aware of the local culture and symbol system. The content of media messages should be prepared by those who understood the culture of those to be reached. It is very important for the instructional designers to seek some kind of relationship with
their learners. Through this relationship the designers will able to determine which materials and media are most effective in carrying an intended message. Klapper (1960) stressed the fact that the audience’s image of the source affects the audience’s interpretation of the communication and its persuasive effectiveness.

An UNESCO survey group criticized American teaching methods in American Samoa because the authorities overlooked the use of chanting, which is an important aspect Samoan culture. Chanting in the traditional Samoan way of passing down cultural information. The Samoan culture emphasizes hierarchical relationships determined by age and rank. The family group or aiga is the important unit, and individuals are expected to contribute to the prestige of the aiga rather than to seek individual praise and recognition (Arnove, 1976). So the objectives of instruction should be based on adequate knowledge of the culture. Also Wolf Management Services for the U.S. Department of Commerce reported that the television approach as a way of instruction in American Samoa only emphasized academic curricula developed in the United States without sufficient attention to Samoan culture.

Therefore we need to discuss the cultural identification in the process of instructional development. So an educational implication of the culture identification of Korean students can be related to the development of instructional process especially in the cultural component of the programs. The instructional component is to strengthen the cultural identification of student. Thus, culture has its effects on the way each of us reacts and behaves.
Cultural Base of Perception

"Seeing is believing" reflects the widely held belief that the world is exactly as it appears. Most observers assume that other observers perceive the situation exactly as they do. But they lack awareness of the cultural norms which influence perception.

Many researchers have noted differences in visual perception and pictorial conventions between people related to cultural factors rooted in geographic location as well as in level of technological development. These perceptual differences have educational implications, as Stacey (1969), Arnheim (1974), Chaplin (1971), Duncan, Gourlay, and Hudson (1973), and others have pointed out.

The things humans perceive in a visual field and the manner in which they interpret image content depend greatly on whether or not the image is familiar within their society and whether proper interpretation of the image has survival value within the particular culture. The perception as the process by which an individual selects, evaluates, and organizes stimuli from the external world and as the process of interpreting sensory information is based on culturally influenced experiences needs, values, and beliefs.

Wober (1966) has pointed out in reference to the use of Witkin-developed tests of cognitive style that the tasks are primarily tapping visual perception. Working with a South Nigerian culture, Wober investigated two primary observations made previously by other
researchers in other African cultures. One observation was that performance on visually specialized tasks tended to be poorer than in Western samples; the second tested observation was that in some African cultures sensory modalities other than the visual were typically relied upon. Wober indeed found, as predicted, that his subjects did not perform on visually related tests as uniformly as United States samples. He found that in his sample the proprioceptive modality was the dominant one, thus postulating that culture may vary according to their "sensotypes," or their dominant mode of receiving and encoding stimuli, which in turn dictate the development of specialized abilities.

Lanners (1973) found that "primitive" people dislike straight lines or rectangles in pictures. They prefer naturally rounded shapes. The environments of them almost invariably feature rounded, gentle contours. Their homes are bulit as oval huts.

According to Segall, Campell, and Herskovits (1966), it was in the 1880s that a rectilinear view of the world began to influence European perception and interpretation of visual fields, thus physical geography exerts an influence on visual perception.

Pettersson (1982) examined typical science textbooks, all aimed at the 10-12 year age group from three different cultural areas: Ghana (less-developed country), Japan (industrialized eastern country), and Sweden (industrialized western country) to find cultural-geographical differences affecting perception of image and color. He found major differences in the pictorial treatment in the three textbooks.

The Ghanaian book had 135 illustrations which were drawings except
one photograph, all in color. The Japanese book had 347 illustrations which three-fourths of them were photographs, all in color. The Swedish book had 250 illustrations which a third of them were in color. Half of the pictures were photographs and the rest were drawings.

The Ghanaian and the Japanese books contained a predominance of irregularly shaped, oval, or round image shaped pictures. Especially the Asian country, Japan displayed a highly refined image language with picture sequences illustrating various events step-by-step. The pictures communicated a great deal of the content even to one unable to comprehend the Japanese verbal text.

On the other hand one fourth of illustrations of the Swedish textbook were "free" or rounded images and two-thirds of the pictures were conventionally cropped into rectangular or square formats. And they were used for "visual effect" rather than for information transmission.

In the view of the Korean traditional paintings, it is clear that Korean people prefer naturally rounded shapes to straight lines or rectangular shapes. It means that Korea and Japan have a relation to cultural factors rooted in cultural-geographical similarity.

The research on cultural and racial differences in color perception and in color vocabulary have continued to the present time. In 1960 Hudson tested pictorial depth perception based on a photograph of a three dimensional model and six outline drawings constructed so as to depend upon the cues of object size, object superimposition and perspective among South Africans and Anglo-American. The result was that nearly all white pupils were seeing the drawings in depth, while
this acquisition of competence in pictorial depth perception did not occur in the black groups.

Deregowski (1968) stressed the importance of continuous exposure to pictorial material from an early age in the development of pictorial depth perception. And Wober (1966) has advanced the idea that human abilities may develop with culturally determined biases favoring one sense or a particular combination of senses.

From the above results one needs to think about the effectiveness of the pictorial material used in education and training in Korea, and the possibilities of perceptual training itself are particularly important in relation to performance in the fields of science, technology and vocational education in Korea. Also the effective use of pictorial material depends upon the form of the material and the characteristics of the learners perceiving it. Koreans are culturally homogeniours including perceptual homogeneity. They are amenable to common treatment in education and mass communication. To understanding media used in education and vocational training it may be worthwhile to explore the possibilities of specific training in the perceiving and handling of visual and spatial materials in Korea.

Cultural Symbolism and Visual Literacy

Clark and Clark (1976) define visual literacy as consisting of two types of knowledge; lingual defined as written or aural symbolism, and non-lingual defined as reality or the actual state of affairs. The
Theoretical model of visual literacy is based on Piaget's theory of development in that the individual's perceptual development must begin with visualizing the real thing, or state of affairs. When we proceed into the iconic and symbolic levels, each individual's past experiences, cultural background, social status, valuing system, curiosity, and what we hope will happen to us in the future determine how each one of us perceive, or comprehend symbols (Sikora, 1981).

When we address the level of iconic literacy, it becomes obvious how vital a role cultural conventions play in pictorial presentation. Awareness of the strengths and limitations of culturally-mediated iconic conventions can assist educators in using visual images effectively in the cultural society.

People living in natural environments other than artificial environment develop other perceptual skills based on the ecological demands made on them. For example, the Eskimo has developed a great variety of geometrical spatial concepts in support of the hunting activity that pervades his culture.

On cultural symbolism and visual literacy, John L. Debes (1978) points out that the cultural use of signs is unique to each culture, and sequencing of signs is an ingrained part of language. He claims that "distancing," namely "when you take something out of your head and put it in tangible form where other people and you yourself can look at it," will assume an increasingly more important role in the concept of language and visual literacy in education with the expanding use of visual devices.
According to J. Tanzman (1972) in "The Meaning and Importance of Visual Literacy", a visually literate person is able:

1. To read visuals with skill;
2. To express himself effectively with visuals;
3. To understand the grammar and syntax of visual language and be able to apply them;
4. To interpret visual and verbal metaphor;
5. To understand the tools of visual literacy and their use;
6. To appreciate to master works of visual literacy;
7. To translate from visual language to verbal language and vice versa.

As the statement of Debes (1970), the visually literate person can interpret the visual actions, objects and/or symbols, natural or man-made, that he encounters in his environment. Therefore the enactive, iconic, and symbolic levels of visual literacy based on cultural differences in the light of culturally-mediated conventions are very important aspect in designing of instructional development as shown in the figure 3.

Cultural Differences in Color Preferences

Petersson (1981) and other researchers indicate a general tendency for people to prefer color pictures to black-and-white renditions of the same subject. But within this general tendency, myriad variations
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Figure 3. Symbolic and Sensory Modalities
(adopted from Levie, 1975)
in color preferences have been identified; many of these variations are correlated with cultural factors.

Stewig (1974) studied the preferences of 1000 American children for various components in a pictorial presentation. In the study he found that white subjects selected realistic colors significantly more often than did black subjects.

In a comparison of the ratings by Swedes and Greeks of colors according to 26 different color scales, Sivik (1970) found that bright colors were rated as more "clashing" by Swedes than by Greeks. Swedes regarded the weak colors as more "discrete". Petersson said "The characteristics of modern art in Africa were extremely bright and distinct colors using a striking color scale in which yellow, red, and blue were common, in addition to black and white. But to Swedish eyes, the pictures frequently looked flat, lacking a sense of depth."

In the interviews of representatives of African publishing companies in 1980, the publishers from Ghana, Nigeria, and Ivory coast lamented that European textbooks and children's books were not suitable in their countries in the aspect of the pictorial elements of European textbooks. They commented as: "European books are so colorless. Our children prefer pictures with bright, lively colors. We prefer drawing to color photographs. Photographs have too little color. The colors are almost invisible. Drawings are better because we can have the colors we want." On the other hand it is also important to consider cross-cultural differences in color naming. Jacobson-Widding (1979) reported that the traditional cultures in the whole of central, eastern, and southern Africa have names only for white, black, and red
and that hunting societies in arctic areas had a very rich and extensive color language, both in terms of terminology and in the use of colors in daily life. The Eskimos have at least a dozen basic terms for different colors in addition to an apparently infinite number of secondary color terms.

The use of colors and color terms in different cultures has recently begun to be explored by cultural anthropologists. It is clear that there are major differences in the perception, naming, and use of colors in different cultures. These differences have originally based on each group's ability to see or experience various colors, with this in turn based on cultural-antropological environments.

Instructional textbooks, one of the most popular form of instructional media, are used to teach students at most levels and in most subject areas. In addition to the extensive use of printed words, one of the most common characteristics of instructional texts is the inclusion of various types of pictorial illustrations. Since the purpose of instructional materials is to explain, describe, and store various facts, concepts, procedures, and information, the image and color in picture should be considered with the symbolic modalities to provide pictorial perception of Korean culture.

Culture and Communication

Living is largely a matter of communicating. The teacher explains something to his students; the student converses with his friends.
Some people are professional communicators. Others also make their living communication. Oral as well as written communication is an essential part of life. Communication is inseparable from life.

When communication occurs between persons of different cultures, the cultural impact is vital and it must be attended to. To consider the impact of culture which can be seen in patterns of language and in forms of activity and behavior, we have to know that the communicator's message normally is bound to his culture while the communicatee's understanding of the message, likewise, is bound to his culture in the intercultural communication.

Culture is the principal force in shaping a communicator. It is largely responsible for the fact that communicative behaviors and meanings possessed by persons of different cultures are going to be very different.

Note the effect culture has on the exchange of messages in the following story recounted by Park (1979):

"When I studied at the University of Hawaii, my adviser was an old, retired professor. All of the participants were struck by her enthusiasm, deep devotion, and her unfailing health. So at the end of the fall semester I said to her. 'I would like to extend my sincere thanks to you for the enormous help and enlightening guidance you gave us in spite of your great age.' Suddenly she put on a serious look, and I saw a portion of her mouth twisting. I had an inkling that she seemed unhappy about the way I expressed my thanks to her. Understandably enough, I was not a little embarrassed. A few hours
later she told me that my remark 'in spite of your great age' had reminded her suddenly that she was very old. I felt as if I had committed a big crime."

From the story we understand that growing old suggests to some that one is ready for a sedentary life in a retirement home while to Koreans, growing old is a sign of respect grace and experience. It implies that Korean and American attitudes towards age are quite different and that the differences in the communicative behavior represent different cultures.

Mass Media

The introduction of modern mass media to Korea stimulated a change in her communication culture which had traditionally and historically been rooted deeply in respect for written words. The long tradition of revering written words in communication culture reflected itself also in the respect for Chinese characters and contempt for Han'gul in Korea's dual writing system. It was consequently not accidental that discussions on "mass society" and "mass culture" began to emerge in Korea when real mass media, with the general public in mind, began to spread earnestly in both form and contents.

It was in 1883 that the first newspaper was published in Korea and it was in 1927 under Japanese rule that the nation's first radio broadcasting started. It was in 1961 that the first television was aired in that country.

If the printed medium is essentially a medium given birth by the
"culture of written words," the electronic media such as the radio and television can be regarded as non-lettered media given birth by the "culture of spoken words."

The function of mass media has brought about the result of changing the main means of communicating social information and opinion from visual letters to audio-visual words. This means that excellent words or rhetoric are becoming as universal and effective means of communication as excellent letters or sentences.

Seen from the standpoint of persons who accept culture, letters cannot be read by all whereas words can be heard by all. It is a well-grounded observation that the nation-wide diffusion of electronic media helped Korean society get out of the swamp of "absolute poverty" in the cultural field.

For example, many of the developing societies in Africa due to such characteristics, as small size, relative homogeneity, technological inefficiency, high illiteracy rate, and low per capita income, still depend on traditional oral means of communication. This situation has resulted in dependence on memory of folklore for historical records. This is also responsible to some degree for the success of the broadcast media (radio, T.V. and film) rather than print in developing societies.

Recognizing the great role that mass media seemed destined to play in national development many of the countries of the world started to rely upon and to improve their mass media because mass media can play in helping to teach the students by using them and to eliminate many of the national problems.
**Culture and Language**

Culture is the entire complex pattern of behavior and material achievements which are produced, learned, and shared by the members of a community. Language is part of culture, perhaps its most central part because it is largely language that makes the learning and sharing of behavior possible (Politzer, 1965).

Any authentic use of the language must involve knowledge of the culture from which that language is derived. Merely fluency in production of foreign language utterances without any awareness of their psychological implications or of their appropriate use or without realization of the underlying values and assumptions of the language can be so misleading and error prone as to cause complete misunderstanding.

Language can not be separated completely from the culture in which it is deeply embedded. Any authentic use of the language, any reading of original texts, any listening to the utterances of native speakers, will introduce cultural concomitants into the classroom whether the teacher is conscious of them or not. By not acknowledging their presence and not making them explicit the teacher allows misconceptions to develop in the student's mind. Misunderstanding of the culturally-determined bases for the reactions and behavior of the native speakers can develop in the learners contempt for and hostility toward the speakers of the language they are learning.
Culture and language have profound influences on cognitive processes (Lambert, 1974). People from different cultural or linguistic backgrounds think differently. The anthropologist Levy-Bruhl (1910) presented a certain type of evidence to support the idea that the thinking of "primitive peoples" differed in substance and structure from that of more "civilized" man.

The development of "communicative competence" in a foreign language involves much more than the mastery of a surface linguistic code. It also involves the development of an awareness of and sensitivity toward the values and traditions of the people whose language is being studied.

Definitely, it is necessary for Korean foreign language teachers to get adequate training for the important aspect of presentation of cultural media and materials; they must take all the more seriously the responsibility to educate themselves in cultural interpretation. The more informed and discerning the teacher, the more likelihood there is that his students may achieve some measure of foreign language understanding. Therefore, the designing of instructional development should be considered with the cultural information of target language.
Comparison of Cultural Factors in East and West

The concept of East Asia, or more broadly the orient, was created by Europeans to distinguish an area or entity foreign to them. It may be that as their outlook expanded the East came to be viewed as not only geographically but substantially different from the west in terms of cultural pattern (Lee, 1978).

There are several traditional cultural factors that are pervasively different from East and West. They are presented in the Figure 4.

As shown on the Figure, we see simple schematization that, while the confucian view of communication is oriented to written words, the Western view of communication is oriented to spoken words.

The communication system of a given society is influenced by the value system. In the Western world, spoken words played very important role in social communication from Hellenism to Christianity, and excellent speaking was required as a basic refinement for the citizenry during the age of classic Greece and Rome. Rhetoric in the West was an art spoken words which was developed for eloguence, refutation, disputation, argumentation, and explanation.

In contrast with the Western world where outstanding politicians have been eminent orators from the Greek and Roman ages to the present, it was usual in the sphere of confucian culture that ranking bureaucrats were fine writers. It was inevitable therefore that
<table>
<thead>
<tr>
<th>FACTORS</th>
<th>EAST (Korea)</th>
<th>WEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religion</td>
<td>Buddhism, Confucianism</td>
<td>Hellenism, Christianity</td>
</tr>
<tr>
<td>Interpersonality</td>
<td>Vertical Relation</td>
<td>Horizontal</td>
</tr>
<tr>
<td>Communication</td>
<td>Written Words</td>
<td>Spoken Words</td>
</tr>
<tr>
<td>Expression</td>
<td>Indirect, Vague, Non-expressive</td>
<td>Direct, Accurate, Frank</td>
</tr>
<tr>
<td>Way of Thinking</td>
<td>Deductive</td>
<td>Inductive</td>
</tr>
<tr>
<td>Perception</td>
<td>Play it by eye</td>
<td>Play it by ear</td>
</tr>
<tr>
<td>Institution</td>
<td>House of Written Words, for Literati</td>
<td>Halls of Spoken Words, for Orator</td>
</tr>
<tr>
<td>Social Value</td>
<td>Silence</td>
<td>Rhetoric, Excellent Speaking</td>
</tr>
<tr>
<td>Viewpoint</td>
<td>World as a Unity</td>
<td>World as an Individual</td>
</tr>
<tr>
<td>Method</td>
<td>Synthetic</td>
<td>Analytic</td>
</tr>
<tr>
<td>Self</td>
<td>We (groupism)</td>
<td>I and You</td>
</tr>
<tr>
<td>Concept of Self</td>
<td>Grouping</td>
<td>Individualistic</td>
</tr>
<tr>
<td>Directing</td>
<td>Paternalistic Based on Personal Relationships</td>
<td>Impersonal Based on Technical Competence</td>
</tr>
<tr>
<td>Perception of Time</td>
<td>Timeless, Continuous</td>
<td>Time-orientated, Discrete</td>
</tr>
<tr>
<td>Planning</td>
<td>Long Term</td>
<td>Short Term</td>
</tr>
</tbody>
</table>

Figure 4. Cultural Differences Between East and West
written words acted as the main means of communication as much as or before spoken words in accepting an exogenous religion in Korea.

The value of silence has been appreciated more highly than that of spoken words and it has been believed that silence contained greater significance in Korea. It has been taught generally that one should be cautious in uttering words.

The group-oriented sprit originated from a strong village government system partially accounts for the clan system for a several hundred years. The system stressed democratic self-government and fostered the collective, harmonious, and cooperative decision making. The consensual form of decision making, one of the distinguishing characteristic of Korean managerial culture results from the group orientation of the society. It is consistent with the emphasis placed on being explicit, straightforward and frank. In Korea being vague rather than explicit is a common mechanism for maintaining harmony.

In the West, time is visualized as an unending continuum, subdivided into precise units with a definite beginning and end. Koreans view time as circular; one season leads into another continuously. Time is taken less seriously and there is a correspondingly lower sense of urgency. A focusing on end results rather than on scheduling results from this perspective of time. Planning and controlling in addition to organizing are affected by a manager's perception of time.

Thus Korean management is consistent with a set of values where group harmony versus individual justice is valued; where relationships, not rights, are touted and individuals seek to fit in rather than
strive to stand out. These pervasive cultural factors should be considered designing instructional development for the effective instruction because the nature of society, perception, cultural communication, language, and value systems in a society together with individual need content of the instruction.

**Brain Dominance**

Since the nineteenth century neurologists and brain surgeons have noted that tumours and excisions within the left hemisphere of the brain produce quite different effects on the patients' mental abilities than tumours or excisions made in the right hemisphere. Left hemisphere damage has long been associated with aphasia, the loss of language function, while right hemisphere damage so disturbs the patients' sense of body image that they cannot dress themselves, cannot orient themselves spatially and often cannot even recognize familiar faces (Hampden-Turner, 1981).

More recently patients with lesions in particular parts of their two hemisphere have been tested for mental functioning and dexterity. Damage to parts of the left hemisphere impedes speech, language, verbal memory, mathematics and the sense of time; it also tends to be specific to certain organs and functions. Damage to the right hemisphere impedes performance in understanding visual and tactile mazes, perception of depth and movement, visuo-spatial organization, and tends to produce diffuse and general patterns of disturbance.
The human brain is divided into two hemispheres, the left and the right, joined in the center by a large nerve track called the corpus callosum. As shown in the figure 5, the two hemispheres process information in quite contrasting modes. The left thinks analytically, discreetly and reductively. It is aware of temporal sequences and linearity and is involved in language. The right hemisphere thinks holistically, synthetically, diffusely, processes inputs simultaneously and visuo-spatially and recognizes patterns and faces (Hampden-Turner, 1981).

Examination of Korean people seems to indicate that they function in ways associated with right brain dominance because they seem to see the world as a unity (holistic) and their thinking strategies may move from general to specific. However, Koreans are mostly right handed. It means they are left brain dominance. It may be that hemispheric function is culturally influenced. The point is that there is little empirical research as to brain dominance in Koreans. This issue should be studied in order that one may begin to improve instructional programs.

Yang-Yin and the Logic of Center Derivation

As the human mind is split into two parts as the right and left hemispheres of the brain, the universe is also composed of two Yang and Yin which mean literally 'the dark and sunny side of the hill', but in their profound influence on Chinese philosophy, religion, art, and social custom they have come to stand for two complementary principles, alternating in space and time, throughout the myriad forms of nature.
Figure 5. Brain Dominance
(Adopted from Hampden-Turner, 1981)
Yang and Yin are said to have originated from one primordial breath, Chi, which divided into a lighter mountain mist, and a darker earth vapour.

The symbolism is less polarized than unified. Life is a rhythmic movement among opposites, a timeless ebb and flow in vibrating wave patterns that do not strive against rather than with nature.

While the Yin-yang is not specifically a map of the mind, it is so by implication, since human wisdom, perfection and immortality were to be gained by becoming one with the Tao (the way). Yin-yang anticipates the whole modern concern in psychology with gestalt, binary constructs, figure-ground relationships, and contexts in which behaviors occur. It uses an essential ambiguity to suggest the unity of its possible meanings, as well as to educe new interpretations.

The history of Korean thought itself, or the entire East Asian cultural history, was made by the logic of center derivation. Korea has valued highly the logic of reversion (or return) and the mean (or center). Such Chinese classics as the Book of Changes, Tao Te Ching, and Doctrine of the Mean alike hold that Tao (or the Way) is the movement of reversion from the extreme of Yin to the extreme of Yang and again from one extreme to its opposite, and that it is therefore wise to maintain the position of the mean (or center). According to this logic, the utmost wisdom lies in the timely mean and harmony that avoid taking side with any of the extremes.

But the preference of the mean (or the middle way) can be seen as an easy-going attitude intended to avoid a blunder that may result from the inability to apprehend the intrinsic nature of a certain matter.
It is an eclectic attitude for Korean people to maintain their traditional spiritual culture as their backbone and to adopt Western scientific civilization as a means of practical application. But the eclectic theory has several contradictions. For one thing, Western scientific civilization is not derived from materialism but from the spiritual aspects (the spirit of objectification or the free creative spirit). If what Koreans seek today is not the scientific spirit of the West but merely practical technology and its products, it is obvious that their materialism has grown out of their own attitude. When the basis of traditional morals and spirit of the East and the application of science and technology of the West are juxtaposed and synthesized together, a single logical process may result.

Summary of Chapter II

This chapter has provided a selected review of the literature pertaining to the design of instructional systems development for Korean education. Conceptions of educational technology, progress in educational technology, problems in instructional development, scientific approach to ISD, culture in learning and education have been reviewed. In this review, educational technology can be considered to be a theoretical construct which includes sets of ideas and principles about how education should be carried out through the use of technology, and as a field of endeavor that the application of the
theoretical ideas and principles to solve actual problems in education. The general issues from those in developing countries were discussed separately in the problems in instructional development and six important principles underlying systematic approaches to instructional development were considered to approach the task of designing instruction.

Culture, as the forms of traditional behavior, was defined with five dimensions influencing all aspects of a society, shaping individual’s orientations and perceptions of reality as well as methods of organizing institutions. The five dimensions are: 1) the structure and roles of families, 2) the patterns of communicating thought, 3) the value system, 4) the structural and functional characteristics in language influencing the different ways of thinking, and 5) religion. Cultural identification, cultural base of perception, cultural symbolism and visual literacy were compared with cultural factors in East and West to consider designing instructional development for the effective instruction.

Chapter three will further detail the analysis of the factors influencing Korean education. These various factors which have been influential in the formulation of the principles and procedures of Korean education will be analyzed and synthesized to develop a framework of ISD model for Korean education.
CHAPTER III
MAJOR FORCES INFLUENCING KOREAN EDUCATION

We live in an ever-changing society. Both national and international events force us to make changes. Educational innovation in any country cannot be considered outside the context of the historical development and current educational situation in the ever changing society. Korea is a culturally democratic society with religious, social, cultural, and economic backgrounds. So it is the purpose of this chapter to analyze and synthesize various factors which have been influential in the formulation of the principles and procedures of Korean education. The general background information on Korea is provided first.

Social Factors

Korea

The Land  Korea is a peninsula located in northeastern Asia projecting Southeast from south of Manchuria and Siberia to near Japan. This mountainous land about 600 miles long and 135 miles wide bridges between North Asia and the outside world with a great strategic importance. The country has an area of about 86,000 square miles, approximately equivalent to Great Britain or the state of New York.
The peninsula was divided into two parts—the Republic of Korea and the Communist North Korea—by the establishment of the 38th parallel truce line drawn under the Military Armistice Agreement signed in July, 1953. The republic of Korea (ROK) has effective control over a 38,175 square-mile area lying below the demilitarized zone at the 38th parallel, roughly equal to Iceland or Portugal.

**The People**  
The Koreans who have inhabited the Korean peninsula since the stone age are known as a "nation of white clothes" which means pure and sacred country preferred to wearing white color clothes like angel's clothes. The people are made up of almost exclusively of persons of Korean ethnic origin, whose earliest ancestors are believed to have come from Manchuria or northern China, during third millennium B.C. Koreans are Tungusic in origin and become a homogeneous race sharing distinct physical characteristics, one language and one culture.

The population of Korea is about 40 million, with a growth rate of about 1.6 percent annually. As industrial development accelerated, a massive exodus of the rural population to cities was the dominant scene of Korean society. As result, nearly two thirds of the total population today are urbanities. This urbanization is characterized by the dominance of Seoul, the capital city, over the life of the nation. Nearly 20 percent of the population lives in the capital city which is the center of government, industry, education, and culture. The population of Korea is very young with 59 percent under 25 years of age, while the proportion of the population under 15 years is 38
percent of the total population.

Koreans have one language, a Ural-Altaic tongue that has more in common with Turkish, Finnish or Hungarian them with other Asian languages. Historically, however, two languages — Korean and Chinese — have been used. The Chu Hsi school of Confucianism, which originated in China, became the official Korean doctrine in the 14th century and served as a unifying force in Korean society for several hundred years, continuing into the present century.

Early in the 15th century (1493 A.D.), King Sejong (1397-1450) recognizing the difficulty of using Chinese ideographic characters with Korean phonetic expression, appointed a royal commission to devise an efficient 24-symbol phonetic alphabet known as Han'gul of ten vowels and fourteen consonants which are rich in sounds. Even now, a limited number of Chinese characters are used in combination with Korean letters for writing.

Korea is believed to trace its origin from 24th century B.C. at which time the legendary founder Tan′gun was born of a father of heavenly descent and a bear-totem tribe woman. However, the main current of Korean history (recorded history) begins with the appearance of the Three Kingdoms in the first century B.C. (57 B.C.-936 A.D.): Koguryo, Paekche, and Silla.

Koguryo, the northern section, occupied a large territory covering southern Manchuria and northern Korea while Paekche amassed power in the southwestern and Silla organized a powerful state in the South-eastern area of the peninsula.

Silla developed the Hwarang, a voluntary youth organization called
"flower of youth corps." Hwarang was trained in the arts of war, literary taste and community life, partly via pilgrimages. This movement of Buddhist virtues became popular and contributed to the country.

At this juncture, there were continuous conflicts among these three kingdoms to attempt territorial expansion until 668 A.D. at which time Silla unified the whole country through the help of the Tang dynasty of China. During this period, Buddhism, along with numerous other cultural features of Chinese civilization, influenced the Korean culture.

A turbulent era began with Silla being torn into pieces by rebel leader Wang Kon in 900. Following the decline of Silla, the Koryo dynasty which had been established in 918 A.D came into domination and continued thus until 1392. During this period Korea was continuously disturbed by the recurrent invasions of the Mongols and Japanese pirates. However, cultural achievement connected with Buddhism reached its peak during this period. Nevertheless, over-enthusiasm by the dynasty for Buddhism brought a corruption to the dynasty which hastened its fall. It was during this period that Confucianism, which influenced decidedly the personality of the Korean people, was introduced into the country.

The Yi dynasty, 1392 to 1910, which followed the Koryo, succeeded in solidifying feudalism in the country. The political power of the Buddhist monks and the confucian philosophy of the people, combined to form feudalism and the dictatorship of the aristocratic class (Lee, 1959).
By the traditional interference of China and the large scale Japanese invasion and the gradual penetration by Christianity early in the 17th century and the increasing appearance of foreign ships in Korean waters early in the 19th century, the successive kings of the dynasty adopted a policy which resulted in strict isolation of the country from any foreign influence. This isolation policy made Korea slow in adapting to the western civilization, in contrast to the rapidity of Japanese westernization. It was during the period from 1874 (Japan) to 1882 (U.S.A) when the first western contact with Korea started (Lee, 1977).

Korea was subjected by the Japanese colonial administration to systematic economic exploitation and political oppression in 1910. The thirty-six years of Japanese control from 1910 to 1945, caused new adjustment problems for the Korean people with drastic changes in their daily life being imposed on them. It was during the period that Christianity was widely welcomed by the depressed Korean people. In a real sense, the nationalistic movement of the Koreans people must be said to have been instigated by the leaders of the Christian churches of Korea.

Upon liberation from Japan by the end of World War II in 1945, Korean people get another disaster which the country was divided into two zones which were placed under separate military administrations by the United States and the Soviet Union. With the northern part of the country under occupation by the communists, the United States Military Government was established in the southern part and assisted the people there in the formulation of an independent government.
During the period of military occupation, the United States made efforts (1) to assist Korea to make the transition of the system of government from the Japanese style to the democratic system, (2) to support financial aid in order to help the country achieve economic independence, (3) to introduce a democratic system of education, (4) to establish provisions for training personnel for the changing national life (Lee, 1959).

At the end of three years of military occupation, formal inauguration of the Republic of Korea (south of the 38th parallel) took place on August 15, 1948. Before this new-born government reached two years of age, she had to experience the bitter Korean War which lasted from June, 1950 to July, 1952.

Following the Korean conflict, Syngman Rhee, the First president of Korea, won election in 1952 and 1956. But Rhee lost the confidence of the people in this period. In 1960, he was returned to office by unfairly conducted election. A revolution then occurred, sparked by student demonstration throughout the country demanding a new presidential election and the resignation of the aging president. Rhee was forced to resign in 1960. This revolt is now referred to as the "April 19 Students' Revolution."

A caretaker government assumed power and new elections were set for late in 1960. Chang Myon was elected president. The Second Republic (1960-1961) was launched with the Democratic Party's rule. While Chang promised sweeping reforms, his administration was handicapped by many of the shortcomings of the Rhee regime. Recognizing these problems, a group of military leaders led by Major
General Park Chung Hee initiated a successful military revolution in May 1961.

The Third Republic (1962-1971) was inaugurated under the leadership of President Park Chung Hee in December 1963. President Park, who was reelected in 1967 and 1971, led the nation in the world's most remarkable development success story. This period was highlighted by rapid economic advance and the active expansion of diplomatic relations throughout the world.

The Fourth Republic (1972-1980) was launched in December 1972. The president Park was given sufficient power to meet potential crises with speed and resolve by the Yushin (Revitalizing Reforms) Constitution. During this period Korea accelerated Saemaul (New Community) Movement initiated the maximum personal efforts and sound virtues directed toward national development. This movement brought increasing prosperity to rural and urban areas with a balanced development of agriculture and industry.

Following the assassination of the president Park in October 1979, Kyu Hah Choi became acting president according to the constitution, and was shortly thereafter elected president. In August 1980 he resigned, citing the need to make the transition period as short as possible. So the Fifth Republic was launched with the president Chun Doo Hwan in August 1980. The new government has begun diplomatically to take an increasingly active role more appropriate to its economic and political vitality. The new government set goal to bring about a spiritual reform by revamping the educational system and developing higher standards of culture.
Literally, the history of Korea has been viewed through confrontations with China, which spurred cultural exchanges and strengthened the solidarity of Korean people as a single, collective entity. The inflow of Chinese cultures was followed by the process of indigenization, with the resultant demise of a clan society and the rise of the "Three Kingdoms." It was mandatory for the emerging nation to develop a philosophical foundation which would tie clan societies under a singular political authority. Buddhism and Confucianism exerted a profound influence on the political and social systems of the three Kingdoms.

It was in 372 A.D. that The old Korean kingdom, koguryo, had its first formal education provided by a state-operated institution known as Taehag. The Taehag was first established in the second year of King Sosurim (372 A.D.) for the young people of upper classes. The curriculum was made up of Chinese clasisos, history and literatures. There was also a provincial institution called "Kyong Tang" for lay families, which is considered the predecessor of Soedang which flourished in Koryo Dynasty.

It was during the Silla Dynasty (57 B.C.-917 A.D.) that a unique system of training young elites known as Hwarang-do was developed. This educational system aimed to produce a leadership elite equipped
with knowledge and martial skills. The youngsters chosen from upper classes received a prescribed course of education in academic subjects and military training. Men of virtue and intellect were selected from this group to serve as statesmen and military leaders. The guiding principles of Hwarang education were manifested in five morals — loyalty, filial piety, trust-worthiness, valor and justice. The members of Hwarang also visited places of scenic beauty to develop an aesthetical mindedness. A noble spirit of chivalry resulted from such an education which also included recitation of poems and musical performance. This educational system provided the basic for Silla to achieve the unification of Three Kingdoms in the peninsula.

The major educational institution of the post-unification period of Silla was Kughag which was formally established in the second year of King Simmun (682 A.D.). It was a state school for the training of public servants. The school had three departments, all teaching the Analects of Confucius and Book of Ethics (a dialogue on filial duty), but each offering different sets of additional classics. One taught the Notes on the Rites (Lichi) and the Book of changes; another offered the Tsochuan Annals and Poems; and the third, the writings of old and selections of Chinese literature. Each department was staffed by one professor and a number of assistant professors. The fact that all courses offered the Analects and Book of Ethics as essential classics shows the emphasis on Confucian morality. There was also an optional course in mathematic. Students’ ages ranged from 15 to 30. Only those whose official ranks did not exceed Taesa (12 grade) were admitted. The school expelled those with poor academic records, but allowed
promising youth to stay longer than nine years. All students graduated after attaining the ranks of Taenama or Nama, one or two grades higher in position than the official rank Taesa.

The educational contents during the Koryo Dynasty were strongly influenced by Confucianism which was dominant philosophy of the period. During the dynasty, the public education was developed further, the public service examination system was firmly established, and private schools also flourished.

In the early days of the Koryo Dynasty, there were three state-operated schools for training government officials. The major state institution, Kukchagam, was founded by King Songjong in the eleventh year of his rule (922 A.D.). Later, the 17th King of the dynasty, Yejong, organized a foundation called Yangyonggo to operate the school and built a large building for the institution.

It was during the reign of the 17th King, Injong, that an elaborate system for the state school was formally set up. The school had major departments: Kukchahak, Taehak and Samunhak, each accommodating 300 students. Students were admitted to different departments, depending on the official ranks of their parents. For instance, Kukchahak, the first ranking department, admitted only those families enjoyed the third "pum" (grade) or higher rank in the government service. Students who finished more than three years of study at the school were eligible for the public service examination. Attached to the Kukchahak were three other departments: Yuhak (law), Sohak (geography and astronomy) and Sanhak (mathematics) which admitted children of lower-ranking officials and private citizens. The three
auxiliary departments were all six-year courses.

The Hyanggyo, sometimes called Hyanghak, (both literally meaning provincial school) were also state-operated local institutions. While the Kukchagam was established in the capital, an unknown number of Hyanggyos were set up in various provinces during the reign of King Injong. These provincial schools taught Confucian classics in the same way as the central state school did, but on a smaller scale. Students were from families of lower ranking officials or private citizens. Successful students at Hyanggyo were selected and given opportunities to study at Kukchagam.

Another kind of state school was established by King Wonjong (1272 A.D.). It was called Tongso-haktang (literally, East and West School) since a twin set of the schools for Confucian studies were located in the eastern and western parts of the capital. The school was later changed into what is known as Obu-haktang, a set of five schools established in and around the capital. These schools were similar to the Hyanggyo in nature.

Witnessing a temporary decline in state education, a number of prominent Confucian scholars founded private schools, called Sahak, in the capital during the reign of Munjong, the 11th King. A large number of graduates from the private schools passed the state examination to become scholar-administrators. Choe Chung, a former Prime Minister, was the most influential of 12 founders of such schools. His Kukje-haktang (Nine Faculty schools) that were established around 1053 A.D. flourished greatly and soon came to be regarded as a center of Confucian scholarship. Meanwhile, another kind of private school,
called Sodang, was developed during the dynasty as institutes for teaching basic Confucian classics to youths from common classes.

The pattern of educational institutions in the Koryo Dynasty mostly remained intact throughout the Yi Dynasty. The only new development was the establishment of Sowon. The highest state institution, which was equivalent to the Kukchangam in Koryo, was now called Songgyungwan, and was opened in the seventh year of King Taejo (1398 A.D.). The school accommodated about 200 students of 15 or more years of age.

King Taejong, the third king, established five additional schools in Seoul but the number was reduced to four by Sejong, the fourth king. Each of the four schools, known as Sahak, admitted 100 students. The curricula of Songgyugwan and Sahak were almost identical.

Private schools, called Sodang, were freely established by various groups of private citizens for the education of the young sometimes in preparation for higher learning at Sahak or Hyanggyo. Numerous Sodangs fell under four different categories, according to the type of management: The first by a schoolmaster; the second by a private volunteer; the third by a group of volunteers; and the fourth by a cooperative village. The curriculum consisted of Confucian classics, Chinese and Korean classical literature, and calligraphy. Recitation of the classics was the principal method of teaching.

Sowon, a new type of private educational institution, came into being in the 38th year of Chungjong, the 11th king (1543 A.D.), as a provincial district chief, Chu Sebung, founded Paegundong asowon. The Sowon taught Confucian classics for fees and held Confucian rites twice
a year. With private contributions and royal grants, the Sowon built itself into a financially powerful foundation owning farmlands as well as books. The number of Sowon grew quickly and reached over one hundred by the reign of Sonjo, the 14th king. Since prominent scholars were invited to teach at these institutes, Sowon also assumed the role of centers for academic gatherings and debates.

As the influx of western civilization reached Korea with increasing impact during the last few decades of the Yi Dynasty, the need to renovate the centuries-old educational system was mounted. But basically the isolationist policy of the monarchy and the feudalistic sentiments of the people hampered and delayed introduction of the modern western system of education.

It was only after the latter part of the 19th century that modern education was introduced into Korea along with Christianity. In 1885, American Protestant missionaries began to found modern high schools in Seoul, including a girls' school, the first of its kind in Korean history. In 1894, Kwago, the high civil service examination with undue emphasis on Confucian classic, was abolished, and reorganization of the education system begun. In 1885, new educational systems were proclaimed. From 1905, the Japanese government began to interfere with Korean education, directly or indirectly, as a result of the First Korea-Japanese Treaty. While public schools were gradually placed under Japanese control, private schools made determined efforts to cultivate a spirit of independence and to spearhead a movement to enlighten the people at large.
A missionary group of the North Methodist Church led by Henry G. Appenzeller of the United States opened the first missionary high schools, Paejae, in 1885. The school with its new educational philosophy and modern curriculum was truly the pioneer of modern education in Korea. Another boys' high school, Kyongsin, was established by a Presbyterian group in 1887. Opened in 1886, the Ewha Haktang became the first girls' school in Korea. Five other missionary high schools were founded in major cities thereafter, all exerting impressive influence on Korean education. As for higher education, Yonhui College (Chosun Christian College) in Seoul in 1905 and Sungsil College was founded in Pyongyang in 1906, both as missionary foundations.

There were rapid changes in public education systems also. The emphasis of public education was first placed on foreign language. A language school of English for training interpreters was established in 1883. The Yukyoung-Kongwon established in 1886 employed American teachers who taught English through interpreters. In 1894, the school was closed down and the Kyodong Elementary school, the first of its kind, was established in its place. In 1897, the first senior primary school opened. The number of elementary schools in Seoul soon increased to eight, and the number in provincial cities soon totalled 57, most of them located Kyonggi-do, the province surrounding the capital. In 1899, the Hansong Middle School was established with a curriculum emphasizing sciences and humanities.

The first teacher-training high school was established in 1895. Language schools for Japanese, English and Chinese were also
established that year and a Russian language school followed the next year. In 1900, a German language school was established. The number of schooling years set by these language schools varied, and the graduates were not many. Meanwhile, the Songyungwan continued to receive much official attention as establishment for teaching Confucian classics and for ceremonies honoring scholarly sages.

The development of modern education was interrupted by Japanese colonial rule (1910-1945A.D.). Not long after the Korean government and Christian missions established a number of modern schools, Korea was annexed by Japan in 1910. Although the number of public schools increased markedly during the colonial period, the education offered by these schools was far from meeting the rising aspirations of Korean people. Rather, it only served the purpose of converting Korean people into loyal subjects of the Japanese Empire. Education was limited to only a small fraction of Korean people. For example, primary schools accommodated only 30% of Korean children in the school ages; one out of 20 nor 30 was enrolled in secondary schools, and very few attended colleges (Education in Korea, 1981).

While admission to schools was strictly regulated, education degenerated into a mere means to serve political purpose. The imperialistic intent of the Japanese government dictated the goals and content of education. The colonial education culminated in the imposition of a ban on the use of Korean language in schools in 1938. The Japanese language became the only medium for teaching even in the primary schools.

In proportion to the increasing atrocities of colonial rule, the
independence movement and nationalism were just blooming among Korean leaders. These movements were pronounced in the form of educational efforts to enlighten Korean people and foster their patriotism. Underlying these efforts was the notion that education is the cornerstone of nation building. A number of wealthy patriots donated their land and properties for the establishment of private schools — especially secondary schools. Much of the credit for actual achievements in Korean education went to private schools. In 1939, the percentages of Korean students enrolled in private schools were 2.5% in primary, 26.2% in secondary, 15.5% in professional schools and 56.5% in colleges (Education in Korea, 1978).

It is worthy of special attention that the missionary and private schools provided spiritual guide for the suppressed Korean people and that they performed, to the fullest measure, the historical missions dictated by the national crisis. The Liberation from Japan was a turning point for Korean education, from totalitarian to democratic modes of education, from centuries-old feudalistic to liberal and democratic concepts. In a broader context, it provided an opportunity to build up a modern, democratic nation, enjoying the fullest measure of freedom and their potential for further growth.

The educational renovation, however, was not smooth sailing in the first two decades. The repatriation of Japanese nationals in Korea left schools dangerously short of qualified teachers, necessitating the employment of many inexperienced teachers. The democratic ideals collided with the feudalistic philosophy of the past -- too deeply rooted to be replaced overnight.
The second stage of educational development began in 1948 when the Republic of Korea government was established. During this period, the ground was laid for the development of democratic education in Korea. The Education Law promulgated in October 1949, set forth the purpose of education that all nations are to contribute to the common prosperity of mankind through the development of democracy and by nurturing the integrity of individuals equipped with the ability to lead an independent life and become qualified citizens with altruistic ideals (Hong-Ig-In-Gan). "Altruistic ideals" served as the basic guiding principle for Korean education. On the other hand, the unique political situation of Korea, developing from its confrontation with the communists, imposed another mandate on education that is to educate the people against communism. Thus, the early years of education emphasized patriotism and nationalism based on democracy.

Education, all too soon, became paralyzed as a result of the outbreak of the Korean War. Seventy two and two percent (72.2) of the classrooms of elementary schools, that had existed before the war, were either totally or partially destroyed. School activities were carried on in tents and make-shift barracks while the war was in full swing.

Following the armistice, rehabilitation of the educational system was undertaken at a feverish pitch with the active assistance of such international agencies as the United Nations Korean Reconstruction Agency (UNKRA). Given the impetus, postwar education was restored to the prewar level, not only in physical facilities but in the quality of teaching as well.

The period 1945-1970 in Korean education witnessed one of the most
remarkable expansions of education of this century over any country.
In spite of the widespread destruction of facilities and the suffering
of the Korean War, Korea succeeded in virtually eliminating illiteracy
in a span of 15 years. In the period of 35 years following Korean
liberation, the number of schools increased from 3,000 to nearly
10,000, while the number of students rose from 1,500,000 to 10 million.
Today, every child of elementary school age is enrolled. Secondary and
higher education has been expanded enormously with an increase of 55
times in the number of middle school students and 85 times in that of
college students. Primary schools have long since enrolled 99.8% of
the school aged children. This enormous expansion brought the
educational system to a huge neterprise entolling more than one fourth
of the total population (Education in Korea).

The period of expansion was characterized by the adoption of many
of the outward features of foreign education, and this pattern of
importation of models and ideals has persisted strongly. As the 1960s
drew to a close, Korean educators turned their attention to the
problems resulting from imitation of the outward features of foreign
education. These problems drew attention mainly to two critical
problems — educational quality and the expansion of educational
opportunity.

Several projects and reforms were begun to improve the curriculum
and methods of instruction. Most notable among them was the 1968
abolition of middle school entrance exams, whose adverse effects had
long been recognized. In the next five years, the proportion of
primary school students admitted to middle school rose from 55 percent
to 75 percent. Elimination of the examination system also led to increased diversity of ability among students in a single classroom; no longer were students grouped, through exams and quality differences among individual schools, in classes of roughly equivalent ability.

In the midst of this resurgence of reform a new Charter of National Education was promulgated in 1968. The charter was developed in explicit recognition of the need for a philosophical basis for education in order to achieve emphasis on Korea's national identity, a balance between tradition and progress, and a balance between the needs of the individual and the needs of the nation.

The 1970s may be designated a period of decisive systematic innovations. As the nation embarked on the task of modernization through industrial development, educational efforts were directed to laying a solid foundation for development into the forthcoming industrialized society. Technical education was stressed, as demand in various technical fields rose sharply, with an ultimate orientation towards a close link to the national manpower plan.

The effort to consolidate gains made during preceding periods was confronted with an acute need to cope with the widening gap in development between urban and rural sectors. Cognizant of the new need, the Saemaul (New Village) Movement was promulgated under government initiative. Advocating the internalization of virtues such as self help, industriousness and cooperation, the Movement spread like a prairie fire across the nation, gradually developing into systematic efforts to improve standards of living. Education found its role in helping all people internalize the virtues, thus building the spiritual
backbone of the people. Notably, this Movement has strengthened the social functions of school education.

Recent changes in Korean society have intensified the responsibility of the educational system for the attainment of societal goals by serving as an active agent in the transformation of that society. This trend will continue to direct educational reform efforts for many years to come.

The Chart of National Education and Educational Goals

The development of individuals and a society is possible only through education. In this sense, education is the basic function of society and constitutes a prime mover for national development. Hence, to establish the goals of education represents an attempt to define the ideals of a nation.

The aims of Korean education took their roots in the Constitution, and the Charter of National Education. While the Constitution presents democratic ideals in a general context, the Charter of National Education defines the ideals in terms of implications for what is to be achieved by education.

The Charter of National Education, promulgated on December 5, 1968, was hailed as the most important accomplishment in the annals of educational development after the enactment of Education Law. Its importance is heightened by the fact that it serves as a pace setter for all educational activities by presenting ideal image of Korean people which education should strive to embody. In this context, it
includes a new ethical norm and value system which constitute the spiritual guide for the people.

The aims of education reflected in the Charter of National Education may be considered in terms of (1) the spiritual base for the regeneration of the nation, (2) the new image of the Korean people, and (3) ideological issues and missions.

In order to develop the spiritual base for the regeneration of the nation, the Charter stresses independence and sovereignty, underscoring the notion that any attempt to contribute toward the common prosperity of mankind be based on the independent sovereignty of each nation. In this view, education has the goal to foster independent spirit and the consciousness of national identity directed toward the peace of the world. It also notes that this spirit provides a dynamic force for modernization of the nation.

What is implicated by the new image of the Korean people has three dimensions -- individual, societal and national. The Charter encourages creativity and a pioneering spirit to be fostered in each individual by education. Viewed from the societal dimension, it reflects the need to develop a cooperative spirit. At the national level, it states that creativity, pioneering spirit and cooperative spirit must be effectively combined to enhance the awareness of individual services associated with the task of national development. As such, the goals of education manifested in the Charter benefit individual, societal and national needs.

By presenting ideological issues, the Charter clarifies the stance to be taken by the Korean people in relation to communism. As declared
by the Constitution, democracy is the ideological base for the nation, and the development of a democratic society constitutes the supreme goal to be achieved. The very fact that the nation is pitted against the communists argues for the goal of education -- that is, not only to enhance the awareness of democracy as an ideal way of human life but to strengthen the determination to shatter the aggressive schemes of the communists. Hence, the development of an anti-communism posture constitutes an important goal to be achieved by education in Korea. Furthermore, the territorial division poses a unique situation which calls upon education to foster patriotism and the consciousness of national identity. In this situation, education is also responsible for preparing youngsters for the possible reunification of the nation.

Given the opportunity to create the history of their own destinies, Korean people faces the staggering task of regenerating the nation. Its implications for education are indeed multifarious, defying an easy conceptualization of its goals. The Charter of National Education provided an ideal opportunity to redirect education by presenting the guiding principles of education.

The goals of Korean education is under the ideal of "Hong-Ig-In-Gan," (Benefits for all mankind) aiming to assist all people in developing the integrity of individuals and the ability to live an independent life in a democratic society and to contribute toward the common prosperity of mankind.

In order to achieve these goals, the following educational objectives shall be set forth:

1. Development of the knowledge and habits needed for the
development and sustenance of individual health, and a strong mind.

2. Development of patriotism for the preservation of national independence and unity, and dedication to the cause of world peace.

3. Preservation and development of national culture and contribution toward the creation and growth of the world culture.

4. Fostering of the truth-seeking spirit and the ability of scientific thinking for creative activity and rational living.

5. Development of the love for freedom and respect for responsibility necessary for a well-harmonized community life based on faithfulness, cooperation, and mutual understanding.

6. Development of aesthetic feeling to appreciate and to create sublime arts, enjoy the beauty of nature, and to utilize leisure effectively for a joyful and harmonious life.

7. Cultivation of industriousness and dedication to one's work order to become an able producer and a wise consumer in economic life.

School System

The current system of school education in Korea is organized in accordance with 6-3-3-4 pattern. The general system of education in Korea comprises four stages — the primary, the lower secondary, the
upper secondary, and higher education forms. These four stages correspond to the first-to-sixth grades (primary), seventh-to-ninth grades (middle), tenth-to-twelfth grades (high) and thirteenth-to-sixteenth grades (college or university) respectively as shown in Table 1.

The primary school provides six years of compulsory elementary education to children between the ages of 6-11. Upon completion of elementary education, pupils aged from 12 to 14 attend middle school which offers three years of lower secondary education. The high school offers three years of upper secondary education to the pupils aged from 18 to 19. The graduates of high schools are given choices to attend either the junior colleges or the senior colleges (or universities) to receive higher education.

The High Schools are generally divided into two categories — general and vocational. The latter includes agricultural, commercial, fishery and technical high schools. Besides, there are comprehensive high schools which incorporate both general and vocational courses.

The higher educational institutions include junior vocational college (two years), colleges and universities (4 years). The teacher's training institutions include junior teacher's colleges and colleges of education, both admitting high school graduates.

Corresponding to the general school ladder system are trade and higher trade schools at the secondary education level, which offer skill programs of highly specialized nature. Originally designed to offer literacy program, civic schools still exist at the elementary and secondary level. With the provision of compulsory education up to
Table 1. The Current School System

<table>
<thead>
<tr>
<th>School</th>
<th>Year</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Schools</td>
<td>25</td>
<td>24</td>
</tr>
<tr>
<td>Universities &amp; Colleges</td>
<td>24</td>
<td>23</td>
</tr>
<tr>
<td>High Schools</td>
<td>23</td>
<td>22</td>
</tr>
<tr>
<td>Middle Schools</td>
<td>22</td>
<td>21</td>
</tr>
<tr>
<td>Elementary Schools</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>Kindergartens</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>1. Junior Teachers' Colleges</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>2. Junior Vocational Colleges</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>3. Air &amp; Correspondence Colleges</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>4. Miscellaneous Schools</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>5. Air &amp; Correspondence High Schools</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>6. Higher Trade Schools</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>7. Miscellaneous Schools</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>8. Trade Schools</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>9. Higher Civic Schools</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>10. Miscellaneous Schools</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>11. Civic Schools</td>
<td>9</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: Education in Korea, 1981, P. 36
sixth grade, these schools have been phasing out.

There are special schools offering elementary and secondary education for the deaf, blind and other mentally or physical handicapped children. Pre-school education is provided by the kindergartens. The number of schools by level is shown in Table 2.

Korean culture places a very high value on education. Since parents are willing to spend large amounts of their own funds for the education of their children, they support a vigorous system of high quality private schools throughout the country. Therefore, even though public expenditures on education in Korea (about 19% of the total budget) are low by international standards, Korea's literacy rate is one of the highest in the world (Frank, Kim, and Westphal, 1975).

By the Constitution, primary education is made compulsory for every child with basic education essential to civic life. In 1971, the five-year plan for improving primary education was completed successfully with the goals of: (1) ensuring that at least 95% of primary school age children be in school (current rate: 98.4%), (2) reducing the number of pupils class to 65 in the cities and 60 in the rural areas, (3) decreasing the teacher shortage, and (4) eliminating the classroom shortage. There are now 6,437 primary schools with 5,658,100 students accommodated in 109,855 classes and 119,100 teachers as shown in Table 2.

The objectives of primary education are: (1) to improve the ability to understand and speak correctly the national language necessary in daily use; (2) to improve moral rectitude, a sense of public duty and the ability to cooperate in improving relations among
<table>
<thead>
<tr>
<th>Schools</th>
<th>Total</th>
<th>National</th>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>901</td>
<td>—</td>
<td>40</td>
<td>861</td>
</tr>
<tr>
<td>Primary School</td>
<td>6,437</td>
<td>15</td>
<td>6,390</td>
<td>32</td>
</tr>
<tr>
<td>Middle school</td>
<td>2,100</td>
<td>4</td>
<td>1,347</td>
<td>749</td>
</tr>
<tr>
<td>Academic High School</td>
<td>748</td>
<td>6</td>
<td>344</td>
<td>398</td>
</tr>
<tr>
<td>Vocational High School</td>
<td>605</td>
<td>5</td>
<td>308</td>
<td>292</td>
</tr>
<tr>
<td>Junior Vocational College</td>
<td>128</td>
<td>20</td>
<td>16</td>
<td>92</td>
</tr>
<tr>
<td>Junior Teachers' College</td>
<td>11.</td>
<td>11</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>College &amp; University</td>
<td>85</td>
<td>19</td>
<td>1</td>
<td>65</td>
</tr>
<tr>
<td>Graduate School</td>
<td>121</td>
<td>32</td>
<td>—</td>
<td>89</td>
</tr>
<tr>
<td>Special School</td>
<td>57</td>
<td>4</td>
<td>11</td>
<td>42</td>
</tr>
<tr>
<td>Others</td>
<td>12</td>
<td>—</td>
<td>—</td>
<td>12</td>
</tr>
</tbody>
</table>

Source: Education in Korea, 1981, P. 35
individuals, groups and nations; (3) to improve the ability scientifically to observe and deal with natural phenomena occurring in daily life; (4) to develop the ability to lead an independent life by equipping students with fundamental skills likely to be useful in future occupations and daily activities; (5) to instill the understanding to deal with quantitative relationship and proportions to help in the conduct of daily life; (6) to improve the ability to appreciate music, fine arts, literature and other aspects that make life joyful; and (7) to develop daily health habits.

The basic curricula for primary school education are made up of eight principal subjects designed to fulfill the above-mentioned objectives: moral education, Korean language, social ethics, arithmetic, natural science, physical education, music, and fine arts. The current primary school curricula were established by Ministry of Education decree in February 1972 as shown in Table 3.

Secondary education is divided into middle school and high school, each being a three-year course. Upon completing primary school, children in the 12-14 age bracket are allowed to enter middle school, covering the 7th through 9th grades. In the period 1969-1978, the number of middle school students increased two-fold. The percentage of primary school graduates advancing to middle schools rose from 58.4% in 1969 to 95.7% in 1980. In this trend continues, the ratio of primary school graduates going to middle school will probably rise to 96.6% in 1981, and to 98.5% in 1986 (Education in Korea, 1981).

The rising proportion of primary school graduates advancing to middle schools may be ascribed to: (1) rising standards of living as a
result of economic development, (2) as increasing social awareness of the need to provide higher education for children, and (3) the abolition of the entrance examination system for middle schools in July 1968.

Admission to middle schools is determined by a lottery system without examination. The present system gives neither applicants nor their parents a choice of middle schools to enter.

The objectives of middle school education are: (1) to extend the objectives of middle school education, including the knowledge, skills and attitudes essential to become effective citizens in a democratic society; (2) to teach the basic knowledge and skills common to all occupations, cultivating a respect for work and proper conduct, and improving the ability to choose one's future suited to one's aptitude; (3) to improve the ability to self-govern, and develop sound emotions and a critical thinking ability; and (4) to improve the student's physical well-being.

The middle school curriculum is composed of 11 basic (required) subjects, vocational subjects, elective subjects, and extracurricular activities. Elective subjects include technical or vocational subjects to establish a close relationship between occupations and productive education. The typical middle school curriculum and time allotted in each grade are shown in Table 4.

High school entrance exams were abolished in 1973, and a lottery-assignment system was introduced. These steps have also had the desired effect of "equalizing" high schools, and bringing an increased ratio of middle school graduates to high schools. Thus in
### Table 3. Primary School Curriculum and Time Allotment

<table>
<thead>
<tr>
<th>Subject</th>
<th>Grade</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moral Education</td>
<td></td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>70 (2)</td>
</tr>
<tr>
<td>Korean Language</td>
<td></td>
<td>210 (6)</td>
<td>210 (6)</td>
<td>210 (6)</td>
<td>210 (6)</td>
<td>210 (6)</td>
<td>210 (6)</td>
</tr>
<tr>
<td>Social Studies</td>
<td></td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>105 (3)</td>
<td>105 (3)</td>
<td>140 (4)</td>
<td>140 (4)</td>
</tr>
<tr>
<td>Arithmetic</td>
<td></td>
<td>140 (4)</td>
<td>140 (4)</td>
<td>140 (4)</td>
<td>140 (4)</td>
<td>175 (5)</td>
<td>175 (5)</td>
</tr>
<tr>
<td>Nature</td>
<td></td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>105 (3)</td>
<td>105 (3)</td>
<td>140 (4)</td>
<td>140 (4)</td>
</tr>
<tr>
<td>Physical Education</td>
<td></td>
<td>70 (2)</td>
<td>105 (3)</td>
<td>105 (3)</td>
<td>105 (3)</td>
<td>105 (3)</td>
<td>105 (3)</td>
</tr>
<tr>
<td>Music</td>
<td></td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>70 (2)</td>
</tr>
<tr>
<td>Fine Arts</td>
<td></td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>70 (2)</td>
</tr>
<tr>
<td>Practical Arts</td>
<td></td>
<td>70 (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>70 (2)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>770 (22)</td>
<td>805 (23)</td>
<td>875 (25)</td>
<td>980 (28)</td>
<td>1,050 (30)</td>
<td>1,085 (31)</td>
</tr>
<tr>
<td>Club Activities</td>
<td></td>
<td>35 (1-)</td>
<td>35 (1-)</td>
<td>52.5 (1.5-)</td>
<td>52.5 (1.5-)</td>
<td>52.5 (1.5-)</td>
<td>52.5 (1.5-)</td>
</tr>
</tbody>
</table>

*Number of teaching hours is given per year. Figures in parentheses are teaching hours per week.

**Source:** Education in Korea, 1981, P. 42

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### Table 4. Middle School Curriculum and Time Allotment

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Grade</th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moral education</td>
<td></td>
<td>70 (2)</td>
<td>70 (2)</td>
<td>70 (2)</td>
</tr>
<tr>
<td>Korean language</td>
<td></td>
<td>140 (4)</td>
<td>175 (5)</td>
<td>175 (5)</td>
</tr>
<tr>
<td>Korean history</td>
<td></td>
<td>70 (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social studies</td>
<td></td>
<td>105 (3)</td>
<td>70-105 (2-3)</td>
<td>70-105 (2-3)</td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td>140 (4)</td>
<td>105-140 (3-4)</td>
<td>105-140 (3-4)</td>
</tr>
<tr>
<td>Science</td>
<td></td>
<td>140 (4)</td>
<td>105-140 (3-4)</td>
<td>105-140 (3-4)</td>
</tr>
<tr>
<td>Physical Education</td>
<td></td>
<td>105 (3)</td>
<td>105 (3)</td>
<td>105 (3)</td>
</tr>
<tr>
<td>Music</td>
<td></td>
<td>70 (2)</td>
<td>35- 70 (1-2)</td>
<td>35- 70 (1-2)</td>
</tr>
<tr>
<td>Fine arts</td>
<td></td>
<td>70 (2)</td>
<td>35- 70 (1-2)</td>
<td>35- 70 (1-2)</td>
</tr>
<tr>
<td>Chinese characters</td>
<td></td>
<td>35 (1)</td>
<td>35- 70 (1-2)</td>
<td>35- 70 (1-2)</td>
</tr>
<tr>
<td>English</td>
<td></td>
<td>140 (4)</td>
<td>70-175 (2-5)</td>
<td>70-175 (2-5)</td>
</tr>
<tr>
<td>Vocational subject Skill (Male)</td>
<td></td>
<td>105 (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home economics (Female)</td>
<td></td>
<td>105 (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective subject</td>
<td></td>
<td>105-140 (3-4)</td>
<td></td>
<td>105-245 (3-7)</td>
</tr>
<tr>
<td>One of three subjects*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Male)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home works (Female)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1,120 (32)</td>
<td>1,120-1,225</td>
<td>1,120-1,225</td>
</tr>
<tr>
<td>Extra-curricula activities</td>
<td></td>
<td>70 (2-)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: agriculture, industrial skill and fishery

The numbers in parenthesis are the numbers of hours per week.

**Source:** Education in Korea, 1981, P. 44
1980, some 82.6% of all middle school graduates went on to continue high school education, and the ratio is expected to rise to 91.5% by 1991 (Education in Korea, 1981).

The new examination system consists of a single qualifying exam, and then lottery assignment. The applicants who qualify in the exam draw lots to decide which school to enter. Each applicant is thereby assigned to a high school located in his respective precinct. Total high school enrollments in 1980 were 1,696,792, in 1,353 high schools employing a total of 50,948 teachers and instructors. High schools are largely divided into academic high schools and vocational and technical high schools.

The implementation of the new high school entrance examination system was begun in five major cities, and later extended across the nation, resulting in a vast increase in enrollments. The number of students in academic high schools rose from 411,106 in 1973, just before the new system came into effect, to 530,177 in 1974. By 1976, academic high school enrollments had risen to 746,246 continuing upward to 932,605 in 1980 as show in Chart 1.

The most notable impact of the new exam system was manifested in the varying learning abilities within a group. Previously, students of equal or nearly equal caliber used to form each learning group. Now, the lottery assignment system has brought together a "mixed bag" of superior, average and mediocre students. This heterogeneous classroom situation generated a fresh momentum in search of new delivery systems drawing on up-to-date theories of educational technology.

The aim of education in the high schools is to give more advanced
Chart 1. Enrollment in Academic High Schools

Source: Education in Korea, 1981, P. 48
general and technical education. Specific objectives are: (1) to extend the results of middle school education, (2) to improve the capacity to understand and form judgments about the nation and society, and (3) to improve the student's physical well-being and his ability to plan and manage his own life. The curricula of academic high school is shown in Table 5.

The vocational and technical high school is the vocational stream of secondary education. Those completing middle school may proceed to vocational and technical high schools. The Education Law provides that a high school shall provide higher general education and specialized education on the basis of the education received at middle school. Vocational and technical high schools thus devote more time to specialized education.

There are eight main types of vocational and technical high schools — agricultural, technical, commercial, trade, consolidated, fisheries, marine and arts. As of 1980 there were 591 in total. Their total enrollment in 1980 was 764,187 as shown in Chart 2.

As shown in Table 6, the curricula of vocational technical high schools are of various types, generally consisting of general and technical education in the proportions of 30:70.

There are five categories of institutes of higher education, namely: (1) colleges and universities with four-year undergraduate programs (except for six-year medical colleges), (2) two-year junior vocational colleges, (3) two-year junior colleges for elementary teacher training, (4) Air & Correspondence Colleges, and (5) miscellaneous schools of collegiate standing either two to four-year courses, such as nurses’ training schools, seminaries, etc.
Table 5. Revised Curriculum for Academic High School

<table>
<thead>
<tr>
<th>Areas</th>
<th>Subjects</th>
<th>Number of Units</th>
<th>Units of compulsory or elective subjects</th>
<th>Time Allotment in accordance with Elective courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Academic Natural Vocational</td>
<td></td>
</tr>
<tr>
<td>Moral education</td>
<td>Moral education</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korean language</td>
<td>Korean language I</td>
<td>20-24</td>
<td>20-24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Korean language II</td>
<td>8-10</td>
<td>8-10</td>
<td></td>
</tr>
<tr>
<td>Korean history</td>
<td>Korean history</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Social studies</td>
<td>Politics.economy</td>
<td>4-6</td>
<td>4-6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social culture</td>
<td>4-6</td>
<td>Select 1</td>
<td>three except common subjects 12-18</td>
</tr>
<tr>
<td></td>
<td>World history</td>
<td>4-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Territorial geography</td>
<td>4-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Human geography</td>
<td>4-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>Mathematics I</td>
<td>14-18</td>
<td>14-18</td>
<td>8-14</td>
</tr>
<tr>
<td></td>
<td>Mathematics II</td>
<td>8-14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>Physics</td>
<td>8-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemistry</td>
<td>8-10</td>
<td>Select 2</td>
<td>2 except common subjects 16-20</td>
</tr>
<tr>
<td></td>
<td>Biology</td>
<td>8-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Global science</td>
<td>8-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical education</td>
<td>Physical education</td>
<td>14-18</td>
<td>14-18</td>
<td></td>
</tr>
<tr>
<td>Military drill</td>
<td>Military drill</td>
<td>12</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Music</td>
<td>Music</td>
<td>4-6</td>
<td>4-6</td>
<td></td>
</tr>
<tr>
<td>Fine arts</td>
<td>Fine arts</td>
<td>4-6</td>
<td>4-6</td>
<td></td>
</tr>
<tr>
<td>Chinese</td>
<td>Chinese I</td>
<td>4-6</td>
<td>4-6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chinese II</td>
<td>4-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign Languages</td>
<td>English I</td>
<td>10-12</td>
<td>10-12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EnglishII</td>
<td>10-12</td>
<td>10-12</td>
<td>10-12</td>
</tr>
<tr>
<td></td>
<td>German</td>
<td>10-12</td>
<td>10-12</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>French</td>
<td>10-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Modern Chinese</td>
<td>10-12</td>
<td>Select 1</td>
<td>Select 1</td>
</tr>
<tr>
<td></td>
<td>Spanish</td>
<td>10-12</td>
<td>10-12</td>
<td>10-12</td>
</tr>
<tr>
<td></td>
<td>Japanese</td>
<td>10-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocational</td>
<td>Traders/boys</td>
<td>8-10</td>
<td>Select 1</td>
<td>8-10</td>
</tr>
<tr>
<td></td>
<td>Farming</td>
<td>8-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Engineering</td>
<td>8-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Commerce</td>
<td>8-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fisheries</td>
<td>8-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housekeeping (girls)</td>
<td>Home economics</td>
<td>8-10</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Housekeeping</td>
<td>8-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocational Subjects</td>
<td></td>
<td>44-64</td>
<td></td>
<td>44-64</td>
</tr>
<tr>
<td>Elective Subjects</td>
<td></td>
<td>0-6</td>
<td></td>
<td>0-6</td>
</tr>
<tr>
<td>Sub-total</td>
<td></td>
<td>140-180</td>
<td>140-180</td>
<td>140-180</td>
</tr>
<tr>
<td>Total Units of Subjects taught</td>
<td></td>
<td>112</td>
<td></td>
<td>112</td>
</tr>
<tr>
<td>Club Activities</td>
<td></td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

*1. Total units including physical education, music and fine arts should be 26 units
2. A girl student can choose one of the subjects among agriculture, industry commercial business and fisheries in stead of home economics.

Source: Education in Korea, 1981, P. 49
Chart 2. Enrollment in Vocational and Technical High School

Source: Education in Korea, 1981, P. 52
### Table 6. Curricula of Vocational High Schools

<table>
<thead>
<tr>
<th>General (Required) Subjects</th>
<th>Points</th>
<th>General (Elective) Subjects</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>National ethics</td>
<td>6</td>
<td>Social/Cultural affairs</td>
<td>2-4</td>
</tr>
<tr>
<td>Korean (language)</td>
<td>14</td>
<td>World history</td>
<td>2-6</td>
</tr>
<tr>
<td>Korean history</td>
<td>4</td>
<td>Geography</td>
<td>2-6</td>
</tr>
<tr>
<td>Politics/Economics</td>
<td>2</td>
<td>Mathematics II</td>
<td>4-16</td>
</tr>
<tr>
<td>Mathematics I</td>
<td>8</td>
<td>Nature (other than required subjects)</td>
<td>4-12</td>
</tr>
<tr>
<td>Nature—Physics/Chemistry</td>
<td>6</td>
<td>Music</td>
<td>2-4</td>
</tr>
<tr>
<td>Biology/Ecology (select 1)</td>
<td>6</td>
<td>Chinese characters</td>
<td>2-4</td>
</tr>
<tr>
<td>Athletics</td>
<td>6</td>
<td>Foreign language—English/</td>
<td>6-24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>French/German/Chinese/</td>
<td></td>
</tr>
<tr>
<td>Drills</td>
<td>12</td>
<td>Spanish/Japanese (select 1 or 2)</td>
<td>4-6 (boy)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vocational skills (Home economics for girls)</td>
<td>6-10 (girl)</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>58</td>
<td><strong>Total</strong></td>
<td>34-82</td>
</tr>
</tbody>
</table>

Sub-total: 66–102 (66–90 for engineering, 66–82 for fisheries and marine)

Special subjects: 102–156 (114–156 for engineering, 122–156 for fisheries and marine)

Total: 204–222

*Source: Education in Korea, 1981, P. 53*
Under the Education Law and subsequent Presidential and Ministerial Decrees, all higher education institutes, whether public or private, come under the direct or indirect supervision of the Minister of Education. The Ministry of Education exercises control over such matters as student quotas, qualifications for the teaching staffs, curriculum and degree requirements, general education courses and military training. About 70% of the institutes of higher educations are private. In the case of private institutes, the appointments of members of the boards of trustees and presidents are authorized by the Ministry.

The institutes of higher education have a high degree of autonomy in organizing curricula. One of legal stipulations applicable to curricula is that all courses should include a general and liberal education program consisting of such subjects as the Korean language, at least two foreign languages, introduction to philosophy, cultural history, general theory of science and physical education.

Colleges and universities offer four- or six-year courses, the latter including medical and dentistry colleges. The purpose of college education is to search for truth, develop methods of applying it for the development of the nation and society, and produce people to assume leadership roles in society.

During the 1960s, colleges and universities showed the greater increase in number of all levels of schools. There are now 85 colleges and universities enrolling 401,401 students as shown in Chart 3.
Chart 3. Enrollment in Higher Education

Source: Education in Korea, 1981, P. 66
The higher education curriculum is divided into two types of study, required courses and electives. The required courses must be completed by every student if he is to be eligible for graduation, while the elective courses are left to the individual students to select so that they may work intensively in their field of special interest.

The required courses consist of general education subjects and specialized subjects. The general subjects include national ethics, Korean language, philosophy, cultural history, basic natural sciences, and physical education. In addition, each student must select more than one subject (exclusive of his own specialization subject) from humanities, social sciences, and natural sciences.

**Changes in Teaching Method**

Education in Korea has slowly shifted from the totalitarian Japanese system of education to the democratic system since 1945. In 1948 the government developed new contents and methods of education and new educational system vis-a-vis the improvement of teachers' quality through in-service training, various meetings and seminars. The first American Education Team to Korea aroused a high enthusiasm in our efforts to reform education.

Before and after the Korean war, life-centered education was introduced with emphasis on the development of high-mental processing and problem solving abilities. After returning of the government to Seoul, further progress was made in the number of educational institutions, educational facilities and methods of teaching;
individualized learning and problem solving were reinforced in the instructional process vis-a-vis experience-centered learning based on discussion, observation, and field trips.

During the 1950's the goals of public education underwent confusion. This was mainly due to the post-liberation conflicts between the new and old ideas, coupled with the disintegration of old value system resulting from blind acceptance of foreign ways of thinking. However, the economic development of the 1960's brought with it a heightened national self consciousness, giving vital energy to the effort to internalize the new ideals. At this time various kinds of new teaching methods were introduced; community-centered learnings programmed instruction, buzz way of instruction, and audio-visual instruction were of major concern.

In later part of 1960, experimental learning, independent learning, discovery, and spontaneous, and cooperative learning were introduced to practical teaching. Although an ample variety of instructional methods were introduced, they were not fully digested by teachers as well as by learners.

After the middle school entrance examination was abolished in 1969, the middle schools received a large number and a more heterogenous group of students than before. The mastery learning program is intended to assist teachers in confronting this situation.

The Mastery Learning Programs were carried out by the Korean Institute for Research in Behavioral Sciences (KIRB) and the Educational Research Center (ERC) of Seoul National University. The purposes were to formulate and test theories of instruction and to
suggest practical strategies and materials for the improvement of school learning. This project started with the assumption that the expanding educational quantity is not necessarily antithetical to the improvement of educational quality, and that ways can be found to meet both needs at the same time. Its conceptual framework developed from Carroll's and Bloom's theories of learning. Difference from the traditional model is that it does not accept differentiated achievement among students as a necessary consequence of different aptitudes as the following formula:

\[
\text{degree of learning} = \frac{\text{time actually spent}}{\text{time needed}}
\]

This strategy had to meet the following practical conditions: (1) it should be workable in a classroom situation with a large and heterogeneous group of students; (2) it should not presuppose a large-scale retraining of teachers; (3) it should be adaptable to a wide range of school situations, and should not require a set pattern of personnel organization, facilities and instructional schedules and materials; and (4) it should be of assistance to the classroom teacher in such a way that it incorporates the principles of modern instructional technology.

The mastery learning program does not presuppose a great change in the teacher though a certain amount of change is both inevitable and essential; however it attempts an extensive change in the instructional
logistics that the teacher and the learner can use. The major effort has been devoted to developing instructional aids which teachers and students can use in the uninstructional process that roughly follows the mastery learning model. For every course of instruction, the following instructional aids or materials have been developed for the teacher and students.

The mastery learning program was experimented to nine schools with 5,800 seventh graders in Seoul participated in English and mathematics for a period of eight weeks beginning in October 1969. By the results, this project was not as pronounced as in the strategy planned although the mastery degree was fairly satisfactory. The degree of mastery learning varied widely among the nine schools. This fluctuations in the degree of mastery learning appeared to be caused partly by (1) school climate for academic learning, (2) co-operation of teachers and participating schools, (3) inefficiency in the utilization and administration of instructional materials, and (4) apparent failure on the part of teachers follow the directions.

After the Korean Educational Development Institute (KEDI) was founded in 1972, it undertook the Elementary-Middle School Development Project to introduce a more effective educational program of higher quality into primary and middle schools in Korea. This five-year project (1973-1977) is markedly different from the conventional, repairs type of reform programs of the past in that the former follows a full cycle of intensive \textbf{RESEARCH - DEVELOPMENT - DEMONSTRATION - ACTIVITIES - IMPLEMENTATION}.

The new instructional system of KEDI consists of the general model
of instructional process model and teaching learning materials. The instructional process model, which is the major part of the instructional system, again divides into general model and sub-models. The former describes: the principles and criteria which would direct the instructional activities under the new system, and the latter is an implementation model tailored to fit the special needs of subject matters and grade level within the framework of the former.

The general model of instructional process is unique in that it enables the teacher to carry out instruction adapted to individual needs in the classroom cramped with 70 or 80 students. This model sets forth five stages through which instruction is to proceed: PLANNING -> DIAGNOSIS -> TEACHING-LEARNING -> EXTENDED LEARNING -> EVALUATION. Figure 6 spells this out in greater detail.

This model provides for identification of tasks and objectives, making a lesson plan, and making a management plan. Then activity required under diagnosis is identifying where the students fall short in the prerequisites required for the learning task, and providing some remedial work if necessary.

Then comes the major activity, which the model calls teaching-learning, and which takes up about three-quarters of the time. One of the more interesting things to notice is where ITV appears in the pattern in relation to classroom teacher instruction, programmed learning, simulation, field trips, and so forth. Clearly this is not a system built around television, but rather one that has television built into it to do what the planners think most needs doing.

Extended learning begins with a formative test to identify and
Figure 6. KEDI Model

(Adopted from KEDI, 1973)
help students who need special practice and students who have mastered the tasks and are ready to go on to special projects. Finally, the evaluation provides for a summative test in order to draw some conclusions about student achievement, the effectiveness of the teaching, and grades that should be assigned.

This is nothing particularly new to the Klohr's model which will be discussed in the next chapter. One of the criticism of KEDI's model is related to evaluation. In this model, evaluation is not viewed as an on-going, continuous process which resides in each stage. It only serves as a final summative-type evaluation of the project.

Fundamental Principles of Korean Education

As clearly manifested in the Constitution and the Charter of National Education, the foundation of Korean education is a democratic philosophy which guarantees the equal opportunity for education, the respect of individual ability, and the autonomy of education.

The principles of education are summarized as follows:

A. Cultivation of National Identity

1. Inculcation of national consciousness and patriotism.

2. Developing the citizenship of a democratic society such as the sense of responsibility attendant upon freedom and developing national ethics based on new value system.
B. Establishment of Educational Improvement

1. Innovation of school management for the effective management of the schools.
2. Enhancement of teacher's qualities to improve the schools' accountability.
3. Updating curriculum to enhance learning outcomes.

C. Promotion of Science and Technical Education

1. Development of scientific thinking and inquiry skills through experiment/practice-centered education and the improvement of teaching methods.
2. Internalization of acquired knowledge and skills through application to daily life.
3. Strengthening school-industry cooperation system.

D. Learning Society

1. Development of multiple delivery systems.
2. Establishment of media centers.
3. Strengthening anti-communist education is preparation for possible challenge by the communists.
CULTURAL FACTOR

Interpersonal Relationship Influencing Education

The Korean culture is governed by five major ethical principles based on Confucian teaching which remains the "bible" of the traditional Korean to this day. Culture may be a pervasive factor that the process of industrialization in unique in each society. Therefore, managerial activities would reflect these cultural differences. The five basic codes of interpersonal relationships are major factors.

1. Family Life

The Korean family, as a social institution, has undergone a tremendous change since 1945 as a result of rapid industrialization and urbanization. In the past Koreans were known for their extended family that accommodated at least three generations under the same roof. The dwindling size of the Korean family seems to have had very little impact upon the hierarchical nature of interpersonal relationships between members of the Korean family.

There is little concept of equality among Koreans. Relationships tend to be almost entirely vertical rather than horizontal; every individual is relatively higher or lower. Even in a family all are in a vertical relationship: older to younger. In Korea all human
relations are similar to family relations. For example, Koreans commonly call unrelated persons who are older "grandfather", "grandmother", "brother", "sister", uncle", or "aunt".

Many Koreans seem unable of unwilling to shake off the Confucian ethical precepts which have been a dominating influence upon the traditional Korean family structure. Even today, the father is still head of the family. He is in charge of nearly all of the family's external affairs. Within the family he is given privileged treatment in accordance with his position and also assumes the role of disciplinarian and imposes strict discipline upon the children.

By and large, the Korean child's family environment is more rigid, less permissive and more authoritarian in its character than the family atmosphere his American counterpart enjoys. The authority which derived from hierarchical relationships is based on personal relationships and is not seen as a barrier to intimacy. Authority in Korean family is never perceived as so dishonest that is distrusted, and for the most part it is granted a degree of respect. Whereas the American child is given much freedom to explore his own environment and pursue his desires, the Korean child is discouraged from taking individual initiatives. Whereas the American child is encouraged to develop independence, his Korean counterpart is encouraged to develop dependency, a dependency on his parents and relatives, who will in turn, depend upon him for support and succor in their old age. The Korean family and society emphasize interdependence and harmony within groups. This leads to extensive consultation, organic, cooperative, collective decision making.
2. Discipline and Face

The Korean child is taught not to express his feelings and thought in a demonstrative way. Whenever he is inclined to show his emotions or to present his "childish" opinion, he is strongly discouraged by adults who admonish him for being flippant. This often repeated admonition carries a meaning much deeper than "don't be flippant." What it essentially means is that one should control one's deep feelings so that one will not appear shallow and vulgar before others. The Korean child is under frequent exhortation by adults around him to be serious, suggesting that a serious, person is in control of his innermost feelings.

The Korean child, brought up under pressure to control his feelings and opinions, would find it extremely difficult to express himself, because he has not developed either skills necessary for effective communication between adult and child or a strong concept of his unique identity. In fact, he is not encouraged to use the I of himself, that part of man's creative being, and he often omits the I as subject in his conversation with people around him. This weak sense of ego tends to lead him to an equivocal appearance in his personality in adulthood. Most Koreans are mortally afraid to give a clear and unequivocal no to a question. The Korean may say yes, when he means no, because the question is put to him in the negative. Yes is the Korean way to answer in response to a negative question. So, in response to his teacher who asks, "Haven't you had breakfast yet?" he
would say yes, meaning that he has not had it. Or he may say yes, not because he knows the answer, but because he wants to acknowledge that he has heard the question and that he would like to take time in answering it. The Korean may say yes, may smile, or may twist his body as if in agony, because he does not want to lose face in front of his friends on account of his ignorance.

Koreans are a people chemvon (or face) which they don't want to lose. Particularly, they do not want to lose face before those whom they consider socially inferior to them. In order to maintain good face, many Koreans engage in social and economic activities against their true wish or ability. The child in Korean society learns to play the social game of maintaining good face. He is often admonished by adults who tell him to maintain face. When he is offered a gift by a guest of his parents, he is told by them not to accept it. It is common for the parents to rebuke him gently for accepting a gift from a guest, particularly if he accepted it without refusing at least two or three times. In Korea gifts are not to be accepted inceremoniously without repeated refusals on the part of the prospective recipient who is in turn, urged on to accept it by the offerer.

3. Seniority

As it is mentioned above, relationships among members of the family are vertical rather than horizontal. Elders are superiors in the home and society should be revered and honored, both in words and deeds. Because of a Korean cultural pattern of nuclear and extended
families, the grandparents are most respected. To be called grandfather or grandmother is a sign of respect. In the Korean system of lifetime employment merit system is not given much predominance in Korea since status is based on age. Promotion based on merit could result in younger employees supervising older individuals. A seniority system is utilized in management. A seniority system cannot insure that the leader will be the most competent individual; however, this is less of a concern in Korean organizations.

Staffing based on merit versus seniority influences organizational structure. Decentralization is more common in the U.S. than Korea. An organization is more likely to decentralize if one assumes that those lower in the hierarchy have been selected on the basis of merit and share norms of self-determination and hard work. Centralization, on the other hand, is consistent with Korean consensual decision making.

4. Paternalism

Groupism underlies a paternalistic Korean management style. Paternalism is characterized by two conditions. First, the status differential between supervisor and subordinate like father and son, or husband and wife in the family is presumed not to be purely a matter of instrumental necessity. Rather, the supervisor is in control because of being a superior person. Demeanor and language are utilized to emphasize status differences. It is rude to call a person by name without due discretion; an honorary title has to follow the name of an older or more prominent person. The Korean language is devoid of an
acceptable title equivalent to "Mr.". There the most widely used Korean term is Sunsang nim (teacher) for one's superior. Koreans have great respect for learning and scholastic achievement and education is taken very seriously by nearly every Korean. Therefore teachers are held in high esteem. Teachers are considered parents away from home and should never be contradicted.

The second characteristic of paternalism is that the supervisor is concerned with aspects of employees' lives which have nothing to do with the work performed; the whole person is treated as a unit. It is not unusual for Korean managers to become involved in arranging a marriage or helping to settle a family dispute for one of her/his subordinates.

5. Concept of Self and Groupism

The interpersonal is important for understanding management practices. Differences in this dimension represent the primary distinction between Korean and U.S. cultures. In the West we see ourselves as singular, an individual separate from all others. In the East the self is seen as part of a group. In the West, groups are important for their instrumental purpose — some things cannot be accomplished without group interaction. However, the Korean subjectively experience working together on common objectives as satisfying to their own inner sense of purpose. Groups are the primary social unit throughout Korea. For example, most workers are first assigned to a work group and then to a specific job. In instruction,
the learners can be first assigned to a mastery group and then to individualized job. Membership in the group is more important than one's profession or specialization. Further, individuality and independence are symptoms of immaturity and selfishness in Korea. Virtue lies in anonymously melting into the group. Thus Korean family and society emphasize interdependence and harmony within groups.

Korea's Communication Culture

The characteristics of Korean traditional culture can be examined from many angles and in as many areas as the concept of culture contains. Means of social communication existed long before the emergence of modern mass media. Communication culture existed in a given community long before the emergence of modern mass media. As a community can secure its existence on the inevitable assumption that it has its own means of social communication, a culture can be formed on the inevitable assumption that it is supported by means of communicating cultural values or cultural symbols (Deutsch, 1966).

The communication culture unique to a given country is formed according to how its values or symbols are communicated. As Marshall McLuhan (1964) says, "the medium is Message," the media which were developed by technology seem to have already been heavily universal in nature before they decided on the contents or programs they were about to transmit. Communication in a given social system has a history of having gone through a long process of development before the emergence
of modern mass media and we can find traces of its unique and peculiar culture more in the process of development.

Any religion which was essentially devoted to missionary work for the greater masses developed various techniques and methods of communication for that aim. Printing techniques were developed mainly for the religious purpose in Korea. Examples were seals and seal-ink-used by Taoists, rubbed copies used in Confucianism, reprints of Buddhist paintings by Buddhists, and printed scrolls in Temple.

Missionary activities made great contributions to the development of not only visible communication techniques but invisible techniques. The principle of persuasive communication which aims at changing the opinion or attitude of a greater number of people was derived mostly from experiences gained in the course of missionary work; and it is a well known fact that the word propaganda, the most intentional form of persuasive communication, had its origin in the Catholic Church (Choe, 1979).

We may assume that spoken words acted as the main means of communication in the case of propagating an endogenous religion in traditional society where the literacy rate was very low because of the aim of the religion’s missionary work to reach a greater number of people. The precondition for the propagation of an exogenous religion, on the other hand, was to import its scriptures (Buddhist sutras, Confucian classics, the Bible); and it was also necessary for that purpose to translate them into written words which were in common use and understood in a society which was to accept the religion.

As Buddhism came to Korea together with its scriptures and
Confucianism together its classics, it was inevitable therefore that written words acted as the main means of communication as much as or before spoken words in accepting an exogenous religion in Korea.

**Culture of Written Words vs Spoken Words**

The oracle-bone letters, the origin of Chinese characters, took form in the process of judging the will of the Creator by reading the cracks which appeared on the back of a tortoise or on the surface of other animal bones after it was baked over a fire. The written words which appeared with the birth of confucianism were not ordinary words but constituted the Confucian classes. One the other hand, spoken words which are found in the first part of the Bible contain the will of God. Therefore the spoken words which existed at the beginning of Christianity had theological meaning; the written words which existed at the beginning of Confucianism had a magical value (Reischauer and Fairbank, 1958).

Comparing Christianity with Confucianism, there are God's spoken words in the churches and pastors are persons whose primary mission is to convey spoken words to preach. On the other hand, Confucian classics are words written by the sages of the Confucian institutes in China and Korea such as Sowon and Sodang where Confucian scholars taught students and performed memorial services in honor of sages. Thus pastors were orators and confucian scholars were literary intelligentsia.

With the above comparison, we can see that "culture of spoken
words" bloomed in the Western world in early times, whereas the value of the written word was appraised more highly in the Eastern culture, especially in Korea Japan and China.

In the Choson dynasty of Korea, there was the Kwago system that appointment to government positions depended on one's ability to read and write well. Therefore the value of spoken words declined and was underrated as being apt to run out to be mean and low in the traditional society. To read was the profession of scholars and to speak the act of menials. Those who earned their bread with the mouth were stage performers, clown singing beggars, and sorceresses.

The climate of communication in traditional society which valued written words highly and despised spoken words can be regarded as "the anticulture of spoken words." The trend of the anticulture of spoken words appears to have restricted the process of socialization in traditional society in an either visible or invisible manner (Choe, 1979).

It was taught generally that one should be cautious in uttering words. Especially men were taught to be slow of speech and discreet in selecting words. This was a norm and a virtue which took root in traditional society so deeply as to become intrinsic in it.

Such a tendency is described in the Korean proverbs which discloses the wisdom of life among our people:

"Words and feathers the wind carries away."

"A fool is full of words."

"The sheep that bleats most gives the least milk."

"The day has eyes and the night has ears."
And the poets enjoyed expressing the norm and virtue of Korean traditional society in their poems:

"Don't speak of others, however talkative you are.
For others, too, speak of you.
Words bring forth words.
Silence is best."

This norm governing speech did not tolerate eloquence, disputation for right or wrong. It was taught that silence is better than eloquence and it was believed that silence contained greater significance.

Thus the culture of spoken words cannot bloom in a society where people want others to chain their tongues and people are taught not to leak words.

The introduction of modern mass media to Korea stimulated a change in her communication culture which had traditionally and historically been rooted deeply in respect for written words. However the mass media have still failed to free themselves from the intellectual elite consciousness which was hardened by the culture of written words.

The development of electronic media such as radio and television exerted decisive influence on mass culture in the decade of the 1960’s in Korea. It can be said that printed medium is essentially a medium given birth by the culture of written words which make most people readers rather than hearers and the electronic media such as the radio and television regarded as non-lettered media given birth by the culture of spoken words make most people occupy the position of hearers rather than readers. However with the rapid nationwide propagation of
radio and television sets provided the opportunity in Korean history for the blooming of the culture of spoken words and provided a very strong momentum for the change of means of communication from visual method to audio-visual method. The popularization of these media at least opened an opportunity for all -- men and women, high and low classes -- to participate in the process of communicating the cultural value.

It is expected that the development of the culture of spoken words will exert far-reaching influence on the culture of written words. However in the view of the Korean communication culture which had traditionally and historically been rooted deeply with the profound influence on our culture of written words for one thousand years in Korean society, the selection and production of proper media for effective instruction is the primary concern of instructional developer.

Impact of Nunchi

An understanding of the cultural differences in non-verbal behavior could be one of the most important areas in which to point out the differences of non-linguistic forms of the communication process.

Culture, as defined as the material and nonmaterial aspects of a way of life which are shared and transmitted among members of a society, is learned behavior. Much of this learning is informal and it starts when we are first beginning to speak and understand our environments. Cultural elements in nonverbal behavior of Korea can be
considered in terms of Nunchi.

While the Korean child is disciplined into maintaining face and controlling his spontaneous acts and desires, he is also taught the art of sensing quickly the changing disposition of adults in his world. Those abilities may prove to be an invaluable skill in his dealings with his superiors in adult life.

Americans have an expression, "play it by ear," meaning that one should improve when one is faced with a difficult task for which one has not been prepared. Americans are a people with great ability to improvise. Underlying this ability, however, is their methodic and rational approach to problem solving learned in school. Americans are excellent organizers, willing to work together in order to achieve a common purpose. They are people who have great respect for public opinion. This may be responsible for the origin of the American expression, "play it by ear."

In contrast with that American expression, Koreans have a saying, "nunchi", meaning that one should "play it by eye". It is an inevitable by-product of a rigidly stratified class society where force rather than reason, class status rather than individual ability, political power rather than hard work, have been used methods of accumulating wealth by social elites. In such a society, inferiors are under constant pressure to please their superiors by playing up to their changing disposition. There are no objective rules, logic or reason to assist them in dealing with essentially irrational elements of class society. They have to rely on their quick sense to detect or feel the changing mood of their superiors. The child in Korean culture
learns to use this quick sense of "nunchi" in his relations with authority figures. He develops from early years of life a strong feeling that it is useless to reason, to discuss problems logically or to present objective data in an attempt to help adults understand his points of view. In fact, the child in Korean society is seldom taught to confront adults with logic and reason. A child who questions authority figures is characterized as an impudent child.

The Korean way of thinking and showing facial expression is vague, indirect, non-expressive and passionless. The Korean child is most likely to behave in a passive, non-participatory way unless the teacher calls him/her by name or asks anyone to answer a question.

American couples smile at their weddings, looking happy, but in Korea neither the bride nor the bridegroom is supposed to smile. They usually look serious before and after as well during the ceremony. In Korean society, one is regarded as light-hearted or frivolous if he shows enthusiasm. As Korean parents are most likely not to show enthusiastic facial expressions, the teacher cannot communicate with the parents with ease.

When one is overjoyed with another person's magnificent generosity or when one faces sad affairs, it is considered a virtue to hide one's own feelings. In this case, Koreans can detect whether others are really pleased with them or are dissatisfied with them, by what is called nunchi which is a kind of "sense", but it cannot simply be explained as "sense" (Chu, 1978). Nunchi is an interpretation of others' facial expressions or what they say plus mysterious "alpha" hidden in their inner hearts.
The Korean method of social intercourse, to pretend to like something though it is bad and to pretend to dislike though it is good, has different implications than the method of the American who in public dissects and analyzes everything. Nunch is traditionally an interpretation by the different social classes necessary in an unreasonable society in which logic and flexible rules have no place. However, nunch is a way to solve problems detecting the other person's facial expression, plus, "alpha" hidden within his inner heart as an art of sensing. For example, it is not unusual for the parents to scold the child by saying, "Don't you have a nunch?" When the child says or does something wrong in a situation where the child should have made a common-sense judgment and should not have said or done. The American way of thinking is direct while the Koreans way is indirect. When Americans love, without exception they confess, "I love you." But Koreans don't directly spit out the word "love". Love and hate are emotions subtly shown by expressions on the face instead of being stated. In Korea, one does not praise another's generosity, kindness, hospitality, and honesty by verbalizing directly. They just appreciate the other's goodness from their inner hearts.

Americans tend to move from the specific and small to the general and large. Americans progress from personal and local issues to those of the state and finally of the nation. But Koreans tend to move the other way around. It is more comfortable for Koreans to start with a general or larger part and then narrow down to specific facts (Chu, 1978).
The economic aspects of education has been a growing interest during the past decade. There are various reasons which can be, and have been, advanced to account for this development. One is the considerable growth in the volume of educational activity to the point where today education is one of the largest industries in most countries and also one of the chief employers of highly skilled personnel.

The other reason is the recognition that education may have a significant influence on the employment and income opportunities open to people and hence affect the distribution of income and wealth in society, and that education plays an important role as the provider of skilled personnel for an economy with an emphasis on economic growth and development.

In economic terminology, education would be an investment rather than a consumption item or in philosophical saying it would be a means to an end, and not an end in itself. Education may play in the process of economic growth. Growth has come to the forefront in the range of economic policy objectives during the post-war period. The reason for growth is an increased awareness of the coming poverty which characterized so much of the world's population, giving rise to the desire for policies to remedy this position. Growth would require either some addition to productive resources or some more effective method of utilizing given resources.
It is the usual way of linking the economic and the educational patterns to prepare projections of future employment levels which are then used to derive estimates of the associated educational levels. Given that the future is uncertain, there are inevitable differences of view as to which procedures are most appropriate for the preparation of future estimates.

Korean economy has experienced remarkable industrial progress and growth and would continue to grow in the foreseeable future with stability to develop its greatest manpower in the qualitative rather than quantitative level to supply skillful laborers and professional technicians.

Projections of manpower requirements in industry from 1967 to 1986 are shown in Table 7. This table shows the plan target projection of employment in each sector in 1986 and the 1967 employment in that sector and the net number of new workers required as additions. For example, employment in construction will increase from a level of 234,000 in 1967 to 1,252,000; an absolute increase of 1,018,000 workers.

A similar projections of the skilled workers needed by levels of training, is presented in Table S. According to the projection, the most rapid growth among all levels is the semi-skilled level, where the number of growth is about 6 times the size of the 1967 force. Therefore, the training of semi-skilled workers is the most urgent task of manpower-related personnel.

In terms of economic needs the quantity of schools may be sufficient for the next years, but the quality of human resources
<table>
<thead>
<tr>
<th>SECTOR</th>
<th>1967</th>
<th>1986</th>
<th>Growth Increment</th>
<th>Percent of Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>5,096,900</td>
<td>2,615,800</td>
<td>-2,481,100</td>
<td>-49%</td>
</tr>
<tr>
<td>Utilities</td>
<td>50,900</td>
<td>279,900</td>
<td>229,000</td>
<td>450%</td>
</tr>
<tr>
<td>Mining</td>
<td>75,400</td>
<td>119,600</td>
<td>44,200</td>
<td>59%</td>
</tr>
<tr>
<td>Machinery</td>
<td>163,400</td>
<td>1,607,900</td>
<td>1,444,500</td>
<td>884%</td>
</tr>
<tr>
<td>Textile</td>
<td>188,900</td>
<td>634,300</td>
<td>445,400</td>
<td>236%</td>
</tr>
<tr>
<td>Chemical</td>
<td>97,700</td>
<td>806,100</td>
<td>708,400</td>
<td>72.5%</td>
</tr>
<tr>
<td>Other Manufacturing</td>
<td>336,300</td>
<td>2,538,900</td>
<td>2,202,600</td>
<td>653%</td>
</tr>
<tr>
<td>Services</td>
<td>2,439,800</td>
<td>4,777,900</td>
<td>2,338,100</td>
<td>96%</td>
</tr>
<tr>
<td>Construction</td>
<td>234,000</td>
<td>1,252,000</td>
<td>1,018,000</td>
<td>435%</td>
</tr>
<tr>
<td>Transportation</td>
<td>205,500</td>
<td>1,553,400</td>
<td>1,347,900</td>
<td>656%</td>
</tr>
<tr>
<td>Total</td>
<td>8,688,800</td>
<td>16,185,800</td>
<td>7,297,000</td>
<td>82%</td>
</tr>
</tbody>
</table>

Source: Ministry of Science and Technology, Manpower Projections, 1967-1986
### Table 8. Skilled Worker Requirements by Levels of Training

<table>
<thead>
<tr>
<th>Level of Training</th>
<th>1967</th>
<th>1986</th>
<th>Growth Increment</th>
<th>Percent of Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineer</td>
<td>13,900</td>
<td>153,100</td>
<td>139,200</td>
<td>1,001%</td>
</tr>
<tr>
<td>Technician</td>
<td>56,400</td>
<td>297,200</td>
<td>240,800</td>
<td>427%</td>
</tr>
<tr>
<td>Semi-Skilled Worker</td>
<td>272,500</td>
<td>1,977,100</td>
<td>1,704,600</td>
<td>628%</td>
</tr>
<tr>
<td>Total</td>
<td>342,800</td>
<td>2,427,400</td>
<td>2,084,600</td>
<td>608%</td>
</tr>
</tbody>
</table>

Source: Ministry of Science and Technology, Manpower Projections, 1967-1986
produced by existing secondary school can reach neither the level for which purpose of these institutions are intended nor that required for the nation's employment needs. Investment in education is as important to economic development as investments in physical capital. As investment in education competed with investment in physical capital in the allocation of scarce national resources, it was prudent for Korea to invest relatively more in the secondary schools than in the higher levels of the educational system. The rate return study undertaken by Dr. Robert Morgan and his study team indicates that the rate of return for the secondary school (middle, 20%, high school, 11.2%) is noticiably higher than that for the higher school (9.5%) (Morgan, 1979).

There are important implications of these economic and manpower considerations for governmental and educational decision-makers in Korea. The great needs for manpower in the years ahead would be at the level of the secondary school graduate. Therefore the secondary education programs should be approriate to the economic needs of Korea in terms of economic criterion such as needed manpower and maximizing economic benefits. Therefore expansion and improvement of instructional development process in Korea should have been given high priority for the future economic needs of Korea.

**Psychological Forces**

**Theory of Learning and Instruction**

Instruction has as its purpose the promotion of learning in
individuals. Therefore theories of instruction are necessarily based on theories of learning. The history of learning theory has been eventful and colorful. Each generation of psychologists has fought skirmishes on the nature (heredity) and nurture (experience) controversy, the rote learning (bare facts) and meaningful learning (concepts) question, and the aims (objectives) and means argument.

Today there is a growing realization that such questions are not resolvable one way or the other. Currently fashionable controversies include exposition versus discovery in teaching; products versus processes of learning, and learning environments versus knowledge structures as the keys to the control of instruction. So it is very important to review the theoretical viewpoints of psychologists stand contrast as regards the general objectives of instruction.

As the behaviorist position, Skinner (1961) defines learning as an observable change in behavior not caused by physical maturation or growth. The structure of internal thinking and learning processes is considered irrelevant to the process of instruction, which is seen as the structuring of the environment in such a way as to maximize the probability of the desired new behavior being learned.

Thorndike's law of effect states the observed phenomenon that behavior which produces desirable or pleasant effects tends to be repeated. Skinner as a behaviorist expounded the principle of reinforcement which is a somewhat more precise restatement of the law of effect.

Thus instruction is equated to the conditioning of desired behavior -- operant conditioning. So the role of the instructor is to:
(1) arrange the stimulus; (2) observe the learner's response; and (3) reinforce desired responses. The instructor manipulates and controls the learner's environment in order to control and shape the learner's behavior.

Thus Skinner's theory of instruction is an input/output learning theory, treating the learner as a 'black box'. It requires no theory learning concerning the internal learning processes.

Gilbert (1962) developed a methodology for the analysis of behavior and design of training, which he termed mathetics: classified behavior as composed of combinations of three basic structures: chains, multiple discriminations and generalization.

Many of the behaviorist concepts have become fused into more complex, more complete theories of instruction. A good example of such an eclectic theory is that of Robert Gagne (1965, 1970, 1974). The Gagne's views on learning and instruction distinguish him from the strict behaviorists on two points: (1) He admits a large variety of different types of learning such as learning categories, learning outcomes, or intellectual skills; (2) He admits to some interest in the functioning of the internal mental processes which govern learning.

As the neo-behaviorist, Gagne suggests a hierarchical list of eight categories of learning proceeding from very simple conditioning-type learning to complex learning such as that involved in problem-solving and from lower levels to higher levels of learning. Figure 7 presents the eight categories and illustrates their hierarchical structure.

Thus Gagne's model embraces the models of Skinner and of Gilbert. It also includes the very primitive type of Pavlovian conditioning.
The arrows indicate that certain learning categories are always (solid arrow) or occasionally (dotted arrow) prerequisite to the learning of other categories. The diagram also shows (on the right) the eclectic nature of Gagne's hierarchy, by indicating how it overlaps with the areas of work of other authors discussed.

Figure 7. Gagne's Categories of Learning

(Source: Romiszowski, 1981)
which serves as a paradigm for very early infant learning of reflex responses. This model stresses just how much success at higher orders depends on adequate mastery of lower order learning.

For higher order intellectual learning, Gagne presents two alternative strategies -- the expository (from rule to examples) strategy, which he favors on the grounds of consuming less learning time in general, and the guided discovery (from examples to rule) strategy, which he favors when long-term recall and transfer to other similar learning task is required.

As the cognitive/developmental viewpoint, Bruner (1966) approach to discovery learning characterized by three stages, which is called enactive, iconic, and symbolic. These stages are firmly based on the developmental psychology of Jean Piaget who defined the stages of cognitive development of the child. He begins with a focus on the production and manipulation of materials. He describes the child as moving through three levels of representation as he learns. The child starts to manipulate materials directly as the enactive level. He then progresses to the iconic level, where he deals with mental images of objects but does not manipulate them directly. Finally he moves to the symbolic level, where he is strictly manipulating symbols and no longer mental images of objects. Thus Bruner's position is in strong opposition to Skinner's in that he rates the internal thought processes as of primary importance, and the final outputs (products) of secondary and lower importance.

As the subject matter viewpoint, Ausubel (1968) has been a powerful influence on instructional thinking. He argues that much
instruction, particularly at higher levels of education, is
successfully performed by the process of exposition leading to
meaningful reception learning contrary to discovery learning. In the
case of meaningful reception learning, the potentially meaningful task
or material is comprehended or made meaningful in the process of
internalization. In the meaningful reception learning, the entire
content of what is to be learned is presented to the learner in final
form and the learning task does not involve any independent discovery
on his part.

As the cybernetic viewpoint, Landa (1974) contributes to form a
view of learning and instruction which often resolves apparent
differences between opposing psychological camps. He has been
primarily interested in problem-solving activity as in the case of
geometrical proofs and rule-following activity as in the rules of
grammar. These types of learning seem to correspond to Gagne's higher
order categories. However Gagne discusses these somewhat superficially
and with examples drawn almost exclusively from the early elementary
grades. But Landa's position is based on more extensive research with
older students.

Landa draws our attention to the recognition of situations when
and where the rule is applicable. For Gagne, the student has learned
the rules for simplifying fractions when he can respond correctly to the
request 'simplify this fraction in order to...' But for Landa a rule
has been learned only once the student can respond to the request 'show
me what you should do to this fraction in order to...' Landa considers
that rule mastery is made up of two elements: discrimination of
appropriate and inappropriate occasions for application of the rule as the logical thinking component, and correct application of the rule.

Landa's theory of instruction is based on two processes. First, analysis of the topic to identify the thought processes (operations) necessary to master it. Second, analysis of learners, their existing thought processes and their psychological characteristics in order to devise a teaching algorithm (a set of operations).

Gagne's rule learning appears equivalent to Landa's learning of ready made algorithms. Gagne's problem-solving is equivalent to the discovery of the algorithm in Landa's system. Landa seems to favor the adaptive discovery approach. But Landa's position is that for successful instruction, even in mathematical problem-solving, the instructional process must be programmed.

Thus we have seen that the theoretical viewpoints of psychologists stand in sharp contrast as regards the general objectives of instruction. Whereas Bruner and Ausubel represent extreme viewpoints for or against discovery methods, most other writers adopt intermediate positions, accepting that both strategies may be used to good advantages and suggesting criteria for selection between them. Gagne has come out in substantial agreement with Bruner on the priority of processes over products as the objectives of instruction. However his emphasis is not on teaching general strategies or heuristics of discovery such as free exploratory discovery; he is much more concerned with the teaching of the rules or intellectual skills that are relevant to particular instructional domains such as guided discovery learning. Objectives clearly stated in behavioral terms are the cornerstone of Gagne's position.
In the methods of instruction — reception and discovery. Hess (1968) pointed out that not all students benefited from discovery methods and that not all teachers were skilled at employing them. All researchers pointed out that teaching through discovery is more time-consuming than teaching through exposition. Thus the discovery approach can be defended when some benefits will accrue from the extra time spent. These benefits, according to Gagne, are better long-term recall in the absence of practice and better transfer of skill to other similar problem types. So discovery learning is good for the higher order types of learning activity, learning principles or rules and learning how to solve problems.

Figure 8 illustrates that the rote-meaningful distinction is a continuum, not a dichotomy and the reception-discovery dimension is also a continuum. And it also suggests that reception learning can be highly meaningful and discovery learning can be largely rote character (as when we "discover" a solution to a puzzle by repeated trial-and-error attempts).

The key to sufficient instruction is in careful sequencing and in ensuring that all necessary prerequisite learning has been satisfactorily completed. Ausubel (1968) believes that the most important single factor influencing learning is what the learner already knows. Gagne would construct a learning hierarchy in terms of his categories of learning. Ausubel would define the content, the knowledge structure that is to be or has been learned. This makes little difference from the point of view of individualization.
Figure 8. The Rote-meaningful, Reception-discovery Learning Continuums

(Adopted from Novak, 1979)
Different students will have different levels of mastery of the prerequisites with the differentiated starting points and individualized remedial sequences.

To achieve this differentiation in a large class, the expedient of breaking the large group into small groups leaves a problem for the proponent of the expository approach. For the expository approach, individualization necessarily implies the packaging of the expository presentation in some reproducible medium suitable for individual or small-group use.

**Conceptualization of Instruction**

Instruction is the process of arranging human, temporal, material, and spatial resources with the intention of facilitating one's own learning or the learning of others (Belland, 1976). From this definition it is obvious that instruction is a highly complex and dynamic process that involves people in the use of instructional strategies, that serves a number of functions and it is concerned with the environmental constraints and climates.

Instructional strategies constitute one class, or way of conceptualizing, instructional events. Instruction may thus be considered in terms of the independent (private), direct (expository) and interactive (reciprocal) strategies.

Another way of conceptualizing instructional events is in terms of the substantive, managerial or appraisal functions that they serve. These instructional functions occur within each of the strategies.
In addition to strategies and function, a third way of conceptualizing instructional events is the mode by which ideas are communicated. In instructional settings, communication may be considered as being spoken, unspoken or mediated.

The relationships of these three conceptualizing instructional events represent as followings:

<table>
<thead>
<tr>
<th>Instructional Strategy</th>
<th>Mode of Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>independent</td>
<td>spoken</td>
</tr>
<tr>
<td>direct</td>
<td>unspoken</td>
</tr>
<tr>
<td>interaction</td>
<td>mediated</td>
</tr>
</tbody>
</table>

Substantive
Managerial
Appraisal

Instructional Function

Summary of Chapter Three

Chapter three has presented the major forces which are social, cultural, economic, and psychological factors influencing Korean education. Educational innovation in any country cannot be considered outside the context of the historical development and current educational situation in the ever changing society. So the general background information on Korea was provided first and then the historical perspective in educational development from the ancient to
the present, the Charter of National Education, and educational goals as a pace setter for all educational activities by presenting ideal image of Korean people that education should strive to embody comprises four stages from primary to higher education was shown with the curriculum and enrollment and four fundamental principles of education and changes in teaching methods since World War II were presented as the social factors.

The cultural factors which are governed by five major ethical principles based on confucian teaching were discussed as the following factors of social factors. These five basic codes of interpersonal relationships are family life, discipline and "face" (chemyon), seniority, paternalism, and concept of self and groupism. Communication culture such as written words vs spoken words and Nunchi as an non-verbal behavior culture in Korea was discussed as an unique traditional culture in Korea.

The economic aspects of education were reviewed in terms of manpower requirements and maximizing economic benefits. Projections of manpower requirement in industry from 1967 to 1986 and the skilled workers needed by levels of training were presented showing the need of the training of semi-skilled workers (secondary school graduates) as the most urgent task of manpower-related personnel.

Finally the theories of learning and instruction were reviewed in the different viewpoints of the psychologists stand. The expository (from rule to examples) strategy which is based on less leaning time in general and discovery (from examples to rule) strategy which is on the grounds of the long-term recall and transfer to other similar leaning
task were discussed in terms of meaningful reception learning vs discovery learning. The instructional event was conceptualized in the relationships of three aspects — instructional strategy, instructional function, and the mode of communication. Thus the various factors which have influenced the formulation of the principles and procedures of Korean education were analyzed and synthesized to develop a framework of ISD model.
CHAPTER IV
CONCEPTUALIZATION OF ISD MODEL

Approach to ISD Model

Briggs (1970) defines a model as the entire process of instructional design described in an orderly series of steps to be taken and the steps are based on research findings when possible, upon psychological theory at other points, and upon common reasoning when gaps in theory and established fact are encountered.

Instructional design models come from industry, education, the military branches, and a variety of other sources. Past experience has shown that models of instructional design are important in education and that the systematic approach is both logical and useful. However, educators are often confused about which model to use because of the omission of some basic component from the literature that describes the model or reports on how the model has been used. Another reason for the less than satisfactory acceptance of the systematic approach is the apparent absence of validation for many models. Other reasons seem to be the weak or nonexistent theory base for many models and the visible cost of design which may seem high because many educators fail to balance the cost of applying the model against the quality or utility of its outcome. Finally the models were not developed in the context of culture-specific realm. Developing countries must choose a model

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that is appropriate to their needs and their resources.

A Model is usually considered to be an abstraction and simplification of a defined referent system, presumably having some noticeable fidelity to the referent system (Hayman, 1974, Logan, 1976). This fidelity is expected whether the model is intended to describe, prescribe, predict, or explain elements of the referent system, and whether the model is based on a set of implemented procedures or theoretical constructs.

The purpose of model of systematic instructional design are follows:

1. Improving learning and instruction by means of the problem-solving and feedback characteristics of the systematic approach.

2. Improving management of instructional design and development by means of the monitoring and control functions of the systematic approach.

3. Improving evaluation processes by means of the designated components and sequence of events inherent in models of systematic instructional design.

4. Testing or building learning or instructional theory by means of theory-based design within a model of systematic instructional design.

According to Gagne and Briggs (1974), the purpose of the systematic approach to design model is that "it encourages the setting of a design objective, and it provides a way to know when that objective has been met". Designing an instructional system utilizes a
kind of knowledge called educational technology in meaning to the process of planning by means of which an instructional system is developed, implemented, controlled, and evaluated.

A designed instructional system is not of necessity highly "mechanistic" or "prescriptive," nor should it neglect goals of a humanistic nature. School activity as the development of personal values and socially desirable attitudes, the acquisition of broad knowledge of subject matters, and the cultivation of strategies of productive thinking is encompassed planning. These varieties of learning outcome, often considered as reflecting a humanistic intent, have a high value in educational planning.

While instructional systems vary in terminology and detail, they all include the following components: behavioral objectives, pretest, instructional activities, posttest, and revision based on empirical tryouts. This model was first given widespread exposure by Glaser (1965, 1966).

The development of on instructional system involves a series of procedures with various components. Gagne and Briggs (1974) list 12 instructional systems components as the follows:

1. Analysis and identification of needs
2. Definition of goals and objectives
3. Identification of alternative ways to meet needs
4. Design of system components
5. Analysis of (a) resources required, (b) resources available, (c) constraints.
6. Action to remove or modify constraints.
7. Selection or development of instructional materials.
9. Field test; formative evaluation and teacher training.
10. Adjustments, revisions, and further evaluation.
11. Summative evaluation.
12. Operational installation.

These twelve steps take place in the order shown above, but in practice there are both feedback and "feed-forward" relationships among them. Decisions made in early stages influence those made in later stages, and insights gained in later stages lead to revision of plans made earlier. This cyclical, or iterative, characteristic of instructional system design is actually one of the strengths of the method.

Formative evaluation is a planned recycling. Instructional theory is in such a relatively immature stage that even the most experienced designer expects imperfections in his first instructional effort. In fact, there is not usually just one formative evaluation and recycling, but a whole series of such modifications to the system.

Thus the system approach to the design of instruction is based on one hand in logical, systematic thinking and planning, making use of all theory and research evidence available, and on the other hand, upon empirical test fact-finding. It is not contended that a highly intuitive approach is always inferior to a systems approach, since planners vary in both their intuitive powers and in their systematic planning efforts (Gagne and Briggs, 1974).

Merrill and Boutwell (1973) offer 5 basic components:
1. Objectives must be specified by observable student behavior;

2. Testing instruments should measure the student's ability to perform specified behavior (criterion referenced) rather than how well he performs in comparison with other students (norm referenced);

3. Instructional products must be verified by empirical procedures;

4. Instructional outcomes can be classified into a limited number of behavioral classes; and

5. The acquisition of a given kind of behavioral outcome be optimized by the appropriate manipulation of task variables.

Atkins (1975) approaches 12 steps in the development of an instructional systems. These steps in order are:

1. Conduct feasibility study

2. Conduct task analysis

3. Develop learning objectives

4. Develop criterion test

5. Validate criterion test

6. Validate learning objectives

7. Develop learning sequences

8. Develop learning strategies

9. Develop individual lessons

10. Validate individual lessons

11. Implement and test the system, and

12. Follow-up on graduates

There is no single instructional design model. There are
numerous, competitive models. What most of them attempt to do is to approach subject matter areas, learners, and instructional means in systematic, analytic ways. While there is no universal agreement as to precise ways of accomplishing these functions, there is widespread agreement on major tasks in the overall instructional design process.

Gropper (1977) lists 10 components which involve the following design tasks:

1. The formulation of broad goals and of more detailed subgoals which are stated in objective, behavioral, and hence observable terms;
2. The development of tests to be used in pre-and post-instructional evaluation of student attainment of these goals;
3. The analysis of those goals and sub-goals for types of skills (or type of learning) which students must master in order to be able to attain the goals;
4. The sequencing of goals and sub-goals such that early learning can be expected to facilitate later learning;
5. The characterization of the learner population as to age, grade level, past learning history, special aptitudes or disabilities, and, not least, estimated attainment of current and prerequisite goals;
6. The formulation of an instructional strategy to match analyzed subject matter requirements and to accommodate learner requirements;
7. The selection of media to implement the instructional strategies;

8. The development of courseware based on the strategies which have been formulated;

9. The empirical tryout of courseware with learners from the target population, the diagnosis of their learning failures and of the courseware failures responsible for them, and courseware revision based on that diagnosis; and

10. The development of materials and procedures designed to install, maintain, and periodically repair the instructional program.

Andrews and Goodson reviewed over 60 possible target models as shown in Table 9. Among many of the references shown in Table 9, models of Briggs and Wagner (1979), Gagne and Briggs (1974), Briggs (1975), and Roberts (1978) are only including 14 components which Andrews and Goodson found from the target models. Andrews and Goodson (1980) have very carefully analyzed the descriptions of 60 instructional design models and they found out the very common components from them shown in Table 10.

By examining the table 10, one can recognize typical instructional design activities such as needs assessment, learning outcomes, criterion-referenced tests, task analysis and sequencing, learner attributes, instructional strategies, media selection, product development, evaluation, and installation and maintenance of programs.

There appears to be great unevenness in the methodological
Table 9. Tasks Included in Instructional Design Models

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<tr>
<th>Reference for Model</th>
<th>Outcomes</th>
<th>Tests</th>
<th>Analysis</th>
<th>Sequencing</th>
<th>Learner</th>
<th>Attributes</th>
<th>Strategy</th>
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Source: Andrews and Goodson, 1980
Table 9. Tasks Included in Instructional Design Models (Continued)

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Table 10. Fourteen Common Tasks in Model Development

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<th>Task Number</th>
<th>Definition</th>
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<tbody>
<tr>
<td>1</td>
<td>Formulation of broad goals and detailed subgoals stated in observable terms</td>
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<td>2</td>
<td>Development of pretest and posttest matching goals and subgoals</td>
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<td>3</td>
<td>Analysis of goals and subgoals for types of skills/learning required</td>
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<tr>
<td>4</td>
<td>Sequencing of goals and subgoals to facilitate learning</td>
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<td>5</td>
<td>Characterization of learner population “as to age, grade level, past learning history, special aptitudes or disabilities, and, not least, estimated attainment of current and prerequisite goals” (Gropper, 1977, p. 8)</td>
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<td>6</td>
<td>Formulation of instructional strategy to match subject matter and learner requirements</td>
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<td>7</td>
<td>Selection of media to implement strategies</td>
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<tr>
<td>8</td>
<td>Development of courseware based on strategies</td>
</tr>
<tr>
<td>9</td>
<td>Empirical tryout of courseware with learner population, diagnosis of learning and courseware failures, and revision of courseware based on diagnosis</td>
</tr>
<tr>
<td>10</td>
<td>Development of materials and procedures for installing, maintaining, and periodically repairing the instructional program</td>
</tr>
<tr>
<td>11</td>
<td>Assessment of need, problem identification, occupational analysis, competence, or training requirements</td>
</tr>
<tr>
<td>12</td>
<td>Consideration of alternative solutions to instruction</td>
</tr>
<tr>
<td>13</td>
<td>Formulation of system and environmental descriptions and identification of constraints</td>
</tr>
<tr>
<td>14</td>
<td>Costing instructional programs</td>
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</table>

Source: Andrews and Goodson, 1980
precision with in the various model components such as needs assessment, task analysis, and instructional strategies. There is basically no theoretical basis for needs assessment. Need assessment is an empirical process which is carried out to determine what goals should be addressed by a project or an organization. It would not appear to be worth while to seek out a theory base for needs assessment, but rather to develop more examples of needs assessments which exemplify both internal and external approaches to the process as described by Kaufman and English (1979). Such examples could indicate how needs can be identified both within an organization and as a result of the organization's examination of its contribution to society.

In contrast to the area of needs assessment, task analysis has both a theoretical base and a practical base which contribute to research. Task analysis is used here as a generic term to cover the various types of "Front end" analysis, such as job analysis, procedural analysis, hierarchical analysis etc. This is undoubtedly the most difficult function in the entire instructional design process to teach. Simplified procedures and techniques are required which will help us break away from the content orientation of defining what should be included in instruction, and to be able to analyze tasks in a variety of ways to identify the subskills required of learners for mastery of a terminal skill.

For years educational psychologists have been conducting studies on learning variables in order to make inferences about how human learning can be improved. Those generalizations and principles have been incorporated into a formulation of generalized instructional
strategies, and are used extensively by instructional designers.

As Gagne points out the importance of new developments which may be quite valuable; namely, the areas of metacognition and the learners' prior knowledge. Designers have to incorporate into their instruction explicit instructions to learners as to how they can best master these materials. So designers should attempt to influence the cognitive learning strategies used by learners, as well as incorporate various strategies into the instruction itself which could facilitate their learning by considering pervasive forces such as social, cultural, and economic factors as the environmental climate and constraints in the design of ISD model.

Framework of ISD Model

Before designing a conceptual framework of ISD, it will be desire to review some of the previously proposed frameworks in the view of scientific systems approach and responsiveness to societal needs and cultural specification. Through a process of comparison and contrast, this discussion will aid in the formulation of a new ISD model.

The application of educational technology to the development of instructional systems needs procedures that could reduce cost and time required in producing effective instructional systems. Several models for the design and development of instructional systems have become quite well known.

Validating hierarchical sequencing involves procedures to maintain
quality control. This design incorporates the five basic components — learning hierarchy, task analysis, individual evaluation of directions, empirical validation of program, and revision. The traditional form of a Mager-type (1962) behavioral objective (i.e., conditions, criteria, and behavior) does not refer to the condition of learning the student is to exhibit at the end of instruction.

Tuckman and Edwards (1971) have developed a systems model for the design and management of instruction which provides for certain critical features. The model is broken down into three phases. The first phase, called analysis, contains following three activities in sequence: (1) specification of post-instruction tasks via task analysis, (2) restatement of task as behavioral objectives, and (3) specification of a sequence for behavioral objectives (structural analysis). Following the analysis phase, the synthesis phase is undertaken. This phase involves two activities, occurring in parallel: (1) specification of instructional activities, and (2) design of evaluative procedures. The final phase, operation, includes two simultaneous activities: (1) carrying out of instructional activities, and (2) the collection of evaluative data. Following these three phases comes a fourth activity, feedback and iteration, wherein the data collected during the phase of operation are fed back into the system so that it can be tested, validated and redesigned based on input data. This redesign based on feedback is then followed through to its completion from the point of reentry.

Tuckman and Edwards, however, have mentioned little about the manner in which data are to be stored, analyzed and retrieved for large
numbers of students, as would be required if such a model were to be used to design instruction for entire school systems. This model begins with task analysis rather than with the statement of behavioral objectives.

Tyler (1975) proposed that educational objectives originate from three sources: need of society, nature of knowledge, and needs of individual. Moreover Tyler has the tendency to view society, the learner, and organized scholarship as sources of data while neglecting to treat them as influences on educational objectives and the curriculum.

In essence, Tyler's model was added one more step by Klohr (1976) because diagnosis of needs plays a vital role in Tyler's rationale. Figure 9 represents Tyler's conceptual framework schematized by Klohr.

However, there are two weaknesses in his model. One is a big disjuncture between final objectives and learning experiences. Another is that it emphasizes summative-type evaluation, whereas evaluation today is treated as an on-going and iterative process.

Korean Educational Development Institute (KEDI) (1973) developed a model of an instructional system in five steps as shown in the Figure 6. This model is nothing particularly new to the Klohr's model. As the writer mentioned on the previous chapter, the KEDI model has some weak points. Evaluation is not viewed as an on-going, continuous process which resides in each stage as it does not give feedback. It only serves as a final summative-type evaluation of the project. And the model seems to be designed without consideration of Korean cultural factors.
Figure 9. Klohr's Model
(Adopted from Klohr, 1976)
The college of education of The Ohio State University and Maryland instructional television division of the Maryland State Department of Education (1981) proposed an ISD model which describes the system composing components and relationships and undergirding the instructional design and development work. This development process is creative and thus the developer may do all of the process components simultaneously or the developer could emphasize one step while keeping the context of the other steps in mind. One can move up and down through parts of the diagram. This instructional systems development process is a very effective way to organize media production for instruction in a variety of media forms which accommodate the different needs of different learners. However, this is an inductive-oriented model. This model can be used in vocational and technical instructional systems development for Korean education. But this model cannot be adapted directly to Korean education in consideration with Korean culture.
From the review of the models, the writer proposes a number of changes from the existing systems as followings in order to develop educational program preparing for a life of fulfilment in terms of occupational and citizenship education in Korean situation.

1. The cultural patterns of thought, communication, and perception as cultural factors should be identified. The Korean traditional culture is deeply rooted at confucianism such as Yin-Yang principle originated from one primordial breath, Chi. The Korean thought pattern is deductive approach which is valued highly the logic of reversion and center derivation, so the design of model should be approached from general to specific aspect.

2. The learning task should be analyzed in terms of general and/or vocational and technical education. The curricula of Korean schools (from middle school) are of various types, generally consisting of general and vocational education in the proportion of 70:30 and vice versa.
3. The standard goals and content of Korean schools are already established by the ministry of education according to the Charter of National Education and the principles of education.

4. The range and mix of instructional resources in Korea is different from developed country. Instructional mode such as individualizing, large group, and small group instruction should be considered by modifying the role of the teachers, and by using programmed instructional television, radio, and multimedia.

5. The formative and summative efforts for evaluation should be considered for a variety of instructional decisions and educational program will be reformulated by the result of evaluation.

The proposed model of instructional systems development for Korean education in harmony with Korean culture is presented in Figure 10. In this model, the process is on-going, vertical as Korean pervasive cultural relationship pattern. The frames of components of the model are rounded shapes because Korean people prefer rounded shape to rectangular shape. Evaluation is viewed as an iterative process which presents the logic of reversion.
Figure 10. Proposed ISD Model
Identification of Culture

All countries are alike in some ways and yet each country has unique culture. Culture of each country is different in perception, thought pattern, communication style, and religion. The cultural patterns of thought, communication, and perception as cultural factors should be identified. The Korean traditional culture is deeply rooted at confucianism such as Yin-Yang principle originated from one primordial breath, Chi. The Korean thought pattern is deductive approach which is valued highly the logic of reversion and center derivation, so designer must seriously look to cultural strength influencing education and build the instructional materials from that point.

Analysis and Identification of Needs

Education has to meet the need of individuals for their own development and to meet the needs of society for its general development. In a democracy that respects individual freedoms, individuals should be served by making education available to all citizens, irrespective of class and income, according to their gifts and desires. Education can and does contribute to the achievement of a country's plans or aspirations for social and economic development by providing persons having the requisite general education and skills with specified educational qualifications. These two kinds of needs are surely to be viewed together in order that relevant instruction be systematically developed for the learners and society.
Learner Analysis

All human beings are alike in some ways and yet each human being is unique. Learners are different developmentally, intellectually, perceptually, emotionally, physically and culturally. The range of learners on each of these dimensions must be delineated so that an appropriate range of instructional programs can be designed (Allen, 1975). This analysis is basic to all decisions about individualizing learning activities and homogenous mastery group activities.

The learners who have cultural strength must be particularly considered to design instructional materials. Thus learning events must be designed in accordance with the individual needs and differences of individual learners.

This approach recognizes that learners exert, or should exert, a continuing influence upon decisions at each separate stage of instructional planning. Therefore, analysis of the learners is essentially including such items as: what do they need to know? What are their problems in learning? What are they culturally different?

Input Standard Goals and Content

Standard goals and content are already established by the Ministry of Education according to the Charter of National Education and principles of education. Instructional designer should understand and identify the aims of education reflected in the Charter of National Education. The goals of Korean education is under the ideal of Hong-Ig-In-Can (benefits for all mankind) aiming to assist all people
in developing the integrity of individuals and the ability to live an
independent life in a democratic society and to contribute toward the
common prosperity of mankind.

Analyze Media and Instructional Strategy Alternatives

The range and mix of instructional resources in Korea is different
from developed country. Instructional mode such as individualizing,
large group, and small group instruction should be considered by
modifying the role of the teachers, and by using programmed
instructional television, radio, and multimedia.

As the class size of Korean school is over 60 students, the
organization of a class into small groups with students of like needs
by meeting effectively the needs of the greatest possible number of
students would permit a teacher greater opportunity to enhance
efficiency and effectiveness of classroom instruction.

The nature of tasks and topics to be learned suggests that certain
methods of instruction and certain forms of learning group structure
should predominate in the final instructional system. Much basic
learning of facts and concepts can be achieved in the individual
self-instructional situation or by large group lecture. However, the
application of that knowledge to the development of skilled activity
often benefits from the small group learning situation. thus, the
nature of the final objectives may indicate the types of learning
structures that should, in general, be employed.

As learners are different developmentally, intellectually,
perceptually, emotionally, physically and culturally, the grouping mode
should attend to such needs. With the relation of the target population to the choice of learning group, the analysis of needs of the gross target population provides much information regarding the geographical location, distribution according to needs, and the life-style and preferred study style of the potential students.

This information will possibly impose some constraints on the type of grouping that is economically or practically feasible. Practical and economic constraints of the wider system determine the scale of resources that are available for the design and implementation of the system. This imposes obvious constraints on the approaches that we may economically adopt.

Most school learning in Korea takes place in a large group situation. Everyone knows that learning is an individual matter, while teaching may be most commonly a group activity. Individualized instruction may be characterized as more humane than group methods because it: (1) allows realistic goals to be set for each learner; (2) provides various materials or resources for a given goal, thus adapting to individual competences and backgrounds; (3) provides privacy when difficulty is encountered; (4) permits the learner to work at his/her own rate; and (5) provides consistent individual feedback (Gagne and Briggs, 1974).

However the last applications of individualized instruction require attention to: (1) the development of appropriate learning materials and media; (2) a method for assigning tasks and monitoring pupil progress; (3) training of the teacher in the methods to be used; (4) available and appropriate facilities, spaces, and budget.
On the other hand, a large group (total classroom) approach is used when all or most of the students can benefit from the same instructional activity. The large group mode is often selected because replication of the activity is not easily accomplished or the effectiveness of the learning activity is not enhanced by use of small groups. Viewing a film, TV, watching a demonstration, and listening to radio and a resource person are commonly used large group instructional activities.

Select Prototype Form, Content, and Instructional Strategy

After all alternative combinations of media and instructional strategy are analyzed, a particular combination of form, content, and strategy is selected as the prototype. The specifications of the prototype and the design decisions which went into making the decision on the prototype will constitute the design document.

The balance between expository teaching and discovery learning is one of the major strategic decisions to be made in instruction. One aspect of strategy closely related to the balance of discovery and reception learning is the grouping of students, the pacing of learning, the assessment of students, and the teacher's role and style in the classrooms.

Once the consideration of resources and constraints has led to decisions about what can be done that fits the plan for the components of instruction, the designer is ready to make decisions about the instructional materials needed. The development or selection of appropriate instructional materials is an extremely important step in
the design of a total instructional system. It is not an overemphasis to say that materials can make or break the system as a whole.

In selecting media for instruction, the key factors to be considered are presentation form, presentation means, availability, and cost. Choosing materials for instruction is naturally related to the selection of media but there are additional factors to be considered. One of these is the degree to which a particular type of material facilitates learner involvement.

Another aspect of using media in instruction relates to the different types of materials classified according to the role they play in the communications process. These different roles suggest different ways of using materials, different outcomes, and even different approaches to materials production.

So the pervasive cultural factors such as the nature of society, perception, cultural communication, language, and value systems in a society together with individual should be considered selecting prototype and instructional strategy for the effective instruction.

**Produce Prototype**

Some different types of materials and media will be produced in this instructional systems development projects. Each type requires different planning instruments and production techniques as followings:

**Print.** Prototype of textbook can contain a predominance of oval or round image shaped pictures or drawings with colors. It is important to think about the effectiveness of the pictorial manterial used in education and training. The effective use of pictorial
material depends upon the form of the material and the characteristics of the learners perceiving it. Workbooks/worksheets can be provided to learners for following activities. In addition it is important to provide a variety of other activity suggestions and print instructional packets to provide for individual differences. And teacher's guide will be included.

**Television.** Television prototypes are usually scripts which grow out of the treatment which was derived from the design document. The script or a tape which is produced under non-broadcast-standard conditions can be used for formative evaluation. A prototype tape used for formative evaluation should be considered visual perception and pictorial conventions related to cultural factors.

**Interactive Microcomputer.** Interactive instruction is a method of instruction by which the computer actually teaches the learner. Some computer courseware will be coded into programming language so that learners can experience the learning that computer based instruction can provide instructional modes such as drill and practice, tutorial lessons, simulations, and inquiry (problem solving) instruction. Other courseware such as computer-managed instructional program will be designed to assist the learner with diagnosis and prescription of his/her weakpoint.

**Evaluation and Revision**

The purpose of formative evaluation is to improve the system. When a series of such evaluations and revisions results in a successful field test under normal (operational) conditions, the system may then
be installed for regular or widespread use. Formative efforts for evaluation should be considered for a variety of instructional decisions and educational program will be reformulated by the result of evaluation. Evaluation will be on-going, iterative process which presents the logic of reversion. Prototype evaluation is to administer the material to individual students from the population and then data about performance are gathered to watch behavior while doing unit and to listen for comments and ask for feedback. If the data gathered from performance of prototype are not met goals, this prototype will be revised as needed.

In actual practice, often small portions of the new systems are tried out with a few individual learners in a one by one or group situation. The designer observes the student at work, records the questions he asks or the comments he makes, and analyzes test responses in order to spot weaknesses in the program. These data are used to revise the materials or procedures, or both.

Packaging or Production

Instructional materials and media are packaged or produced in print, visual, auditory, and tactile formats for individual use, for presentations, and for small and large group activities. Television programs recorded on video formats are made available for distribution in the schools by distribution of videotapes. The goal of production is to match format to message.

Implementation

Prior to delivering the instruction the teacher must attend to a
number of practical details. One important thing is the management of time to devote to the various sequences of instructional events. And then he must consider the most effective arrangement of learner groups. Schools which have large classes like Korea should carefully consider grouping — large, small, or individualized. By placement test, it is desirable to make mastery group with homogeneous learner. Teacher must coordinate both materials and equipment to make sure he has everything he needs in the right place and at the right time. Then the teacher must be certain that he/she has adequate facilities or space to carry out his/her learning activities. And also, if the teacher requires the assistance of any other people — instructors, students, or technicians — this too must be coordinated.

So the arrangement of personnel, material, temporal, and spatial resources must be considered in planning implementation of the instruction. It is more comfortable for Koreans to start with a general or larger part and then narrow down to specific facts. Therefore it is very important to choose the most appropriate mode of instruction and to select an effective media. The teacher might orient the learner by providing an "advance organizer" of the scope and content of the unit. He might provide it to the large class and initiate the information of the content by means of direct (expository) communication strategies and then small group or individualized instruction.
PROPOSED MODEL FOR UTILIZING MEDIA FOR EDUCATIONAL DEVELOPMENT.

It must be stated at the outset that each nation is unique and different from other nations. Even though it is assumed that most of the developing countries have similarities because they are changing from their traditional societies, still each one has its own culture. Therefore a model can be developed with a systems approach for the design of instructional media that can meet the needs of population based on cultural aspects of a particular nation such as Korea.

As for research studies in educational media in the past, Belland (1976) contends that such research has attempted to evaluate the effectiveness of various media, separately from its content. That there is a need to look at both the means (medium) and its content (message) collectively, and how they interrelate. So Belland defines Media as communication processes for storing and/or distributing human experiences.

**Prerequisites to Media Use in Development**

1. Media must exist or be established. Programs of media services are designed to assist learners to grow in their ability to find, generate, evaluate, and apply information that helps them to function effectively as individuals and to participate fully in society. Through the use of media, a student acquires and strengthens skills in
reading, observing, listening, and communicating ideas. The learner interacts with others, masters knowledge as well as skills, develops a spirit of inquiry, and achieves greater self-motivation, discipline, and capacity for self-evaluation.

2. Media center must be cooperative. In organizing a program for media use in educational development, provisions must be made for cooperation between the different agencies involved in planning, production, distribution, utilization, evaluation and research.

3. Media professionals must be directly involved in educational planning. A skilled media specialist/director must be represented at the highest level in educational planning so that the various media can be employed skillfully throughout the curriculum.

Procedures for Effective Media Use

1. Goal must be identified (content analysis). The goals or objectives to be attained in relation to the people to be reached must be clearly stated in terms of the specific changes to be brought about in the target group.

2. Goals should relate to target audience (learner analysis). Goals should be based on knowledge of the audience to be reached. They should not be stated in the abstract. Planners should know the culture of the target audience, their values, their interest, their needs, their prior knowledge and skills, and their problems.

3. Media strategies should conform to local and habits of the audience. Each society has its own values, habits, taboos and life
styles which should be taken into consideration and should be respected.

Media Attribute Classification System

A media attribute is a characteristic of a media presentation which defines the kinds of information that may be provided by the presentation. A media attribute does not specify how the information presentation must be designed. For example, knowing that a message vehicle can present pictures does not tell you which pictures to present, and knowing that a message vehicle can present auditory information does not tell you which sounds to present. Media attributes may be thought of as being informational potentialities — the potential of showing objects in motion, the potential of activating particular learner activity, and so forth (Levie, 1975).

A number of media attributes have been shown to exert differential effectiveness in some learning situations. These attributes can be usefully classified into five categories as followings:

1. Sign Vehicle Characteristics
   - Digital signs (words, numbers, etc.)
   - Iconic signs (pictures, diagrams, etc.)

2. Realism Cue Characteristics
   - Amount of pictorial detail
   - Color
   - Motion
   - Dimensionality
   - Auditory effects

3. Sensory Channel Characteristics
Vision
Audition
Touch
Multi-Channel presentations

4. Locus of Control Characteristics

Referability
Fixedness-flexibility of pace
Fixedness-flexibility of sequence

5. Response Acceptance Characteristics

Response demands
Feedback provisions
Adaptiveness

The items in each category have the commonality of operating in the same manner or of relating to common message design considerations, of focusing upon a different stimulus characteristic of media, and of relating to a different area of concern regarding the human information processing system.

Model for Media Selection

In the systems approach to the design of instructional materials, the following steps are common to this approach:

1. Analyze and Identify need
2. Identify Culture
3. Analyze Learner
4. Input Standard Goals and Content
5. Analyze Media and Instructional Strategy Alternatives
6. Select Prototype Form, Content and Instructional Strategy
7. Produce Prototype
8. Conduct formative evaluation and revise if necessary
9. Produce and package final product
These steps provide an organized method of constructing media presentations and a way of selecting media.

Levie (1975) offered the following model for media selection based on media attributes. But he didn't include content analysis in the model. The writer added analysis in content to the top of this diagram because it seems to him that tasks cannot be known without knowledge of content. Model for media selection is shown in Figure 11.

The content and characteristics of the learner should be considered first. As the entry characteristics of learner, content free things that cannot be controlled such as age and sex and content related things that can be controlled such as prerequisite knowledge base and attitudes should be analyzed.

The nature of media contents are followings:

1. Media content must address needs and concerns of audience. To attract and hold the attention of the audience, the essential messages must address the existing concerns and in some measure meet the major needs of the intended audience.

2. Development message should be consistent. To ensure effective communication, messages on the varied communication channels should be consistent. Media should focus upon the same or similar messages over the different media through the entire instruction.

3. Media content should be expressed in local idiom and vernacular. Media using the local vernacular and idiom might attract and affect the target audience. If the transmitted
Figure 11. Model for Media Selection
information does not reach them in their own verbal or non-verbal language, it is likely to have little effect.

To further describe what attributes are needed, a task analysis of content should take place. Without this breakdown, specific attributes cannot be chosen. The learning environment must also be considered. Kemp's (1980) media selection diagrams are helpful here; to the extent they reveal a need for different attributes in different situations. Kemp realizes that various settings, regular class size or large group, self-paced study for individual study or small group interaction, require divergent characteristics from media. These circumstances can be dealt with more concretely with media attributes than a medium which may have both attractive and unattractive characteristics for conveying a specific message.

Alternative media should be listed. This statement implies that there may be several media which display the necessary attributes required by the content, learner, task and environmental analyses. That is one point the media attribute classification system makes clear. With so many varieties of media available, there may be several which are totally capable of conducting the same unit of instruction to learners.

Application of the pragmatic constraints of production and distribution are much concerned with cultural phenomena. Production considerations are costs, time requirements, hardware, technical expertise and developer preferences, etc. Distribution concerns are costs, time, display hardware, utilization skills of users, user and gate keeper preferences. Occasionally producers and distributors
should consider the implications of the product for formative and summative evaluation and revision. After the medium has been selected, it will be an easy task to utilize an instructional design model.

**Summary of Chapter IV**

This chapter has presented a framework of instructional systems development process for Korean education in harmony with Korean culture. Before designing the model, 60 previously proposed models were analyzed and 14 instructional components were recognized as typical instructional design activities such as need assessment, learning outcomes, criterion-referenced tests, task analysis and sequencing, learner attributes, instructional strategies, media selection, product development, evaluation, and installation and maintenance of programs.

The model of Tuckman and Edwards, Tyler and Klohr, Korean Educational Development Institute (KEDI), and the college of education of The Ohio State University and Maryland instructional television division of the Maryland State Department of Education were reviewed to propose a ISD model. The proposed model comprises the logic of center (mean) derivation and Yin-Yang principle with eclectic attitude to maintain Korean traditional spiritual culture as its backbone and to graft western scientific inductive approach as a means of practical application. Each component of the model was explained for the teacher
who wants to develop instructional program. Finally the model was applied to the design of a process for instructional media selection.
Summary of the Study

Korea concentrates its energy on the challenges of educational development, because education is the fundamental basis for its preparation for future generation and because Korea’s rapid social, economic, and political development owes much to its system of education, which has faithfully fulfilled its own functions and mission under difficult circumstances.

Industrialization is vigorously promoted as a major vehicle for modernization. Korea has placed special emphasis on the development of scientific and technical education which intended to facilitate Korea’s development into a technological-industrial society. So research should increase the productivity of education to meet the growing demands for skilled manpower and learning outcome. The future of the nation requires critical attention to the development of productive human resources for meeting the national manpower needs. As society becomes technologically more advanced, the need for universal education requires integration of instruction for growth in knowledge, skills, and attitudes.

After the entrance examination was abolished in recent years, the schools in Korea receive a large number of and a more heterogeneous
group of students. This calls for large increases in the number of competent teachers, enough facilities, and appropriate materials and media for effective teaching and learning. It is difficult for the teachers to carry out effective instruction in the classroom cramped with 50 or 70 students with inefficient processes of instruction resulting from insufficient planning. Therefore a new concept of instructional planning is needed to develop and facilitate Korean student's learning by effectively arranging various instructional resources to bring about effective instruction in consideration with various forces influencing Korean education.

The purposes of this study were threefold: (1) to discuss the major forces influencing education—sociocultural, psychological, and economic factors, (2) to conceptualize an instructional systems development model from the Korean cultural perspective to meet Korean situation, and (3) to apply the model to utilization of instructional materials and media for instruction.

To solve the above problems, this study was carried out through six phases: (1) problem indentification and research design, (2) review of the literature, (3) analysis of major forces influencing Korean education, (4) conceptualization of ISD model, (5) design of ISD model, and (6) development of implications of the study.

In the review of the literature, various conceptions, progress, and problems in educational technology and instructional development were reviewed critically for conceptualizing the model of instructional systems development for Korean education. A scientific approach to instructional systems development which is based on the problems
identified was discussed in consideration with Korean culture in learning and education. Six important principles underlying systematic approaches to instructional development were considered in the approach to the task of designing instruction. The appropriate technology was applied not only as invention and techniques but also as a process and a way of thinking for effective instruction.

Culture, as the forms of traditional behavior, was defined with five dimensions influencing all aspects of a society, shaping the individual's orientations and perception of reality. Cultural identification, the cultural base of perception and cultural symbolism, communication culture, language, and Yang-Yin such as the split human mind were discussed in detail with the comparison of cultural factors in East and West. In this comparison, it was found that Korean people have a deductive way of thinking in which the logic of reversion and center derivation, group-orinated spirit, and Nunchi perception are valued highly. Korean traditional culture is deeply rooted in Confucianism such as Yang-Yin principle originated from one primordial breath, chi.

The cultural factors which are governed by five major ethical principles which are based on Confucian teaching are family life, discipline and "face" (Chemyon), seniority, paternalism, and concept of self and groupism. Relationships tend to be almost entirely vertical rather than horizontal. In Korea all human relations are similar to family relations. Authority in Korean family is never perceived as so dishonest that is distrusted, and for the most part it is granted a degree of respect. The Korean family and society emphasize
interdependence and harmony within groups. This leads to extensive consultation, organic, cooperative, collective decision making.

Koreans are a people of chemyon (or face) which they don't want to lose. The child in Korean society learns to play the social game of maintaining good face.

Elders are superiors in the home and society should be revered and honored, both in words and deeds. In the Korean system of lifetime employment merit system is not given as much predominance in Korea since status is based on age. A seniority system cannot insure that the leader will be the most competent individual.

Groupism underlies a paternalistic Korean management style. Groups are the primary social unit throughout Korea. For example, most workers are first assigned to a work group and then to a specific job. In instruction, the learners can be first assigned to a mastery group and then to individualized job.

Korean communication culture had been rooted deeply in written words for one thousand years. Thus the selection and/or production of proper materials and media for effective instruction is the primary concern of instructional developer.

While the Korean child is disciplined into maintaining face and controlling his spontaneous acts and desires, he is also taught the art of sensing quickly the changing disposition of adults in his world. Those abilities may prove to be an invaluable skill in his dealings with his superiors in adult life. The sense is called "Nunchi" meaning
that one should "play it by eye." It is an inevitable by-product of a rigidly stratified class society where force rather than reason, class status rather than individual ability, political power rather than hard work, have been used methods of accumulating wealth by social elites. Korean people prefer oval or rounded shapes to straight lines or rectangular shapes.

The goals of Korean education is under the ideal of Hong-Ig-In-Gan (benefits for all mankind) aiming to assist all people in developing the integrity of individuals and the ability to live an independent life in a democratic society and to contribute toward the common prosperity of mankind. The Charter of National Education and the principles of education are pace setter for all educational activities.

The economic aspects of education were viewed in terms of manpower requirement and maximizing economic benefits. Projections of manpower requirement in industry and the skilled workers needed by levels of training were presented showing the need of the training of semi-skilled workers as the most urgent tasks of manpower-related personnel. So industrial technology programs for all the secondary school students should be included in the curriculum as a means for achieving individual goals and meeting national manpower needs.

Theories of learning and instruction were reviewed from the different viewpoint of psychological theory. In western culture the expository (from rule to examples) strategy results in less learning time in general and discovery (from examples to rule) strategy results in long-term recall and transfer to other similar
learning tasks. The balance between expository teaching and
discovery learning is one of the major strategic decisions to be
made in instruction.

Instruction is the process of arranging human, temporal, material,
and spatial resources with the intention of facilitating one's own
learning or the learning of others. From this definition it is obvious
that instruction is a highly complete and dynamic process that involves
people in the use of instructional strategies, that serves a number of
functions and it is concerned with the environmental constraints and
climates.

The relationships of three conceptualizing instructional events
are as followings:

1. Instructional strategy — independent, direct, and interaction.

2. Mode of communication — spoken, unspoken, and mediated.

3. Instructional function — substantive, managerial, and
   appraisal.

Sixty previously proposed models of ISD were analyzed and 14
instructional components were recognized as typical instructional
design activities. The proposed model comprised the logic of center
derivation and Yin-Yang principle with chi. The model presents
vertical and on-going process with oval and rounded shapes. The
designer of Korean educational program must meet eclectic attitude to
maintain Korean traditional spiritual culture as its backbone and to
graft western scientific inductive approach as a means of practical
application.
Conclusions

From the examination of the data obtained from the research procedures and sources, some major conclusions were reached as followings:

1. Instructional system can be developed systematically according to a well-defined model in harmony with the culture of a country;

2. Instructional systems development process can be effective element of general or vocational and technical education in all societies;

3. Sound development of appropriate technology will contribute to the development of cognitive, affective, and psychomotor abilities of learners;

4. Educational technology can be adapted to and validated in developing countries in the context of each country's different social, cultural, and economic realities;

5. The proposed model of instructional development should result in the development of materials and instructional systems better suited for the needs of learners and Korean society;

6. In consideration of Korean cultural, the vertical and on-going process of ISD model should be preferable to Korean people;

7. Nunchi which is a visual sense of Korean people should be considered in design of educational program;

8. Korean people prefer oval and rounded shapes to straight lines or
rectangular shapes. So the components of diagram should be shaped with oval or rounded image; and

9. Yin-Yang principle with chi and the logic of reversion and center derivation imply wisdom which lies in the timely mean and harmony that avoid taking side with any of the extremes.

An instructional designer must assume an eclectic attitude to maintain his/her traditional culture as a backbone and to adopt western scientific technology as a means for improving practice.

Recommendations for Educational Practice and Further Study

As a result of this study, some recommendations for educational practice and further study are suggested as follows:

1. Educational technology should be applied at all levels of educational practice as an approach to solving problems, and guide teachers in the fulfillment of its promise of greater efficiency in teaching in developing countries because much existing research already done in developed countries has to be grafted and validated in the context of different social and cultural realities;

2. Design of instructional systems development should be performed considering various forces influencing instruction such as social, cultural, psychological, and economic factors;

3. Instructional systems development should be conducted with collaborative participation in decisions by all development team members such as the instructional designer, the subject matter specialist, and the evaluation specialist.
4. The model developed herein needs, first, to be applied across all levels of Korean education. Research which considers the model in the context of specific learners/developers, content, and environments will begin to produce criteria upon which to test and modify the model and to build theory for future work in developing Korean ISD.

5. Careful cost analyses of the implementation of the model and resulting materials are needed, especially so that application of the model is efficient in a culture with many economic constraints.

6. Lastly, critical "change points" in the development and application of the Korean ISD model (and from its adaptation from the American model) could be identified. In other words, a meta-analysis of processes exhibited in the present work might lead to a "meta-model" which could guide instructional systems developers across many cultures, especially Asian cultures.
APPENDIX

THE MODELS FOR INSTRUCTIONAL SYSTEMS DEVELOPMENT PROCESS

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Figure 12. A Model for the Systematic Design of Instruction

Source: Wildman, 1980
INSTRUCTIONAL SYSTEM DEVELOPMENT MODEL

1. ANALYZE SYSTEM REQUIREMENTS
2. DEFINE EDUCATION OR TRAINING REQUIREMENTS
3. DEVELOP OBJECTIVES AND TESTS
4. PLAN, DEVELOP, AND VALIDATE INSTRUCTION
5. CONDUCT AND EVALUATE INSTRUCTION

LEGEND: CURRICULUM LOOP
FEEDBACK AND INTERACTION LOOP

SOURCE: AFM 50-2

Figure 13. Model for Technical, Military, and Medical Training Programs

Source: Lee, 1975
Figure 14. D.I.M.E. Systems Approach of Instructional Technology

Source: Thota, 1979
Figure 15: ISD Model for U.S.A. Military Training

Source: Russell, 1981
Interviews, surveys, task observations, and document research are conducted to gather all existing information on the subject or job.

All of the information is written in performance terminology and converted into a massive task list.

A comprehensive description of the student target population is constructed. Data regarding educational backgrounds, physical characteristics, etc., is compiled.

Those tasks critical for the appropriate military skill level performance are selected by a board of subject matter experts.

Each selected task is analyzed detailing every step and decision required for its successful accomplishment.
PHASE II ———— DESIGN

Perform learning analyses on each selected task

Select training sites for each task

Develop behavioral objectives

Construct criterion-referenced tests

Sequence the instruction

Each task is analyzed in a hierarchy format to identify all required skills, knowledges, and learning relationships.

Training sites for each task are identified based on facilities, and equipment and instructor requirements.

Complete three-part behavioral objectives are developed for each major task/skill.

Criterion test items are next constructed for each of the developed objectives.

Either a linear or multiple course sequence is designed based on the instructional methodology to be used.
All existing literature on the subject is reviewed to see if it can be used. Any necessary revisions are made at this time.

The previously identified skills and corresponding learning domains are processed through a matrix to determine the most effective methods and media.

All new course materials are developed at this time. This step is done in close coordination with the analyst and designer.

All material, both new and revised, is validated through individual, group, and field validations. Revisions are made and validated.

A plan is developed outlining how the curriculum is to be implemented. Any constraints the instructor should know about are detailed at this time.
Management and instructor personnel are selected and trained. Coordination is effected among all departments involved in the instructional and instructional support process.

The developed curriculum is taught in the classroom.
The curriculum, instructor performance, and student performance are evaluated to determine effectiveness and efficiency.

The performance of course graduates is evaluated on the job to help determine if the course teaches what the field requires.

All data is statistically analyzed and significant results are channeled back into the system to revise and improve the course.
Figure 16. The Systematic Approach of Instructional Technology

Source: Brown, Lewis, and Harcleroad, 1977
Figure 17. Instructional Systems Development Process

Source: Campbell, 1980
The Phases of Instructional Systems Development

Instructional Systems Development is a "systems approach" to curriculum development and instructional delivery. It consists of five (5) major phases: I) Analysis, II) Design, III) Development, IV) Implementation and V) Control/Evaluation. The ISD model illustrated below shows symbolically the five phases as well as the feedback and revision connect. Each phase is described by the following text and accompanying charts.

INSTRUCTIONAL SYSTEMS DEVELOPMENT

ANALYSIS → DESIGN → DEVELOPMENT → IMPLEMENTATION → CONTROL/EVALUATION

FEEDBACK & REVISION
Phase I, Analyse. Phase I of course development requires a thorough analysis of the training needs and bases all inputs, processes and outputs on job related information. In this phase, an inventory of job tasks is compiled and divided into two groups: 1) tasks selected for instruction and 2) tasks not selected for instruction. Job performance measures are developed for tasks selected for instruction. They are determined through job analysis and verified by subject matter experts. Existing course documentation and other available material is examined to determine if all or portions of the analysis phase and other phases have already been done by someone else. As a final step in the analysis phase, the tasks selected for instruction are analysed for the most suitable instructional setting (e.g., classroom and/or shop instruction, on-the-job training, etc.) for each task. The illustration below shows the sequence of events required in the analysis phase of course development.

**EVENT OUTCOMES:**

1. a list of tasks performed in a particular job
2. a list of tasks selected for instruction
3. a job performance measure for each task selected for instruction
4. an examination of the job analysis, task selection and performance measure construction for any existing instruction to determine if these courses are usable in whole or in part
5. selection of the instructional setting for tasks selected for instruction
Phase II, Design. Beginning with Phase II the model is concerned with designing instruction using the job analysis information from Phase I. The first step is the conversion of each task selected for instruction into a terminal objective. Each terminal objective is then analyzed to determine enabling objectives and learning steps necessary for mastery of the terminal objective. Criterion referenced measures (tests) are designed to match the objectives. A representative sample of students is tested to insure that their entry behaviors i.e., general ability and prior experience, match the level of learning analysis. Finally, a sequence of instruction is designed for the objectives. The chart below illustrates the sequence of events necessary in the design phase.

EVENT OUTCOMES:
1. terminal and enabling objectives and a learning analysis of each task selected for instruction
2. criterion referenced test items to measure each objective
3. a test of entry behaviors to see if the original assumptions were correct
4. the sequencing of all dependent tasks
Phase III, Develop. The instructional development phase begins with the classification of objectives by learning category so as to identify guidelines necessary for optimum learning to take place. Determining how instruction is to be packaged and presented to the student is accomplished through a media selection process which takes into account such factors as learning category and guideline, media characteristics, training setting criteria and costs. Instructional management plans are developed to allocate and manage all resources for conducting instruction. Instructional materials are selected or developed and tried out. When materials have been validated on the basis of empirical data obtained from groups of typical students, the course is ready for implementation. The chart which follows illustrates the sequencing of events to be followed in the development phase.

EVENT OUTCOMES:

1. the classification of objectives by learning category and the identification of appropriate learning guidelines

2. the media selections for instructional development and the instructional management plan for conducting the instruction

3. the analysis of packages of any existing instruction that meets the given objective(s)

4. the development of instruction for all objectives where existing materials are not available

5. field tested and revised instructional materials
Phase IV, Implement. Staff training is needed for the implementation of the instructional management plan and the instruction. Key personnel should be trained to be managers in the specified management plan. The instructional staff must be trained to conduct the instruction and collect evaluative data on all of the instructional components. At the completion of each course cycle, management staff should be able to use the collected information to improve instruction for the succeeding cycle. The illustration below shows the sequence of events for the implementation phase.

EVENT OUTCOMES:
1. Documents containing information on time, space, student and instructional resources and staff trained to conduct the instruction
2. A completed cycle of instruction with information needed to improve it for the succeeding cycle
Phase V. Control. Phase V provides for the evaluation and revision of instruction. This should be done by personnel who are preferably neither the instructional designers nor the managers of the course under study. The first activity (internal evaluation) is the analysis of learner performance in the course to determine instances of deficient or irrelevant instruction or possibly overtraining. The evaluation team then suggests solutions for the problem(s). In the external evaluation, job task performance on the job is assessed to determine the actual performance of course graduates and other job incumbents. All collected data, internal and external, can be used for maintaining instructional quality control standards and as input to any phase of the system for revision. The chart below shows the sequence of events for the quality control and evaluation phase.

**EVENT OUTCOMES:**

1. data on instructional effectiveness
2. data on job performance in the field
3. instructional system revised on basis of empirical data
BIBLIOGRAPHY


Clark, E. & Clark, M. P. *The Theoretical Context of Visual Literacy*: 
Understanding the Nature of Two Types of Knowledge, Educational Resources Information Center, U.S. Office of Education, March, 1976


Haney, J. B. & Ullmer, E. J.


Park, M. S. Communication Styles in Two Different Cultures: Korea and American. Seoul: Han Sin Publishing Co., 1979, p. 66


