# THE IMPLEMENTATION RESULTS OF NEW INSTRUCTIONAL DESIGN MODEL: ISMAN MODEL

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## INTRODUCTION

Instruction is a plan of teaching & learning activities in which learning is organized. This instructional plan motivates students to learn. The aim of instruction is to make the learning process take place. According to Gustafson (1996), instructional design is:

1. analyzing what is to be taught/learned;
2. determining how it is to be taught/learned;
3. conducting tryout and revision; and
4. assessing whether learners do learn.

In the instructional design process, there are a lot of factors that should be taken into consideration. These factors are closely related to each other and affect each other to a certain extent. These factors should be organized in the instructional design steps. For example, if the goals and objectives are not chosen, specified or written properly, then the next and other steps will contain some problems because of the inappropriate and incomplete items in the previous step. In the instructional design, the steps are all interrelated with each other. It is very important to order the steps in a way that will be logical and in relation with other steps. In other words, instructional design is a big responsibility to design teaching and learning activities. All steps should be thought and chosen carefully and should be ordered in a meaningful way. Every detail can play an important role during the implementation. Every decision should be given due to a reason, not just for the sake of doing so. The designer should be fully aware of the relationship among the steps. During the teaching and learning process, the designer should collect reliable data about the students, their backgrounds and their prerequisite learning. Due to the reason that they play an important role on the outcomes of instruction, they should seriously taken into consideration and help designer to create a model that will help them to keep a balance between them. An instructional design model gives method and implication to design instruction. During the instructional design process, I.D. models help educators to visualize the problem. If the instructional design model solves the learning-teaching problems, it means that it is an effective instruction.

Effective instruction is instruction that enables students to acquire specified skills, knowledge, and attitudes (Reiser & Dick, 1996). During the effective instruction, students can be motivated well. To motivate students in the instruction process, all factors must be determined well. During determination process, there are four important principles that play key role. These principles are listed below:

1. Begin the planning process by clearly identifying the general goals and specific objectives students will be expected to attain;
2. Plan instructional activities that are intended to help students attain those objectives;
3. Develop assessment instruments that measure attainment of those objectives;
4. Revise instruction in light of student performance on each objective and student attitudes towards instructional activities (Reiser & Dick, 1996).

Teachers should follow these principles in order to apply successfully their instruction. The major goal of instructional design is to demonstrate planning, developing, evaluating, and managing the instructional process. At the end of this process, it can be seen the student learning performance in instructional activities based upon defined goals and objectives. Instructional design pays attention to instruction from the learner perspective than from the content perspective which is traditional approach. According to Kemp, Morrison and Ross (1994), it involves many factors that influence learning outcomes, including such questions as these:

1. What level of readiness do individual students have for accomplishing the objectives?
2. What teaching and learning methods are most appropriate in terms of objectives and student characteristics?
3. What media or other resources are most suitable?
4. What support, beyond the teacher and the available resources, is needed for successful learning?
5. How is achievement of objectives determined?
6. What revisions are necessary if a tryout of the program does not match expectations?

These questions concerns with student learning because the major goal of instructional design is to accomplish the identified goals and objectives in the instructional activities. In the instructional design process, there are four key elements. These are:

1. whom to teach,
2. what to teach,
3. how to teach, and
4. how to evaluate.

In whom to teach process, knowing student personality is important because the target learners are students. Without students, instructional activities can't be implemented. To design effective instruction, teachers should get information about student characteristics.

In what to teach, instructional goals and objectives are important. Teachers first must make decision on their goals and objectives in instructional design. Instructional goals and objectives give teacher information on what to teach during instructional activities.

In how to teach, teacher gets information on how to deliver goals and objectives to students in the instruction. Instructional delivery methods indicate teacher what kinds of teaching and learning methods will be used.

In how to evaluate, assessment tools are playing key role because teacher can get information on whether students accomplished the goals and objectives or not with the tools. During the educational measurement and evaluation process, assessing tools such as multiple choice, short-answer items, true-false items, matching items, essay questions, problem solving questions and others must be used to determine student learning activities in the instruction by teacher. These assessing tools should have reliability and validity characteristics to determine learning outcomes.

These four elements are usually used to create an instructional design model. There are four kinds of instructional models (Gustafson, 1996). These are classroom model, product model, instructional systems models, and trends and issues. The classroom models such as Gerlack & Ely, Kemp, Heinich, and Reiser &Dick are designed teacher oriented based. Teachers can use this model to design instruction. The product models such as Bergman & Moore and Van Patten are interested in more producing instructional products either for specific clients or for commercial marketing. Instructional system model such as Branson, Seels & Glasgow, Bridggs, Gagne, Smith &Ragan, Gentry and Dick Carey are designed for a complete college course. This model always requires a team effort to design instruction. There are some trends and issues in instructional design models. Hypermedia is one of them. It affects instructional design. It is another area generating considerable excitement and innovation in the design of education and training environments (Gustafson, 1996). The other one is constructivism. It has also affected instruction process. It has gained considerable attention from educators dissatisfied with behaviorism and cognitive psychology. It is based on the belief that all individuals construct their own reality (Gustafson, 1996).

In this study, a new instructional design model is designed called Isman model (Figure 1). Then, this Isman model was applied in a graduate class which was called educational planning and evaluation.

**ISMAN MODEL**

The major goal of Isman model (Figure 1) is to point up how to plan, develop, implement, evaluate, and organize full learning activities effectively so that it will ensure competent performance by students. The theoretical foundation of Isman model comes from behaviorism, cognitivism and constructivism. Some of information of behaviorism, cognitivism and constructivism are used to design instruction in this model. Behaviorism as a theory of learning takes in to consideration on the relationship between stimulus & response, the reinforcement factor and designing environmental conditions. Those are used to motivate students to learn more in this model. Cognitivism is interested in motivation, intellectual learning process (short term memory, retrieve and long term memory), experiences and contents. This new model is interested in how to store the information into long term memory. To store the information into long term memory, instructional activities are designed in the model. Constructivism is interested in personal applications. According to McGriff (2001), the learning process must be concerned with the experiences and contexts that make the student willing and enable to learn. This is one of the things that Isman model uses in instructional activities. Students become active participants, reflect their own thought and become autonomous. During the instructional activities, students try to get their own experience things. Their personal experience motivates students to involve in the process actively. By the help of

experience, they will relate their own personal meanings to the learned information and it might be easier to keep in mind, because it will be much more meaningful.

Isman model (Figure 1) is described a five-step systematic planning process. These are input, process, output, feedback and learning. This process can be used to plan a variety of instructional approaches, ranging from teacher lectures to hands-on student-centered activities. In addition, as a result of using this process, teachers should be able to develop effective instruction. This effective instruction can help students to learn more. These students will be motivated to join class activities.

The first step in Isman model is input. The input step involves identify Needs, identify Contents, identify Goals-Objectives, identify teaching methods, identify evaluation materials, and identify instructional media. The main goal of first step is to identify factors for input. After the goals and objectives have been identified, and instructional activities and assessment techniques have planned, teacher will be ready to try out, or implement, the planned instruction with the students. This is a key step in the instructional planning because it gives teacher information about the effectiveness of the instruction. In other words, these steps can help teacher to identify what to teach and how to teach.

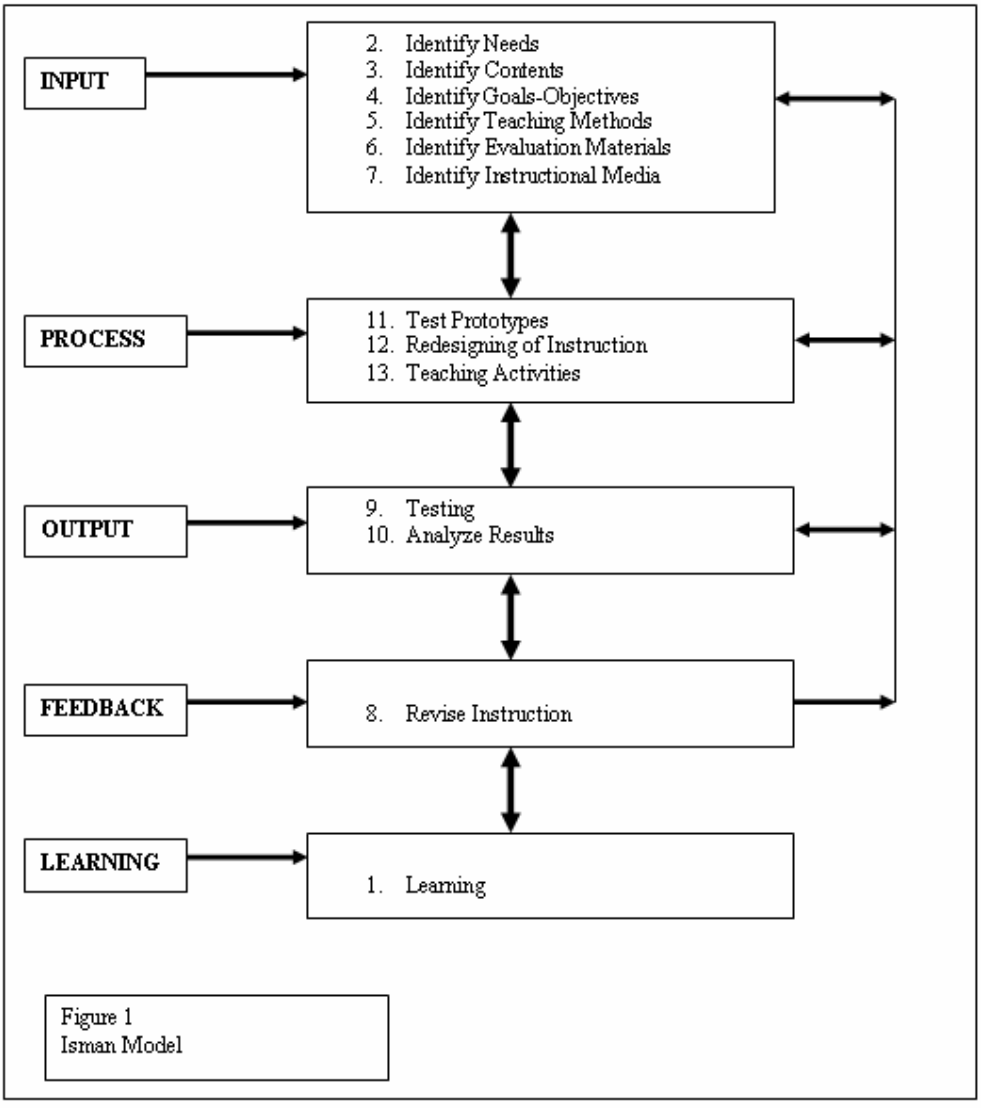


Figure 1
Isman Model

The second step in Isman model is process. The process step involves test prototypes and redesigning of Instruction and teaching Activities. The main goal of second step is to find out what student wan to go, how to get them there, and reorganize instructional activities. Instructional activities are done with the students. To organize instructional activities, pre-testing plays a key role to design an effective instruction. If an effective instruction is designed well, instructional goals will be achieved successfully.

The third step in Isman model is output. The output process involves testing and analyzes results. This process requires teacher to implement assessment tools to determine whether the students did demonstrate the skills, knowledge, and attitudes that teacher described in instruction goals and objectives. When the students participate in the instructional activities, teachers want to know whether they learned what the instructional plan expected them to learn. To determine student learning, educational measurement and evaluation process should be implemented by teachers. This process gives teachers results on what students learn from the instruction. Teachers should analyze the results and make decision on where to go in the instruction.

The fourth step in Isman model is feedback. The feedback process involves revise instruction based upon the data collected during the implementation phase. If, during the phase, teacher finds that students are not learning what the plan wanted them to learn, and/or they are not enjoying the learning process, teacher will want to go back and try to revise some aspect of their instruction so as to better enable their students to accomplish their goals.
The fifth and final step in Isman model is learning. The learning process involves full learning. In this process, teacher wants to make sure that their students have learned what the instructional plan wanted them to learn. If, during the phase, teacher finds that their students accomplished their goals in the instructional activities, teacher will want to go new instructional activities.

**The Aim of Research**
A key to the success of teaching in the classroom is to design instruction well for students or learners. The main goal of this research paper is to find out academic differences between the instructional activities designed by Isman model and the instructional activities designed by traditional way. The purpose of this study was to analyze the effects of Isman model on academic achievement.

**Significance of the Study**
The results of this study can be used by educators to determine the effects of Isman model on academic achievement.

**Scope and Limitations**
In this study, a sample size of 100 graduate students at the faculty of education at Eastern Mediterranean University in North Cyprus was used.

**METHOD**
**Operational Definition of Variables**
This study was designed to look at the effects of Isman model on academic achievement. Two groups, each made up of fifty graduate students were matched on the same background. Isman instructional design model was used to design the instruction for the experimental group; the instruction for the control group was designed by traditional instructional model. At the end of the semester, students' academic achievement was determined in terms of differences based on the experimental group and control group.

**Problem Statement**
Is there any academic difference between two groups?

**Null Hypothesis**
There is no difference in academic achievement between experimental and control group.

**Alternate Hypothesis**
There is a difference in academic achievement between experimental and control group.

**Statistical Hypothesis**
Ho: $\mu 1 = \mu 2$
H1: $\mu 1 \neq \mu 2$

**Independent Variables**
The independent variable was student achievement. In this research, the effects of Isman instructional design model on students' achievement were determined.

**Identification of the population**
The population under investigation included one hundred graduate students taking "Educational Planning and Evaluation" course at college of education at Eastern Mediterranean University in North Cyprus during the 2002-2003 school year. There were two groups. There were fifty graduate students in the each group. One of them (experimental group) took this course with the design of Isman model. Second group (control group) took this course with the traditional instructional model.

**Instrument**
For this research study, two multiple choice tests were used for midterm and final exams. This test was designed to analyzing students' achievement on "Educational Planning and Evaluation" course. There were fifty items in these two instruments. These two tests were applied to control and experimental group.

**Data Collection**
The students' achievement was assessed by the prepared two multiple choice tests. Students' achievement was statistically analyzed according to experimental group and control group.

**Data Analysis Procedures**
In this study, qualitative research method was implemented in order to fully investigate the research problem. The two multiple tests were designed to determine the differences between the control group students' achievement and experimental group students' achievement. Research methods were used in two phases as follow:

First, the two multiple choice tests were implemented to students for visa and final exam. The process of administrating these multiple choice tests is explained below:

1. The copy of a multiple choice test was given to graduate students for midterm exam.
2. The copy of a multiple choice test was given to graduate students for final exam.

Second, t-test was used to analyze academic differences between control group and experimental group.
The independent t-test can be used for problems where one is interested in the mean differences between two groups on a single measure. The data was analyzed using the SPSS for windows. In this process, an alpha level of 0.05 was used to test null hypothesis.

**DATA ANALYSIS AND PRESENTATION OF FINDINGS**
This part presents the findings of the study and its analysis. The main purpose of the study was to investigate students' achievement based on the multiple choice test taken for midterm and final exam. Data for analysis were obtained from the two multiple choice tests. This part contains the presentation, statistical analysis and interpretation of qualitative data collected from one hundred graduate students. The results of qualitative analysis are presented.

**Qualitative Data Analysis**
The following data and statistical analysis are from a research report indicating the mean differences on students' achievement. Control group and experimental group took the multiple choice test for midterm and final exam. These tests were administered during the school year. Comparisons were made between the mean differences of academic achievement of the two groups.

The midterm exam results are below:

**Table 1 - One-Sample Statistics**

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| **CONTROL** | 50 | 50,6000 | 13,6142 | 1,9253 |
| **EXPERIMENTAL** | 50 | 71,7000 | 12,5605 | 1,7763 |

**Table 2 - One-Sample Test**

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| **CONTROL** | 26,281 | 49 | ,000 | 50,6000 | 46,7309 | 54,4691 |
| **EXPERIMENTAL** | 40,364 | 49 | ,000 | 71,7000 | 68,1304 | 75,2696 |

According to t-test results for midterm exam (Table 1), the mean experimental group is 71,70 with a standard deviation of 12,56. The mean control group is 50,60 with standard deviation of 13,61. It means that the mean of experimental group is higher than the mean of control group (Table 1). According to t-test results (Table 2), the value of α:0,00 is lower than the standard value of α: 0,05. The null hypothesis is rejected (Ho: μ1 = μ2) at the α: 0,05. The difference was significance. It reveals that there is a mean difference in academic achievement between experimental and control group in the midterm exam.

The final exam results are below:

**Table 3 One-Sample Statistics**

| | **N** | **Mean** | **Std. Deviation** | **Std. Error Mean** |
|---|---|---|---|---|
| **CONTROL** | 50 | 46,7000 | 11,8067 | 1,6697 |
| **EXPERIMENTAL** | 50 | 74,9000 | 9,0627 | 1,2817 |

**Table 4 One-Sample Test**

| | **t** | **df** | **Sig. (2-tailed)** | **Mean Difference** | **95% Confidence Interval of the Difference** | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| **CONTROL** | 27,969 | 49 | ,000 | 46,7000 | 43,3446 | 50,0554 |
| **EXPERIMENTAL** | 58,440 | 49 | ,000 | 74,9000 | 72,3244 | 77,4756 |

According to t-test results for final exam, the mean experimental group is 74,90 with a standard deviation of 9,06. The mean control group is 46,70 with standard deviation of 11,80. It means that the mean of experimental group is higher than the mean of control group (Table 3). According to t-test results, the value of α: 0,00 is lower than the standard value of α: 0,05. The null hypothesis is rejected (Ho: μ1 = μ2) at the α: 0,05. The difference was significance. It reveals that there is a mean difference in academic achievement between experimental and control group in the final exam.

## CONCLUSION

According to t-test results, there was a significant difference between experimental group achievement and control group achievement. It indicates that Isman instructional model was implemented successfully in instructional activities in experimental group and affected academic achievement. So, it may be said that this model could be implemented to design instruction.

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