

Effects of Instructional Design on Learning

Assoc. Prof. Dr. Aytekin İŞMAN- Eastern Mediterranean University
Senior Instructor Fahme DABAJ- Eastern Mediterranean University
Research Assistant Zehra ALTINAY- Eastern Mediterranean University
Research Assistant Fahriye ALTINAY- Eastern Mediterranean University

Abstract

By the development of the technology, every styles of life and human being action face with changes. Fast, global and remarkable time come to be considerable. Social, global, cultural, educational competitiveness have been changed by the implication of the technology. Therefore; these changes also affect the learning styles, duration and method of individuals.

Instructional Design is the plan, organization for the effective learning of the students. Instruction is not only the training, by the development of the new technology, presentation and representation of the reality or information change. Therefore; flexibility, adaptability and availability of resources, instructional materials selection criteria are so important concern for the meaningful learning of the students. From the eclectic approach, students should face with more than one alternative for learning atmosphere to match content level with suitable materials, strategies and theories. In addition to this, teachers have great responsibility to organize the instruction with integrating content level of knowledge and selection of attractive, productive materials within learning-teaching process for providing equal opportunities, standards, having experiences about reality for students under the constructivist approach.

In the research, effects of instructional learning will be determined besides underlying the effective usage, tendency of teachers in teaching-learning process. In the result of the research, it will be reflected that technology is the inevitable factor in the designing instruction and enhancing productive, providing motivation, attention for learner with the teachers' suitable integration of all resources and strategies, methods.

Effects of Instructional Design on Learning

Introduction

21st century is called as “Information Age” that people tries to catch knowledge by the facilities of technology. Technology is a bridge between science and its application. Technology affects the life of people under the circumstances of social, political and cultural issues. While analyzing technology at education era, it is realized that learning occurs based on the combination of technological facilities and opportunities. Because at educational context, creating the diversified learning environment and providing a context that refers multiple intelligence situation become a vital issue today’s.

Technology which is the basis of globalization in order to reach fast knowledge and communicate where people, become a tool at educational environment. Education is a base for future improvement of countries. Following the contemporary issues related with education become necessary step for the development of quality in education. Establishing and creating learning environment is a main goal at classroom and relationship between teacher and students. Because of establishing learning, teachers should follow needed facilities and improvements at education especially merging with technology. Technology and different methods in education makes people to have self-differentiated properties in order to get wide range of knowledge and create opportunities to individual at competitive environment. In addition to this, learning is a part of life in individual life by being effect at the behavioral changes at educational context. Technology refers stable learning by presenting hearing, reading, seeing for handling learning.

Education is a process for changing behavior and schooling is another concept that includes instructional activities. While teachers are teaching their content knowledge, they should follow developing learning techniques, activities and technological improvements to support their teachings. Learning that occurs with different activities, presented with targeting more than one sensory of the students and with the support of technological tools becomes permanent. As it is known, individuals are different by having different learning styles and learning capacity. Because of this reason, teachers should contribute different methods, techniques to provide maximum learning for each individual. Applying different methods, techniques with developed technologies within the lesson period with teacher and using different methods, techniques with developed technologies out of class, without teacher that also provide learning is called instructional design. By the opportunities of instructional design, students are motivated to learn individually sufficiently. Instruction is a part of education because all instruction consists of experiences leading to learning. Instruction is a part of education because all instruction consists of experiences leading to learning (Hackbarth, 1996).

By contrast, not all education is instruction since many experiences that lead to learning are not specifically developed and implemented to ensure attainment of particular learning goals. Instruction includes all learning experiences in which the instructional support is carried out by teaching, Not all instruction can be considered training. Teaching and instruction are the most interchangeable terms. Smith and Ragan (1999) define teaching to refer to those learning experiences that are facilitated by a human being (not video, TV, textbook, or computer based program), a real live teacher.

Using instructional technology, creating understanding of content knowledge and its application under the perspective of theory and practice at education era become vital consideration at today’s life. Therefore, by the help of instructional design, everyone can get a chance to satisfy their learning needs individually.

We all know well that dedicated teachers’ treasure their students, that they earnestly desire to enhance the quality of their students’ lives and that they strive daily to improve their

own performance toward this end. Gifted teachers are especially sensitive to the intellectual and emotional strengths and needs of their students. Teachers should know their subjects well and accurately perceive how content and methods can be selected to meet those needs (Hackbarth, 1996, p.19). It is important to match instructional design to current technology, needs and motivation of the students for effective learning in instructional environment.

Aim of the Research

Instruction is a part of education because all instruction consists of experiences leading to learning. Instruction is a part of education because all instruction consists of experiences leading to learning. There are diagnose, design, procure, refining for the instructional development model. As a teacher, educators should choose instructional strategies, because instruction means plans, design and open, flexible alternative based teaching-learning process on the basis of type and level of student performance expressed in your instructional objectives, subject matter area, student strengths and preferences, information derived from learning theory and research, insights from teacher experience, limitations of time and resources, talents and preferences (Hackbarth, 1996, p.22).

In a global context, we can realize that there are different perspectives about learning theories and application of instructional design by these theories. As it is known that behaviorism is an first indicators of directed and programmed instructional design by handling step by step teaching process by clarifying clear objective in a individualized context. Therefore, individualized approach, under the perspective of behaviorism gives a reflections of mastery learning in an individually paced by considering environmental factors in order to require learning. That means instructional design can be applied by setting objectives, analyzing resources, evaluation in a structured way within behaviorism. In addition to this, at the perspective of cognitive, design models are addressed by component process of learning such as knowledge coding, retrieval by integrating new knowledge with previous information. That means instructional design can be applied from the perspective of information-processing theory to require learning (Jonasson, 1998).

In the competitive environment, constructivism promotes more, open-ended learning experience by using multiple representation of reality, real world, case-based learning by supporting collaborative construction of knowledge at instructional design. By the advance of the technology, there is a movement to constructivist approach in designing instruction. Mostly, branched design is used rather than linear format of instruction by using hyperlinks for allowing learner control and requires different types of learning in order to develop learners' own metacognitive strategies. Beside of these reflections eclectic approach is the best learning theory for instructional design. By the mean of the eclectic, teachers should use the available and concrete useful materials to their content of lecture and do not afraid to let students experience or practice the knowledge by providing alternative learning strategies and methods from the point of view pragmatists that instructional designers should find what works and use it (Jonassen, 1991).

There are many theories, methods, activities that are developed to increase the number of students that learns by him/herself or by teacher, and to make mastery learning among students. Also in the world there are many technological developments in educational era for better and wider education in a short time. The research will determine to evaluate the effects of instructional design on learning in first classes of secondary schools in Northern Cyprus as a reflection of the effects of instructional design on learning.

When we examine the resources that are applied to education by Educational Ministry at from the perspective of economical side, schools of country has limited funding so the financial source to education is limited; this affects the lacknesses of educational technologies in the schools. These lacknesses create big differences while comparing with developed

educational systems and successes. Nowadays, technology is the part of the instructional design to create effective and meaningful learning with the integration of theories and technology. It is important to prepare a classroom environment for effective technology use. The problems about technology and designing instruction for meaningful learning can be overcome with the training of teachers about the designing materials which are available and useful to interact with students and make their learning faster, meaningful (Roblyer, Edwards, 2000). But whole problems are not a barrier for applying instructional design to the classrooms, with using the resources on hand, activities learning theories; methods can be applied in the classrooms for wide range and mastery learning. The effectiveness of instructional design depends on concerning all effects especially the availability between content-knowledge and materials that teacher should keep the new developments in a global context.

The research will reflect us teachers who applied instructional design to classrooms that are a few, and generally teachers did their courses without using any learning techniques or any instructional design, only with narratives. Research embraces the teachers in Canakkale Secondary Schools in Famagusta that actually they are not using instructional design widely. So, with the targeted study, usage of instructional design and effects of instructional design on learning in schools will be determined.

Importance of the Research

The research study is “The effects of instructional design on learning.” Learning is generally occurs in the schools and this is very important on education. Education is very important and necessity for economical and political developments. With the effect of globalization in the world, the countries are competing with each other on different arenas more powerful than others. With the developments of the communication tools especially Internet, world became a small village. Everyone aware from everything around the world at the same time and there is no more local country anymore. For following developments and changes in the world, we have to be educated well. The schools are very important for education and we have to try harder to improve learning. While improving learning we have to think in two ways; first improving the number of students that learns and second make learning permanent and mastery. Many improvements, techniques, methods and theories are developed to improve learning. Instructional design is the combination of some or all of them both help students to learns in the classroom and make them learn how to learn by themselves under the perspective of constructivist and eclectic approach among learning theories. By this way number of students that learn and the level of learning increase, mastery learning occurs.

As it is examined that individuals have different learning styles and characteristics because of that reason, it is insufficient to apply one approach or theory at instructional design under the learning-teaching process. By the advance of the technology, using eclectic approach about learning theories in instructional design is inevitable. For the meaningful learning of the students, presenting and delivering information should be transmitted to students by providing flexible environment under the constructivist view. The role of the teacher at instructional design can be listed as below according to constructivist approach:

1. Teacher should be in consciousness of learner autonomy. Teachers should be aware of the individual differences of them.
2. Teacher should use real and current information to transmit knowledge. In other words, teacher should be well educated and on going researcher in order to reflect information and give concrete update examples and summarizes about subjects for the permanent learning of the students.

3. Teachers should give the importance of thoughts of students. They should possess the research environment to the students in order to search and evaluate their experiences on content under the sense of self-regulation.
4. Teachers should be aware on the individual differences of the students and design course materials based on this consciousness.
5. Teachers should know the students prerequisite skills on the content to build new knowledge construction. In addition to this; teacher should know the how learner can learn based on strategies.
6. Teachers are the main communicators to establish interaction between the teacher and students. Teacher should have technological, communicational skills to implement education effectively.
7. Teachers should implement the courses based on the student centred learning process. Students should feel the responsibility of learning and consult to teacher. Therefore, teacher should provide concrete time, place and opportunities of interaction.
8. Teachers should help the self-development and responsibility of the students with their guidance.
9. Teachers should provide the environment of collaborative learning, interactive discussion groups for the easy and permanent learning of students with related materials.
10. Teachers should give the proper feedback to the students and help them to interrelate the subjects. In addition to this, teachers should guide for finding the fields of the students (İşman, 2002).

Also strategies for instructional development for effective learning like educators should choose instructional strategies, because instruction means plans, design and open, flexible alternative based teaching-learning process on the basis of type and level of student performance expressed in your instructional objectives, subject matter area, student strengths and preferences, information derived from learning theory and research, insights from teacher experience, limitations of time and resources, talents and preferences while they are applying the instruction (Hackbarth, 1996). Also these bases will help designing the instruction; the role of the technology is inevitable. Integrating educational technology to education refers to the process of determining which electronic tools and methods for implementing them are appropriate for given classroom situation and problems (Roblyer, Edwards, 2000, p.3). This requires selecting best instructional materials for matching content, strategies of teaching-learning process. Constructivist Approach requires using experience of real picture of things for better learning. In the global context, technology is the alternative to motivate, take attention, providing equity, same standards for all students. By this approximation, technology should be the part of designing instruction. In the research, these approximations were determined by investigating use of instructional design and its effectiveness on learning of students.

Related Researches

Martin (1998) considers the question of how much of the instructional process instructional designers should control by pre-planning and managing instruction so that it is equitable, focusing on three specific concerns: (1) whether the designer who plans the instruction or the student is responsible for student learning; (2) whether or not the contingencies of instruction can be managed so as to ensure student learning; and (3) how instructional design can encourage learner self-development and ensure that students take some responsibility for their own learning. With regard to the first concern, it is argued that instructional designers often assume too much responsibility when students fail to learn, and

that there is no guarantee that each learner will succeed without internal motivation and active involvement. With regard to the second concern, it is suggested that the search for a science of instructional design may be futile or, at the very least, may fail to address the needs of individual learners, special interest groups, ethnic and minority groups, and women and girls. With regard to the third concern, it is argued that greater opportunity for learner self-development may require instructional designers to relinquish some of the responsibility and control of the design process.

Merrill (1971) proposed that a teaching team should consist of a horizontally differentiated staff with team members trained in four distinct skill areas: 1) instructional design, 2) instructional interaction, 3) interpersonal design 4) interpersonal interaction. The present paper proposes, in addition, a vertically differentiated staff for the new profession of instructional design. There would be three levels: 1) instructional technicians (teacher level), with teachers trained to use instructional design guides and challenged to design and plan effective instructional environments, utilizing the materials which they have been given; 2) instructional technologists (engineering level), with M.A. level on specialist level technologists trained to develop self-contained instructional systems (multi-media presentations, programmed materials, CAI, etc.) and instructional design guides for use by teachers in preparing their own instructional materials; and 3) instructional psychologists (scientist level), with Ph.D.'s trained to specify and develop instructional theory and to conduct laboratory behavioral science research on principles of instruction.

Baylor (1998) discussed that novice instructional design (NID) is an instructional strategy where students design instruction in order to better learn information. NID by students is an increasingly common instructional activity, particularly with technology; however, there is little research regarding what the instructional designer learns by engaging in the instructional design process. This paper reports results from an experiment investigating what a person learns from novice instructional design of text-based content. The experimental design encompasses three independent variables: strategy (self-selected learning, novice instructional design); passage structure (well defined, ill defined); and achievement (low, high). Dependent variables include concept map comprehensiveness, example generation, and task engagement. Several statistically significant and theoretically intriguing interactions are interpreted in part by Allen and Merrill's (1985) locus of processing theory for instructional strategies. Together with interpreting these interactions, the paper provides both a conceptual background and a research methodology for evaluating NID of text-based content.

Tessmer and Wedman (1992) wrote an article about findings of a study that determined the ways in which practicing administrative course developers utilize instructional design activities in their design projects are presented in this paper. A survey was administered to 30 participants in a training and development group within a large organization and mailed to 43 other practicing instructional designers from a wide variety of contexts. Approximately 47 percent of the mailed surveys were returned. The results of the study were: (1) the most frequently completed design activities were writing learning objectives, developing test items, selecting instructional strategies, and selecting members; (2) the least frequently completed design activities were assessing trainee's entry skills and characteristics, and conducting a pilot test; (3) the most frequently given reasons for not including a design activity were the decision was already made, there wasn't enough time, and it was considered unnecessary; (4) lack of instructional design was seldom identified as a reason for excluding a design activity; (5) years of experience did not appear to be related to how often course developers use various instructional design activities; and (6) while virtually all participants indicated that they usually or always conducted wrote learning objectives, only two-thirds indicated that they usually or always conducted a task analysis. A conclusion is

that, in practice, instructional design activities occur on an irregular basis. An instructional development model to guide decision making in a real-life context is needed. Three figures, three tables, and a copy of the survey are included.

Moallem (1996) discussed that instructional designers believe that it is important to expose pre-service and in-service teachers to Instructional Systems Design (ISD) procedures and products so teachers can utilize them. Educational literature, however, reveals few attempts to relate instructional design theory and methods to teaching practice. This paper proposes a new conceptual model for thinking about teaching that incorporates current findings of research on teachers' thinking and components of instructional design models and principles. The paper reviews the major finding of research on teacher thinking and instructional systems design, and then presents a conceptual model to bring the two closely related fields together. Potential implications of the model for instructional development and research in instructional design and teacher thinking include: (1) teachers and their teaching and learning processes can only be studied within their social and cultural context; (2) teachers' knowledge is a complex blend of personal, practical, and theoretical knowledge research in teaching, learning, and instruction has to shift its emphasis from cognition to social construction of knowing; (3) the image of teachers as designers of their own instruction needs to be emphasized in the instructional technology field, and the instructional design models and principles should be reconceptualized if they are to be used by teachers; (4) the concept of design as an artistic, social and cooperative act should replace the procedural and technical concept of design- -instructional design activities should focus on the product of the design instead of the procedure; and (5) instructional design models and principles should focus on an approach in which the design objectives and strategies or solutions evolve as the teacher-designer becomes more acquainted with the social and cultural system and subsystems, and people who are affected by the design, including learners, should participate in the decision-making process.

Boger (2001) contains the papers on instructional design from the SITE (Society for Information Technology and Teacher Education) 2001 conference. Topics covered include: an adaptive e-framework for teacher training; assessing the integration of technology into the curriculum; promoting instructional planning; learning and using World Wide Web page construction to teach preservice teachers how to develop and design integrative middle school curricula for early adolescents; innovative course design as action research; designing Web-based inquiry simulations; principles for designing online instruction; effective presentation design; letting teachers interact with the idea of "interactivity"; qualitative data analysis to ascertain the benefits of a Web-based teacher oriented project; Yekioyd statistics and their interpretation; glearning- - the new e-learning frontier; orchestrating virtual learning; constructing an enhanced instructional presentation; metaphorical representation within a distributed learning environment; implementation of an electronic tutorship support system in a school of business administration; activities for integrating the Internet in teacher education classes; the results of a learning software competition; interactivity as the key to successful Web-based learning environment; scripting a lesson; analysis of large Web-based courses at the university of Central Florida; learners' perceived differences in learning and application; online delivery of multimedia courseware; teaching with geographic information technology; developing Web pages to supplement courses in higher education; toward an adaptive e-framework for teacher education; problem-based learning using Web-based discussions; adapting critical thinking models to a technological approach; sharing teaching experiences in different countries through information and communications technology (ICT); cognitive design of instructional databases; potentials and possibilities in Web-mediated courses; effective online learning at Western Governor's University (Washington); interactive training video as software for staff development; sequence independent structure in distance learning;

edu-effectiveness and distance education; assessing student statistical problem-solving skills using interactive Java applets; the formative evaluation of a computer-managed instruction module; online teaching tools; a model to design technology for a teacher training program; designing Web-based constructivist learning environments; using ICTs to develop a learner-centered approach with preservice elementary school teachers; a model for the implementation of socio-constructivist principles in multiple classrooms; Web-based pedagogical strategies; incorporating research on attention into e-design; strategies to reduce online cheating; learning styles of student in traditional Web-based courses; and successful implementation in educational and curriculum integration. Most papers contain references.

Nelson and Orey (1991) research in cognitive science that can be incorporated into the instructional design process is summarized. Instructional design shares many features common to other types of design, but its models do not support the kinds of cognitive activities necessary for successful design. Assumptions about learning provided by the descriptions of cognitive science also represent challenges to current instructional design models. Decisions made about instruction should reflect these assumptions, but this is difficult to achieve unless the designer is aware of the assumptions and the model used to guide decision making supports those assumptions. The necessity of developing new tools and analytical procedures for instructional design is discussed. The tools used to design instruction must reflect the assumptions about learning that are inherent in cognitive science theories. The role of the designer may have to be redefined in the next generation of instructional design to reflect the disciplines' commonalities which knowledge engineering. The development of a sufficient knowledge base related to specific design problems and solutions is also critical. One flowchart and a 61 items list of reference are included.

Davis and Silvernail (1981) discussed the present state of curriculum and instructional design skills in Pennsylvania preservice teacher education programs was examined. Data were collected from self-studies conducted by 14 public and private teacher education institutions in Pennsylvania. The types and levels of curriculum and instructional design skills taught in each program were examined. It was assumed that all of the teacher education programs had an objectives-based curriculum. Among the types of skills critical to curriculum design were goal analysis, content selection and analysis, and identification of terminal objectives. The skills associated with instructional design included identifying and sequencing enabling objectives, selecting optimal testing points, and preparing instructional materials and events. Little consistency was found across the programs in the types or levels of skills included, or in the levels of required performance. It was found that less than one out of four competencies on the elementary school level, and less than one out of ten on the high school level, required teachers to have curriculum or instructional design skills. Of the total skills analysed, instructional design skills represented 76 percent, and curriculum design 24 percent. It is recommended that a standard set of minimum competencies in instructional and curriculum design be developed and implemented and that a standard format and specific guidelines for self-studies be developed for use by teacher education institutions in Pennsylvania.

Li and Merrill (1988) examined Instructional Design Expert (ID Expert) is prototype instructional design expert system which supports the instructional design phase of instructional system development. It differs from other instructional design toolkits in that it is built using a knowledge engineering approach, and has been implemented as an expert system. The system incorporates both "public" knowledge (in the forms of instructional design theories and models) and "private" knowledge (representing the artistic aspect of instructional design). The project spelled out such "private" knowledge explicitly. This report presents the knowledge representation mechanisms used in ID Expert and related implementation issues. It identifies the five main stages in the development of an expert system (problem identification, conceptualization, formalization, implementation and testing).

The problem identification phase of ID Expert development was performed by senior knowledge engineers from knowledge, Inc. The focus of this report is on the remaining four stages. An introduction to the project is provided in the first section, and the second presents a conceptual model of instructional design implemented in ID Expert. Section three presents the results of the conceptualization and formalization phases, and section four describes the results of the implementation and testing phases.

Hymel and Foss (1990) wrote an article about instructional design issues related to the preparation, implementation and evaluation of instruction are gaining increased recognition at the tertiary level in health science educational areas such as pharmacy. However, what has been lacking in the available literature on pharmaceutical education is a comprehensive review aimed at characterizing past and current efforts with a view toward formulating a needed agenda for future work where instructional design is concerned. Accordingly, this paper: (1) examines those elements of an instructional unit that provide for the preparation, delivery and evaluation of instruction; (2) reviews the professional literature available on instructional design themes in pharmaceutical education; and (3) recommends directions that pharmaceutical educators might assume regarding instructional design activities that remain most in need of attention. Three figures and a table present a systems-based model for designing instruction; a systems-based model for designing an instruction unit; a checklist for designing an instructional unit; and citations of instructional design literature, by author and date only, under the headings of Preparing Instruction, Implementing Instruction, and Evaluating Instruction.

Russell and Pirolli (1992) examined recent advances in artificial intelligence and the cognitive sciences have made it possible to develop successful intelligent computer-aided instructional systems for technical and scientific training. In addition, computer-aided design (CAD) environments that support the rapid development of such computer-based instruction have also been recently developed. The researchers tailored a particular CAD system for instruction, called the Instructional Design Environment (IDE), for use in vocational training. This project brought together a consulting team that included a successful instructor in business education, cognitive scientists, workers in teacher education, and the IDE development team. The main goals of the project were to develop an instructional design methodology that teachers software use in the context of solving realistic problems and to extend the IDE to support this methodology, which is grounded in cognitive science research and is called example-based minimalist design (EBMD). It was found that the use of IDE has several side effects: (1) IDE encourages a greater depth of analysis and planing; (2) the semiformal representation language used in IDE shapes the design process and the manner in which the designer thinks about instructions; (3) the analyses and specifications developed in IDE provide an explicit design rationale for each product; and (4) designs and design rationales developed in IDE can be easily modified and reused thus standardizing instructional development and promoting dissemination of successful design methodologies.

Dana (1997) discussed the theory and practice of the instructional design system includes the categories of design, development, utilization, evaluation and management; instructional designers and teachers need to determine an appropriate balance of structural knowledge and detailed knowledge acquisition. The purpose of this study was to determine what teachers' current perceptions were of instructional design and if the course had any affect on their understanding. Participants were 60 graduate students enrolled in a required course on instructional design of software at the National-Louis University. The following criteria were used in the final evaluation to show their understanding of the instructional design process: title screens, menu, instruction screens, and good balance of graphics, text, sound, animation, appropriate metaphor, and consistent navigation tools throughout. A 6-questionnaire was administered, as a pretest and then as posttest, to the participants to

determine their understanding of the instructional design and how it was used in their teaching. Included in the questionnaire were questions concerning the course, its purpose, and the benefits to their teaching. Design principles were not very eloquently described in most posttest questions, but there was an awareness that was not apparent in the pretests. Software's relationship to instructional design was very apparent. The teacher responses make apparent that teachers lack the extensive time it takes to process an instructional design. The questionnaire is appended.

Kirk (2001) mentioned that during the past three years, the role of the instructional systems designer has taken on greater significance for instructors. This is because many faculty members have been asked to put their entire courses online over the World Wide Web. Instructors are now creating a substantial percentage of the online courses with little or no background in instructional systems design. Consequently, some e-learning experts believe the quality of many online courses will not be as high as it should. The good news is there is a large amount of information on instructional systems design available online for instructors. This document contains an annotated bibliography of more than 160 quality online resources on instructional systems design. The resources are grouped as general resources and according to the five basic steps of instructional design- analyze, design, develop, implement and evaluate. The sites provide free information on how to perform various instructional design. Also included is a glossary of 164 key instructional design terms and definitions.

Branch and Others (1992) developed the hypothesis that the planning activities of classroom teachers correlate with the practices of instructional design professionals is explored within the context of this study. Classroom teachers participated in a survey which requested information regarding their planning routines. The 35-item two part questionnaire that was used as the data collection instrument was sent to 110 teachers currently teaching grades 7 through 12. Including teachers participating in university-school partnership programs. The 61 who returned the questionnaires (56%) reported on their actions when planning to teach on a daily basis, and provided information on typical class size, number of years teaching, grade level, educational background, and subject taught. Analyses of the responses indicate that a strong correlation exists between teacher planning activities and instructional design practices, although the subject taught is the only variable studied that seems to affect the potential for teachers to practice instructional design. It is suggested that some instructional design practices may be beyond the realm of manipulation by public school teachers, and that a dialog between instructional design professionals should be formalized. It is also suggested that instructional designers should consider instructional design models that combine common teacher planning routines with instructional design practices.

Richey (1996) mentioned the Robert M. Gagne's Impact on Instructional Design Theory and Practice of the Future. Robert Gagne has been a central figure in the infusion of instructional psychology into the field of instructional technology, and in the creation of the domain of instructional design. Gagne's design principles provide not only a theoretical orientation to an instructional design project, but also have prompted a number of design conventions and techniques. This paper examines the extent to which Gagne's theories continue to influence the field as design research expands and as design practice changes in response to new demands and pressures. Discussion includes the emerging tension between learner-oriented and content-oriented instruction trends in learner-centered instruction; the role of learner characteristics, learner involvement, and individualized instruction in Gagne's work; the emerging role of context in instructional design theory trends in context-centered instruction; the generic nature of Gagne's design theory and the de-emphasis of rooting design in a single context; the continuing dominance of Gagne's learning conditions, outcomes-based design, pre-design analysis, and Events of Instruction which provide a framework for creating

those external conditions that promote learning; and the stability of Gagne's orientation to practice.

Method

Through the experimental research, targeted group was examined based on statistical evaluation. Questionnaires, interviews were implemented to sample from the population and results reflect the approximate reflections of effectiveness of instructional design on learning.

Population and Sample

The region of the Famagusta Secondary Schools are the population to implement the research field and extension. From the population, Çanakkale Secondary School is the sample to implement questionnaire, interviews for the eleven weeks period under the statistical evaluation.

Research Findings and Comments

All data that are related with research study were gathered by interview, questionnaire, observation and literature review in order to reflect clear perspective about effects of instructional design on learning. As it is mentioned before the aim of the research is to realize effects of instructional design on students learning by applying triangulation methods for getting data.

Many articles were reviewed and all of them have a common point that instructional design has effects on learning. By the implementation and plan of instructional design, courses are planned properly with the help of three questions. These questions are;

- Where are we going? (What are the objectives of the instructional?)
- How will we get there? (What are the instructional strategy and the instructional medium?)
- How will we know when we have arrived? (What should our test look like? How will we evaluate and revise the instructional materials?) (Smith and Tillman, p.5 1993).

For this research study, I C and I D classes of Çanakkale Secondary School were selected randomly as a sample for study and these two classrooms have similar averages on their midterm exams when it was examined as 64.8 for IC, 64.2 ID. On the other hand, their English course averages are similar to their whole courses averages which are 66.6 and 66.1. Because of having similar averages, these two classrooms selected consciously as an experiment and control group for realizing the differences between having instructional based courses especially technology and not having .

English courses were selected randomly and instructional design activities applied to the class ID during seven weeks after their mid-term exams. Their English teacher has been lecturing two classrooms from the beginning of the semester. During seven weeks these topics have been lectured in two classrooms at English lessons. The topics are;

- Can / can't
- Hours
- Must / mustn't
- There is / there are

All of these subjects were lectured by the same teacher to the both classes. After lecturing five subjects, a test applied to both classes, which instructional design applied and not applied. The classroom averages from the exam were indicated in the table below.

Table 1: The subjects and result of the exam

	IC	ID
Subjects	Average	Average
Can /can't	53	80
Hours	55	88
Must / mustn't	58	77
There is / there are	60	92
Total Average	57	84.25

In addition to this, the mid-term averages from English courses are in the below that is realized, their results are not same when compared to the results after having instructional design application to the class ID. Because of this reason, ID has been more successful than IC by having technological materials at their teaching-learning process.

Table 2: Average of the students

English	IC	ID
Midterm results	66.6	66.1
Instructional design results	57	84.25

Therefore, Class of ID learned five subjects meaningfully from ID when we comparing their averages at exams under the same topics, test questions and background information and lecturer. Only the lecturing techniques under the perspective of instructional design were different at their classrooms context. In class I C teacher tough the lecture in classical methods and in class I D teacher tough the lecture with instructional design activities.

For analyzing their success differences among two classes, t-test was used to clarify differences that table indicated the results at the below .

Table 3: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
CONTROL	30	57.0000	14.1793	3.1706
EXPERIMENTAL	30	84.2500	9.7704	2.1847

Table 4: One-Sample Test

	Test Value = 0					
	t	df	Sig (2-tailed)	Mean Difference	95% Confidence Interval of the Differences	
Lower					Upper	
CONTROL	17.978	19	.000	57.0000	50.3639	63.6361
EXPERIMENT	38.563	19	.000	84.2500	79.6773	88.8227

As it is known that the value of α is accepted as 0.05 in social sciences. At the result of statistical implementation, the significance values represent lower than 0.05. Therefore, there is a meaningful difference between control and experiment groups. This indicates that research results prove that instructional design effects on learning. All these reflections provide to examine different classes indicate that using technological tools or contemporary teaching strategies enhance the success of students by constructing meaningful learning.

Questionnaire was designed for the students in the class of I D in Çanakkale Secondary School in order to get information about the students' perceptions, their attitudes, opinions about the instructional design activities. At the result of questionnaire, %56.6 (17) of the ID class is boys and %43 (13) of the class is girls.and , % 73.3 (23) of the class, age of 11, % 16.6 (5) of the students is the age of 12, %6.6 (2) of the students is the age of 13. In addition to this, %80 (24) of the students borned in Northern Cyprus, % 16.6 (5) of the students borned

in Turkey and %3.3 (1) of the students borned in London. Perceptions about at their futures could be reflected as %63.3 (19) of the students wanted to gain as soon as possible, %33.3 (10) of the students wanted to go university and %3.3 (1) of the students wanted to finish secondary school. In addition to this, %43.3 (13) of the students reflected that teacher has a very important function on their learning, %26.7 (8) of the students reflected that teacher does not effect their learning very much and %30 (9) of the students reflected that studying is enough to learn, teacher is not a factor on learning. Reflections about their courses, %30 (9) of the students responded that teachers make their courses only by explaining the subject, %20 (6) of the students responded that teachers are not sharing lecture with students and letting them to participate courses, %23.3 (7) of the students responded that teachers are not using technological materials to enhance learning. In addition to this, %26.7 (8) of the students responded that teachers are not applying different activities at their teaching-learning process. %70 (21) of the students reflected that teachers make the lecture by the support of games and %30 (9) responded that teachers are not using games during lecturing. On the other hand, after technological materials applied at lecturing, %66.7 (20) of the students realized that teacher used discovery method for their learning and %56.7 (17) of the students realized the lecturing applied with the support of activities. As a result, %70 (21) of the students proposed that teacher used technological devices. With the examining the understanding of students after applying instructional design at their courses, %70 (21) of the students reflected that they understood better, %13.3 (4) of the students responded that they understood courses at a mastery level, %6.7 (2) of the students reflected that instructional design did not effect their learning and %10 (3) of the students reflected that by instructional design, they did not understand the course.

An interview had done with the English teacher of the selected classes for this research in order to get reflections about the effects of instructional design on students learning. The questions were prepared to learn the performances of the students from teachers and the analysis of the asked questions are indicated below. The English teacher mentioned that;

- When she applied instructional design activities to the class of I D the participation of the students to the lecture was increase.
- The lecture time is enough for applying related instructional design activities for teaching the topics.
- Instructional design activities mostly decrease the unwanted behaviors of the students because they concentrate to the lecture.
- Instructional design activities mostly increasing the effective listening of the lecture because lecture takes the attention of the students.
- The students who were in the classroom that applied instructional design activities learned the topics more than the students who were in the classroom that the lecture applied with classical conditions.

Summary and Recommendations

This research study had done in the region of Famagusta and the students are in the first class of Çanakkale Secondary School. It can be generalized that instructional design effects learning of the students on the age of 11-13. The lectures in the secondary schools in the region of Famagusta were done with classical methods and generally teachers did not make any instructional design activity in the classroom. Within 11 weeks study, it was realized that the students were speaking to each other and they could not concentrate the lecture without any instructional design activity. By instructional design activities, it was observed that students really focus and participate to the lecture. The effects of instructional design were also seen on the test results which has done with statistical evaluation in order to realize the differences between classes at their success' results from exams and their

reflections to the questionnaire reflect concrete results towards the effects of instructional design on students learning. At the result of questionnaire, %56.6 (17) of the ID class is boys and %43 (13) of the class is girls. and , % 73.3 (23) of the class, age of 11, % 16.6 (5) of the students is the age of 12, %6.6 (2) of the students is the age of 13. In addition to this, %80 (24) of the students borned in Northern Cyprus, % 16.6 (5) of the students borned in Turkey and %3.3 (1) of the students borned in London. Perceptions about at their futures could be reflected as %63.3 (19) of the students wanted to gain as soon as possible, %33.3 (10) of the students wanted to go university and %3.3 (1) of the students wanted to finish secondary school. In addition to this, %43.3 (13) of the students reflected that teacher has a very important function on their learning, %26.7 (8) of the students reflected that teacher does not effect their learning very much and %30 (9) of the students reflected that studying is enough to learn, teacher is not a factor on learning. Reflections about their courses, %30 (9) of the students responded that teachers make their courses only by explaining the subject, %20 (6) of the students responded that teachers are not sharing lecture with students and letting them to participate courses, %23.3 (7) of the students responded that teachers are not using technological materials to enhance learning. In addition to this, %26.7 (8) of the students responded that teachers are not applying different activities at their teaching-learning process. %70 (21) of the students reflected that teachers make the lecture by the support of games and %30 (9) responded that teachers are not using games during lecturing. On the other hand, after technological materials applied at lecturing, %66.7 (20) of the students realized that teacher used discovery method for their learning and %56.7 (17) of the students realized the lecturing applied with the support of activities. As a result, %70 (21) of the students proposed that teacher used technological devices. With the examining the understanding of students after applying instructional design at their courses, %70 (21) of the students reflected that they understood better, %13.3 (4) of the students responded that they understood courses at a mastery level, %6.7 (2) of the students reflected that instructional design did not effect their learning and %10 (3) of the students reflected that by instructional design, they did not understand the course. In a summary these research findings prove the effects of instructional design on students learning.

In addition to this interview was done to get reflections of teachers about instructional design that she applied to class and teacher mentioned that by the different strategies and technology, students pay more attention to the course and participate more by being motivated to the task. As a result, the students became more successful in the classroom that instructional design activities were done. The instructional activities are selected from Instructional Design books and determined according to the topic that is going to teach.

In a contemporary context, following global trends especially in education becomes inevitable. By the new developments of strategies and methods in education, especially effects of technology, creates a new visions to learning theories at teaching-learning process. Today's, technology has a big role in the instructional design, by enhancing the productivity of teachers, motivation of the students, meaningful learning with merging useful learning theories under the eclectic approach to overcome all obstacles at the students learning process. Research results clarified that all teachers have a big role to integrate new developments in educational cycle for increasing the learning of students and their productivity at teaching process with applying instructional design. Teachers should have consciousness about theoretical developments of strategies and activities in training at classroom context by being aware of their availability of their content knowledge and resources. Research reflects the importance of integration between application flexible resources as instruction materials to the content of lecture and strategies, methods in today context for creating good mental models in effective students' learning.

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