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An evaluation on instructional systems design

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Abstract

Instructional design and instructional systems design concepts different from the direction of the field lead to confusion as it includes similar use cases from time to time. Instructional design models have different characteristics, and in different areas, in line with the needs of nature according to the purpose of alternating the use of different models, it affects the efficiency. Each model is developed that fixing the underlying spots is the best way to a need for designs designed which varies depending on the model. Some models of the objectives underlying the selection and use of different models have the highest level while improving strategies constitute a more important structure. With this assessment, the instructional design, instructional systems design, systems approach and instructional system design models, by examining the historical development of these models and their distinctive features, will be explained in connection with curriculum development. Thus, referring to the different points of each model and specific model, with respect to instructional systems design, the difference in instructional design, space and design process is studied.

Keywords: Instructional systems design, instructional design, instructional design models.

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1. Introduction

The common area in the summer instructional systems design, instructional systems, instructional systems development, system models and instructional systems in terms of system approach within the scope of the model takes place. In fact, the system approach is more convenient to think of it as an umbrella term that includes all the terms (Fer, 2015; Korkmaz, 2017). The system approach of input, process and output (product) is composed of elements and feedback (Dick, Carey & Carey, 2001; Dogan, 1997). The elements of system approach are presented schematically in Figure 1.

The reality of the education system accommodates the elements of system approach. True, if an instructional system is a teaching system by examining the system in terms of approach, we can determine the items of system approach which are shown in Figure 1 in detail.

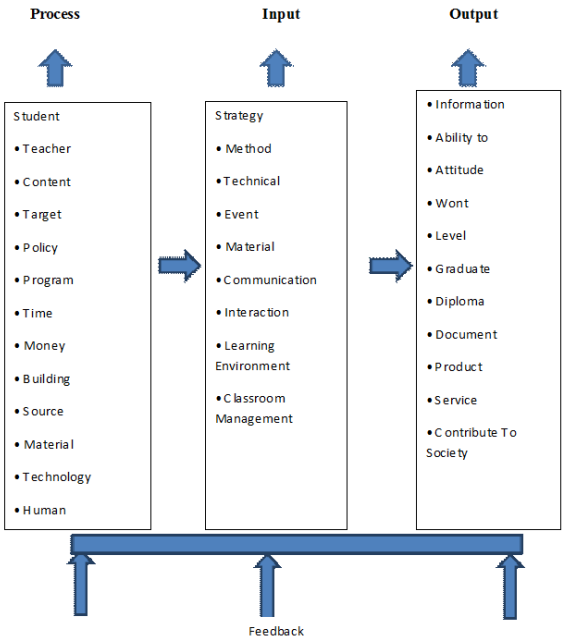

Figure 1. The elements of system approach

In this context, all input, process and output elements are allocated according to the stages and are determined by its relationship to the whole of the items. These items are then organised according to the system approach which are combined together. In other words, it tries to create the output elements in the interaction by working together. The system includes the attributes of the entry elements. Early entry into the site shows how the process is handled. The output shows the process generated by the product.

By examining the systematically evaluated feedback from the output, we have obtained the corrections. After corrections are fully implemented, the system approach of teaching is planned in a systematic manner for each item that is compatible, consistent and appropriate. Based on the design type, the cumulative information collected on each item is used as an input of the theoretical principles. Moreover, the whole system is checked for conformity to the expected outcomes of each stage (Akt:Ocak, Gagne, Briggs & Wagner, 1992).

The system approach can be applied in educational organisations, with more features. They are a social system and educational organisations, and the complexity of their structures increases the possibility of applying a system approach. The system approach in educational organisations is easier which can be viewed as a social system. System approach, decision-making, communication

subsystem, top system, equilibrium and entropy concepts are applicable in educational organisations (Akcay, 2006; Hursen, Ozcinar, Ozdamli & Uzunboylu, 2011).

2. Instructional systems design instructional design

Instructional design, teaching methods of understanding, deals with the development and implementation. As a professional activity was done by teachers and educators in general, a student group will assign the desired changes based on the knowledge and skills needed to create a designated area for learning–teaching at its best (Baglama & Demirok, 2016; Ocak, 2015).

Instructional design aims to fulfill the educational needs of specific target audience and the development of a functional learning system. In other words, the main purpose of instructional design is to reveal learning conditions that support effective, efficient and engaging instructional system (Mohammed, Sidek & Murad, 2016; Simsek, 2014; Tugun & Ozdamli, 2015).

2.1. Instructional design features

1. Instructional design student centred.
2. Instructional design target oriented.
3. Instructional design focuses on performance significantly.
4. Instructional design assumes that measurable learning outcomes.
5. Instructional design; gorgul is trending improvement and self-corrective.
6. Instructional design is a team effort (Simsek, 2014).

Instructional design for those with existing knowledge or skill to resolve the lack of treatment is to be used with a certain combination of teaching methods. When applying these combinations to different teaching environments, instructional design principles are required to show the consistency of the quality of the application. The result of an instructional design project, which was designed using the principles of perception and learning, and students' instructional material represents a poster about the water cycle in nature or a course on the buoyancy of water (Cakir & Karatas, 2012).

The field of instructional design is a field systems approach that accepted under the name of conceptual confusion. Within the scope of the system approach of instructional systems design (instructional systems design) and instructional design (instructional design), there is confusion between the terms. The terms in question include two views of literature. According to the first opinion, instructional systems design is the systematic design of materials that is defined as the set of processes executed to improve the focus of the design.

Instructional systems design can be designed according to the scope of the model. The instructional system design model, although they all come as common, is made up of all the stages such as models, analysis, design, development, implementation and evaluation phases. Instructional systems design includes research, learning and teaching theories based on systematic planning and development process (Ceker & Uzunboylu, 2016; Fer, 2015).

In research and instructional systems design, the system design phase consists of the synthesis of the two elements. In instructional systems design, there is a problem in a team to resolve system design on the basis of those needs to corporate needs. A need is determined to develop the best system to resolve a problem (Uzunboylu, Bicen & Vehapi, 2017). Instructional systems design will naturally eliminate the need for purpose and set goals at its own cost. The relief of the needs or problems encountered when developing training programs and adopting an approach will allow the decoding system to eliminate the need identified. Instructional systems design as a field of continuously continues to evolve. This area constantly contributed to the development of two types. The second output of the first teaching focused on the need. The output-oriented instructional

method focuses ultimately on the outcomes expected to be achieved, whereas need-oriented education and elimination of the need to work in are at the forefront of the evaluation.

3. Instructional systems design features

Instructional systems design features include the following concepts:

1. The parts work well alone, in the whole, does not mean it would not be an issue. Therefore, holistic understanding is dominant. Thus, the relationships between the units were observed and unnecessary operations are eliminated.
2. Design theory is given weight in the process of teaching; the effectiveness of the design is at the focal point of the lobby.
3. Design, performance-oriented.
4. What learner should know and do as a result of teaching that initially determined.
5. Targets are systematically identified: the needs of the trainee for the solution of the daily problems to achieve a regulated.
6. At every stage of the design, the best possible strategy, communication method and the process of teaching sequence to be followed are determined.
7. Design and materials are shaped as a result of the experiment.
8. Both product and process-oriented evaluation are done.
9. Essays, editing, comparison and control procedures are applied consistently.
10. Team-oriented work with experts from different fields works together to achieve results.

The guiding factors in the design of instructional systems are as follows:

1. Of the education system where it will be placed on the system, system and system level phases are taken into account.
2. The priority of teaching–learning experiences to be organised stage.
3. Resources, opportunities, regulations and all cases of type systems should be applicable to different social systems.
4. The knowledge base and the three above-mentioned characteristics of open systems to include instructional system design system. Engineering system investigation process should be addressed. A combination of four factors described above helps to organise the education system; as a result, it is reached if it is a large-scale design (Fer, 2015).

4. Instructional systems design between design teaching similarities and differences

Instructional design is handled at the microlevel, whereas at the macro level of the education system-hand, a need is evolving in the direction of and covering a wider area than instructional design. An instructional design course materials and teaching are made for the purpose to perform the best of instructional systems design, while more extensive, and to fix a problem when need arises done by driven. Joining first teaching to address, the needs identified in a systematic manner with the systems approach are designed. The focal point in instructional systems design and the need for its model may eliminate multiple options.

In the process of instructional systems development, instruction analysis and whether the problem is with the target audience characteristics and the nature of the content which is the subject of teaching, the instruction about properties of the environment status which are subjected to review is performed. By evaluating the data obtained as a result of this analysis, the design phase begins. At the design stage of instruction, objectives, goals, necessary to achieve these goals, the content, materials and tests are planned and written the reports on what they should look like, which are made during the design of the development stage, and the realisation of all these plans is the removal of a sample of the instruction first. For the first example, after the expiration of the usability test and the evaluation of the production, the use of instructional systems development is distributed in the

environment covering the whole process. Instructional design is the only design step for the entire system (Cakir & Karatas, 2012; Ozcinar, Ekizoglu & Kanbul, 2016).

The primary advantages of instructional systems development and quality and what needed to be performed in a right way to help in terms of maintaining the consistency of the program in the form of wasted resources can be sorted. Program manager, before the program starts, it needs evidence about the success of the program. The instructional systems development process, from master to student and from the designer to the teacher up the hoped-for success, will be the proof. The relative scarcity of instructional systems development to be quite is a tiring job without the need for time-consuming and more resources (Cakir & Karatas, 2012).

5. The relationship between instructional system design and program development

The instructional program development in four items such as 'training program goals, content, teaching–learning process and assessment of the dynamic relationships between the totality of items' would be appropriate to define (Demirel, 2015). Social and individual needs are taken into consideration while creating the training programs and are primarily used to set the targets. Once goals are determined, these goals are consistent with the targets for the realisation of a whole, so content issues are formed. Then, teaching these subjects for the learning–teaching process, assessment and evaluation was the last step of the planned size (Uzunboylu & Hursen, 2008).

The program development goals consist of content, teaching–learning and evaluation process. The program is the development of the dynamic relationship between these four elements. 'The student decided to observe the behaviour of the target can be treated as desirable. Content, the target-behaviour, is to provide the arrangement of the unit and can be treated as the subject. If the target behaviours are prepared to give to the students, the necessary stimulants can be defined as running a training situation. The measurement results for the test case criteria can be defined as the process of reaching a judgement' (Sonmez, 2008).

We target the desirable behaviour to be achieved. The contents are issues that need to be taught. The target behaviour and the desirable behaviour which can be tested in the assessment process are determined how many have been added. The test cases with levels of education measurement and evaluation teaching–learning process are within the scope of the curriculum development that has a dynamic structure. This process necessitates the development of a dynamic structure. If tasarlansi how well a program is designed must be developed (Seker, 2014). Instructional systems design contains four items of the needs of curriculum development. In accordance with the needs identified in the appropriate instructional systems design and curriculum development process using the model, the program is being developed. Hence, an instructional design model to meet the needs of the training programme should be developed systematically. Thus, the deficiencies will be addressed systematically in the program.

6. Properties and classification of instructional design models

Instructional design models can be grouped under the following headings according to the specifications of the groups. Necessarily, the properties of the core model of instructional design consist of distinct stages. The most important feature of the linear model and allowing the user to bypass the standard system is moving from the stage of understanding to the level of mastering. The basic feature of the linear model context is the inclusion of serial links. The stages progress in a sequential manner as opposed to the flexible model of the problem, and most people should be able to get back to the start when they are born and, after correcting the problem, they have the opinion that a systematic way to design the system is to be continued. Although they born from a need in line with the needs of the interactive model in this model, the goal in the process that is failing is a good way to go if you have a place to repair this condition. The heuristic model of the systematic approach is the idea of the creativity of individuals from mekaniklig atrophy. Many of the designers when

designing this model of the artist field with the air has been going to the process of designing a mechanical designer similar to that of intuitive models. The core of the unified model has been developed and inspired by the interactive model.

7. Contributions to the historical development of instructional systems design, system design pattern and each new

Instructional system design models have different characteristics and they need to be addressed on time and place, although they do not contain a similar basic stage where the economy is modelled to satisfy different needs and changes necessary to choose the instructional system design models. Each design model that is developed from time to time based on the need in every country, every condition and situation has required the creation of a design model because the new model may not be able to satisfy the needs.

Onto the selected instructional system design model eliminated the need for innovation by making the change on the response of each design or model and the previous model, they added to overcome the lack that model has been redesigned. 'For instructional design models, instructional designers know about the scope and nature of instruction and systematic procedures that help in the decision process' (Ocak, 2015, p. 10). The selection and use of instructional design model are changing and are shaped according to the needs of the enterprise. The institution must be used according to the needs of the identified needs that may vary according to system model selection. 'Instructional design (ID) or instructional systems design (ISD) model aimed to design, format and complete the instructional design process of visual and verbal in different educational environments' (Yilmaz, 2008).

The institutions need to generate the solutions to problems and to meet the needs of teaching system. The teaching system should be designed according to the model. 'Instructional systems design was designed with teaching in mind all the elements that together affect the main purpose of the product, the intended characteristics, quality, time and cost to perform' (Fer, 2015). 'In the most general sense, it is defined as the process that decides how to teach and what is the instructional design model' (January, Agca, Topal & Akcayir, 2015, p. 10).

1. The conditions of learning instructional design model (1965)

'Teaching Cases' model was published by Robert Gagne (1965). Although it is a comprehensive model consisting of nine steps and is focused on learning these steps in detail, these nine conditions can be accomplished by fulfilling a quality education.

2. Addie model (1975)

In 1975, the instructional design Addie model (1975) was used by the American army, aiming to get an improved model. This model consists of five phases such as analysis, design, development, implementation and evaluation. When the determination is made in the analysis phase, the analysis of needs and objectives at the design stage, instructional strategies and materials according to those obtained from analysis is planned (Abdulhay, 2016). During the development phase, the faculty of business is developed. The application is also developed, the plan is not implemented and the evaluation is performed. To facilitate the understanding of this model, it consists of five steps. To facilitate the understanding of this model, it consists of five digits. The most important feature of Addie model is the formation of the steps clearly. In general terms, the steps are in a simple and understandable format in which an instructional design is observed to occur in this model. This feature of Addie instructional design model has been a source lead, resulting in new development.

3. The American air force model (1975)

The US Army has a lot of importance in the design. In this model, the instructional designer is intended to educate as a basic human. This model consists of five phases. The first stage of the work required for the performance requirements is determined. In the second stage, what should be done

to bring participants up to the desired level, indicating the growing requirements, are determined. In the third stage, the instructional objectives and test items are written. In the fourth stage, the teaching process and materials are being developed. Implementation and assessment are performed in the fifth stage of the instruction (Yildirim, 2014). The most important feature of this model is a continuous interaction between the stages. A model allows to fix constantly. Change in the system affects the entire system because it carries the feature of an item. Fixing the system is a positive feature.

4. Gagne, Briggs and Wager model of instructional design (1992)

From the developers of this model, Robert M. Gagne life continued from 21 August, 1916, to 28 April, 2002. Robert M. Gagne was born in the United States of America. He did his education in Yale University and he became a psychology graduate in Brown University. James Lyman Briggs (7 May, 1874–25 March, 1963) was born in Battle Creek, Michigan, USA, . He graduated at the University of Michigan and Johns Hopkins University. Lyman James Briggs was an engineer and physicist, and he was the director of Briggs uranium Committee at the National Bureau of standards on America II. During the Great Depression and before the World War II, he served as the Chairman of the Board of Directors. Walter Wager was born on 4 September, 1924, in Bronx, New York, USA, and died on 11 July, 2004, in Manhattan, New York, USA. Walter Wager was the professor at the University of Finland. Gagne, Briggs and Wager (1992), in line with the needs, identified in sixteen episodes of '*Principles of Instructional Design*'.

Walter Wager was a professor at the University of Florida in 1992. The book '*Principles of Instructional Design*' indicates a thrilling time zone during that time. In conjunction with the community to determine the school system, the system is not able to meet the current needs of this set leading to the restructuring movement. More importantly, however, the system to face with problems and new instructions in the education of practitioners to encourage the system to view the effort showed, together with improvements in computer technology, knowledge engineering, expert systems and revitalised efforts in the field of educational technology (Ozcan & Bicen, 2016; Uzunboylu, Hursen, Ozuturk & Demirok, 2015).

Gagne, Briggs and Wager (1992) model laid down by Briggs (1977)'a course in what he wrote regarding the use of goals that are required for the regulation of as is based on the theory. Use what you wrote goals, the goals of the course target the development towards specific goals for each component of the required means. The model, in general, the procedural description, according to Gagne, Briggs opinions about the design of the educational system (1985)'s of different states and teaching learning can be thought of as a combination of the theories related to the types of.

Once the need is determined in accordance with the purpose of the resources, the scope of the course structure is created, the materials and lesson plans are created and the defined performance targets are selected. After evaluating student performance, the teacher prepares, applies and tests the design by making formative assessment summative assessment allowing you to develop the skills. Gagne and Briggs' instructional design accommodates the certain stages of Wager characteristics for each level that is written.

1. Learning outcomes
2. Identification of performance targets
3. Analysis of the learning task
4. The design of the teaching sequence
5. The design of the teaching sequence
6. Selection of the learning environment
7. Course design
8. Evaluation of student performance
9. Evaluation of instruction

5. Dick, Carey and Carey's systematic design model (1978–improve 2001)

This design was created in 1978, for the first time, the model and the 2001 model was also added. After a phase in this instructional design model was complete, there was no limiting in the features of this model. Another feature of the model is to focus on teaching. This is also a limiting factor, eliminating the need. This model consists of all the stages in the following ways:

1. Identifying targets for assessment of need
2. Conduct instructional analysis
3. Learner and context analysis
4. Writing performance objectives
5. Development of assessment tools
6. The development of a teaching strategy
7. Selection and development of instructional materials
8. The design and implementation of the evaluation process
9. Instructional design model Gerlach and Ely (1980)

Gerlach and Ely developed an instructional systems design model at the micro level. This model has been developed for inexperienced individuals. The most powerful and important feature of this model at the micro level, even when it comes to being an individual design, will allow you to do.

6. Instructional design ARCS model (1983)

John Keller's arcs instructional design model was developed in 1983 to draw attention, relationship and trust and include four components including satisfaction. The most important feature of this model is to draw attention that we give too much importance on motivation. The details of the process evaluation could have been addressed a little more.

7. Morrison, Ross and Kemp instructional design model (1985)

This instructional design model developed by Kemp (1994–1985) is effective. This model is an excellent model for instructional design in the development of thinking that is not basic view. For this reason, an enhanced instructional design model moves along a circular flexible property model. This model consists of all the stages in the following ways:

1. Problems of teaching
2. Learner characteristics
3. Task analysis
4. Instructional objectives
5. Ranking content
6. Instructional strategy development
7. The transmission of information design
8. Development of teaching
9. Assessment tools
10. Review
11. Process evaluation
12. Planning, project management and support units
13. Planning application
14. Outcome evaluation
15. Confirmatory rated

8. Assure instructional design model (1993)

Heinrich, Molenda and Russell (1993) put forward the selection and use of instructional technology in the centre of the model which includes an identification of designated tasks. The tasks mentioned, respectively, are as follows:

1. Learners analysis
2. Identification of targets
3. Selection of media and materials to be used
4. Use of selected media and materials
5. Ensuring learner participation
6. Evaluation and revise

Assure instructional design model was developed by Heinrich, Molenda and Russell for classroom environment on the basis of technology developed by the use of instructional design model which has become so prevalent today (Baglama, Yikmis & Demirok, 2017). The most important feature of this model is that it is very important to ensure the participation of the learner. The materials that are used in a way to ensure the active participation of students are vital.

9. Teaching project management and instructional design development model

This model has been developed to design the project in 1994, Gentry San. In a linear model, as the development of relationships between components is done, the disadvantage of this model is to be limited communication.

10. Seels and Glasgow instructional design model (1997)

Barbara Seels and Zita Glasgow instructional design model was presented in a book in 1997 by Prof. Dr. Seel. In this training model in designing the objectives, the information to be given the topic to answer the question of how we can give you the best of developed in line with the needs of this model were published. Zita Glasgow continued his research between 1936 and 2014. Barbara Seel continued their academic studies from 1837 to 1908 life. Seel's and Glasgow instructional design model was developed as two different types. One of these models has been developed for other experts and novices.

The positive aspects of this model are open to change and correction. Adversely, in the process to test the usefulness of the material by weight to give more space to the development of this material, subject-emitting efficiency of the method to be used as material in the course and for achieving the goals is important. Oriented to the question of how we can give you the best of the subject material to be looked at, the method the size of the material to get into as much detail if he is a negative side of this model.

11. Knirk and Gustafsson instructional design model (1986)

In 1986, Knirk and instructional design is a model developed by Gustafsson, which is a problem-oriented model where goals are created. Strategies in the design process during the development phase if it is determined that the materials are manufactured.

12. Hannafin and Peck instructional design model (1987)

Hannafin and Peck instructional design model was developed in 1987. Technology to be used in an improved instructional design model consists of three phases. The most important feature of the model should be constantly open to evaluation and editing.

13. Smith and Ragan instructional design model (1999)

Smith and Ragan instructional design model was developed in 1999. The most distinctive feature of the formation of the three phases repeated to organise a convenient and continuous innovation instructional design model. In general, analysis, strategy and evaluation consist of three phases.

14. Product-oriented model

Product-oriented model was created by Tony Bates inspired by Eddie. An enhanced distance education model has become so prevalent (Ozcan & Genc, 2016). The positive and negative aspects of educational institutions for their use of the products in this model are intended to be determined. In

this way, the product is evaluated and will be used in educational institutions. The most important limitation of this model is limited for the purposes of distance education and communication.

15. Instructional system design model (Prof. Dr. Ahmet MAHIROGLU)

This model is a comprehensive graduate tracking focus instructional design model developed by Dr. Ahmet Mahiroglu of the eight stages model. The most important feature of the stage step-by-step and it is convenient to fix it. In order to eliminate the need identified and make a difference for you have mastered, a systematic approach allows us to fix the error. The stages of the model are as follows:

1. General purpose
2. Determine the training needs
3. Determine the purpose of education
4. Determine the content of education
5. Training plan
6. Training
7. Goals were achieved?
8. Does it give the answer you need?

If the last two digits if it is answered negatively, the goal is not reached or addressed the need to fix by reverting back to step if the first two are made. When determining training needs, paying attention to the lower and upper limits should be determined.

Other studies

Fer (2015) 'published in his book *Instructional Design*' that teaching and learning in the broad sense of this robust model is a theoretical approach, and the review of an important and positive side has been indicated. The design is clear, simple and applicable, and it is important. From the perspective of a large group, application limitations are not mentioned.

Karsak (2014) has carried out an assessment of the Seel's and Glasgow model. The positive aspects of this model encourage individuals to work collaboratively in terms of computer technology in science teaching, motivating and enhancing interaction, although the disadvantage of the model can be specified as forced plans of the students.

8. Results

Instructional systems design process and method has similar characteristics in the course, while the material dimension of the instructional systems design is at a macro level, such as a micro structure, although it is located on the instructional design itself. Instructional design model systems look only one aspect of addressing.

Based on the approach of the system, certain elements are composed of an instruction which contains the items and fix themselves within a progressive process oriented and systematic, and it is observed that the items are linked. The approach carries the mechanical properties of the system when there is a mistake, which is easier to fix and analyse the error.

Systems have similar characteristics although with the development of the program instructional design and instructional systems design to a wider area (Curaoglu & Baskan, 2016; Melikoglu-Eke & Usta, 2016). Instructional systems design model, looking at the specifications of each model in response to the previous model, corrects a deficiency in the model that is observed from the origin. There is a need for the derivation of the new model when the models at different times in different countries, living conditions in areas of use in terms of being able to respond to the situation and needs changing constantly The need to carry the different features of the model has led to the development of the emergence of new models. Models are grouped into simple, clear, easy and quick due to characteristics such as each model is manufactured for a purpose. While it is the goal of everyone to

understand the model, the goal of an ability is to use this model for each individual. Considering the historical process, technology, military, education and aviation, the models are used in education. At first, only models that address different needs in the field of technology in different areas have developed and changed over time.

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