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Instructional Design from a Simplified Perspective (A Study of the Key Components of a Strategy and Their Structure)

Alexandra de Araujo Tilman[1]*, Manuel Belo[2], Hermenegildo[3], Julio Maia da Conceição[4], Celina Maria Godinho[5]
Faculdade de Educação e Humanidades, Universidade Nacional Timor Lorosa'e (UNTL)
Corresponding Author: Alexandra de Araujo Tilman
alexandratilman28@gmail.com

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A B S T R A C T

Instructional design is a systematic planning process aimed at creating engaging, effective, and efficient learning experiences. This process plays a crucial role for educators, instructional designers, and students because it significantly influences the quality of learning activities, both during and after. One key aspect of instructional design is the development of an instructional strategy, which serves as a guideline for directing the teaching and learning process. An instructional strategy encompasses several key components: a series of learning activities, an outline of the content, learning methods, media and tools used, and time allocation. These components are integrated and work synergistically to achieve the established instructional objectives. Furthermore, the development of an instructional strategy is also grounded in psychological theories of learning, such as behaviorism, cognitivism, constructivism, humanism, and cybernetics, each of which offers a different perspective on understanding the learning process. Thus, instructional design serves not only as a blueprint for designing learning activities but also as a bridge connecting psychological theory with actual learning practices. Through the integration of these components and theories, instructional strategies can help create a more focused, relevant, and meaningful learning process for students.

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INTRODUCTION

In the context of learning, instructional design can be defined as a systematic process for solving learning problems through planning learning materials and activities, planning learning resources, and planning success evaluations. In other words, instructional design helps educators and instructional designers create or design learning that aligns with instructional objectives, is effective, and efficient. This process fosters active and interactive communication and learning between educators and students. A key characteristic of instructional design is the assumption that its principles and procedures are based on research findings. This research varies in nature, from traditional controlled experiments and developmental research to qualitative case study analysis. Although alternative design perspectives have begun to emerge, none of them are free from solid theoretical support or guidance.

Gagne, Wager, Golas, and Keller put forward several basic assumptions in instructional design. These basic assumptions include: First, instructional design is intended to help individuals learn beyond simply carrying out the teaching process. This basic assumption emphasizes the importance of instructional design in supporting students in the learning process and outcomes. Second, design is an interactive process involving learners. This assumption explains that instructional design adheres to the learner-centered principle, meaning that learners are actively involved in the instructional design process. Third, instructional design itself is a process comprised of several sub-processes, from the formulation of objectives to the evaluation of instructional programs or products. This assumption reminds everyone involved in instructional design that what constitutes a system is not only the implementation of instructional activities but also the instructional design process that precedes them.

Recently, the term "instruction" has been abandoned and replaced with "learning." Upon closer examination, the terms "teaching" and "learning" do indeed have different meanings. In teaching, Gage argues that the teacher plays a role in facilitating the learning process and outcomes in students. The teacher actively facilitates the learning process. According to Joice and Weil, in teaching, the teacher and learners jointly create an environment, including a set of values and beliefs deemed essential for expressing views on the realities of life. From this definition, it can be concluded that the teacher plays an active role in the learning process. The term "teaching" is less accurate because it implies and positions the teacher as the primary and dominant actor in the teaching and learning process. In this case, students naturally become passive and passive listeners. During each learning process, students are presented with subject matter, while teachers work hard to ensure the material adheres to the applicable curriculum.

The term "teaching" was later replaced by "learning" due to the realization that students must be active in seeking knowledge, skills, and attitudes, without neglecting the role of the teacher in the learning process. Gagne and Briggs stated that "learning is a set of events that affect learners in such a way that learning is facilitated." Learning is a series of events that

influence students or learners in such a way that behavioral changes, called learning outcomes, are facilitated. Learning implies a series of learning activities designed in advance to achieve the desired behavioral changes. These activities are carried out by students with or without teacher facilitation, but through planning.

Similarly, some people misunderstand the term "learning." They consider it synonymous with the English word "instruction," which means commands or instructions. In the context of instructional design, learning is not a command or instruction, but, as Gagne stated above, is a concept. This has led to a rejection of the terms "instructional objectives," "instructional activities," "instructional strategies," "instructional media," "instructional materials," and so on. In the learning process, the primary objective is not only cognitive processes, but also behavioral or affective and psychomotor processes. In shaping behavior, the learning process occurs through the provision of examples or models for students to imitate. The psychomotor skills of students are predominantly body movements.

LITERATURE REVIEW

Learning involves various methods, from the oldest, such as lectures, to the most modern, such as simulations and scientific experiments. It also involves the use of printed media, visuals, or images, audio, and multimedia with computers. Learning activities vary from the simplest and most traditional, such as simply listening and taking written notes, to the most complex, such as practical experiments and scientific research to create new theories or technologies. The results can range from the simplest, such as understanding new concepts, new procedures, and principles, to competencies characterized by concrete, innovative work in the form of new theories, objects, or technologies, and new behavioral attitudes or character traits. In practice, the terms "teaching" and "learning" remain in use, although the term "teaching" should be replaced by "learning." However, the context and meaning of both terms emphasize the active role of students in the learning process, without neglecting the role of the teacher.

METHODOLOGY

Instructional Activity Sequence

The instructional activity sequence consists of an introduction, presentation, and closing components. It seems that every lesson, regardless of its purpose, contains these three activities and it is impossible to reverse the closing, presentation, and opening sequences, or any other sequence. Each subcomponent consists of several steps.

1. Introduction

The introduction is the initial activity of the actual instructional activity. Dick, Carey, and Carey (2009) call it preinstructional activities, and the Open University module uses the term "introduction," or sometimes simply "preliminary." These initial activities are intended to mentally prepare students to learn new knowledge, skills, and attitudes. The function of this

"Introduction" subcomponent is reflected in three steps: a brief explanation of the lesson content, an explanation of the relevance of the new lesson content, and an explanation of the instructional objectives.

2. Presentation

Presentation is a subcomponent often interpreted by laypeople as the actual teaching because it is the core of the learning activity. It encompasses three main concepts: description, examples and non-examples, exercises, formative tests, summaries, and a glossary. All presentation subcomponents can be repeated as needed to present other learning content, but they remain part of a single group of learning content that refers to a single instructional objective and is packaged within a single instructional strategy.

3. Closing

The closing is the final subcomponent in the sequence of instructional activities. It consists of two steps: feedback and follow-up. Feedback is the activity of communicating the results of the formative test so that students can be certain about their learning outcomes. Follow-up is the activity students undertake after completing the formative test and receiving feedback.

4. Content Outline

The content outline is usually called the main topic and subtopic, or topic and subtopic. Each main topic or subtopic indicates the scope of the learning content based on the instructional objective.

5. Instructional Method

The instructional method functions as a way of presenting (describing, providing examples, and providing exercises) the instructional content or material to students to achieve specific objectives. Some examples of instructional methods include lectures, demonstrations, performances, discussions, independent study, programmed instructional activities, peer practice, brainstorming, case studies, and so on.

6. Instructional Media and Tools

Media are used in instructional activities due to their various capabilities, including magnifying very small and invisible objects, presenting objects or events far from students, presenting complex, complicated, or rapidly or slowly occurring events in a more systematic and simplified way, and so on. The media used in instructional activities are diverse. In the modern era, particularly in the last twenty years, digital multimedia has emerged. Multimedia formats are increasingly smaller, such as USB drives, portable like laptops, mobile like PDAs, flexible, real-time, and increasingly include Open Educational Resources (OER).

7. Time

The final component of an instructional strategy is time allocation, which is the determination of the amount of time, in minutes, needed by the teacher and students to complete each step in the sequence of instructional activities. Student time is the sum of the time spent in meetings with the instructor plus the time spent on independent study and completing assignments assigned by the instructor outside of these meetings. These instructional hours determine the semester credit unit (SKS) weight of a course or subject.

8. Developing Instructional Strategies

Instructional strategies must be based on the instructional objectives to be achieved as the primary criterion. Furthermore, these strategies are also based on other considerations, such as obstacles that instructional developers or instructors may encounter, such as time, cost, and facilities. No single strategy is perfect for achieving all objectives. The sequence of instructional activities in a presentation, for example, may not always be UCL (Description, Examples, and Exercises) but may also be CUL (Currently, the Curriculum, and Practice). Meanwhile, the sequence of instructional activities in the Introduction, which consists of DRT (Brief Description, Relevance, and ICT), and the Conclusion, which consists of TUT (Formative Test, Feedback, and Follow-up), likely need not change. Each sequence of activities, such as DRT-UCL-TUT or any other sequence, is always followed by the selection of methods, media, and tools, as well as the timing of achieving the instructional objectives.

In discussions of instructional development models, student characteristics are mentioned several times, which must be considered when designing and developing an instructional program or system. These characteristics encompass factors that clearly influence the student learning process. Some of these factors are fixed and unchangeable, such as student ability, age, and culture. In this regard, educators and learning designers need to consider student characteristics when developing instructional strategies. Other factors, such as motivation, attention, perception, memory, retention, forgetting, and transfer of learning, can be manipulated by educators and learning designers to ensure effective and efficient learning.

RESULT AND DISCUSSION

Instructional Principles

Improving the quality of instruction using instructional technology is not simple, but it is not too complex for teachers or educational program managers to learn, provided they have a strong desire to improve their professionalism. Instructional technology develops consistently through a series of theories and practices. Consistency occurs because theory provides direction for practice, while practice can precede theoretical analysis. Instructional technology is built on principles drawn from psychological theory, particularly learning theory, and research findings in instructional activities. According to Featback, the principles used in instructional development can be grouped into twelve types.

a. New responses are repeated as a result of that response. If the response has a pleasant outcome, students tend to repeat that response because they want to maintain the pleasant outcome. If the outcome of the response is unpleasant, students tend to seek ways to reduce the unpleasant feeling by avoiding the same response or engaging in other behaviors. One implication of this in instructional activities is the need to provide immediate positive feedback or praise for successful or correct responses. In the initial phase, positive feedback should be provided frequently, but in subsequent phases, it can be provided less frequently and at random. In the instructional development process, this principle is

also applied by providing exercises and tests for students to complete, as well as providing immediate feedback on the results.

b. Behavior is not only controlled by the consequences of responses, but also by the influence of conditions or signs present in the student's environment. These conditions or signs can take the form of writing, pictures, verbal communication, teacher role models, or the behavior of fellow students. The implication of this second principle for instructional technology is the need to clearly state instructional objectives to students before the lesson begins to encourage them to learn more actively. Instructional objectives include the knowledge, skills, or behaviors that students will be able to perform after completing the lesson. Another implication is the use of various methods and media to encourage student active participation in the learning process.
c. Behaviors elicited by certain signs will disappear or decrease in frequency if not reinforced with pleasant consequences. Therefore, newly acquired knowledge and skills must be frequently presented and given pleasant consequences so that they are consistently used. The implication is providing lesson content that is useful to students in the real world and providing feedback in the form of rewards and recognition for student success.
d. Learning that takes the form of responses to limited signs will transfer to other, also limited, situations. The implication is providing learning activities that involve signs or conditions similar to real-world conditions, namely students' living environments outside the classroom.
e. Learning to generalize and differentiate is fundamental to learning something complex such as problem solving. Explanations of lesson material need to be clarified with positive and negative examples. To explain even numbers, for example, teachers need to provide examples of even and odd numbers.
f. Students' mental state for facing the lesson will influence their attention and persistence during the learning process. The implication is the importance of capturing students' attention so they can effectively learn the lesson content. For example, beginning the learning process by providing instructions on the procedures to be followed or activities students must perform to achieve the instructional objectives.
g. Learning activities divided into small steps and accompanied by feedback for completing each step will assist most students. This implies the use of programmed textbooks.
h. The need to break down complex learning material into smaller activities can be reduced if the learning material can be presented in a single model. This implies the use of instructional media and methods that can illustrate complex material to students, such as models, realia (real objects), films, television programs, video programs, dramas, and demonstrations.
i. Higher-order skills such as problem-solving are complex behaviors formed from simpler basic skills. This implies that general instructional

objectives must be formulated in the form of operational learning outcomes so that they can be analyzed into more specific objectives.

j. Learning tends to be fast, efficient, and enjoyable when students are informed that they are becoming more proficient in problem-solving skills. They tend to learn more quickly when provided with information about the quality of their performance and how to improve it.

Student development and learning rates vary; some progress quickly, while others progress more slowly. Furthermore, a student's development and learning rate are unstable from day to day and vary from subject to subject. Variations in learning rates are not always predictable. Intelligence test results, cognitive styles, and interests or attitudes toward learning do not significantly impact these variations. However, variations in prior mastery of learning have a more significant impact. This implies that students have the opportunity to progress at their own pace.

The twelfth principle. With preparation, students can develop the ability to organize their own learning activities and generate feedback to help them make appropriate responses. Providing students with the opportunity to choose the time, methods, and resources beyond those established in the instructional system can help them achieve instructional objectives. From these twelve principles, it can be concluded that instructional design is complex but necessary for effective and efficient learning. The implications of each school of psychology and the principles of instructional development can be applied to broad-scale learning, for example within a single study program, or on a narrow scale, namely, learning that only occurs in one meeting with a duration of 90 minutes, at every level of education, every type of education, in face-to-face or distance education. In the last twenty years, instructional technology has developed rapidly by taking on four main characteristics, namely:

a. Implementing a systems approach;
b. Using the widest possible range of learning resources;
c. Aiming to improve the quality of human learning;
d. Orienting toward individual instructional activities.

The focus of instructional technology is not on the psychological process of how students learn, but rather on how software and hardware technology are used to communicate knowledge, skills, or attitudes to students so that students experience the desired behavioral changes. Technology as a system emphasizes the development of learning programs using a systems approach characterized by the formulation of specific objectives as behavioral goals to be achieved. The learning process is directed toward achieving these objectives. Thus, learning success is measured by the extent to which students can master or achieve these specific objectives.

Developing Instructional Strategies

1. Understanding Instructional Strategies

Dick, Carey, and Carey state: "Instructional strategy is generally used to cover various aspects of choosing a delivery system, sequencing and grouping

content clusters, describing learning components that will be included in the instruction, specifying how students will be grouped during instruction, establishing lesson structures, and selecting media for delivering instruction." The term instructional strategy encompasses various aspects of choosing a delivery system, sequencing and grouping learning content, explaining the learning components to be included in the lesson, determining how to group students during the lesson, creating a learning structure, and selecting media for delivering the lesson. According to them, the complete learning components of an instructional strategy consist of preinstructional activities (gain attention and motivate, describe objectives, and describe and promote recall of prerequisite skills), content presentation (content presentation and learning guidance), learner participation (practice feedback), test (entry skills test, pretest, posttest), and follow-through activities (memory aids for retention and transfer considerations). These components show five stages of learning activities, namely the initial stage of learning (preinstructional activities), presentation of content (content presentation), learner participation (learner participation), assessment, and follow-through activities. The five stages consist of activity steps. The initial stage of learning consists of activities to attract attention, explain learning objectives, explain, and remind prerequisite skills. The content presentation stage consists of explaining content and providing learning guidance.

The student participation phase consists of practice and feedback. The assessment phase consists of an initial skills test, a pre-test, and a final test. The final phase is a follow-up activity that involves providing assistance in recalling the material learned and considering the potential application of the learning content and competencies achieved in real life or relevant fields. Gagne, Wager, Colas, and Keller explain the concept of learning strategies in terms of their function as tools or techniques available to educators and learning designers to design and facilitate learning. Rothwell and Kazanas define learning strategies as follows: "An instructional strategy is perhaps best understood as an overall plan governing instructional content (What will be taught?) and process (How will it be taught?)."

These two experts define learning strategies as a comprehensive plan for managing learning content and how the learning process is organized. This learning content and process are commonly known as content or materials and learning processes. It includes a sequence of activities, a list of contents aligned with the sequence of activities, methods, media and tools, and the time used during the learning process. According to M. Atwi Suparman, an instructional strategy is an approach to managing instructional content and processes comprehensively to achieve one or a group of instructional objectives. Instructional strategy is not the same as instructional design. Instructional design is the blueprint for teaching. This blueprint can only be developed after the desired teaching model and format have been determined. In other words, after a decision has been made about the strategy to be used.12 Instructional design serves as an initial guide for educators and instructional designers in determining instructional strategies.

From the existing definitions, it can be concluded that an instructional strategy can be defined as a tool or approach used by educators and instructional designers to create engaging learning, including methods, learning steps, and tools or media to be used during learning. According to them, the complete learning components of an instructional strategy consist of preinstructional activities (gain attention and motivate, describe objectives, and describe and promote recall of prerequisite skills), content presentation (content and learning guidance), learner participation (practice feedback), tests (entry skills test, pretest, posttest), and follow-through activities (memory aids for retention and transfer considerations).

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Main Components of an Instructional Strategy

The determination of the components of an instructional strategy must be based on psychological theories (humanism, behaviorism, cognitivism, constructivism, and cybernetics) and various instructional principles, as previously explained. The main components of an instructional strategy include the sequence of instructional activities, an outline of instructional content, and a delivery system consisting of instructional methods, instructional media and tools, and time allocation.

All of these components are integrated and function together in a learning strategy to achieve instructional objectives. Joyce and Weil use the term "instructional strategy" in conjunction with a learning model. Learning is a form of teaching students, helping them acquire information, skills, values, and ways of thinking, enabling them to explore themselves and enhance their learning capabilities. Therefore, an integrated learning strategy goes beyond simply translating the curriculum into lesson plans, organizing materials, or facilitating learning with various learning methods. It also refers to an integrated learning pattern to develop students' learning abilities or their capacity to continue learning.

CONCLUSIONS AND RECOMMENDATIONS

Developing an instructional strategy is an integral part of the instructional design process. Instructional design serves as a blueprint that guides the steps in designing a learning strategy. The components of an instructional strategy are determined based on psychological theories such as humanism, behaviorism, cognitivism, constructivism, and cybernetics, as well as instructional principles. These components include the sequence of learning activities, an outline of the material, and an implementation system consisting of methods, media, learning tools, and time allocation. All of these elements are interconnected and work together in the form of a learning strategy to achieve instructional objectives. Further understanding emphasizes that an instructional strategy is a bridge connecting psychological learning theory with actual classroom practice. Each school of psychology provides a different foundation; for example, behaviorism emphasizes reinforcement and stimulus-response relationships, while cognitivism focuses on mental processes such as information processing.

Constructivism emphasizes the active role of students in constructing knowledge. Humanism emphasizes individual motivation, needs, and potential. Cybernetics views learning as a system that provides mutual feedback. Components of an instructional strategy as a system: The sequence of activities, instructional content, methods, media, tools, and time allocation are not separate components, but rather interrelated. For example, media selection must be in accordance with the method and objectives, while time allocation determines the depth of material that can be achieved. Functions of an instructional strategy: A strategy serves as a “roadmap” that ensures each component of learning moves toward the instructional goal. Without a clear strategy, learning can become disoriented or inefficient.

Flexibility and adaptation are essential for an instructional strategy, not a rigid one. Teachers or instructional designers need to adapt strategies to student characteristics, the context of the learning environment, and developments in educational technology.

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