The ASSURE Model for Operative Instructional Design

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Cluster 32 Discussion

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Introduction

According to Smith and Ragan (1999), “the term instructional design refers to the systematic and reflective process of translating principles of learning and instruction into plans for instructional materials, activities, information resources and evaluation” (p. 2). Smith and Ragan emphasize the necessity for instructional design models for effective learning, and affirm that instructional design makes use of “a high level of precision, care, and expertise in the systematic development of instruction” since “poor instructional design can result in serious consequences, such as misuse of time and other resources and even in loss of life” (p. 4).

As educators in diverse fields, an effective instructional design is foremost in the application of successful Distance Education. Even though there exist a vast amount of instructional design models, the essence of each responds to the following questions: “Where are we going?, How will we get there?, and How will we know when we’ve arrived?” (Smith and Ragan, 1999, p. 7).

Coxon (2003) explains in his paper presented to Northern Arizona University, instructional designs have been classified as predominantly systematic or constructivist. Systematic instructional design is regarded as a methodology in which concepts are broken down into smaller components based on Gagné’s hierarchy of learning (¶ 3). This design follows a linear model, which lists nine events of instruction, and emphasizes individual knowledge reception following a sequence of performance-based objectives to predetermine the outcomes. A predictable prerequisite of skills must be achieved in order to progress within this system of instruction. Coxon adds, “systematic instructional design passively transmits information to the learners,” whereas “constructivism promotes interactive learning” (¶ 6).

The constructivist model of instructional design emphasizes the construction of knowledge using collaborative, open-ended learning. Here, the learning outcomes are not as predictable since constructivists believe that the individual constructs meaning based on his or her own personal experiences. This supports Vico’s theory that “humans can only clearly understand what they have themselves constructed” (Coxon, 2003, ¶ 5)
Regardless of the instructional design selected for distance education, instructors should formulate a distance education design plan that meets the following provisions listed in Simonson et al. (2003):

- The focus of instruction shifts to visual presentations, engaged learners, and careful timing of presentations of information.
- In revising traditional classroom materials, consider ways to illustrate key concepts, or topics, using tables, figures, and other visual representations.
- Plan activities that encourage interactivity at all the sites. (. . . .) Not only does the instructor have to plan for interaction, but students may require training to participate actively in these types of activities.
- Plan activities that allow for student group work.
- Be prepared in the event that technical problems occur. (. . . .) Discussing with students ahead of time alternative plans in case there is a technological problem will eliminate confusion and loss of productive class time when a problem occurs.

(pp. 146-147)

Simonson et al. (2003) highlight the instructor’s need to “examine issues associated with the separation of instructor and some or all of the students” when planning instruction. “Time constraints for class delivery, lack of eye contact, visualization of the materials, and planning for interaction require consideration of classroom dynamics” (p. 147).

The ASSURE model is one such methodology of instructional design that allows the instructor to carefully plan his/her teaching with instructional media and technology. It is catered specifically for the instructor who is incorporating media and technology within the instructional setting, and is regarded as a useful and effective tool for distance educators.
Theories and Philosophies that Frame the ASSURE Model

The ASSURE model centers on the learner, and incorporates Gagné’s learner hierarchy of instructional events. In this hierarchy, skills obtained are directly dependent upon previously acquired skills. These events “are based on the hypothesized sequence of internal stages of information processing derived from studies in cognitive processes” (Marshall, 1999, p. 36). According to Heinich et al., (2002), “Gagne’s research revealed that well-designed lessons begin with the arousal of student’s interest and then move on to present new material, involve students in practice with feedback, assess their understanding, and go on to follow-up activities” (p. 54). Gagné’s instructional events hierarchy assumes that learning occurs only if it produces a “change in human disposition or capability that persists over a period of time and is not simply ascribable to processes of growth” (Smith and Ragan, 1999, p. 18). Therefore, Gagné’s theory specifies that true learning is achieved when an experience produces a long-term transformation in the knowledge and behavior of an individual.

The basic underlying theory for ASSURE’s model of instructional design is the prescriptive theory of learning. According to Smith and Ragan (1999), “instructional theories are basically prescriptive in nature”, in that “prescriptive theories prescribe actions to take that will lead to certain results.” The prescriptive theory implies “that if instruction includes certain features, it will lead to certain types and amounts of learning” (p. 18). The philosophy behind the prescriptive theory includes (but is not limited to) behaviorism, in that instruction is programmed and a response is expected. But cognitive learning theories also play a role in the ASSURE model of instruction.

According to Smith and Ragan, “cognitive learning theories are the dominant theoretical influence on instructional design practice” and place “much more emphasis on factors within the learner and less emphasis on factors within the environment” (p. 20). The cognitive learning theories “which focus on internal mental processes, have also supported the principle that effective learning demands active manipulation of information by learners” (Heinich et al., 2002,
p. 72). “Learners build up and enrich their mental schemata when their minds are actively engaged in struggling to remember or apply some new concept or principle” (p. 73).

The process of learning occurs through experience but also relies heavily on the type of feedback, or “productive critical evaluative response” demonstrated to the learner (p. 73). This feedback serves the purpose of reinforcing the appropriate behavior (behaviorist learning theory), enriching the learner’s mental schemata (cognitive learning theory), enhancing meaning and knowledge with personal experience (constructive learning theory), and providing corrective information and emotional support (socio-psychological perspective) (p. 73). Therefore, the ASSURE instructional model employs and integrates a rich variety of learning theories within the constructivist philosophy.

The Basic Elements of the ASSURE Instructional Model

ASSURE is the acronym for “Analyze Learners”, “State Objectives”, “Select Methods, Media, and Materials”, “Utilize Media and Materials”, “ Require Learner Participation”, and “Evaluate and Revise” (Heinich et al., 2002, pp. 54-55). As Heinich et al. (2002) explain, the ASSURE model “focuses on planning surrounding the actual classroom use of media and technology,” where the instructor is follows the above-mentioned six steps in order to “assure effective instruction” (p. 55).

Analyze Learners

The first element, “Analyze Learners” gives emphasis to the fact that the model is learner-centered. The instructor is required to analyze and determine the characteristics, competencies and learning styles of the audience participating in the instruction. In doing so, the instructor considers the general characteristics of the learner such as their “age, grade level, job or position, and cultural or socioeconomic factors.” These factors are necessary for determining the most effective methods, media and materials used to reach the audience (p. 56).

The instructor must also perform a learner analysis determination, where the instructor determines the audiences’ “specific entry competencies” such as their knowledge and skills related to the concept. Assumptions are made in respect to the audiences’ competencies through
informal and formal means such as in-class questioning, out-of-class interviews, competency tests and pretests, discussions, and audience skill analysis. This way, the instructor will determine whether the learners possess the necessary prerequisites for acquiring the instruction (p. 57).

In addition, the instructor considers the learning styles of the audience based on each learner’s perceptual preferences and information processing habits. This includes the learner’s strengths and weaknesses in “auditory, visual, tactile, and kinesthetic” areas where instruction would attempt to utilize a greater variety of these areas in order to reach a greater amount of students. Information processing habits determine how individuals learn and find meaning, whether as “concrete sequential learners” who learn through “direct, hands-on experiences”, “concrete random learners” who learn through “trial-and-error approaches”, “abstract sequential learners” who “decode verbal and symbolic messages” through reading and listening, or “human-mediated presentations”, or “abstract random learners” who learn from “group discussion, lectures with question-and-answer periods, videotapes, and television” (pp. 57-58).

Motivational factors must also be taken into account when analyzing the learners. A student that is intrinsically motivated will do a particular task when it satisfies an internal challenge or curiosity. On the other hand, a student who is extrinsically motivated is influenced by external factors such as grades or recognition in order to do the task. Heinich et al. (2002) assert that it is “best to develop student’s intrinsic motivation” since “researchers have found that intrinsic motivators are generally more effective” than extrinsic motivators. Heinich recommends Keller’s ARCS model, which lists essential aspects of motivation:

- **Attention** - whether students perceive the instruction as interesting and worthy of their consideration.
- **Relevance** - whether students perceive the instruction as meeting some personal need or goal.
- **Confidence** - whether students expect to succeed based on their own efforts.
- *Satisfaction* - the intrinsic and extrinsic rewards students receive from instruction. (p. 58)

Physiological factors are those that relate “to gender difference, health, and environmental conditions” and according to Heinich et al., “are the most obvious influences on the effectiveness of learning” (p. 58). Physiological factors can contribute to or detract from the success of learning. An instructor must consider these factors and reflect upon the specific needs and preferences of the students during the stage of audience analysis.

Since the ASSURE instructional model emphasizes individualized learning, close consideration of all these variables in the analysis of the student will help the instructor determine more accurately the most effective objectives for instruction.

*State Objectives*

The second step in the ASSURE model is to state the objectives of instruction. Heinich et al. explain that a well-stated objective would be able to answer the following ABCDs. The objective would name the intended *audience*, the expected *behavior*, the *conditions* for observation, and the *degree*, or criterion used to determine “accuracy or proficiency” in the instruction. These objectives must be explained clearly to the student and should be appropriately detailed based on the learners’ capabilities. Heinich et al. list their “Helpful Hundred” verbs that list concrete terms to use when classifying goals (p. 59-60).

The objective should also be classified within a domain depending on the “primary type of learning outcome at which it is aimed” (p. 62). Domains are categorized in learning as being “cognitive”, “affective”, “motor skill”, and/or “interpersonal” (p. 62). “In the cognitive domain, learning involves an array of intellectual capabilities.” “The affective domain involves feelings and values.” The “motor skill domain (. . .) involves athletic, manual, and other physical skills”, and the “interpersonal domain involves interaction with people” (p. 62). The selection of objectives should consider the types of objectives and domains being sought through the instruction, and should be stated accordingly.
Select Methods, Media, and Materials

The instructor, when preparing the instructional design, must also state the methods of instruction that will be utilized. These methods totally depend on the purpose and objectives sought by the instructor, and may include different activities that adapt to the variety of individual learning styles and preferences of the audience.

The media format used in instruction includes such media as visual materials, audio materials, and computer-assisted technology. The selection of media depends on the individual learning styles of the audience, the instructional setting (group size), learner variables such as visual/auditory preferences, and again, the nature of the learning objective - whether the objective requires cognitive, affective, motor skill, or interpersonal skills. Heinich et al. recommend the instructor “balance simplicity and comprehensiveness in any schema” employed when selecting methods of instruction (p. 63).

Insofar as the materials utilized for instruction, the selection of materials depends on what is available and appropriate for that particular objective. Involving a media/technology specialist (if one exists) is valuable in the acquisition of materials; and libraries are also worthy sources for attaining useful materials. Selective guides, evaluative guides, the Internet, and additional sources aid in surveying appropriate sources when choosing instructional materials. Any material selected should “match the curriculum”, be “accurate and current”, “contain clear and concise language”, motivate and maintain interest”, “provide for learner participation”, possess “technical quality”, appear effective or have previous “evidence of effectiveness”, be “free from objectionable bias and advertising”, and, if a guide or other documentation is available, be included with the material for the instructor (p. 65). All materials utilized must follow the proper copyright requirements, and acknowledge the author’s rights.

Materials may also need to be designed to fit the instructional purpose, or modified in order to be appropriate and efficient. When designing new material, the instructor’s objectives, the audience’s characteristics, the limitations of cost, the amount of technical expertise required to design the material, the equipment and facilities available to the instructor, and the time
constraints all take part in producing significant and effective instructional materials.

**Utilize Media and Materials**

Heinich et al. recommend following the “5 Ps”, or procedures when utilizing instructional media and materials:

- Preview the materials
- Prepare the materials
- Prepare the environment
- Prepare the learners
- Provide the Learning Experience (pp. 68-69).

Possessing concise knowledge of the materials to be used, with an appropriate and ordered sequence for display; conducting a visual pre-presentation survey of the facilities to be used; and presenting an appropriate introduction and discussion to orient and cue the learners during the presentation of the material will contribute to, and assure that the learner acquires the material to the full extent of the instructor’s objectives.

**Require Learner Participation**

Learners learn through active participation in learning. Heinich et al. affirm, “Constant reinforcement of desired behaviors is more effective than instruction in which responses are not reinforced.” Cognitive theories of learning also support “the principle that effective learning demands active manipulation of information by learners” (p. 72). All this mental processing of information builds the learner’s experience, which in turn, aids in the successful acquisition of knowledge. Included in this processing of information and learner participation is the importance of feedback and interpersonal communication. According to Heinich, “the most powerful is interpersonal feedback because face-to-face reactions are more vivid than printed or graphic information” and “are more personalized” (p. 73). This feedback may originate “from the teacher, or students”, “through a self-check activity” or a “computer or mentor”. What is particularly important for students is “immediate confirmation of a correct response” (p. 73). These types of feedback, along with practice activities immediately following a presentation
assure more positive attitudes, and active learner participation in the instructional process (p. 74).

Evaluating and Revising

Finally, the instructor must constantly assess in the process of instruction whether or not the objectives stated are being accomplished. This is carried out during the entire instructional cycle of learning, and may be altered and adjusted at any time thereof. Proper assessment most probably will lead to revision in order to achieve quality instruction. Assessment of learner achievement, and evaluating methods and media are two purposes for evaluation and revision.

Assessing learner achievement relies on the instructor satisfying the stated objectives; and the learner fulfilling the expected behaviors. Any authentic assessment procedure must correspond to the instructor’s objectives. The instructor’s assessment should require “real-world” results where the transfer of knowledge can be applied in the “real world” and incorporates the following attributes:

- Requires that more than one correct approach is realistic
- Provokes thought and not just recall of memorized facts
- Requires decision making
- Develops thinking in multiple ways
- Leads to other problems being solved
- Raises additional questions (Heinich, 2002, p. 76)

These factors tend to reinforce a more authentic approach to assessment although a change in attitudes is more difficult to assess. Obviously, observation is important, but if this is not possible, a “product rating checklist can guide in making qualitative judgments regarding the effectiveness of learning” (p. 78). In addition, Heinich et al. recommend an “authentic assessment task” to determine if the students have gained “knowledge and skills in a realistic situation”. These include:

- Student projects, writing assignments and the like
- Performances such as speeches or demonstrations
- Oral questioning response to teachers and students
• Discussions of controversial topics and current events
• Portfolios with examples of student work, summaries and reflections (p. 76).

Instructor evaluation of the objectives, methods and media is ongoing during the entire instructional construction and process. Any inconsistencies or incongruities would require immediate revision and adjustment. When revising, the instructor would determine revisions based on the assessment of the results of the data gathered, and implement them in order to correct and adjust evident discrepancies.

Benefits, Limitations, and Application of the ASSURE Model in the Author’s Environment

The ASSURE model of instructional design is a thorough and well-constructed model of instructional design. The fact that it requires so many comprehensive and inter-dependent steps in order to carry it out successfully guarantees that the instructor has sufficiently examined the audience, clearly stated the required objectives, and consistently assessed the results. Following the ASSURE model supports and reinforces effective learning management, and assures the acquisition of learning skills and knowledge.

However, the reality of teaching is that instructors do not have the time to prepare intricate and complex plans, enrollment in classes is usually beyond the “accepted” level of comfort, and media specialists and/or technologies coordinators are few and far between, or in the case of the author, simply do not exist. Additionally, materials are virtually non-existent or outdated, and new materials fitting the instructor’s needs would need to be created, prepared, and produced. Time and instructor skill limitations might possibly frustrate, or even terminate this useful process.

The realities of the actual and existent classroom environment (whether physical or virtual) dictate the effectiveness of any instructional model. The more time it takes, the less likely the instructor will be able to fully commit to it. Although the ASSURE model has productive and positive potential, its comprehensiveness and complexity could limit and confine its accomplishment.
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