

Instructional Design and Models: ASSURE and Kemp

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Instructional Design (ID) is a procedure for developing an educational or training programme, curricula, or courses sequentially and authentically (Branch & Merrill, 2011). This procedure enables instructors to create instructions, which involves the “systematic planning of instruction” (Smith & Ragan, 2005, p. 8), ranging from instructional analysis to evaluation (Mager, 1984). Thus, ID can be referred to as a “systematic and reflective process of translating principles of learning and instruction into plans for instructional materials, activities, information resources, and evaluation” (Smith & Ragan, 2005, p. 4). As such, taken as a framework, ID provides the process to create instructions based on the necessity of a teaching and learning environment. Thus, ID can be defined as a process to develop directions and specifications using learning and instructional theory to ensure the quality of instruction.

ID is also perceived as both a science and an art of creating instructions from the planning to the evaluation stages (Carr-Chellman & Reigeluth, 2009). Science and the art are both core concepts of ID and are useful in creating and implementing instruction, a complicated process involving human ingenuity, software and hardware components (Piskurich, 2006). Essentially, ID is all about a set of rules constituting a chronological process. For instance, development of a training program involves a series of methods such as analysing, designing, developing, implementing and evaluating to create quality learning experiences and environments. In summary, the primary goal of the ID process is to generate the instruction to achieve the objectives of the program and training.

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There are many ways to design instructions depending on the needs and nature of the program and training. For example, ID for teaching in a K-12 classroom will most likely be different from the type intended for delivering instruction online and so on (job-training, army training, etc.). According to Smith and Ragan (2005), “models may be defined as visualised depictions of an instructional design process, emphasising main elements and their relationships” (p. 10), which provide guidelines for organising and structuring the process of creating instructional activities. Gustafson and Branch (2002) categorised ID models into three groups such as classroom-oriented, product-oriented, and system-oriented.

Classroom-oriented ID models are a roadmap or guideline to improve the teaching and learning experiences in the classroom and are considered as potential models for designing technology-enhanced learning instructions (Lim & Chai, 2008). Models, such as *ASSURE*, and *Kemp* fall under this category. Accordingly, product-oriented ID models aim to develop an instructional product used in the context of self-learning environments or e-learning (Gustafson & Branch, 2002; Johnson, 2009). Tony Bate’s *actions model* is an example of a product-oriented ID model. Finally, a system-oriented ID has been regarded as a high-level model for the development of a course or curriculum. Different from the classroom and product-oriented ID models, a system-oriented ID model focuses on the goal of the organisation before the development of instruction. The Instructional Project Development and Management model belongs to this category where every component needs to be broken down into different forms for carrying out a needs analysis.

Previously, ID models had been continuously used in the corporate world, especially to design staff training programs in the military. Over time, the implementation of ID models shifted to educational settings and began to be considered as a useful methodology for classroom instruction (Moore & Knowlton, 2006). Based on the scale or size of the program, ID models can be divided into two groups and classified into macro and micro. Macro ID models are concerned with the designing of an entire programme (Surry & Farquhar, 1997). ADDIE, ASSURE, Dick and Carey, Hannafin and Peck, Gilly Salmon are a few examples of macro models. Similarly, ID models used to design a single lecture or teaching session are known as micro ID models. Gagne’s nine events of instruction and Elaboration theory are two examples.

As discussed above, there are various types of ID models to design and develop an instruction based on the nature and scale of the program. However, the necessary steps in most of the ID models contain five key phases: *Analyse, Design, Develop, Implement, and Evaluate*, which are also known as the ADDIE model (Piskurich, 2006). ADDIE is a systematic ID model that follows the generic process to create instruction. Cost-effectiveness, time usage, active learning, and classroom-orientedness are some of the merits of the ADDIE model.

Among the five phases of ADDIE, *Analyse* is the initial phase that deals with the learning environment, including information about learners and educational institutions. The second phase is *Design*, which is concerned with the learning objectives, lesson plans, and assessment of instruments. It needs to be systematic and specific to achieve the learning goals. Thirdly, in the *Develop* phase, the required materials and contents are created based on the *Design* phase. The fourth phase is *Implement* where created materials are utilised during classroom instruction. Finally, *Evaluate* consists of tests for obtaining feedback and reviewing developed lesson plans and materials. ADDIE was originally considered to be a linear ID model, but each phase was found to be highly interrelated and was cyclic in nature. Among numerous ID models, ASSURE and Kemp are widely used to create effective teaching and learning material that explains the process used to design and develop instruction.

ASSURE model: ASSURE is a procedural, cyclic, and classroom-oriented ID system model to design and develop technology-integrated instructions. It was developed by Heinich, Molenda, Russel, and Smaldino in 1996. It is an acronym that stands for the six steps in the model. Figure 1 represents the ASSURE model consisting of the six steps discussed below.

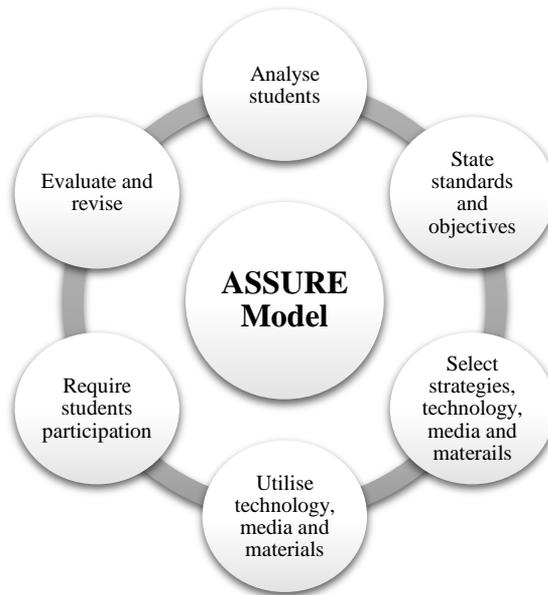


Figure 1. ASSURE model (Heinich et al., 1996, p. 248).

The initial letter *A* stands for *Analyse learners*; instructors need to know their learners and that data should not only be limited to personal information and demographics but should also include learners' general characteristics, specific entry competencies, and learning styles. Instructors were required to be aware of the knowledge and skills possessed by their learners before classroom instruction.

Second, *S* stands for *State standards and objectives* to know the expected learning outcomes that instructors should understand before delivering the instruction. Based on the field and the nature of the subject, planned learning experiences are different. Thus, it is an instructor's responsibility to have clear standards and objectives, to decide content and methods, to provide guidance, and to achieve an expected outcome. A good set of learning objectives could be offered based on an approach, which is termed as ABCD (Mager, 1975). Each letter in the acronym ABCD stands for *Audience* (to whom the goal is intended), *Behaviour* (to what extent learners will learn after instruction), *Condition* (to what conditions under which the behaviour could be observed), and *Degree* (to what extent learners will gain competencies/ or knowledge and skills).

Third, *S* stands for *Select strategies, technology, media, and materials*. It refers to various instructional strategies consisting of learner-centred, instructor-centred,

collaborative, and many more. Further, this also applies to the selection of multiple technologies and media based on the objectives relevant to the course content. For instance, technological resources such as an *Interactive White Board* could be a useful tool for a collaborative learning environment during classroom instruction.

Fourth, *U* stands for *Utilize technology, media, and materials*, which concerns to the utilisation of selected technological resources to create technology-integrated instructions for achieving an objective and learning outcomes. To create such instructions, Smaldino, Lowther, and Russell (2008) offered 5Ps consisting of: (i) preview the materials – plan in advance to know how to utilise all the materials including rehearsal to make sure that classroom instruction could be delivered smoothly and seamlessly, (ii) prepare the materials – gather all the required materials for classroom instruction (collect all the information such as texts, graphics, videos etc.), (iii) prepare the learning environments – allocate the required space including enough desks and so on, (iv) prepare the learners – provide the detailed information about the syllabus that includes: learning objectives, required assessments, grading policies, and so on, and (v) provide the learning experience – putting all the plans into action during classroom instruction.

Fifth, *R* stands for *Require learner participation*, which relates to the engagement of learners in the classroom and which requires instructors to utilise materials during classroom instruction. Various learning approaches, such as *learning by doing* and *vicarious learning experiences*, are some of the approaches for enhancing learners' active participation in classroom instruction. Further, various pedagogical strategies could be practised by instructors to provide opportunities for learners' participation.

Finally, *E* stands for *Evaluate and revise*, which includes an evaluation of the learners' achievement and lesson plans (objectives, strategies, technology, media, materials, and so on) and for further improvement. As discussed above, the six phases of the ASSURE model demonstrate how to select, implement, and evaluate the technology and instructional resources for carrying out technology integration during classroom instruction to achieve the learning objectives.

Kemp's model: Kemp's model is also termed as the Morrison, Rose, and Kemp model, which represents innovation to the instructional design by its non-linear structure and the interrelated nature of its components (Morrison, Ross, Kemp, &

Kalman, 2010). Figure 2 represents the graphical diagram of Kemp's model, which has nine phases in the form of an oval that reflects the designing process as cyclic. Based on Morrison et al. (2010), those nine phases stand for: (i) instructional problems – to specify the goals and to identify the potential issue, (ii) learners' characteristics – to examine the learners' characteristics based on the instructional decisions (iii) task analysis – to clarify the course content and analyse whether it is related to goals and purposes, (iv) instructional objectives – to specify the objectives of instructions, (v) content sequences – to arrange units of instructions in logical and sequential order for learning, (vi) instructional strategies – to master the objectives of a lesson; (vii) designing a message – to plan and develop instruction, (viii) development of instruction – to select instruction and learning activities, and (ix) evaluation instruments – to measure the objectives of the course.

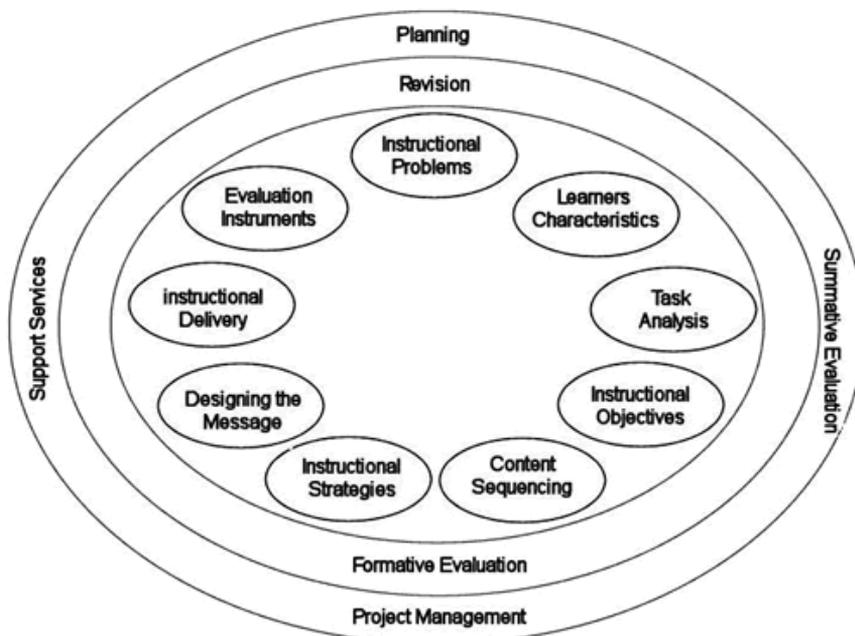


Figure 2. Morrison, Ross and Kemp's model (Summerville & Reid-Griffin, 2008, p. 47).

In contrast with an ASSURE model, all nine phases of Kemp's model are not interrelated with each other, which allows instructors to begin from any phase. Since instructors could initialise from any phase, flexibility has been considered as an essential characteristic of the model. This model consists of a few significant aspects

because none of the nine phases was inter-dependent, and the entire phases could be performed simultaneously. Summerville and Reid-Griffin (2008) revealed that instructors' pedagogical strategies could be comfortably accommodated in the model, although it might not help in the transfer of knowledge. Thus, it is difficult to integrate technology in planning the instructional tasks.

Since Kemp's model is macro, it focuses on the development of a curriculum rather than on a single instructional instruction. During an implementation process of the model, instructors could begin with six questions that relate to the skills and knowledge to be learned. Such questions are: (i) required level of learners' readiness, (ii) instructional strategies, (iii) suitable media for the contents and learners, (iv) level of learners' support, (v) measurement of achievement, and (vi) strategies to conduct formative and summative evaluations (Morrison et al., 2010). This model does have a significant effect on the development of a whole course compared with a single lesson. During this process, it is impossible to overcome the obstacles related to the administrative support which is an integral part of the design and development process, which might be considered as a drawback of Kemp's model.

As discussed above, there are various ID models, which have been applying in teaching and learning scenario as per necessity and course contents. Thus, therein numerous researches have been carried out to develop and validate relevant ID model as per the context and requirements.

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