The ASSURE Model for Selecting Instructional Media

Constructed by Robert Heinich and Michael Molenda of Indiana University and James D. Russell of Perdue University, ASSURE is an acronym for the description of a set of tasks central to the informed selection and use of educational technology. The tasks are:
Analyze Learners
State Objectives
Select Media and Materials
Utilize Media and Materials
Require Learner Participation
Evaluate and Revise

Analyze Learners
This first step is based on the recognition that some factors such as learning styles, prerequisite knowledge or skills, emotional, cultural or economic issues may interfere with how well students might learn. Will anything you're able to control prevent your students from being engaged in their own learning? More specifically:
* *What are all the prerequisites?*
* *Which students are encountering this content for the first time?*
* *Do you know which students may have learning disabilities?*
* *Is your content designed to challenge firmly held beliefs?*
* *Have you included a rich array of instructional methods, including media; what are they; when do you plan to use them; WHY?*

Stating learning outcomes
Do people perform consistently well when there is no standard set for which to strive? Do your students know what you expect from them? What is the goal for your learners to achieve? What new skill, knowledge or attitude should the learner have at the completion of the instruction? Outcomes can help you answer these and similar questions. An outcome is a measurable or observable result of instruction. It is a statement, not of what you are going to put in your lesson, but of what you expect the learner to get out of it. How can learning outcomes help you to determine what instructional techniques or methods to use? Some questions can help you focus on what is really important and can help set clear standards for your students to aspire to.
* *Is the usual learning environment suitable for the learning to take place? Could it be changed or modified to optimize learning possibilities?*
* *What is the most appropriate media to use or produce for your intended purpose. If, for instance, your students were learning subject material that had a motor skill component, you may elect to present the skill through the use of video. It is unlikely you would use an overhead transparency for such a task.*
* *How will you measure student performance? What are the acceptable standards? A clear learning outcome is your yardstick.*

Selecting or producing appropriate media
There are many different formulas for choosing the right technology--or more realistically--the right mix of technologies. One that has been used before is based on the work of Robert Gagne and Robert Reiser. Many of these methods are in fact flowcharts or checklists. While they can be a big help if used in a considered fashion they unfortunately lend themselves to a rather superficial approach to media selection. The key here is knowing what you want your students to get out of the instruction you're

preparing. Then you can match this information with media that have the characteristics or attributes required to present the knowledge, skills or attitudes you require from your students. It is worth noting here that there are seven primary media attributes, identified by Levy and Dickie. They are:

attribute of pictorial representation
Do you need pictures? Can the content be explained sufficiently by text alone? (Rarely is information not improved by incorporating pertinent graphic material. Remember, any relationship can be graphed, allowing the relationship to be seen more easily and quickly.)

attribute of size
Usually, pictorial representation is more easily seen and understood when there is a minimum of ambiguity. In other words, bigger is usually better. Size is both absolute and proportional. *Absolute* size is the image seen on a projection screen or a text book. The image as a whole has a certain and measurable height and width. When certain parts or elements of a picture are either larger or smaller in relation to the picture as a whole and to the other parts of the picture then the size of the parts is said to be *proportional*. In proportional size, that which is larger is perceived to be closer to the viewer, more important than smaller elements or both.

attribute of colour
Is colour required to make meaning clear? Is it required to ensure that a given procedure be followed? Do you think colour is necessary for emotional appeal? Are you using colour to create a feeling of unity or continuity within a presentation?

attribute of movement
Learning procedures and motor skills requires the attribute of movement. Understanding processes such as capillary action in plants, patterns created by collisions between sub-atomic particles, the action of light waves traveling through gases of differing densities, and the coursing of blood through arteries and veins, are all enhanced through the use of the attribute of movement.

attribute of language
How critical is the ability to read at a given level of comprehension? Is a basic vocabulary a prerequisite to the understanding of new material? Can the content be learned entirely by someone with an adequate grasp of language, or is another medium required as well?

attribute of sound/picture relationship
The underlying theme or the harmonic structure of Bach's *The Art of Fugue* can be shown and demonstrated most effectively through the relationship of picture and sound. The *picture* shows the structure: the individual notes, the key, the pauses, a particular refrain. The *sound* demonstrates how it works, it explains in certain terms why the composer made the choices that leave the listener mesmerized by the beautiful logic of this music.

attribute of arrangement
How will the arrangement of information of any kind, including visuals, affect learning? Usually, complex material follows simpler and particular follows general. This is the linear or sequential pattern. But can information be webbed in a non-sequential manner

to show relationship instead of cause and effect? Are learners able to compare and contrast simultaneously presented relationships and decide for themselves when and where they encounter new material?

These attributes are not owned by any particular technology. Different attributes are common to different technologies. (Joining computers into networks is a technology which can potentially combine the most attributes in any location at any time thus overcoming restrictions of time and space.) Understanding the attributes or characteristics of certain media or technologies is important for deciding which are most likely to enhance learning. Whether selecting material already produced or planning on producing your own learning materials, it is vitally important to match the requirements of your learning outcomes with the characteristics or attributes of any given technology. One way to proceed is to consider what you already know about the media available and then begin asking yourself a series of questions that eliminate what isn't feasible or possible. We have chosen some questions at random that might help you in your decision-making process.

- *What are the most important tasks or requirements? What are my learning outcomes?*
- *Based on the learning outcomes, what are the most applicable media attributes?*
- *Are there any learning materials already available that I might be able to use?*
- *Should I consider using more than one technology or medium? Will they augment one another or detract from one another?*
- *Can student location, work schedule or other factors of access be addressed by the use of available technology?*
- *Where will I be teaching the material? What are the environmental factors?*
- *Do I have the skills needed to produce effective media? Do I have the resources to learn?*
- *Can the medium be produced by the time it is needed?*
- *Can the production, maintenance and operation costs be afforded?*
- *Does the medium fit the policies/programs at the college?*
- *Is the medium a practical choice given its environment?*
- *Is the technology I want to use readily available? Is it easy to use?*
- *What is the main benefit to me of using the technology? What are the benefits for students?*

Utilize media and materials.
Once you have chosen your media or technology or have produced your learning materials, the important next step is preparation. One of the best things you can do is preview unfamiliar media or materials (videos, CD-ROMs, computer applications and the like). If you have the time, you should definitely practice integrating the technology or media into your instruction. If you do a lot of presenting you may decide to video tape your practice in order to detect any glaring omissions, mistakes or distractions. Next, prepare your learning environment. Make sure you have all the equipment, peripherals, aids for the disabled, support material, cables, and spare bulbs that you might need if something should go wrong, because sooner or later, something will go wrong. Get to your learning environment in plenty of time so that you can organize yourself and your material, set up your equipment and test it . *This is very important*! Next, you will need to prepare your students for the learning you expect from them. Use outlines, study questions, even a video tape or PowerPoint presentation to "set the stage".

Require learner participation
In the ASSURE model, if it could be said that one step was more important than another, then this might be it. All too often, media is used in a passive way. This results partly from one characteristic common to most media: they are channels for the delivery of some kind of (stored) information. Note that delivery implies travel in a single direction. Overhead transparencies, audio, even video are all essentially one way media. They do not depend on or encourage learner participation. This is certainly true for the home television set. It is a passive medium, with information traveling in one direction only. The viewer is rarely engaged, yet we know that people learn best when they're actively involved in the information being presented. (Being *actively* involved is not quite the same as being *physically* involved; your involvement might be strictly cognitive or emotional.) How many studies have shown that for significant learning to take place the learner must be engaged in the information and the learning environment? How often do we reminisce about one of our old teachers, perhaps from high school, and think to ourselves that the only reason we passed Math/Physics/English that year was because some teacher made it interesting and relevant? But now we're in the era of computers and everything must be "interactive". But what exactly does interactive mean? Does it mean simply pushing buttons? If all you're doing is pushing buttons--even virtual buttons--then are you being truly engaged. Perhaps your participation in the event is minimal. If technology isn't being used to help develop critical thinking skills, present new patterns of information for discovery, or evoke new or forgotten feelings, then while it may be interactive it is certainly not participatory. A wonderful example of this is given by Seymour Papert, Professor of Learning Research at the Massachusetts Institute of Technology (Multimedia Today, Volume 3, Issue 4, 1995). Papert describes a child playing with Lego blocks as constructing knowledge by fantasizing and building; by imagining something and then attempting to create it. The child playing with blocks is "engaged"; is participating in his or her own knowledge building. Tools such as pencils and paint brushes act in the same manner. They encourage participation, engagement, construction.

Evaluation and revision
This overlooked step is a necessity when using learning technologies of all kinds. If learning isn't taking place as expected, is it enough to ask "What's wrong with this media?" Would it be more profitable to ask *"Why hasn't my use of this technology produced the results I was expecting?"*
The following is a simple outline of nine steps for the evaluation of your use of technology. It begins with a consideration of your teaching goals, objectives or outcomes and proceeds to the revision stage.
1. Devise an assessment method
      a.) refer to your goals and outcomes.
      b.) design an assessment method
2. Pre-test your students
3. Evaluate performance/grade test
4. Prepare students for mediated instruction
      a.) create advance organizers
      b.) write study questions or other cues
5. Present material
6. Require student performance
7. Evaluate performance/grade post test
8. Compare results with pre-test

9. Revise as required

Summary

Choosing and using educational technology or media is a deliberate process, dependent for its success on having clear goals, and a rational and thoughtful method for matching characteristics with expected outcomes. We hope that the information contained here will not only help you to use media or technology more effectively but also to add to the general awareness and discussions about the importance of technology in education.

Selected Bibliography

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