

# The Domain of Development

---

The domain of development includes the actual creation or authoring of the materials or product. Development of a product requires incorporating a variety of technology tools. In addition, as Seels and Ritchey (1994) explain *“development is the process of translating the design specifications into physical form* (Seels & Ritchey, 1994, p. 35). Thus it is heavily driven by design and its underlying theories. Although development often follows the design phase it works in conjunction with the other domains of evaluation and implementation. Seels & Ritchey (1994) describe the domain of development by:

- *The message which is content driven*
- *The instructional strategy which is theory driven; and*
- *The physical manifestation of the technology – the hardware, software and instructional materials (p. 36)*

During the development phase, the instructional designer begins the process of creating materials that are to be used for training or another type of activity. Development is based on the design phase; therefore, the instructional designer takes the instructional strategies developed during the design phase and begins creating the material. In order to select the appropriate delivery system, the instructional designer must look at criteria such as learner characteristics, task characteristics, grouping, and practicality. A variety of models such as the Seels and Glasgow Model for Selecting Media and Delivery Systems can be used to assist with the decision making process.

The Seels and Glasgow model begins by identifying the learner characteristics. These may be psychological, physical, or sociological. Next, the instructional designer identifies the channel requirements. The channel is the mode needed for presentation, practice, and feedback. The mode may be visual, auditory, tactile, or kinesthetic. The learning situation is identified next based on whether the instruction will be one-on-one, small group, or large group. Next, the constraints and resources are then identified. This allows the instructional designer to determine the options for production, storage, and delivery. Finally, the delivery system is selected. Once the delivery system has been selected, instruction is produced and revised (Seels & Glasgow, 1990).

The development domain is organized into four categories: print technologies, audiovisual technologies, computer-based technologies, and integrated technologies.

## Print Technologies

Print technologies present material in hard copy form. The presentation of the materials can manifest as manuals, textbooks, handouts, or graphics. Text on a computer screen would not be considered print, but rather, computer – based instruction, unless the text is printed onto paper (Seels & Ritchey, 1994). There is an increased attention to designing print with visual complexity using organization methods, highlighting, or color for cueing.

Print technologies are a one – way communication method that relies heavily on the principles of linguistics and visual perception. They are learner – centered and can be reorganized to fit the learner’s needs.

As an instructional designer, decisions need to be made about the print materials. Since print materials are easily duplicated and distributed, they do not require equipment for use. Decisions regarding use of print materials are based on the analysis of the learners and environment (Seels & Glasgow, 1990). If the learners are low readers, the instructional designer would seek other methods to provided instruction.

## Audiovisual Technologies

Audiovisual materials can be defined *as the production and utilization of materials that involve learning through sight and hearing and that do not depend exclusively on the comprehension of words or other similar symbols* (Seels & Richey, 1994, p. 38). Examples of audiovisual materials are film, video, television, and slides.

Audiovisual technologies tend to be linear in nature with dynamic visuals. The use of audiovisual materials is usually pre-determined by the designer/developer and is developed according to the principles of both behavior and cognitive psychology. Audiovisuals are teacher-centered with a low degree of learner interactivity. (Seels & Richey, 1994).

Decisions to utilize audiovisual technologies would be made when the instructional designer wants to pre-determine the manner in which the instruction is presented, or in accordance with the ease of use and comprehension. When this type of instruction is used as self – instructional learning, a manuscript should be provided (Seels & Glasgow, 1990).

## Computer Based Technologies

Computer based technologies use a microprocessor to store and deliver information. This is distinguished from print because text is delivered by way of a computer screen rather than in hard copy. The most common type of computer based technology is Computer Based Instruction (CBI).

One form of computer based technologies is Web based training. Web based training has similar characteristics of CBI but it differs in that it can provide instantaneous feedback to students and instructors, has the ability to use live chats, and allows students to submit more qualitative work such as essays and written assignments, and it provides information in a more timely manner than a CBI (Seels & Glasgow, 1990).

Computer based technologies are usually presented in an abstract fashion with words, symbols, and graphics. The principles of cognitive science are applied during development. Learning is more student-centered and incorporates high learner interactivity.

## Integrated Technologies

Integrated technologies incorporate several forms of media under the control of a computer. Integrated technologies fall under two main types of delivery systems: telecommunications and multi-media learning. Telecommunications is used for conferencing and can be in the form of audio, video, or computer conferencing. Teleconferencing utilizes a computer to enable reception and interactivity. When using this type of technology over a large geographical area, an instructional designer must take into consideration the time zones of the people meeting.

Multi-media learning integrates multiple forms of media under the control of a computer. Examples of multi-media learning are compact discs, DVD's, and Learning Management Systems. Not only can multi-media be used as the developer intends but also as the learner desires. Ideas are often presented realistically in the context of the learner's experiences. The materials demonstrate a high degree of learner interactivity and synthesize words and imagery from many media sources.

Other integrated technologies include web 2.0 which refers to the utilization of the Internet as a platform for services and applications. Some of these applications include Second Life, Google Docs, and communication tools, such as Skype.

Second Life is an Internet based 3-dimensional virtual world where members or residents can interact with each other through avatars. Avatars are 3 dimensional models users create to represent themselves. Residents can explore, socialize, and participate in group activities. Education and business/industry are considering the possible uses of Second Life to hold virtual meetings or simulations.

Google Docs is an application that includes a word processor, spreadsheet, presentation, and survey generator. Users are able to create and share documents. The collaborators are able to view the documents and edit in real time. The documents can then be exported to the user's computer in multiple formats.

Communication software programs have grown exponentially on the Internet. One such tool is Skype, which allows users to make calls via the Internet. This program also has instant messaging, file transfer, and video conferencing features. Users are able to chat and collaborate with multiple users at the same time. The video conferencing feature will support up to 4 user videos. While collaborating using the instant messaging or video-conferencing feature, users are able to send files to other users. These tools combine to facilitate communication between users in integrated online environments.