

Enhanced Instructional Presentation Model

Leslee Francis Pelton

University of Victoria, Canada

Timothy W. Pelton

University of Victoria, Canada

INTRODUCTION

Linear presentations, such as lectures, expositions, demonstrations and activity sequences, are efficient from the perspective of the instructor and the institution. Linear presentations aim to maximize the overall learning efficiency for a target audience by identifying the initial understandings and needs of the average learner and then building a fixed presentation to meet those needs. These presentations, which may be delivered via educational TV programming, video, CD-ROM and online services, are often well polished and moderately effective for large portions of their target audiences.

Unfortunately, for some learners, this industrial model does not work well, and for many learners it is not entirely efficient. Because the intended audience is an amalgamation of learners, any given presentation will include varying amounts of content redundancy or delay in progress for some learners and insufficient content or time to acquire for other learners.

When viewing film or video, learners tend to become passive or adopt a “learned helplessness” (Flanagan, 1996). We expect that this helplessness or passivity occurs because learners have experienced the futility associated with trying to synchronously process all of the content, reconcile every contradiction and explore all perplexities. If they allow themselves to be distracted by and dwell upon any portion of the content, their inattention to the new content and structures being presented will likely lead to greater confusion overall. To manage an unregulated onslaught of new information, the learner’s conditioned response may be to become a passive receptor of content whenever the pace of information exceeds their ability to cope. This passivity, in turn, may retard the learning process (Schunk, 2000).

That linear presentations are often partially effective for the majority of the target population is a testament to the resiliency and capacity of the human mind. Learners may store up the presented content (information and experiences) for later reflection and learning. Yet, we suggest that this is an inefficient process (when compared to interactive learning opportunities) with uneven results that depend upon the individual learner’s capacity for storing and recalling presented content and their access to additional resources (supplementary experiences, books, experts, tutors, etc).

An Enhanced Instructional Presentation (EIP) is a traditional linear presentation augmented with an intelligent playback control mechanism, an evolving supplementary content network and a feedback mechanism. The EIP model guides the transformation of existing (and newly captured) linear content into an interactive *hypermedia* presentation (online or CD-ROM based). The goal is to provide maximum learner control of the original presentation along with just-in-time access to complex networks of authentic learner questions and necessary support material. The resulting EIPs allow the individual learners to view, review and process content (accretion) at a rate and in an order that meets their needs, while providing them with opportunities to “ask questions,” reconcile contradictions (restructure), and reflect and improve upon their understanding (fine-tuning) (Rumelhart & Norman, 1978). The EIP model may also be seen as an instance of van Merriënboer’s four-component instructional design model (van Merriënboer, 1997).

BACKGROUND

Constructivism is based on the idea that knowledge is accrued through an adaptive function (von

Glaserfeld, 1991) and asserts that learning results from actively adapting to the environment rather than through passive reception of information or instruction (Mariotti, 2002). Furthermore, constructivism recognizes that individuals have different backgrounds and understandings, and will have widely varying needs for supplementary explanations and examples (Bruner, 1966). Ultimately, an ideal learning environment supports the asking of questions and the seeking of answers.

Aristotle suggested that our learning is composed of question-answer propositions, and Dillon, an authority on classroom discussion, claimed: “No event better portends learning than a question arising to the mind” (Dillon, 1986, p. 333). Yet learner-generated questions are typically scarce in the industrial model of education.

While there may be some valid teaching efficiency arguments supporting the more traditional model of presenting synthesized and sequenced content augmented with responses to selected anticipated questions, the efficiencies accrue primarily to the system and teacher. Such a system cannot be expected to necessarily be efficient from the perspective of the learners.

When a learner is presented with a traditional fixed-linear presentation (live or recorded, face to face or online, with or without an in-line or follow-up discussion), a loss of learning opportunities or a reduction in learning efficiency may be expected to result. Even when the learners do not slip into a mode of learned helplessness, challenges arise that reduce their engagement with the presentation or lesson and negatively affect the potential for learning. These challenges include:

1. Presentation rates that are either too fast or too slow for individual learners, which may cause selective attention or inattention to presentation content.
2. Short term memory overloads or processing delays, which may cause concepts, context, questions and even answers to be dropped before they can be committed to memory (Miller, 1956) or shared during a delayed discussion.
3. Insufficient conceptual background and/or vocabulary, which may impede the construction of meaningful questions that would provide

access to the information required to stabilize their understanding or to correct a misunderstanding.

4. Social constraints (e.g., pride, consideration of others, political correctness), which may prevent the learners from expressing the questions they have formulated even when an opportunity to do so is provided.
5. Time constraints, which may mean that answers to learners’ questions are not available until the context that would have supported the capture and integration of the new information has dissipated.

Even when questions are asked, they may be different from the learners’ real questions, or laid aside because they are judged too marginal or too difficult by the instructor, or abandoned by the learner because the teachable moment has passed.

The theory of *didactical* situations recognizes a tension between knowledge constructed through social interaction and learners’ own knowledge (Brousseau, 1997). It stresses the role of the teacher in organizing the interaction, and suggests the way for teachers to succeed is to construct a “good situation” (Mariotti, 2002, p. 701) that allows the expected interaction and emergence of the expected knowledge. Individualized tutoring has been demonstrated to be a near ideal learning situation, yielding two standard deviations of improvement over traditional instruction (Bloom, 1984). In tutoring situations, learners lacking sufficient conceptual understanding or verbal confidence to enable them to form or present adequate questions are prompted and led in the direction of the intended learning outcomes. Learners lacking in self-direction, or needing to overcome a learned passive response, are encouraged and prompted with options frequently. Yet, it does not seem feasible to provide every learner with unlimited live tutoring.

As an alternative to tutoring, the EIP model guides the development of a comprehensive interactive learner-focused presentation in which the learners use their own intelligence to choose paths through a synchronized network of supplementary content (authentic learner questions, answers and resources) to meet their individual needs.

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