Generative Learning Model to Teach Adult Learners Digital Imagery

Maria H. Z. Kish
Duquesne University, USA

INTRODUCTION

Adults learning about digital imagery or digital imaging software to create and manipulate images for personal and professional purposes is increasingly popular. Since 2001, the Duquesne University course, *Digital Imagery for Teachers*, has been taught to adults who teach or present to other adults or children. The course focuses on helping participants create and edit digital images, create and animate illustrations in movies, and implement design concepts for creating Web sites for their own students. The software packages used are Adobe Photoshop, Macromedia Flash, and Macromedia Dreamweaver.

When teaching these software packages it is important to consider the needs of the adult learners learning technology. To meet both the needs of adult learners and address the demands of learning new technology, the Generative Learning Model has been implemented in this course.

BACKGROUND

The Generative Learning Model

The Generative Learning Model, developed by Merlin C. Wittrock in 1974, is a "cognitive model of human learning with understanding" (Wittrock, 1974a, p. 87). The model "implies that learning can be predicted and understood in terms of what the learners bring to the learning situation, how they relate the stimuli to memories, and what they generate from previous experiences" (Wittrock, 1974a, p. 93). The Generative Learning Model requires the learner to reflect metacognitively about what he or she has learned. The objectives of the Generative Learning Model are for the learner to actively participate in the learning process by generating meaningful relationships and transferring learning to new situations.

Human learning with understanding is a generative process involving the construction of (a) organizing systems for storing and retrieving information, and (b) the processes for relating new information to the stored information (Wittrock, 1974b, p. 182).

The Generative Learning Model focuses on how information can be first stored and retrieved, or recalled from memory, and related or transferred to new situations. This model also addresses the needs of adult learners learning new technologies by requiring them to:

*   Be active in the learning process (Brookfield, 1986; Grabowski 2004; Johnson & Bragar, 1997, p. 366; Knowles, 1995);
*   Realize that they are in control and are responsible for their own learning (Knowles, 1995; Williams, 1996);
*   Link prior experiences to new learning (Knowles, 1995; Stilborne & Williams, 1996)
*   Apply or transfer learning to his or her own set of situations (Johnson & Bragar, 1997, p. 366; Stilborne & Williams, 1996; Wlodkowski, 1999);
*   Reflect upon what and how he or she has learned (Brookfield, 1986; Vella, 1994);
*   Use higher order thinking skills (Pepicello & Tice, 2000; Wojnar, 2000);
*   Develop the information processing capabilities of the learner (Higginbotham-Wheat, 1991, p. 54).

The model includes five major components based on neural and cognitive processes essential in learning: attention, motivation, knowledge, generation, and metacognition (Wittrock, 2000). In this model, the instructor constructs learning activities and opportunities so that students are directed or guided to what is important (attention component) and encouraged to pursue new learning by having the learner realize that he or she is capable and in control (motivation compo-

Table 1. Responsibilities of the teacher and the learner in the generative learning model

Component	Teacher	Student
Attention	•Direct "students' voluntary attention to meaning" so they construct relationships between instruction and knowledge or experience and "construct a theme or an explanation" to bring everything together (Wittrock, 1991, p. 176).	•Answer questions from the instructor or generated by themselves (Wittrock, 1990). • Focus upon learning objectives when going through the lesson (Wittrock, 1978, p. 18).
Motivation	•Use positive feedback that is directed toward learner's own effort (Wittrock, 1990).	• Express what they attribute their previous successes or failures to when learning the subject matter (Wittrock, 1991). •Follow instruction from teachers on using different strategies for learning the material (Wittrock, 1991).
Knowledge	• "Teach students that learning with understanding is a generative process" that does not happen automatically (Wittrock, 1991, p. 180). •Relate past experiences of learners to the text (Wittrock, 1990, p. 371).	•Compare what they have learned to what they have previously experienced or know already (Wittrock, 1991).
Generation	•Learn "the models, preconceptions, learning strategies, attitudes, and beliefs [of students] directly relevant to the subject " (Wittrock, 1991, p. 181). • Design instruction allowing students to "generate relationships among subject-matter concepts and between their models, or their knowledge, and subject matter" (Wittrock, 1991, p. 181).	•Use "models and explanations to organize new information into coherent wholes" that relate to their experience and knowledge (Wittrock, 1991, p. 176). •Relate "individual events and ideas presented in class" and "instruction to knowledge and experience" (Wittrock, 1991, p. 176).
Megacognition	•Teach "metacognitive or self-control strategies useful for directing thought processes" (Wittrock, 1991, p. 181).	•Learn how to "organize, monitor, and control their generative thought processes" (Wittrock, 1990, p. 370).

nent). The learner's prior experience is considered so that relationships can be made between this experience and new learning (knowledge component). The student is engaged in activities that "require the generation of learning between prior experience and new learning" (Wittrock, 1994, p. 15) (generation component). Finally, the students reflect on their own learning and realize what they have accomplished, and "when to use different learning strategies" (metacognition component) (Wittrock, 1990, p. 372).

The Generative Learning Model is a "teaching and learning model" (Maeder, 1995, p.2); that is, both the teacher and the learner play active roles in the learning process. Table 1 outlines the actions that both the instructor and the students take during the teaching and learning process according to the Generative Learning Model:

The generative learning activities that promote understanding among concepts presented in instruction include the following (Grabowski, 2004; Wittrock, 1991):

- Titles
- Headings
- Questions
- Objectives
- Summaries
- Graphs
- Tables
- Main ideas

The generative learning activities that promote understanding between instruction and prior knowledge include the following (Grabowski, 2004; Wittrock, 1991):

- Demonstrations
- Metaphors
- Analogues
- Examples
- Pictures
- Applications
- Interpretations

Related Content

Future Research: Exploring Values of "Problem-Based Approach"
 (2021). *Introducing Problem-Based Learning (PBL) for Creativity and Innovation in Chinese Universities: Emerging Research and Opportunities (pp. 180-201).*
www.irma-international.org/chapter/future-research/265640

Educational Disparities Among Marginalized Groups of Students: Do Bully Victimization and Unsafe Schools Impede Students' Educational Attainment?
Monica Bixby Radu (2018). *Equity, Equality, and Reform in Contemporary Public Education (pp. 126-152).*
www.irma-international.org/chapter/educational-disparities-among-marginalized-groups-of-students/201415

A Technology-Acceptance-Model-Based Study of the Attitudes Towards Learning Management Systems Among Teachers During the COVID-19 Pandemic
Tahani I. Aldosemani (2023). *International Journal of Online Pedagogy and Course Design (pp. 1-22).*
www.irma-international.org/article/a-technology-acceptance-model-based-study-of-the-attitudes-towards-learning-management-systems-among-teachers-during-the-covid-19-pandemic/325240

Learning Analytics for Data-Driven Decision Making: Enhancing Instructional Personalization and Student Engagement in Online Higher Education
Abdulrahman M. Al-Zahraniand Talal Alasmari (2023). *International Journal of Online Pedagogy and Course Design (pp. 1-18).*
www.irma-international.org/article/learning-analytics-for-data-driven-decision-making/331751

Multicultural Considerations for Curriculum Developers of Online Courses
Beth Sargent, Cynthia Gautreauand Kristin Stang (2014). *International Journal of Online Pedagogy and Course Design (pp. 31-43).*
www.irma-international.org/article/multicultural-considerations-for-curriculum-developers-of-online-courses/119668