Chapter 2

More than Just Data: The Importance of Motivation, Examples, and Feedback in Comprehending and Retaining Digital Information

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ABSTRACT

Increasing amounts of information are being generated and distributed to students and the public in general without regards for how this data will be processed, integrated, and recalled. This chapter seeks to present how, through the use of motivation, salient and multimodal examples, and properly created/regulated feedback, information presented can be much better learned and experienced so as to aid in overall comprehension and learning. The Attention, Relevance, Confidence, and Satisfaction (ARCS) model is highlighted when discussing how to motivate student and content viewers (Keller, 1987). Additional research findings with regards to the use of multimodalities, the use of examples, and proper implementation of feedback is also presented. Examples are provided as to how an educational facilitator might use this information in presentations and digital content distribution.

INTRODUCTION

Data are simply a conglomeration of content such as statistics, individual facts, and/or other types of information, but the real meaning and power lies in presentation of the data. There has always been a tendency for many in academia as well as many in complicated positions of government and the economy to gather and distribute lots of data/information to students, peers, and the public. Problems occur when little regard is given to how data will be understood or retained for integration and use with other information that a viewer may already have.

As a general public example, a piece of federal legislation came out that was 1,990 pages of data with zero diagrams, images, or video. It was only presented as a pure text document. I personally went around to my colleagues and asked about their thoughts on the issue of this particular legislation. All had opinions yet none had read it. “It’s too long and boring,” were the reasons most often given. In a very similar manner, many higher education and psychology research papers/information articles, as well as business reports and perspectives, and a fair amount of online training and courseware,
present information with nothing but pure textual data. This leaves students, peers and the public struggling to be motivated to go through the material as well being able to comprehend its contents.

By enhancing the way data is presented, comprehension as well as retention will be greatly improved. Modification and implementation of components such as motivational factors, example utilization, and feedback mechanisms can greatly improve the way informational data is understood and integrated within peoples’ cognitive processes resulting in enhanced learning. These key elements are vital in packaging or putting together digital information to attain full comprehension and learning of the materials presented.

THE IMPORTANCE OF MOTIVATION

Motivation is a key component in virtually any human behavior, especially with regards to edification in that one can’t learn/comprehend if one doesn’t at first desire it or have a willingness to focus and pay attention to the information in the first place. In reviewing the literature dealing with learning/comprehension as applied to motivation, a plethora of theories and explanations are made available. One model that conglomerates multiple theories is that of the ARCS model which stands for Attention, Relevance, Confidence, and Satisfaction (Keller, 1987). Originally developed in 1979 and fully presented in 1987, Keller’s ARCS model conglomerates and organizes Keller’s macro theory of motivation and instructional design as well as expectancy-value theory and motivational ideas from education, psychology, and industry (see Figure 1).

Motivational Component: Attention/Interest

Attention, also described as interest, is a key aspect that needs to be addressed with regards to the packaging of digital information for enhanced learning. This attention-interest component is a vital element in motivation in that a student must at least look at or pay attention to the material in order to even begin the learning process (Keller, 1987; Suzuki, 2004). Interest, curiosity, fascination, are all positive things that can greatly increases people’s desires and motivation (Kember, Ho, & Hong, 2008). The question then arises, how can interest or curiosity be enhanced? Interest can at least be initially peaked through the use of impactful images, hi-tech attention-grabbers (example: simulations, 3D elements, holograms, etc.), or emotionally charged content (storyline videos, case studies, etc.). It is important to remember though that using new technology or presenting information in an interesting and novel way will only be interesting until viewers or learners become familiar with this new technique or technology (Keller, & Suzuki, 2004). Getting a viewers attention is not the same as sustaining their attention, which is what would be needed to achieve learning and understanding (Keller, 1987). To sustain interest Keller recommends the use of inquiry and participation. Inquiry could be accomplished by presenting problem solving activities within the information being presented as a way to allow the viewer to “test” their own comprehension or capabilities in applying the data. Participation could be achieved through the use of specifically designed simulations and online games where information is used to achieve a desired outcome or progression.