

Chapter 1

Human Motivations and Discovery Learning

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ABSTRACT

In identifying ways to facilitate Discovery Learning (sometimes referred to as “self-directed learning”) and maximize its educational benefits, it is important to understand the motivating factors behind it. This chapter seeks to identify two different definitions of Discovery Learning (one general, one operational), review some of the general human motivational theories, and offer a better understanding of how to improve motivation for Discovery Learning via both intrinsic and extrinsic modalities, within a technologically enhanced framework.

CHAPTER OBJECTIVES

- Define Discovery Learning with regards to motivation; as a pursuit of pure interest and as a part of a larger guided/facilitated pedagogy
- Review the main human motivational theories: Classical Conditioning/Operant Conditioning, Attribution Theory, Expectancy Theory, Maslow’s Hierarchy of Needs and Achievement Motivation: Goal Theory
- Describe how intrinsic motivation can be used to enhanced Discovery Learning
- Describe how extrinsic motivation can be used to enhance Discovery Learning

INTRODUCTION

To wonder and seek is a part of all of us and in understanding our underlying motivations for seeking we can harness the full potential of Discovery Learning. In learning about some of the different theories associated with human motivation a clearer picture will emerge as to the subtle workings of successful implementations of content for use by those engaged in Discovery Learning. Although the purpose of this chapter is not to provide a right way or a wrong way to use motivational elements, it can provide possibilities so as to enhance the motivational power manifested within a Discovery Learning student.

Differences and capabilities of both intrinsic and extrinsic motivation will be evaluated as well as described within the framework of online

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education. By harnessing these two modalities it will become evident that Discovery Learning can and should be enhanced to improve completion, retention and user experience as a whole.

Discovery Learning Defined

Generally there are two ways to view and therefore define Discovery Learning.

The first definition of Discovery Learning is simply that of a learner exploring and seeking educational opportunities on their own, informally, wherever they might be available (he/she is discovering and in the process learning). An example would be if someone heard the word “pedagogical” for the first time and wanted to learn its full meaning and how to properly use it. The learner in this example would seek the information (look it up via a search engine), on their own, so as to discover and gain understanding (learn the definition and how to use it). This definition is closer to the higher educational term of “autodidaxy,” which generally refers to self education/instruction outside of a formal type of educational environment (Candy, 1991).

A second, more formal description, one which for the purposes of this chapter will be the main operational definition, is that “Discovery Learning is an approach to learning that can be facilitated by particular teaching methods and guided learning strategies...through exploring and problem solving, students take on an active role to create, integrate, and generalize knowledge” (Castonova, 2002). The key aspect is that students take on an “active role” in their learning as opposed to passively receiving information such as in a lecture-type of educational environment. There is still facilitation and guiding that occurs but it is not the same as direct (giver to receiver) learning. A specific example of Discovery Learning would be through the use of a WebQuest (developed by Bernie Dodge, 1995). A WebQuest is an educational tool that is comprised of presenting a student learner with a problem (or sets of problems) and

giving them minimal direction (framework) so as to allow the students to actively seek out the information and learn/discover while actually doing (finding the answers to the problems). A WebQuest is also enhanced through the use of a scenario or story to aid with making the content more engaging and exciting.

Although the main idea in Discovery Learning is that the student is actively seeking/discovering on their own, much can be done within the guidelines/framework of the educational task as well as the educational interactions and academic online environment. The following review of motivational theories will seek to address how they might be applied within an online Discovery Learning framework.

Human Motivational Theories Review

Classical Conditioning and Operant Conditioning

Although Classical Conditioning (physiological response derived from associated stimuli, [Pavlov, 1905]) and Operant Conditioning (the use of consequences: rewards and punishments to directly modify behavior [Skinner, 1953]) aren’t necessarily theories of motivation in themselves, they are vital behavioral concepts to realize with regards to possible applications of motivations in Discovery Learning.

As demonstrated by the infamous “Little Albert” experiment, Classical Conditioning can be applied to humans so as to enact an emotional as well as physiological response (Watson & Rayner, 1920). By manipulating stimuli within the student’s online learning environment, various positive associations can be made. One pedagogical component could be to present very interesting, fun, and/or exciting material towards the beginning of a module/instructional set, so as to have the student create a positive association with the online learning environment and/or discovery learning as a whole. Positive associations through

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