

Chapter 27

Designing Games to Motivate Student Cohorts through Targeted Game Genre Selection

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ABSTRACT

The objective of this chapter is to develop guidelines for targeted use of games in educational settings by presenting a typology of learning styles, motivations, game genres, and learning outcomes within disciplinary student cohorts. By identifying which academic outcomes best align with the motivations and learning styles of students and which game genres are best suited to those motivations and outcomes, the authors elucidate a typology to assist serious game designers' and educators' pursuits of games that both engage and instruct. The result will guide the implementation of games in the classroom by linking game genre and game mechanics with learning objectives, and therefore enhance learning and maximise education outcomes through targeted activity.

GAMES AS MOTIVATORS

The notion of using games as motivators to facilitate learning is a key driver for the design of *Serious Games*, as computer games inherently motivate players to meet their objectives (Malone, 1981; Malone & Lepper, 1987; Tychsen, Hitchens et al., 2008). Research has shown that the use of games in the classroom improves student motivation (Baltra, 1990; Gee, 2007) and participation

(McGonigal, 2007; Rigby & Prysbylski, 2009; Werner, Hanks et al., 2004). Moreover, different game genres (Wolf & Baer, 2002) have been found to be effective for different types of learning (Garris, Ahlers et al., 2002) and may work for different personality types (Rapeepisarn, Wong et al., 2008).

Despite the evidence that learning styles, motivation, personality and game genre are diverse, *Serious Games* tend to be used in the classroom with a one-size fits all approach. This is understandable because games development is

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expensive and resource-intensive to develop. As such, creating different games for a single type of player to meet the needs of all learning styles would be an unsustainable commercial model. A more targeted approach would be to consider the learning styles of a particular student cohort based on field of study and assessment types and develop and select games which are most effective in meeting their learning objectives. For example, engineering students likely have a common learning style (c.f., Feldman, 1974) in which the average differs from that of media students; law students must learn laws and policies which require memorization and questioning learning activities as opposed to psychology students who learn about behavior through interviews, coaching and practice.

LEARNING ACTIVITIES AND LINKS TO GAME MECHANICS

Differing experiential learning methods are applied across different professions and academic disciplines in higher education. From empirical evidence, Kolb and others (Kolb, 1981; Honey & Mumford, 1982; Kolb & Kolb, 2005) have discovered that broadly speaking:

- practitioners of creative disciplines, such as the arts, have a “try it and see” attitude towards learning and prefer to innovatively experiment to see how and if things work;

- pure scientists and mathematicians are best at processing abstract ideas and prefer problem-solving activities;
- applied scientists prefer to use a scientific approach to solve practical problems while lawyers respect scientific evidence; and
- professionals who have to operate more intuitively, such as teachers, prefer learning situations in which they are required to take risks and partake in new experiences.

In addition, Prensky (Prensky, 2005) recognises the need to deliver educational content and assessment with differing game genres and mechanics because different types of content and learning require different pedagogical approaches. Some examples are given in Table 1.

This chapter is designed to better connect the heretofore disjointed dots from literature on learning through games, motivation, educational activities, and personality psychology. It begins by examining learning style and how it affects the suitability of learning activities across disciplines. Following this, personality types across the student cohort will be investigated as this too has been linked with learning style, discipline and game genre choice and links learning and motivation in a critical relationship that also focuses attention on learning objects and learning environments, such as games. Next, the concept of motivation is discussed with respect to the most effective ways to stimulate disciplinary specific student cohorts to engage with their educational content. Motivation will also be explored with respect to

Table 1. Educational content associated learning activities and games. Extracted from Prensky (2005)

Content	Examples	Learning Activities	Games
Facts	Laws, procedures, product specifications, policies, chemical elements	Questions, practice and drill, memorisation	Flash cards, Detective Games
Language	Acronyms, foreign languages	Imitation, immersion, practice	Role playing Games, Flash cards, Simulation Games
Creativity	Invention, product design	play	Puzzles, Invention Games

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