

PRESENTER: Robert L. Appelman
AFFILIATION: Instructional Systems Technology, Indiana University School of Education

TITLE: **Increasing Engagement by Integrating Game Mechanics into Methodology**

SHORT
DESCRIPTION:

All teachers want their students to be engaged with the content they are teaching or having them discover. However, if one considers engagement during a total day, it is most intense while playing video games instead of when they are doing school work, both in and outside of the classroom. This presentation posits that integrating the mechanics that structure a game into teaching methodology will increase student engagement, collaboration, and creative thinking.

ABSTRACT:

This presentation is designed for the teacher of any grade or subject. The epistemology embraced is that of a constructivist problem-based learning approach with an emphasis on experiential learning more than a didactic presentation of information. Such an approach is very common today as it offers the greatest opportunity for individualized learning and creative thinking. This presentation is not geared to teach the above since it will be assumed that the majority of our audience will already know, and hopefully already practicing this epistemology. However, the methodology for teaching with these goals in mind are not yet commonplace or even common for that matter. The variations are nearly as many as anyone attempting to design a PBL environment, experience, lesson plan, or especially an on-line learning environment. This presentation will ask “If this form of teaching is different from a traditional didactic classroom, then shouldn’t the methodology be radically different as well?”

Since the majority of teachers are unfamiliar with game-play, gamification, and especially game mechanics I will need to begin the presentation with videos of actual game play to illustrate how the players move, think, problem-solve, and learn new skills along the way. Fortunately I have access to hundreds of game-play examples since I ran a research game play lab at IU during the last 15 years of my tenure there. As I illustrate each mechanic, I will also tie it to a corresponding teaching tactic. For instance, every game design process starts by building a “map” and every instructional learning environment begins with defining (or at least knowing) the capabilities, seating, wall charts, and media capabilities of the space where the learning will occur. Each “avatar” in a game is extensively design with specific capabilities, such as strength, knowledge, and ethnographic information, and even though a teacher does not have the luxury of “designing” their students, they do take into consideration the demographics of each class and are required to used differentiated instruction in relation to that demography.

“Scope and Sequence” is very common in the design process for any teacher, but how they determine it is not always the same. This is where we enter the “art form” of teaching because decisions in this area are often determined by the teaching style of the instructor and will define the experience the students will encounter. Interestingly a game designer must face a “scope and sequence” concern but the scope is often tied to the cost of the production while the sequence is determined by the genre of the game

style and the principal game designer. Sid Meier (Fraxis Games) designed the Civilization series for those gamers (students) wanting to engage with history content, while Jason Della Rocca (Ubisoft) designed the Assassin's Creed series for those gamers wanting to deal with stealth and fighting in a historical context. Both games deal with the same content as a Social Studies teacher, but the goals for the players (students) are considerably different. In the case of the game designer the goal is for the player to enjoy the scope, sequence, and gameplay enough that they will want to play (and buy) the next game out in the series, but for the teacher the goal is such that the student will leave the experience with knowledge about the content, and be able to apply this knowledge in real life experiences. Sid Meier has been touted as teaching history more successfully than many history teachers in his game Civilization but Sid has stated himself that it is all about the difference in mechanics that the students engage with.

So for the presentation the plan is to quickly lay the above groundwork through some illustration of real game play so that we can begin to gain some understanding of what "mechanics" are, and then transpose these to a lesson plan that I had the opportunity to teach this year on the topic of "How to Design a Sundial". The scope was determined by using Bloom's Master Design Chart that allows for the compartmentalization of content chunks as well as the levels of understanding according to Bloom's Taxonomy. The sequence was determined using Gagne's Hierarchy of Learning which allowed for a progression of the content from simplest and most concrete to the most complex and abstract. Then I needed to jump from normal teaching strategies to game mechanic for the flow of the instruction. For the sake of illustration I wanted to keep it simple and low tech. A Dungeons and Dragons (D&D) role playing adventure board game was the genre I chose to incorporate in this teaching approach.

With the content already "chunked" in the Master Design Chart, I created Knowledge Cards for each of the 3 groups (Geographers, Astronomers, and Scientist/Engineers) that helped me to specifically address STEM content. The class progressed as if moving along a game-board where observations were made about the sun, stars, and gravity that were keyed to Knowledge Cards that each group had on their tables. As each content question was encountered, the group/student with the solution stated on that card would jump in and solve the problem encountered. Much discussion was made within and between groups since each had a different perspective of the question. The class was videotaped and I will be showing modules of how the students used the information cards, provided their own knowledge, and moved to the ultimate solution of designing their own sundial.

SESSION TYPE: Proposal for 60 minute Presidential Session