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Modus Mashup and the "Dungeon Master": Integration of Medias and Activities that Simulate and Stimulate in the E-classroom

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Abstract

Online environments create opportunities for unique and transformative learning methods; however, it takes creativity, time, and a willingness to give students a level of control to maximize learning and student productivity. Too often, various technologies and approaches are used in isolation; however, through "mash-ups," experiences and environments that

facilitate teamwork, collaboration, and retention can be integrated. This chapter illustrates an experiment in using discussion forums as a means of creating a round-based, table-top simulation where the students role played and used simulation techniques simultaneously. This chapter will discuss what worked, what didn't, and ideas for overcoming challenges.

Integration of Medias and Activities that Simulate and Stimulate in the E-classroom

The purpose of this chapter is to illustrate the results of an experiment in online learning that integrated different modes of conveying information and stimulating interaction and learning. Over a three-week period, 13 students and three faculty members participated in a multi-round criminal investigation simulation (or game) that yielded 750 unique interactions (or posts) in a series of discussion board forums. The quality, volume, and intensity of the interactions far exceeded expectations and yielded unexpected insights on creatively combining different learning objects and techniques to simulate scenario-based, critical thinking exercises that put the students at the center of the activity.

Educators can utilize basic tools that are core to any Learning Management System [LMS] (i.e., Blackboard) and create activities that simulate and stimulate in the e-classroom. In addition to illustrating the promise of what is possible, certain pitfalls and ideas for how this approach can be incorporated into different kind of courses are discussed.

Methodologies

Arguments have been presented that e-learning is, essentially, a correspondence course rendered and facilitated with a computer (Feenberg, 2011; Valentine, 2002). Those who seriously explore the possibilities of e-learning know that, in many ways, these are the early pioneering days of developing "universal" stratagems for learning. As one approach gains traction there are changes in technologies and economies of scale that give birth to newer ideas and approaches; nonetheless, e-learning environments allow a variety of novel educator-to-learner and learner-to-learner interactions that are not easily achieved in a standard classroom.

Of late, the "new" new thing concerns flipped classrooms - environments that put the students as individuals at the center of the learning process (Gabriel, 2011; Goodwin & Miller, 2013). As Hallberg (2010) explained, student centric design is not a new idea and shows that traditional approaches can be student centered. Hallberg argued that this is true with natural science and courses couched in quantitative methods (i.e., statistics). The flipped concept can take many forms and involve single mode or multi-modal learning environments.

While the practice of flipping classrooms, facilitated by a variety of learning objects and activities, has been increasing, there is no consensus on which approach works best (Bishop & Verleger, 2013). Limited research exists, though some experiments and pilot studies have shown promise; for example, Greenberg, Medlock, and Stephens (2011) found a statistically significant increase in assessed outcomes when students had input and a level of control over the content or pace of the instruction in a flipped environment.

Another promising approach involves the use of simulations or turn-based tabletop exercises (or games). These are facilitated exercises involving a case or situation in an "informal, stress-free environment… designed to elicit constructive discussion as participants examine and resolve problems" (EPA, 2000, para. 1). Typically, these exercises involve several rounds where a facilitator will use the decisions and interactions by participants to evolve the narrative in each round. Through this process, participants see causal and corollary impacts of their decision and responses, thereby yielding a simulated hands-on experience in an antiseptic environment. This approach is commonly used in a variety of fields including medicine, emergency management, and business (EPA, 2000).

Arguably, the concept of turn-based, critical thinking exercises could apply to virtually any field; moreover, despite the potential for games to be powerful and enriching experiences for learners, researchers have found a certain reticence among educators (Metcalf, Kamarainen, Grotzer, & Dede, 2013); concerns include instructional effectiveness, technology, and time (Jones & Warren, 2011). Metcalf, Kamarainen, Grotzer, and Dede (2013) explained that simulations in e-learning have frequently involved expensive and customized self-encapsulated virtual environments that include three-dimensional worlds that are not easily repurposed for other cases or simulations.

This last point is instructive because it gets at the heart of the classroom experiment described below. Could a creative mix or "mashup" of learning objects and content be inexpensively brought together using the

standard tools of a LMS and still maintain the integrity and quality one would expect in a customized solution?

The Classroom Experiment

A classroom experiment to assess the efficacy and viability of conducting a turn-based simulation in an online class was undertaken. The weekly chain of events were as follows:

Week 1. The students were given a detailed and complex, but plausible, fact pattern for a serious crime involving sexual violence. The fact pattern was supported by custom-created video podcasts, crime scene photos from a similar crime, and relevant YouTube.com videos. The students were then directed to use the discussion board to post an initial response to the fact pattern - as the lead detective what would their next step be, given the fact pattern and the concepts that they had learned in the course to date. Throughout the week's discussion the lead professor in the class interacted with the students in the discussion board. The first week was used to assess if the students could interact appropriately with the scenario and determine whether or not we could, and should, move forward.

Week 2. Based on the responses and comments in week 1, the fact pattern was given important adjustments to improve the flow of the exchanges and in light of comments made by students within the first week's thread. Those changes and a prompt were placed into a new discussion board forum with a thread labeled "Part 2…" of the investigation; On Wednesday the students were to post their initial response to the "Part 2…." thread. Within the thread the students could *not* see other students' posts *until* the "sheriff" and the "district attorney" responded to each student. The students were not permitted to make any other comments in "Part 2…," and the thread was locked by making it "read only."

On Thursday, the facilitator opened a new thread, "Stage 3…," that took specific inputs from the "investigators" and responses by the "sheriff" and "DA" and evolved the storyline of the scenario. This thread had a prompt for the student but, unlike "Part 2…," was an open forum for discussion and debate, which included the "sheriff" and the "facilitator" engaging with the "investigators." The debates and exchanges were lively, but professional, in tone as all participants debated the merits of the evidence and procedural issues involved. This debate continued over two days, and, when the "facilitator" believed that a critical mass of analysis had been reached on Saturday evening, the thread was locked, made read-only, and a third thread was opened-up. As with the previous threads, the new one took specific interactions and comments from the previous threads and used those evolve the story. This final thread, "Cell phone intel." was an open discussion.

Week 3. At the beginning of the week, the complete picture of what really occurred in the case was revealed. This was a narrative that filled in the missing pieces but was designed to explicitly incorporate the findings and results of the efforts by the "investigators" in week 2 and the feedback provided. A post-simulation reflection exercise was rendered in the form of a discussion forum. Each student was invited to reflect on the narrative and the process of how the simulation was run.

Results and Key Areas of Improvement

One metric for success is the amount of individual interactions, or posts, within the discussion board - as that is where the activity of the game occurred. Over the entirety of the game, 13 students and three faculty members had 750 unique interactions as shown in Table 1.

Table 1:

Unique Interactions, Organized by Week and Individual Forum

Week	Title	Unique interactions
1	Initial investigation	493
2	Investigation, part 2: "Accuser goes to the press"	28
2	Stage 3 of investigation: New intel?	114
2	Cell phone intel	29
3	Post simulation	59

Viewed from this vantage point the exercise was successful; however quantity of posts does not necessarily equate to quality. Qualitatively, the students' interactions were at the level appropriate for the exercise. The students challenged each other and several of them developed insights through their "investigation" that changed the outcome of the case.

The feedback in the post-simulation exercise was generally favorable about this approach to learning. One student stated, "I think if anyone strongly dislikes it perhaps it is because it made them really think in an engaging way? :)." Some students pointed to the integration of medias and interactions that changed with their inputs as getting them "excited" about "what would happen next [in the game];" however, the praise was not universal. Participants identified a number of key areas for improvement with respect to the process and timing and organization of the game itself. This critical feedback is subsumed in the analysis below.

Role Clarity

In this exercise, there were too many leaders involved.

For future exercises an avatar will be created, "Dungeon Master," which is a reference to the "facilitator" in the role-playing game, *Dungeons & Dragons*. This avatar is intended to only be used in future game exercises and would create a clear distinction from the roles that have direct interactions with the participants (i.e., the professor playing the role of the "sheriff").

Future exercises will include, as part of the directions, clearer directions on each participant's role in the exercise along with a bio; this includes identifying the "Dungeon Master" as an objective third party whose role is to change the parameters from round to round.

Timing and Process

Timing of new round origination created challenges for some - when each subsequent round, especially in week 2, was not pre-determined. Feedback from students included: "…messes with my schedule...For those of you that are in the criminal justice program (just my opinion), this probably was very helpful, but this is a science credit for me in the project management program (BS)...and was, it was another revision to the schedule... I work, have a family, (1 husband, 2 boys in sports, 2 cats, 3 dogs, a rental house etc.) and need to live by a schedule… have been at times confusing." The faculty would make the new round available when they felt a "critical mass" of discussion had been reached in the previous round. The unpredictability created confusion and resulted in some students missing out on key information that had become buried in the discussion.

To solve this challenge with timing and process, the facilitator can specify windows of time for each round and explicitly state the responsibilities of all participants within each round.

Discussion Board Thread/Forum Organization

In the first round, week 1, the instructor created a discussion board forum where each student created a thread as an initial response to the prompt. Participants would go into each unique thread to engage with each other. Feedback from students included: "While I am a full time student I do also work 2 jobs and try to maintain somewhat of a personal life… *having to go through hundreds of posts over multiple threads was not my idea of fun* and became a little frustrating towards the end" [emphasis added]. This resulted in a level of redundancy that would not normally occur in a single open thread; moreover, as students realized the redundancy they stopped posting within each thread and concentrated their communications in just a few. In other words, they would stop communicating about a subject in thread 1 and organically move the conversation to another thread. This "clustering effect" (as illustrated in Table 2) made following the conversations a challenge.

Table 2:

Illustrating the Scale of the 'Clustering Effect' in the First Round

Thread initiated by:	Total posts per thread
Student A	9
Student B	18

Student C	56
Student D	20
Student E	10
Student F	107
Student G	28
Student H	171
Student I	19
Student J	53
Student K	1
Student L	1

In the following rounds, this was corrected by using a single thread for each round; however, this was not systematically managed as there were inconsistencies with labeling of the threads ("rounds" versus "stages"). Another problem concerned the within-thread organization. In round 2 (thread "Part 2") students each had a post that was responded to by the "sheriff" and the "district attorney." In round three ("Stage 3") the thread was treated as an open forum with both the "sheriff" and the "facilitator" both playing active roles in responding to students. Thus important exchanges and developments in the fact pattern were not clear to students.

To solve this challenge, instructors can set participant expectations with explicit directions, in advance, for how the discussion boards will be used, including consistent labeling and nomenclature.

Make a Script, then Deviate from it

Other than the first round and initial evidence, the remaining rounds were unscripted. This meant that the instructors were spending a lot of time during the exercise trying to figure out "what's next" (for the following round) and how to change the parameters that took into account the findings and interactions of the participants within the previous round.

To solve this challenge, instructors can create a detailed script for the initial, and subsequent rounds. Instructors should be as specific and creative as the scenario warrants, but be prepared for the participants to engage with the material in a way that allows for changes to the scenario accordingly. Instructors are encouraged to be creative, and anticipate what additional evidence or artifacts might be necessary beyond the first round, and have those ready to deploy as warranted.

Discussion

The exercise detailed herein was not designed to be a formal experiment with control groups and all of the proper trappings of empirical research. Rather, it began as a challenge to the faculty to use the resources that already exist within the e-learning environment to engage the learners in a manner that involved relevant subject matter, critical thinking, and active participation.

Some might argue that conducting a scenario that involved a criminal case made things easier in some way and that this could not be replicated in courses that involved less exciting subject matter or that students would be less inclined to be as participatory in a course on accounting or educating special-needs children.

What made this effort successful, to the degree that it was, was the tangible 'power' and 'control' given to the learner. The learners probed, explored, and debated decisions on what should be done next, and saw the results of those proposed choices in subsequent rounds. Whether or not that is true is an empirical question that future research should be designed to probe. However, what can make this kind of exercise in an e-classroom effective is no different than why it is an effective tool for practitioners when conducted in the context of a table-top exercise: The environment and game approach is inherently designed to probe decisions made in particular scenarios, the consequences, and subsequent decisions and their consequences. When viewed in this way one can imagine the possibilities, especially in courses where the subject matter is overtly oriented towards praxis, such as educating special needs children, accounting, or criminal investigation.

Another thought that some might have is that the approach relied on the use of learning objects (video podcasts) that require technical knowledge or access to specialized equipment or software that many educators do not have. That is a reasonable point but not an obstacle that is terminal, as one is only limited by creativity. Perhaps one approach is for an educator to consider a scenario from their own experience and turn that into a narrative with "breaking points" for decision-making and debate. Or,

another approach could be to take a video from YouTube that is relevant and game the subsequent decisions or add a narrative to that video in some way and then game the combination. Every e-learning environment has a discussion board mechanism; moreover, that is the key touch point, as this is where the prime interactions take place. There are countless combinations that one can draw upon to create a useful narrative. The best approaches and combinations, and under what circumstances they work best, are still an 'undiscovered country'.

In addition to the points made above, future research should explore the efficacy of having multiple instructors participate in different roles. Also, another pathway worth exploring is a scenario where the learners play different roles.

Conclusion

Integrating different types of learning objects and artifacts into an environment where students go beyond receiving information and, in fact, contribute to a community of discovery through stimulation and simulation is a valuable structure to enhance student learning. Questions should be asked and concepts explored as to what different techniques and learning objects will yield the greatest efficacy, depending on the discipline.

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