

A psychological model for managing student engagement in online courses using gamification principles

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Abstract

Gamification principles were applied to three online courses for undergraduate college students. A theoretical framework is presented for describing how student motivation and engagement are produced by psychological and biological underpinnings that operate at a micro-behavioral level to produce student engagement and involvement. The model makes visible the behavioral micro-units out of which emerges the flow of interactions in an online task team or community. Online instructional activities can be managed to allow students to satisfy many of these needs, and at the same time to provide optimizing venues for their continued satisficing. An instructional architecture illustrates the combination of gamification strategies that we currently use in our online classes. It involves task collaboration, group chat, and social networking affordances. A list of 22 game mechanics is defined and applied to online instructional activities.

Keywords

Gamification; Online instruction; Engagement; Game mechanics; Affordances; Affective

Introduction

The requirement for literacy skills in virtual worlds is increasing for all age groups (Blascovich & Bailenson, 2011). As well, there is an increased demand for online skills in courses that are technologically integrated using project-based learning and teamwork (Boss, 2012; Boss, Krauss, & Conery, 2008). These educational attempts in virtual instructional environments rely on

integrating social networking for collaboration and communication among students. This article reports details about how we applied gamification principles to three online courses for undergraduate college students in psychology.

Gamification applies game design principles to non-game situations such as business, social networking, and instruction. It is known to increase participation and user motivation in a variety of applications (Deterding, et al., 2011; Matyas, et. al., 2011). Kaye (2014) reports that players who are working together on a common objective feel a shared sense of flow that is occasioned by the shared immersion or "group flow" that is associated with the mutual awareness of task-relevant skills (Kaye & Bryce, 2014; Csikszentmihalyi, 1975, 1998). Players experience a sense of shared social belonging, feeling enriched by the others with whom they are cooperating and relying on collective skill development. Yanenko & Schlieder (2014) examined user generated data collection and noted the importance of the motivation of contributors, whether positive like altruism, personal interest and social reward, or negative like vandalism or malice, which involves intentionally submitting erroneous data. Antin & Churchill (2011) discuss several functions of game based achievements such as badges and rewards. These "virtual goods" orient players to the goals of the game and help them identify norms and values that are considered desirable in an online community. Badges inform players of each other's status, affirm their reputation in the community, and promote increased cooperation in collaborative tasks by creating positive group identification.

The introduction of gaming elements in education has offered the promise of enabling continuous engagement to enhance learning (Collins & Halverson, 2009; Gee, 2007; Kapp, 2012; Kapp & O'Driscoll, 2010; McGonigal, 2011; Squire, 2011; Thomas & Brown, 2011).

Millions of tweens (8-15 years old) who represent the largest online age group, are spending hours each week in immersive animated virtual worlds, and playing with friends and family (KZero, 2014), acquiring virtual skills. These youngsters will soon be entering college and will expect instruction to be digital, virtual, and immersive (deFreitas, 2008). A key aspect involves treating a class as community, where members form teams and use course constructs to perform role-play activities and to write collaborative reports.

This article introduces a theoretical framework for understanding how student motivation and engagement in online classes are produced by psychological and biological underpinnings that operate at a micro-behavioral level to produce student engagement and involvement. The model makes visible the behavioral micro-units out of which emerges the flow of interactions in an online team or community. For instance, when a student writes, "*Working together [online] really helped clarify some points of the class*", one may wonder what types of interactions went on and how they were performed or managed by the team members. The model we present shows the type of interaction loops that needed to take place in order to amount to the conclusion "*really*

helped’.

The model shows that students can become motivated, positively involved, and actively engaged when they are given particular instructional opportunities that occasion repeated satisficing and optimizing exchanges with each other as an online team working collaboratively on assigned projects. “Satisficing” refers to the process of evaluating the significance a team member’s online action. “Optimizing” refers to the process of acting on one’s intention by planning and executing an online act that can be noticed by the other members. The repeated and continuous experience of engaging each other in satisficing/optimizing loops promotes cohesiveness and solidarity with each online meeting. A variety of instructional techniques will be described in the context of wanting to gamify the online courses that we teach. These gamification techniques are instructional opportunities that we create for students in order to occasion for them repeated and cumulative experiences of satisficing/optimizing exchanges with each other.

The Satisficing/Optimizing Model

The diagram in Figure 1 presents a sketch of the satisficing/optimizing model (Nahl, 2010, 2007; James, 2014; James & Nahl, 2014a,b). The model will be discussed in the context of gamification of instruction.

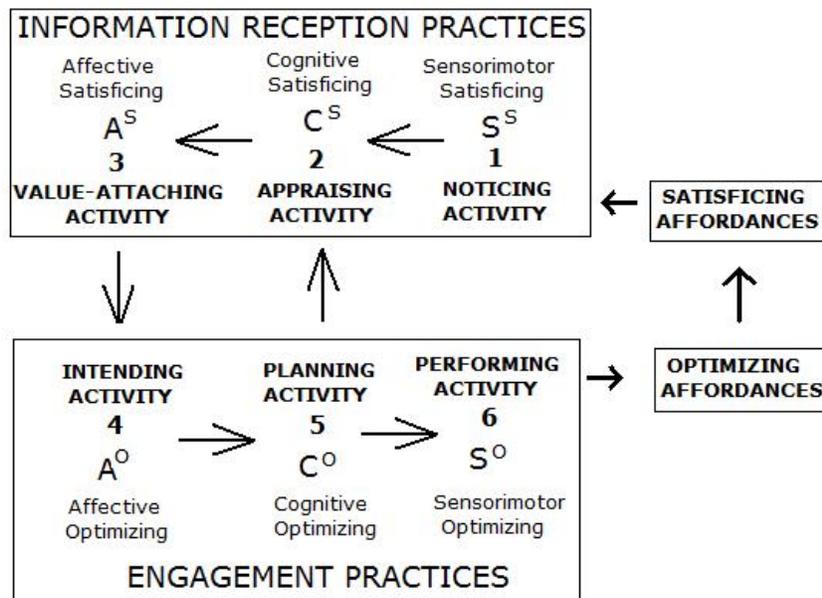


Figure 1. The satisficing/optimizing model

The primary purpose of gamification in instruction is to use technology to increase the students’ motivation, involvement, and engagement with the instructional activities. The elements of Figure 1 help us to break down the process of engagement into its micro-behavioral units. When students in an online learning team are involved and engaged, they are interacting with the

technological affordances that specific interfaces make available. “Satisficing affordances” refer to display capabilities of any interface that students are using such as reading Web pages, receiving messages and notifications, and hearing voice or other sound, feeling a vibration notification, etc. “Optimizing affordances” refer to all the ways a computer device can take input from a user such as keyboard input, mouse click, selecting an option, sending a message, etc.

Users are biological organisms. This means that they operate every activity by means of three synergistic systems, each of which is essential for the activity to go forward. The affective system has two interrelated biological functions. One has a conative motivational or “optimizing” function that supplies the drive to initiate action (step 4). The other affective function has an evaluative consummatory or “satisficing” function in relation to mental needs and enjoyments (step 3). These two affective systems work together in a two-step fashion. The optimizing motivational intention (step 4) supplies the drive and direction for the cognitive system to plan and direct (step 5) the sensorimotor system to handle the available optimizing affordances (step 6). These three procedural steps acting synergistically constitute engagement with the system. Student engagement is identified with stepping through these three steps. Engagement remains activated as long as these three steps are repeated in a satisficing/optimizing loop.

In order for the three-step optimizing system to continue to repeat itself and thus produce engagement (steps 4, 5, 6), it is necessary that they be integrated with the three satisficing steps involved in information reception (steps 1, 2, 3). Interactive technologies operate by coordinating and integrating optimizing and satisficing affordances. This supports the psychobiological operation of users who need to receive immediate and continuous feedback information (step 1) when they manipulate the optimizing affordances (step 6). For instance, when users click on a link, which is one of the most ubiquitous optimizing affordance well known to all users, the interface immediately gives feedback by changing the display. This starts the satisficing process. First, the sensorimotor system provides the *noticings* for the change in display (step 1), then the cognitive system provides the *appraising* or meaning of the noticed change by categorizing its elements and components that are collected in the user’s memory (step 2), followed by the affective system which fixes its value to the user’s needs (step 3).

With this completion of one cycle of the information reception process (steps 1, 2, 3), the optimizing cycle can repeat and proceed (steps 4, 5, 6), ready once more for feedback confirmation through information reception. The affective motivational intention (step 4) is engaged in driving and directing the cognitive planning (step 5), which manages the details of performing sensorimotor actions with an optimizing affordance (step 6). For instance, a search on an assigned topic requires repeatedly stepping through these three biological steps of engagement with the system:

- affective (step 4): *wanting* to repeat variations of a search query to see the results.

- cognitive (step 5): *planning* possible variations for the query wording.
- sensorimotor (step 6): *typing* and *clicking* appropriately.

It is important for the instructor to realize that student engagement cannot continue as a repeated process unless it is continuously refreshed by new information from the available “satisficing” affordances (step 1). These refer to handles on the system that allow users to notice location, content, and source of information that is being provided to them on the display (visually, auditorily, or kinesthetically). This information reception process involves the three psychobiological systems of the individual in reverse order from engagement. The sensorimotor input must come first and involves a *noticing* activity by the user (step 1). Once the information is noticed, it must be supplied with meaning from the cognitive system (step 2). Memory is continuously consulted as the sensory information is scanned until there is a match so that the noticing satisfies the class membership conditions for some category system (e.g., “*It’s not related to what I’m looking for*”, etc.).

Once there is successful pairing between the sensorimotor (step 1) and the cognitive (step 2) systems, the affective system (step 3) is engaged to satisfy its needs and wants. Biological organisms have innumerable affective needs that can be satisfied (step 3), given appropriate conditions, for example:

- the need to affiliate
- the need to receive social recognition
- the need to succeed
- the need to create coherence
- the need to have fun
- the need for receiving confirmation from the system
- the need to like someone
- the need to cumulate information on a topic of interest
- etc.

Online instructional activities can be managed to allow students to satisfy many of these needs, and at the same time to provide optimizing venues (steps 4, 5, 6) for their continued satisficing (steps 1, 2, 3). We designed a series of such activities for the online courses that we teach for college students, as may be seen from the descriptions that follow.

The semester for online classes begins with students setting up a weekly team meeting with four other students by selecting from a class list in a shared Google Doc, where each student registered in that course enters available times for three-hour online team meetings. During the first weekly meeting for which they scheduled themselves they meet online using Google+ Hangout or similar conferencing interface, and discuss with each other their interpretation of the written assignments and reports. They then carry out a series of Tasks that are specified in the

online instructions for each of the 16 semester weeks, such as debating the pros and cons of a given topic, or doing online research on a topic and giving an oral report of their findings to the other Team members. They also prepare for the joint Team report they must submit by a deadline using a shared Google Drive document where they each paste their agreed upon Section and give feedback to the co-authors of the other Sections. After the online meeting, they each Post their individual report of their team meeting and activities. Later in the week they read each other's reports and post replies.

These activities produce engagement since all students, while they are posting and replying to others' posts, step through the three biological optimizing steps, and the three satisficing steps, in quick and continuous series during an online Team meeting. Strictly enforced deadline penalty points for weekly Posts, Chapter Reviews, Lab Reports, and Team reports create the need for repeated satisficing-optimizing loops to occur during their online interactions and mutual expectations. For instance, when students agree to post their Section of the co-authored report by a certain date and to give feedback to each other, there is intense use of optimizing actions such as planning (step 5) and executing (step 6) as well as satisficing actions such as comprehending another student's Section (step 2) and value-attaching (step 3) such as "it needs more citations" or "the first paragraph is not clear". We noticed that when they post a comment on someone's weekly Chapter Review or Lab Report it often involves expressing praise for expressing an interesting idea, including a "me too" sympathy speech act that clearly is intended (step 4) to strengthen mutual engagement in the form of loyalty or cordiality (step 3).

User Generated Speech Acts of Engagement

The following sample comments are taken from Week 1 posts following the first online team meeting. The "speech acts" that deal directly with engagement steps are underlined for emphasis (James & Nahl, 2014c).

Meeting my group, learning how to use Google+, and the whole hangout concept was really an interesting and fun experience. My group and I were cordial from the start and helped each other understand what the next few weeks would be like together. My roommate actually thought I was video chatting with friends from home! We started by introducing ourselves a little, meeting each other's animals and talking about the unconventional format of this course, which we were all excited about, of course. Once we got to know each other, we decided to play around with Second Life to be more prepared for next week's meeting. It felt pretty futuristic to be video chatting and meeting in an RPG all at once. ... We talked about the required reading, our Instagram project and the fun pictures on the Generational Hawaii Facebook page. Once we had finished discussing the material, we played around with the Google apps. We used one called Google Effects. It allowed us to wear funny face masks, beards, and hats. It was pretty

amazing. I suggest everyone try it! All in all, our first meeting was a great success and I think we all look forward to meeting again next week.

Working together and discussing our thought processes about the syllabus really helped clarify some points of the class. I came out of our Hangout with a better understanding of what I am supposed to be doing. When we were talking over the General Hawaii Facebook we had some agitation. A few of us were still waiting to be accepted into the group and we didn't really understand what we're supposed to do when we are part of it. Also, a member of our group didn't have a Facebook and so it was irritating to get one. I can only imagine! I enjoyed meeting my new group and can't wait to get to know them better. It could actually be enjoyable sometime!

Our first impression of the syllabus is that it is overwhelming. By the end of meeting, we all felt that it might seem confusing at first, but it is not difficult to understand at all. It is good to have people to work together to create a collective effort and collective thoughts to achieve our goals and to help each other out!

Overall, I liked how our first group meeting went. It was nice that everyone showed up to the meeting on time, prepared, and with similar questions. I was glad that I was not the only person in my group who felt a little lost with how the class would run. I was able to connect easily with my group members because they were all really friendly and easy to talk to. I also was happy that we used Google+ hangouts. I never used this application before and it will definitely help with being able to talk with my boyfriend. I love that we will be able to share screens and watch YouTube videos together.

Once we finished all tasks we talked more about each other and attempted to YouTube a few funny videos, although my computer was unsuccessful at viewing the videos. I believe we all had a great first meeting and I know it'll be fun to work with Robby, Kevin and Betsy for the next three weeks. We chose a great first group so that all of us can adapt to the online requirements and tasks. Everyone was helpful and understanding and I hope to have a great first quarter of the semester with our group."

Despite the somewhat tedious process of familiarizing myself with the whole google+

thing and the technical difficulties---it was an interesting first. The hangout application is a different approach and an innovative addition to an online class. Although the google hangout option with the video chat and all is very challenging to execute, I think just messing around with it will make us all used to it in no time. I can say that the first group meet up was a success and that I am excited for the weeks to come. Because of the google hangout option, this online course is not really for people who are camera shy, and I am. Challenge accepted.

Overall, our first meeting was pretty successful. We did not have much trouble using Google+. Lance was having hard time joining hangout at first, but he figured it out quickly. I had some trouble at the first meeting. We could start hanging out almost on time and we could go through syllabus briefly. I think Google+ is very useful. Moreover, it was fun to get to know each other online. I also thought this meeting helped my understanding of the course materials and tasks. Since this class is online course, it is important to interact online with group members and work together. Hopefully, next meeting would be fine like this meeting. I'm also excited to use second life and the photo sharing application during the group meeting.

I think that the group activity was very successful. All of us within the group had questions that were important and needed to be answered, and we all received thorough explanations. Learning through our peers helps us understand how someone with a similar perspective and role in the class understands the information that is being given. This group activity was important because it gave us an opportunity to clarify our questions with our peers.

The importance of this first team meeting is that I now know how majority of this class will run. It is up to the students in this class to help each other succeed. Writing your posts on time will allow other students to reply on time. This google+ hangout meeting has also opened my eyes how much technology has advanced. I only thought video chatting like this could be done on Skype. Since this is my first online class I have a feeling I'm going to learn a lot of new things that have to do with technology and how to communicate effectively through it.

In the samples above 87 percent of the speech acts indicate unqualified positive engagement and involvement. Additional indication that engagement is produced by these interactions comes from our observation that students express speech acts of regret when they need to end the team

after the fourth weekly meeting (and thus start a new team for the ensuing four weeks). This is very common for all the four-member teams made up of the students registered in the same class. Now they need to spend the next four weeks with a new team of four. Again they go through the prescribed interactions and weekly assignments, and at the end of their fourth week they again act as a closely-knit group that has gone through many trials and mutual help. The following samples illustrate the variety of engagement procedures that students report going through.

This meeting was important because it was our last meeting with group 1! I have really enjoyed this group and hope I stay friends with my group members. It was also important for us to finalize our ideas and thoughts for the annotated bibliography, and to discuss the book as a whole. Attached are some fun photos from our meeting! We enjoyed each other's company and used the Google hangout tools to create an even better experience! I hope everyone else enjoyed their group one, now off to group two and a new project!

This week was our last meeting as team one; it is kind of bitter sweet to move on with a new group of classmates next week as it was becoming routine working Chris, Jocelyn, and Catherine one Tuesday's at 6 pm. I do have to say that I am very thankful to my group members for helping me become familiar with second life since I am not a big gamer this was a bit challenging for me at first. Chris and Jaclyn were both extremely helpful throughout the process of setting up the group chat in second life and keeping us all on the same page.

I loved working with Brennan, Jasmine, and Marissa. We were able to complete our tasks and are meetings were fun! It was sad saying goodbye because we worked so well with each other. We said our goodbye's to each other and wished everyone good luck with the remainder of this course. I'm looking forward to meeting with Team 2.

I am actually quite sad that this was my last meeting with the group. Since Mark's departure, I was unsure how the rest of the weeks were going to go, but my team had very interesting personalities that made each week memorable. Hopefully, this is not my last encounter with these guys.

As the end of week 4 draws near, I would like to take the time to thank my teammates for such a fun and memorable experience. They were so helpful, friendly and we all clicked

so well together. We were always able to stay on task and work through each task in an efficient and timely matter, all while still having fun and enjoying each other's company.

Our last meeting was successful as was the previous meetings, but it dawned on me that this would be the last time I would meet up with my team for the semester. I did not dwell on it too much, though, as we jumped in right away to the tasks at hand.

My team members were very cooperative, encouraging and awesome. I enjoyed these past four weeks getting adjusted to this course with them!

Similar sentiments were expressed at the end of the other team meetings, as for example in Week 16 after the last meeting of the fourth and last team:

Yay I got this semester in the bag is what I am hoping. We had a fun last meeting this week and had a sad time saying goodbye. (...) We are almost there and it feels nice to know that we had done everything for this class that was asked of us, and we did it well. I thought a sappy song about how much I will miss this team would be too sad so I just said my goodbyes with everyone over the mic. I'll hope to run into any of my sixteen partners in this class. Miss ya all and BYE BYE.

To start off our meeting this week my group and I talked about how we couldn't believe the semester was already over! This course has gone by rather quickly and we all agreed that we met a lot of awesome people through the team meetings. (...) We finished our meeting up by performing our individual goodbyes. David had the best one out of all of us with his metalcore inspired song, it was pretty funny!

This group has been wonderful at communicating and clarifying requirements and I'm glad that we were able to end the semester on such a fantastic note.

We are finally at the end of our course; I must say it was very different from what I initially expected. I remember when I first saw the syllabus with my mouth wide open in disbelief, but now I can say I conquered what appeared to be a crazy course, with ease of course! It wasn't so bad, and I am thankful for having worked with such wonderful people all through out! Take care everyone and good luck with finals week!

We closed by saying good bye with some awesome farewell videos. Eric used the song “Time Stand Still” by Rush. I used “It’s So Hard to Say Goodbye to Yesterday.” Jenalyn used the Out Of The Box Goodbye song, which I thought was hilarious and nostalgically awesome! Stephanie used a really funny Vine video about saying goodbye. Then we said our final goodbyes and our thank you.

Lab reports that each student posts independently after each weekly meeting provide the instructor with feedback evidence for the effectiveness of the instructional procedures. In this case, the intention of the instructor for their first online team meeting is to engage the students in examining the rather complex and detailed instructions for team procedures and immersive homework activities. From their posts it is evident that the online discussion in weeks 1 and 2 about the written class instructions satisfied their intense need for disambiguating what these rules are and for sharing with each other their feelings of “confusion” and uncertainty. They express their relief at finding out that everyone had feelings of confusion and uncertainty. The discovery through their chat exchange that “*I am not the only one who finds the instructions confusing*”, is a consummation (step 3) of the powerful need to be perceived as normal, to be legitimated, to be conjoined in solidarity, as shown by this post:

Even though we were all on Google+, one of the team members was using an iPad and was unable to text chat while video chatting at the same time so we decided to video chat for the rest of the team meeting. After talking for a few minutes about ourselves, I feel more confident about the class because I know my teammates are willing to help me when I have questions. Once our introductions were complete, we moved onto our first topic of discussing the syllabus. I was relieved to find out that I was not the only one who was confused. We all discussed how the syllabus is scattered and hard to understand. I was very thankful that my teammates were very encouraging and were willing to help me understand what was going on in the class. Through discussion of the syllabus, my teammates and I were able to break down and establish how to reply to others’ posts and where to reply. Overall, I feel that our first team meeting was very successful and more fun than I had anticipated.

When users identify or categorize (step 2) some information that is noticed (step 1), they are spontaneously engaged in value-attaching that information (step 3). Value, valuation, and evaluation relate to human needs and satisfactions, thus to consummatory behavior in biological organisms. When some information is identified or categorized (step 2), it is liked or disliked (step 3). Common optimizing acts of producing engagement in social networking include *Liking* (a picture, comment, or article), *Following* (other users), *Accepting* (friendship or invitation to join), *Allowing* (push notifications), *Repining* (Pinterest boards), *Replying* (to a post), etc. Each of these acts involves repeatedly stepping through the three satisficing steps and the three optimizing steps since they require noticing and value-attaching something such as a comment or

picture (step 3), then optimizing by clicking or responding (step 6).

These overt expressions of affective engagement with someone or some thing in a social interactive context provide the same choice for others in that situation. It is public social knowledge held in common as to who Follows or Likes whom and what, when, and how often. The interface provides information of these affective acts that bind users into mental similarity groupings. Noticing information on *Likes* or mutual *Friends* is a common practice in social networking communities. It is made possible by the satisficing affordances of each platform (step 6 and 1).

The affective engagement is the result of value-attaching favorably (positively) or unfavorably (negatively) during the information reception process. This is step 3, and it completes the satisficing process. There then spontaneously follows the affective optimizing activity that starts with the motivational act of intending (step 4). The six basic biological steps are repeatedly and continuously involved in every engagement activity. Instructional design can be planned with these recurrent steps in focus. This amounts to the instructional management of student engagement during prescribed online learning activities.

Help from Gaming Experts

Game designer Jane McGonigal makes the provocative claim that by playing games we can save the world (McGonigal, 2011). She identifies “four powers or skills” inherent in computer and video games. The first is “*urgent optimism*” or the ability to continuously scan the environment to discover the next quest to engage. This skill involves using the sensorimotor system to notice anything that can be satisficed as a step forward. This continuous information monitoring and filtering activity is maintained by the user’s affective optimizing intentions (step 4), as already described. Optimism is a powerful affective condition facilitating intentionality and persistence in online activity (Nahl, 2005).

The second gaming power or skill identified by McGonigal is “*blissful productivity*” or the ability to persevere in the face of challenge by using feedback to check progress. Every activity that online users perform involves repeatedly stepping through the six biological steps of information reception and engagement (Fig. 1). Productivity is the result of perceived continuous progression towards some desired sub-goal. Activities online are organized by sequences of sub-goals. Blissful productivity is the flow of work that is experienced without interruption (Csikszentmihalyi, 1975, 1998). The need for task completion without interruption by an insurmountable obstacle gives users the affective consummatory value of blissfulness (step 3).

The third is “*social fabric*” or the ability to feel that one belongs to a community where each shares in the work and contributes to the progress of the group. What an individual does online is visible to others in a connected social group. The interactive matrix ties together particular

individuals to particular others in a social network. Affective motivation for an intended act (step 4) functions to optimize the consummation of affiliative needs (step 3) thus creating a satisficing-optimizing loop that repeats itself with further interaction. For instance, *Liking* someone's photo or comment (step 6) is an optimizing engagement procedure for strengthening the existing social fabric and for integrating that individual further into the community. This in turn increases the consummatory enjoyment of affiliative needs (step 3) keeping the loop going. It is the same with commenting on someone's post, which gives an occasion for expressing support, agreement, and admiration for the person's views:

I really enjoyed this post! I found it to be very interesting while still providing a lot of information about the chapter. I really liked hearing your opinion, and I would have to agree that some of the turn ons are a bit strange and couple specific because all women are different and have different needs. This review made me excited to read this chapter and I could really agree upon everything that was mentioned. The points made in this post were understandable and I feel like I gained a good understanding of the chapter while still feeling a desire to read it myself.

Or, in giving advice to the next "generation" of incoming students it is evident that solidarity, loyalty, and community feelings are foremost in their perception:

Hello G38 students! If you're feeling at all how most of us felt when we were in your shoes you are probably a bit overwhelmed by the course content. The Syllabus is certainly a bit extensive but reading and understanding it will help ease some of the tension going in to the first few weeks.

Also, know that you are not alone! Even though the class is online you still have classmates. Never be afraid to ask fellow students questions, especially the students in your group. One of the best things you can do is discuss the course expectations in your first team meeting. Just like in relationships, communication is key to success!

Also, the T.A. in this course is a past student of Dr. James, meaning they know exactly how to pass the class. Never be afraid of emailing the T.A. with any concerns.

Team meetings are done once a week. If you want these to go by smoothly and quickly read the tasks ahead of time. You may be forced into a large group if the number of classmates is uneven. We suggest avoiding large groups as it becomes harder to organize times to meet. If you can find times to meet earlier in the week do it! This way you will have more time to complete your Lab Report. You don't want to fall behind on your discussion posts because you will lose points. This adds up, so make sure you are finished with all your posts by Sunday night.

Don't feel overwhelmed, it gets easier, promise! GOOD LUCK!!

Hi G38 students! At the beginning this class may seem overwhelming because of the course Syllabus. But hang in there! Make sure you read the Syllabus not once or twice, but several times until you understand it. Trust us, you'll understand it once you meet with your group mates and the course gets easier as the weeks go by. For every week, expect the following: team meetings and four online postings. For every four weeks, expect to complete one team report. Also, do your readings ahead of time to save time in your team meetings. Trust me and hang in there! I know you can do it!

This is a great class to meet people and actually not meet them! You will meet people online and get to know them and probably never meet them in person. You will be able to use all kinds of social media to interact with your classmates. It's a lot of work but once you get used to it, it's not so bad!

This class isn't your typical online class because you also get a chance to actually meet and interact with your classmates! The weekly posts and projects might seem overwhelming at first and tedious after a while but you get used to it. This class taught me to become more tech savvy by using a bunch of different programs and social networks that I've never used (or heard of lol). Overall, this class was a good experience and taught me a lot about time management and teamwork.

DO NOT be intimidated by the Syllabus because this is actually a really easy class, all you have to do is follow the instruction and do the assignment. I know some people do not like talking to others face to face and feel awkward or maybe even shy, but do not worry because everyone is really nice and friendly. Starting your online meetings with a smile and you're all set. You also should have your email downloaded on to your phone or check it constantly because you need to be able to communicate with your teammates instantly since lab reports and projects involve everyone working together. You would not want a teammate to be M.I.A. and a project be unfinished because all the team members will lose points.

Last piece of advice, do your work and you will do great, plus there are no exams! Yay!

Dear Generation 39, Congrats on choosing this class! It is exciting and fun and you will be learning about things that actually apply to you in real life! The material is great and the projects you will be doing are really quick and easy as long as you stay on track with your reading, posts and meetings. Working in groups may be daunting, but it is easily overlooked as technology usually takes center stage here and you realize its really just about getting your work done as best and efficiently as possible.

It is hard in the beginning because you get frustrated with the hit and miss emails and getting everyone on the same page with their technology, but if you stick with it and do your prep work, you will be fine. It will help to speed up your meeting if you are prepared for it ahead of time. The class is fun and relatively easy.

At first, when reading the syllabus, it might be a little overwhelming and confusing but as the weeks go by and you get the hang of it, it is fairly reasonable and a really fun class! It allows you to communicate with others and obtain different perspectives, which allows you to broaden your insights and knowledge about the course content. As long as you stay on track with the work and go to the group meetings, this class is very doable and interesting.

If you have problems look back at the syllabus, because everything is there. If you want to just copy the rules for posting on a separate document, so it's always on hand. Don't be afraid to ask for help from other team members. This will be an easy class as long as you keep up with your work! Good luck!

The fourth gaming power is “*a sense of epic meaning*” or the ability to consider and work toward purposes larger than the self because big picture narratives facilitate commitment and cooperation. The creation of meaning is a biological procedure produced through the cognitive system (step 2) when confronted with particular noticings from the sensorimotor system (step 1). Meaning becomes “epic” in relation to self when the gamification platform gives the person the opportunity to be a “hero” by performing certain notable acts that are valued in the community.

For instance, we assign team exploration activities in the immersive environment of Second Life which engages them in virtual adventure and drama in unknown places and consequent unpredictable happenings such as, getting lost or separated from one's team members and sending out a teleport request for rejoining them. Or it may be a more elaborate assignment, like setting up a role-play activity of a marriage scene in which students take turn being the bride, the groom, or the mother and father in law, or an ex-boyfriend that shows up unexpectedly at the wedding. Another example is the generational approach (James, 2009), which labels each semester as a new “generation” and involves reading prior generation posts and reports, and leaving notes and advice for the next generation (semester).

Today's lab was an extremely interesting one. We began by gathering our groups in order to finalize our group exhibits on the various vehicles we found. My group had racecars and robots and sailboats and our slides were probably the most attractive. My contribution was the giant robot and a very risqué outfit that eventually upset the TA. Despite the momentary rain on what was otherwise a very fun parade, the rest of the exhibitions went well. I got caught up in trying to find some clothes and ended up being forced into a weird elf character.”

This week's lab was a very challenging one because of the pressure we have on us to do our very best and win the trial case we have coming up. We have spent a few weeks preparing for this and with that much time to prepare, any failure was not expected. My part was very challenging because I had the attorney and with that I had to be very flexible. I have to work with my clients and use their stories to make the best weapon that I have. But trying something like this I thought it was very fun because when in life do I ever get to play lawyer?

These gamification techniques help students to think of their course involvement as epic from the fact that their posts and reports are archived and read by future students facing the same instructional situations. This may be seen when examining the comments and advice they “leave behind” for the benefit of the next generations in which they take on the role of expressing solidarity, giving reassurance, providing consolation, and giving advice about facilitative attitudes toward the strict and detailed requirements of the course.

McGonigal's four gaming skills represent orientations that tap a personal drive to achieving mastery and to voluntarily accomplish goals with others. While educators strive to spark intrinsic motivation in students with compelling content and active learning methods, engagement remains elusive and intermittent. By contrast in gaming contexts, intrinsic motivation is both primary and continuous. Therefore in recent years elements of gaming have been introduced into college curricula because of their promise of enabling continuous engagement (Collins & Halverson, 2009; Gee, 2007; Kapp, 2012; McGonigal, 2011; Nahl & James, 2013).

Sample Gamification Instructional Architecture

The following illustrates the combination of gamification strategies that we currently use in our online classes.

I. Task Collaboration Affordances

Promoting affective engagement through online interactions that affect the *social fabric* and create solidarity bonds by sharing in group projects and contributing to the group's success or failure.

a) *Google Drive Spreadsheet*

A class-shared spreadsheet allows students to maintain a record of the dates and times of their weekly team activities and the names of the members. They can also consult the class list for email address, available times for meeting online, and links to a shared Drive Document containing their team reports.

b) *Google Drive Forms*

A team based online questionnaire form made up by the students on an assigned topic and allowing them to collect data, analyze results, and write a report of the findings.

c) *Google Discussion Groups (Forum)*

Students do four required weekly posts that are seen by the other students and they also comment on the posts of others. Various posts are required including a weekly chapter review on assigned books, an individual lab report detailing that week's team activities and assigned collaborative projects.

d) *Joomag Generational Online Magazine*

A team produced online magazine issue for establishing consciousness of a cross-generational community. Students each semester read the magazine issues produced by teams in prior semesters before contributing their own to the archived collection.

II. Virtual World Immersive Affordances

Promoting affective engagement through *urgent optimism* and *blissful productivity* in the game environment of avatars.

a) *Second Life*

Getting together in a specified location and engaging in team explorations of particular areas and places.

Setting up role-play events with a four-week preparation span (e.g., a wedding, a road rage court case, a conference of famous people, a virtual driving race and vehicle exhibit, etc.)

Engaging in conference chat for communication and collaborative problem solving (as an alternative to Google+)

b) Other immersive environments are available for use.

III. Group Chat Affordances

Promoting a sense of *epic meaning* by getting together online and planning for a joint task report that has to be delivered on time under the threat of penalties.

a) Google+ Hangout

Enabling online team discussions and joint planning and research (alternatives include Skype or Second Life)

b) Google Discussion Groups (Forum)

Sharing comments and reactions, and asking others for advice.

c) Second Life (Immersive Virtual World)

Chatting, planning, and carrying out joint activities.

IV. Social Networking Affordances

a) Facebook Group

Participating in a cumulative generational Group for encouraging a cross-generational identity, presence, and community belongingness.

b) *Instagram*

Encouraging social networking participation in a worldwide photo sharing community. Includes writing a joint team report that requires keeping track of data, as for example, detailing the build-up of followers over time and resulting from specific interventions such as following others, adding comments and replies, changing the time and type of photograph being uploaded, and others. Generating, keeping track of, and discussing these data for the generational team report elevates the social networking engagement from “*I’m just having some fun*” to an epic meaning: “*I’m researching the social psychology of it*”.

c) *Pinterest*

Encouraging social networking participation and team cooperation in building together and curating image collections and their information. The team report gives details of how the jointly constructed collections (“pins” and “boards”) were gathered, and how the added information (“comments”) was arranged to make up a cumulative lesson on the course topics.

Table 1 displayed below lists 22 game mechanics generally known in the gaming literature with a definition for each item. We were able to apply most of these principles in the course architecture that we are currently using as described in the outline just above.

Table 1. Gaming Mechanics Applied to Our Current Online Courses

Gaming Mechanics That Boost Engagement (Based on Gamification Wiki, 2014)	Definition	How Game Mechanics Are Implemented in Our Courses
Achievements	Achievements are a virtual or physical representation of having accomplished something.	Students can earn total of 100 points for 68 tasks.
Appointments	Game dynamics in which at a predetermined times a user must log-in or participate in game, for positive effect.	Students schedule themselves in teams of four for scheduled weekly meetings.
Behavioral Momentum	The tendency of players to keep doing what they have been doing.	Students post a lab report each week with four different teams over 16 weeks.
Blissful Productivity	Playing in a game makes people happier working hard, than they would be relaxing.	Playing the Neos Game in which each student constructs new words or phrases with winners verified by Google search.
Bonuses	Earning a reward after having completed a series of challenges or core functions.	Students cumulate total points with completion by deadline of required posts and reports.
Cascading Information Theory	Releasing only small snippets to gain the appropriate level of understanding at each point.	Activities, requirements, and assignments are presented in weekly portions.
Combos	Rewarding skill through doing a combination of things.	Learning how to navigate, shop, change appearance, conference together, and cumulate inventory in second Life virtual world.
Community Collaboration	An entire community is rallied to work together to solve a riddle, a problem or a challenge.	Earned points for co-authored team reports based on individual data gathering.
Countdown	Players have a specified amount of time to do something, causing increased pressure until time runs out.	Deadlines for each of 68 individual and group tasks are enforced through penalty points for late submission.
Discovery	Players are given opportunities to discover something, to be surprised.	Students explore together various specified destinations in Second Life, each requiring discovery procedures.
Epic Meaning	Players are motivated when they are working to achieve something great, awe-inspiring, and bigger than themselves.	All student posts and reports form a visible part of the collective generational archives read by future students.
Free Lunch	Players feels that they are getting something for free due to someone else having done work	Students consult prior generation posts and reports allowing them to improve their own. Team authored reports earn more points for each student.
Infinite Gameplay	Games that do not have an explicit end.	(Not yet implemented.)

Levels	Players are rewarded an increasing value for an accumulation of points and “levels”.	(Not yet implemented.)
Lottery	The winner is determined solely by chance, creating a high level of anticipation.	(Not yet implemented.)
Ownership	Ownerships within games create an emotive attachment to want to protect and look after them (e.g., pets and animals).	(Not yet implemented.)
Points Progression	Success is granularly displayed and measured through the process of completing itemized tasks.	A cumulative point system is in place from Week 1 onward and determines grade at the end for each student.
Quests and Challenges	A journey of obstacles is put in place that a player must overcome.	(Not yet implemented.)
Reward Schedules	How the rewards (points, prizes, level ups) are delivered (e.g., fixed or variable interval or ratio timeframes).	(Not yet implemented.)
Status	The rank or level of a player relative to others as indicated by points level, and badges. Trying to reach a higher status is continuously motivating.	The accrued points over weeks for each student are exhibited in the common class spreadsheet document. Students can improve their status by submitting extra work.
Urgent Optimism	High self-motivation to continue and persist involving the desire to act immediately to tackle an obstacle combined with the belief of success (winning).	Students are immersed on their own in Second Life virtual world from Week 1 onwards with required activities. E.g., they are intensely self-motivated to learn how to control their avatar’s appearance and consider it a victory when they like the result. Similarly with other challenges like navigating, searching, shopping, conferencing.
Virality	A game element that requires multiple people to play or that can be better played with multiple people.	(Not yet implemented.)

Conclusion

It is encouraging to discover how well game mechanics can be implemented to online courses. This is largely due to the ready availability of online technological affordances for instruction and social interactions. It is clear from student comments that they are positively affected by the rules of participation, especially when they feel engaged in a social group context. Interaction management through course rules is effective when they facilitate both satisficing and optimizing opportunities. More research is needed to evaluate when game mechanics contributes to unnecessary complexity to the course, which can be a hindrance to some students.

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