

"It Helped to Know I Wasn't Alone": Exploring Student Satisfaction in an Online Community with a Gamified, Social Media-Like Instructional Approach

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Abstract

This descriptive study offers lessons learned from students' experiences with a gamified, social media-like instructional approach in eighteen courses from spring 2021 through spring 2022. Researchers at a mid-sized university in the southeastern United States leveraged Christensen's (2011) disruptive innovation theory as a guiding framework to explore student satisfaction with this instructional method. This first phase of the study measures learner satisfaction with this approach using the Ritzhaupt (2019) Electronic Learning Satisfaction Survey (eLSS). Preliminary results suggest that learners (n=145) rated their experience with this disruptive technology above average on all Likert scale questions on the eLSS. Identified best practices for instructional design using similar approaches include repeating the game rules, reframing the purpose beyond the game, helping students appreciate their community, guiding students to lead their own posts and gain reactions, and thwarting those trying to game the system. Initial findings across multiple courses suggest that instructors can leverage the gameful experience and social media-like engagement to foster critical connections and increase course satisfaction.

Keywords: Gameful experience; gamification; social media; social presence; disruptive innovation theory; disruptive technology

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Memorizing content to master an exam is familiar and attainable for students. Suggesting that scholars consider problems, review the peer-reviewed literature, share their findings, and build potential solutions based on those findings can be unfamiliar, ambiguous, and uncertain. Which learning design is more comfortable? Which will facilitate learners' critical thinking and problem-solving skills to address future societal issues? Which disruptive technologies best allow students to hone these skill sets and allow for increased learner satisfaction?

This study employs disruptive innovation theory (Christensen et al., 2011) as a lens that posits that learning with disruptive technologies can foster positive changes, such as critical thinking and problem-solving skills, despite unforeseen interruptions to traditional learning. According to Flavin (2012), "Disruptive technologies are those that disrupt established practices, often starting with a small number of users, but growing over time to the extent that they displace a previously dominant, incumbent technology" (p. 102). Christensen et al. (2011), suggests higher education could benefit by offering a value proposition with these technologies to offer cost-effective connections, making "students happy" (p. 49), while delivering what they need to learn.

Yellowdig is one such technology that can help faculty rethink their approach to traditional instruction, showing promise in fostering engagement and learner satisfaction. This disruptive technology uses a gamified social media-like system, awarding points based on engagement and interactive reactions, to encourage students' online scholarly discourse. The system automates the cumbersome process of assigning participation points, thereby allowing instructors to focus on facilitating concepts rather than counting discussion posts. An interdisciplinary team of faculty carefully and purposefully incorporated this technology into their courses to facilitate social constructivism (Vygotsky, 1978, 1997) through discussions in an environment where students can build their learning together.

This study applies and extends the lessons learned from a previous study where an interdisciplinary team examined student experiences (n=507) during emergency remote learning (Ensmann et. al., 2021). These prior findings revealed a paradigm shift in education whereby disruptive technologies offer a means beyond traditional classrooms for interconnectedness and learning through social development theory and the social presence model (Vygotsky, 1978, 1997; Whiteside, 2015, 2017). The data revealed the depth of anxiety felt by students and suggested the need for increased empathy, communication, interaction, and flexibility from instructors and course communities to proceed with academic coursework, particularly for first-year college students. The findings elevate the importance of social presence as a literacy for learning in any modality, underscore the need to support students' mental health, and stress the urgency for online and remote learning readiness (Ensmann et. al., 2021). Lessons learned included connections matter and professors matter. Generational perspectives, self-regulation education, and technology training needs are essential elements to address when creating online learning environments (Ensmann, et al., 2021; Meyer, K. A., 2011; Motz et al., 2021; Whiteside & Ensmann, 2021; Ulrich & Karvonen, 2011).

This descriptive study follows up on addressing the students' need for connections by exploring their experiences with a disruptive technology utilized to move student participants beyond the reactive stage to the proactive stage concerning their learning. In this phase of the study, we explore learner satisfaction using the electronic Learning Satisfaction Survey (eLSS) (Ritzhaupt, 2019). Preliminary results suggest that learners (n=145) rated their course experience using this instructional approach above average on the eLSS Likert scale. Initial findings across

multiple courses suggest that instructors can leverage the gameful experience and social media-like engagement to foster critical connections and course satisfaction.

Researchers sought to answer the following overarching question during this phase: What is the learner experience when a disruptive technology is purposefully incorporated into courses to foster engagement and improve learner satisfaction? Focusing on the results related to learner satisfaction from the students' perspective, this article provides the first in a series of data analysis reports that examine the overall learning experience.

Literature Review

This review examines learning communities, social media-like engagement, and gamification to situate this study in filling the gap of understanding students' experience when a gamified, social media-like online community is used to foster learner satisfaction across disciplines. Despite growing literature in recent years regarding positive outcomes of gamification in education, the need still exists for research in this area examining interdisciplinary studies, including those offering contextual designs focusing on social-oriented affordances that this instructional method can provide (Hung, 2017; Majuria et al., 2018; Mustafa, 2021; Uz Bilgin & Gul, 2020).

Engaging Learning Communities

Lave and Wenger (1991) and Wenger (1998) addressed the importance of relationships, networking, and connections for meaning-making within a discipline. To thrive in a learning community, students need to “engage directly in activities, conversations, reflections, and other forms of personal participation” while simultaneously interacting with the material and learning “artifacts” (Wenger, 2000, p. 225). Learning is a powerful negotiation of meaning among participants in an “informal and dynamic social structure” (p. 226). Not only is learning a social activity that exists within a community, but it is also a deeply personal process of trust and relationship building. In their phases of engagement framework, Conrad and Donaldson (2012) suggested that relationship building is the first phase of engaging the online learner and is not to be skipped. Stimulating engagement through inquiry and emerging technologies is the first step to begin cultivating connections before full realization of learning can occur (Blaschke, 2012; Cook & Gregory, 2018).

Social Media-Like Engagement

Social media are internet-based technologies that support multimedia content and interaction (Koehler & Vilarinho-Pereira, 2021). Instruction utilizing social media can offer outlets for learners to produce outcomes of their learnings using media and dialogue on platforms with Twitter-like features (Busque & Mingoia, 2021; Nelimarkka et al., 2021; Sohoni, 2019). The benefits of using social media offer avenues to foster connections with learning communities, subject communication, motivation, and networking.

Social media platforms do not by themselves foster social presence in the online classroom. Based on a study using Yellowdig with students at a midsize public university in the States (n=30), students' perceptions of social presence did not increase (Conklin et al., 2019). Koehler & Vilarinho-Pereira (2021) reviewed the literature to examine social media affordances to support problem-solving skills and suggest that social media does not automatically improve education. The study suggests that facilitators cannot assume that intrinsic motivation affects all

learners similarly. Social media could be overwhelming for some students, misinform them, and be distracting in the classroom setting. Thus, educators must create an effective problem-centered environment with intentionality for learners to generate solutions. The facilitator's role should include meaningful planning, encouraging collaboration and reflection and incorporating assessment into the instructional design. When approached in this manner, social media can increase learners' exposure to problem-solving content, visible behaviors, such as likes and comments, identity creation, and engagement. Access using mobile devices offers students the medium to connect with other learners efficiently through social media platforms, providing the ability to network anytime and anywhere. Overall, this study suggests that using social media offers ample opportunities for educators. Teachers must be intentional with integrating social media; when used appropriately, social media can boost students' problem-solving skills and engagement in the classroom.

Lastly, this literature review examines a study on social learning utilizing Yellowdig as a platform in four business marketing courses at a Midwest university (Martin et al., 2017). The research reports that this instructional method allowed students to engage in a social media-like online community, as they are accustomed to doing on social media daily, to improve connections inside and outside of the classroom. It also provided the ability to easily reward students for connecting with each other. Furthermore, the study reports that the analytics of the platform offer graphics to motivate learning and engagement. Quantitative analysis suggests that instructors benefit from having access to learners' network of interactions and that engagement improves student learning.

Gamification

Nick Pelling first coined the word gamification as a means to motivate student engagement (Kapp, 2016). The concept gained popularity in instructional design research focusing on game thinking and the mechanics used to engage audiences in a fun manner to solve problems (Deterding et al., 2011; Deterding, 2012; Kapp, 2012, 2016). Deterding et al. (2011) defined gamification as “the use of game design elements in non-game contexts” (2011, p. 1), while Kapp combined concepts to suggest gamification is “using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems” (2012, p. 10; 2016, p. 356). Using B.F. Skinner's behaviorism theory of learning, structural gamification (not to be confused with content gamification or digital game-based learning), may be used over time and curriculum to motivate engagement, choice selection, and levels of competence (Deterding et al., 2011; Kapp, 2016).

Ten years later, the literature in educational research begins to reveal empirical data supporting the positive effects of gamification on motivation, learning outcomes, and achievement progression (Chen et al., 2018; Majuria et al., 2018; Mustafa, 2021; Subhash & Cudney, 2018; Uz Bilgin & Gul, 2020). Game elements used for gamification that are most identified include rules, goals, challenges, points, leaderboards, levels, badges of recognition, responsive feedback, graphics, fantasy, progress bars, and user control (Kapp, 2016; Subhash & Cudney, 2018). The literature seems to suggest that although not all game elements must be used to be considered gamification, a combination may afford the gameful experience in a non-game context. Eppmann et al. (2018) suggest that the gameful experience may be described as one that offers a positive emotional reaction coupled with involvement using a gamified application.

Learning designs need to go beyond leading to prescribed learning outcomes, and interactive components can facilitate “open-to-learning behaviours” (Greener, 2020, p. 657) to

prepare students with skills beyond school. Furthermore, the essence of gamification is that it offers a fail-safe experience (Justice & Ritzhaupt, 2015), a fertile environment to study group dynamics fostering communication, cohesion, and trust (Uz Bilgin & Gul, 2020). Huotari and Hamari (2017) suggest gamification even makes the learners producers of services rather than just consumers.

Conceptual Framework

This study leverages Christensen's (2011) disruptive innovation theory as a lens to examine the participant experience when two instructors in different disciplines at one mid-sized, private university incorporate an instructional approach utilizing gamification and social-media elements to foster discussions. According to Christensen et al. (2011), disruptive innovation consists of the idea that technology can offer a solution to the challenges of isolation and disconnectedness that can emerge in various face-to-face, blended, and online learning environments. According to Christensen (2011), "This emerging disruptive innovation [online learning] also presents an opportunity to rethink many of the age-old assumptions about higher education—its processes, where it happens, and what its goals are" (p. 11).

Furthermore, disruptive forces can lead to new social structures when designing and developing online programs (Yamagata-Lynch et al., 2015). Christensen et al. (2016) tracked the theory's evolution in the literature from a "descriptive framework of technology change to a normative theory of innovation and competitive response" (p. 30). Meyer (2011) expounds upon this literature review and identifies elements of disruptive technologies in online learning. These include a) technologies considered essential to learning and b) those potentially disrupting traditional teaching while improving student learning and interaction, and decreasing long-term costs and investment of faculty time on repetitive efforts (Twigg, 2003; Wingard, 2004). Ultimately, Meyer (2011) summarized the literature noting the overwhelming success of disruptive innovation practices. Finally, in examining Christensen's suggestion that online learning is a disruptive innovation, Meyer (2011) contends, "It isn't the technology per se, but the new thinking it inspires, that can be disruptive" (p. 45). Meyer's research suggests that the disruptive innovation of online learning has not jumped the curve in higher education due to one significant barrier: time. Meyer offers the new ways of thinking that disruptive innovation inspires take considerable time to explore, adopt, implement, and evaluate.

Integrating a Gamified, Social Media-Like Instructional Approach

This section addresses elements of Yellowdig and then explains how the researchers integrated it into their courses. We address the gameful experience as well as the ways that we used it in our classes.

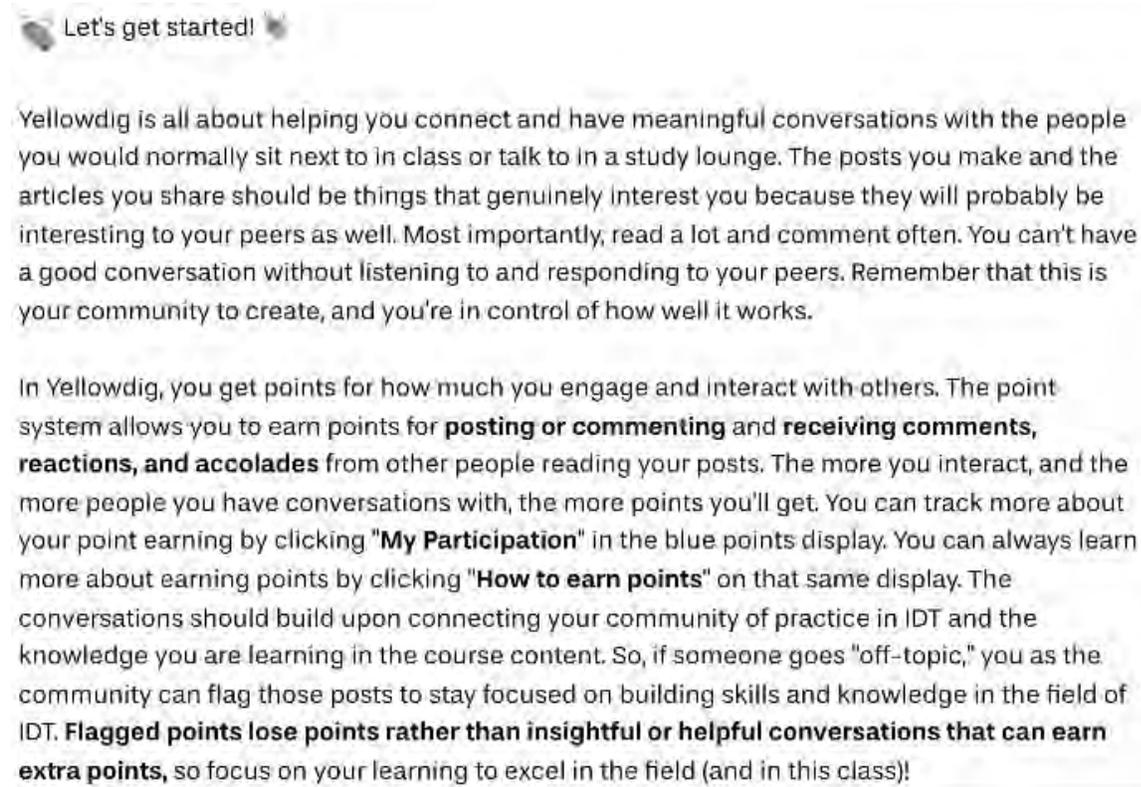
Designing the Gameful Experience with Intentionality

First, this research team explored the gameful experience and how it fits with the courses. To offer the gameful experience of fostering positive emotions based on interactions (Eppmann et al., 2018), instructors structured Yellowdig content to elicit engagement between learners with competition and collaboration fostering individual learning outcomes. As Huotari and Hamari (2017) suggest that the first game element is to create the rules to motivate behavior, researchers posted an introduction to the online community to relay clear, consistent rules to all learners, as revealed in Figure 1. In this case, students earned one thousand

points per week through a combination of options, including authoring discussion posts, commenting on peers' posts, receiving accolades for insightful posts, and accumulating social media reactions from their peers. See Appendix A for the full-page post of the rules.

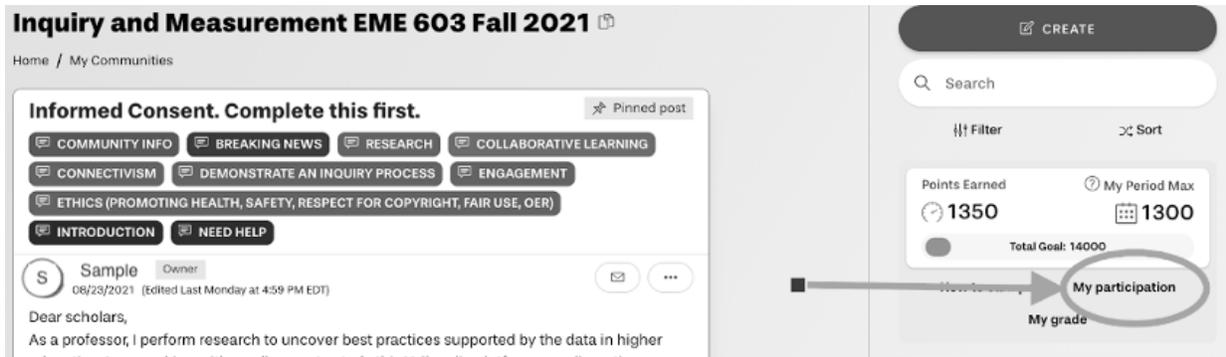
Figure 1

Rules revealed



Learners then create individualized profiles to begin engaging. Points are revealed to prompt competition, facilitated by weekly deadlines as reflected in Figure 2.

Figure 2
Points Revealed

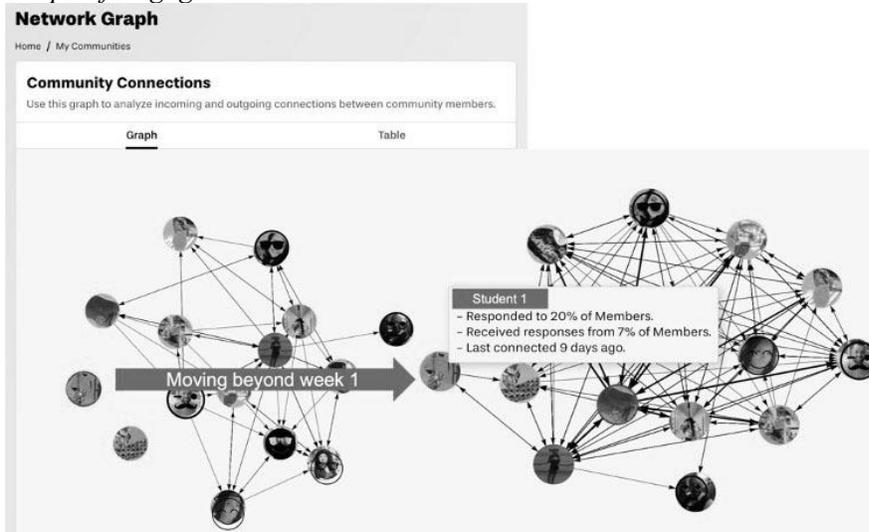


Clever learners quickly recognize that proactively initiating discussions about course content and skills at the beginning of the week leads peers to contribute to their success as points for reactions and comments contribute to the original authors' points.

Engagement, Community Connections, and Tracking Overall Participation

Once learners stop waiting for directives about what to write and realize they can author reflections of the peer-reviewed literature as producers (Huotari & Hamari, 2017), thereby leading the story they want to tell, they see the choices they can make with the gameful experience. Points are generated based on initial scholarly posts and peer engagement, building upon the initial reflections and continuing the conversation, as reflected in Figure 3. This encourages learner-driven rather than instructor-driven learning.

Figure 3
Graph of Engagement

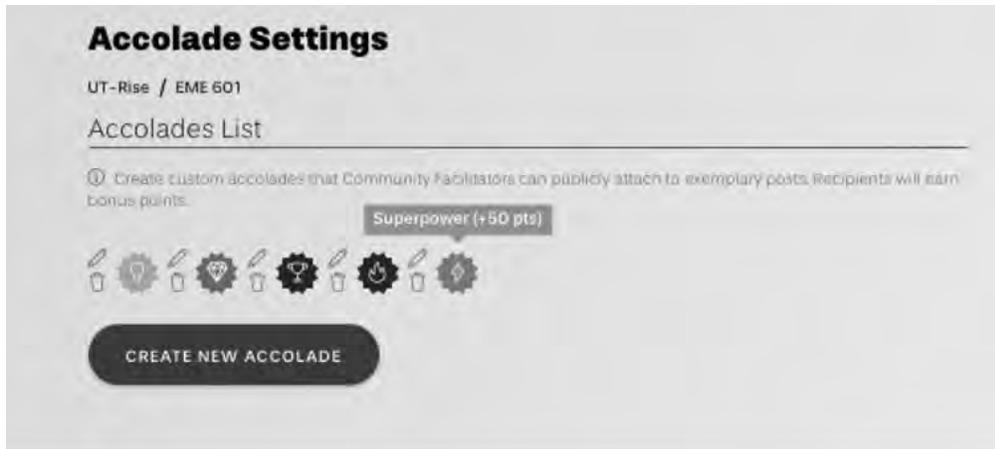


Moving beyond a point-driven system, learners become aware of more game elements that emerge, inciting gameful behavior (Deterding et al., 2011; Eppman et al., 2018; Huotari & Hamari, 2017). For example, learners can also keep community members on-task by flagging posts as off-topic from the course materials.

Additionally, instructors award accolades (a form of incentives termed *treasures* or *collectibles* in the gaming industry) to advance learners' position in the game. This study offered these game tributes, including insightfulness, helpfulness, and superpowers. When discussions demonstrate insightfulness, instructors award a trophy. Helpfulness is illustrated with a lightbulb; interesting excerpts are depicted as a diamond, and superpower is represented with a lightning bolt, as in Figure 4. Superpowers are awarded when learners demonstrate an air of creativity in posts and innovative applications of concepts or ideas.

Figure 4

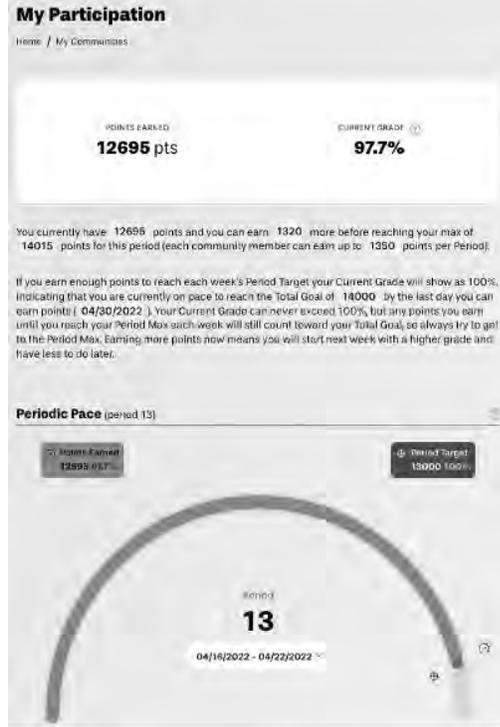
Collectible Accolades



Another accolade did not advance learners' position in the community but prompted them to engage with a nudge represented with a flame. All accolades are customizable.

As reflected in the literature (Subhash & Cudney, 2018), other motivational game elements designed to foster the gameful experience within this interactive online community include a leaderboard and progress bar to promote competition and self-regulation, as seen in Figure 5.

Figure 5
Progress Bar Dashboard



Innate to the gameful experience, competition engages learners in the online community, ultimately supporting peers to succeed.

Methods

This study used a cohort descriptive survey design, gathering quantitative and qualitative data from students to capture their perspectives on using this gamified social media-like online community to foster connectivity and learning satisfaction.

Research Site and Participants

Researchers conducted this study using courses from multiple disciplines offered at a mid-sized, private four-year residential urban university adjacent to a downtown area. Traditionally a face-to-face institution slowly moving toward more hybrid, blended, and online options, this southeastern university serves 10,500 students from 50 states and 130 countries with over 1,200 international students during 2021. Students used the Yellowdig online community while enrolled in 18 courses over Spring 2021, Summer 2021, Fall 2021, and Spring 2022. Courses include Research and Writing, Professional Editing, Technical Writing, Discovering the Leader Within, and Senior Portfolio at the undergraduate level and Global Communication Design, Introduction to Instructional Design, Inquiry and Measurement, Design of Online Collaborative Learning, Introduction to Distance Learning, Trends and Issues, and Management of Change at the graduate level as reflected in Table 1 below.

Demographics

Participants (n=145), from a population of 297 with a 49.2% response rate, self-identified as graduate (30%), senior (25%), sophomore (23%), junior (11%), or freshmen (10%) students. Most were females (75%), with 23% identifying as male and 1% as transgender males. Using generations classifications as specified by Bencsik et al. (2016), researchers found most participants were in the younger Z generation (1995 - 2010) (77%), followed by the Y generation (1980 - 1994) (14%), and the X generation (1960 - 1979) (7%), with 3% not reporting. Ethnicity included primarily white, non-Hispanic (75%), followed by equal numbers of Hispanic/Latino (6%), black or African American, non-Hispanic (6%), and equal numbers following in the two or more races including Hispanic (3%) and two or more races, non-Hispanic (3%) Asian, non-Hispanic following (2%), and equally a limited amount of Asian, non-Hispanic, white (1%), and two or more races including black or African American, white, Hispanic and non-Hispanic (1%).

Table 1

Demographic Descriptors of the Study (n=145)

Ethnicity	74.50% White, non-Hispanic	6.20% Hispanic/Latino	6.20% Black or African American, non-Hispanic	6.20% Two or more races (including Hispanic & Non-Hispanic)	2.10% Asian, non-Hispanic	2.80% Other	2.10% prefer not to answer
Gender	74.50% Female	23.40% Male	1.40% Transgender Male	.70% prefer not to answer			
Age	76.60% Z generation (1995-2010)	13.80% Y generation (1980-1994)	6.90% X generation (1960-1979)	2.80% not reported			
Classification	30.30% Graduate	24.80% Senior	22.80% Sophomore	11.0% Junior	9.70% Freshman	1.40% prefer not to answer	
Term	42.80% Spring 2022	29.70% Fall 2021	15.90% Spring 2021	11.70% Summer - 6 weeks			

Data Collection

Since the literature points to the value of survey methods (Babbie, 1973; Fowler, 2009; Creswell, 2014), the researchers selected the Electronic Learning Satisfaction Survey (eLSS) to measure electronic learning satisfaction (Ritzhaupt, 2019) of e-Learning environments. See Appendix B for the eLSS instrument conceptual model. Ritzhaupt validated this instrument as a reliable way to measure multimedia learning environments with higher ed learners (n=635) at a southeastern university, with a strong Cronbach alpha reliability coefficient of $\alpha = .93$ (2019). Having psychometric evidence to support the use of this instrument at a comparable location, researchers selected the eLSS to measure participants' satisfaction with Yellowdig. Designed to be comfortable for the user experience, the instrument uses bipolar adjectives at opposite ends of a five-point Likert scale with nine questions. Examples of question responses include negative to positive, unnatural to natural, ineffective to effective, and unsupportive to supportive. This instrument also included two short-answer questions to complement the quantitative data with

qualitative data and provide an opportunity for participants to further elaborate upon their experiences in this new instructional method. Researchers administered the surveys to the student participants in the final two weeks of the term by pinning the script of the survey invitation to the top of the online communities for each course.

Data Analysis

Researchers analyzed the descriptive statistics in Excel and SPSS. ANOVA tests compared multiple variables for statistical significance. Additionally, the researchers provided descriptive statistics based on the continuum found within the Likert scales of the eLSS. To triangulate the data, we analyzed the response to the two open-ended questions (asking about opposing sentiments, favorable or negative) to further explore learners' perspectives and satisfaction with the learning experience. Researchers completed a thematic analysis by coding these survey responses (Croucher & Cronn-Mills, 2014; Owens, 1984). Given the magnitude of learners across disciplines, this study has limitations as each class is individually managed by different professors, focused on various subjects, and delivered via several modalities (face-to-face, hybrid, online, and remote). Some classes offered more direction for postings which offers further room for examination within each of these classes, modalities, and subjects.

Results

Generations View Educational Gameful Experiences Differently

ANOVA tests reflected statistical significance between generations Y and Z. While all generations rated the platform above average overall, generation Z rated the gameful experience as the clearest with a mean of 4.53. Generation Y rated the clarity of their experience at a 3.60 level as displayed in Table 2 where statistical significance is bolded.

Table 2

Learners' Online Community Satisfaction Levels

Generation factor	X (1960 - 1979)	Y (1980 - 1994)	Z (1995 - 2010)	Statistical significance
Variables	Mean (SD)	Mean (SD)	Mean (SD)	<i>p-Values</i>
<i>Unclear = 1: Clear = 5</i>	4.40 (1.350)	3.60 1.142		.324
	4.40 (1.350)		4.53 (0.698)	.985
		3.60 1.142	4.53 (0.698)	.006

Researchers ran Levene's Homogeneity of Variance tests to determine variances and post hoc tests to run (Green & Salkind, 2005). Multiple comparison results using the Dunnett post hoc test confirmed the ANOVA statistical significance of groups Y and Z regarding the clarity of Yellowdig. It is essential to recognize that all means are still above average ratings for clarity. Still, the statistical significance in the generations offers considerations for further research.

Learner Satisfaction

The majority of participants found the online community mainly easy to learn rather than complex to learn; mostly positive rather than negative; natural rather than unnatural; effective rather than ineffective; clear rather than unclear; supportive rather than unsupportive; pleasing rather than annoying; easy rather than hard; and gratifying rather than frustrating as reflected in Table 3.

Table 3*eLSS Instrument Results: Overall Learner Satisfaction Levels*

Variable	N	Mean	Std. Deviation	Min	Max
Hard to learn: Easy to learn	145	4.41	0.969	1	5
Negative: Positive	145	4.02	1.139	1	5
Unnatural: Natural	145	3.65	1.233	1	5
Ineffective: Effective	145	3.81	1.236	1	5
Unclear: Clear	145	4.35	0.924	1	5
Unsupportive: Supportive	145	4.16	1.078	1	5
Annoying: Pleasing	145	3.46	1.399	1	5
Difficult: Easy	145	4.32	0.927	1	5
Frustrating: Gratifying	145	3.57	1.284	1	5

Participants overwhelmingly noted that Yellowdig was easy to learn. One student explained, “It was just an easy way to ask questions and get feedback.” The reactions to the online community were mainly positive, most suggesting that it was both easy and helpful to their learning. One student commented in the survey, “I thought this was an easy but helpful way to gain points in this class. I liked being able to comment on other people’s posts like social media and be able to interact with classmates. Also, it was nice seeing certain comments that helped me add valuable things to my paper.” Since it was still an assignment for a course, many students couldn’t quite place it as gratifying. As one student noted, “It was nice to be able to communicate what I was feeling about certain things and to see how other people felt as well. I wouldn’t say it was beneficial for me, except for the fact it was part of my grade.”

After running eLSS quantitative analyses, the researchers sought to learn more about student satisfaction with the experience. We coupled the eLSS inventory results with a thematic analysis examining the responses of the two eLSS questions asking if students found Yellowdig to be a positive experience or negative experience through Atlas.ti. As an example, for the question asking for positive experiences, Table 4 below reflects the participant comments based on the word used most frequently (in case, the word was *like*) and thematic elements that emerged.

Table 4*Positive Experience Analysis (n=70)*

Participant Comments	Thematic Element
I like how it continuously tracks your points and encourages you to engage!	Progress bar / Managing self
Liked hearing from my classmates. It made our classroom a more positive community.	Community
I like the fact that it was point-based and motivating to gain more points.	Points / Motivational
I liked how we could engage with other students and get to know each other a lot better with all of the interactions.	Interactions / Community
I liked how easy it was to interact with others and to have conversations with others in the class that you might not sit next to or interact with a lot.	Interactions
I liked getting and giving feedback on my thoughts	Feedback/ Interactions
I like the different ways to post like attaching documents, polls, emojis	Social media
I liked how it was easy to use and rack up points, enjoyable to scroll through, and that we were permitted to post about whatever we wanted to. It also definitely allowed me to become more acquainted with my classmates than I would have otherwise.	Points / Community

The researchers also reviewed the negative responses, analyzed participants' comments, and determined themes from those frequencies and comments. As an example, for the question asking for negative experiences, Table 5 below reflects the participant comments based on the word used most frequently (in case, the word was *post*) and thematic elements that emerged.

Table 5
Negative Experience Analysis (n=31)

Participant Comments	Thematic Element
There are certain actions that email does not notify me about, such as when other students comment on one another's posts.	Design Improvement
Something annoying about the point system is that you either get 0 points or several hundred depending on the length of a post. I'd be encouraged to post more content more often if I didn't have to meet a certain quota in order to receive credit. Consequently, I haven't posted much.	
When it comes to the actual platform, it was hard to navigate because the posts don't necessarily appear in order and there isn't a "homepage" that easily shows posts. It was like once I saw a post, it almost disappeared, and I had to go through a few cumbersome steps to go back and find what I was looking for.	Design Improvement
There can be a bit of favoritism where friends mainly react to their friend's posts	Self-Efficacy
It was annoying because I completed the classwork and participated in class but, I would forget to post because I work nights. I enjoyed the overall concept. It was interesting.	Self-Regulated Learning
It felt unnatural and forced as we put bland comments and posts just to get the points.	Authenticity and Gaming
It's not very visually appealing and I find it a little confusing to find certain posts. In the past, we have used LinkedIn for reflection & found that more useful for reflection and as a networking tool.	Change Resistant

Results suggested elevated levels of learner satisfaction for the online community's gamification elements on Ritzhaupt's Electronic Learning Satisfaction Survey (eLSS) where students recognized the positive effects of the game elements supporting time management, self-regulation, learning, and connectivity. A smaller number of participants who expressed negative sentiments offered design improvements were concerned about gaming authenticity and made comments that suggested they were resistant to change.

Discussion

Initial findings across multiple courses suggest that instructors can leverage the gameful experience and social media-like reactions in Yellowdig to motivate student engagement, and foster learner satisfaction and critical connections. According to Majuria et al. (2018), gamification offers notably positive results in fostering human development but they suggested that future research was needed for solutions to prompt social interaction with gamification. This study offers empirical data addressing that need, illustrating positive satisfaction for learners across disciplines, including courses in education, communication, leadership, and writing.

To improve motivation and interaction, instructors customized the use of game elements (Subhash & Cudney, 2018; Kapp, 2016), including points, leaderboard, progress bar, accolades, feedback, and social media reactions. They provided rewards for leading discussions and consequences for going off-topic to engage in the knowledge exchange. Analytics are automatically generated and presented with a progress bar type dashboard to support self-

regulated learning, whereby learners can monitor and manage their course engagement. At the same time, the instructors' display provides diagrams of network interactions to support learners who fail to engage or need further facilitation of concepts. This study also offers a look at findings between generations and provides further consideration for strategies to harness the Z generation's perspectives of clarity with this technology.

Lessons learned in the development of the instruction for this study include (a) repeating the game rules, (b) reframing the purpose beyond the game, (c) helping students appreciate their community, (d) guiding students to lead their own posts and gain reactions, and (e) thwarting those trying to game the system. These are valuable for instructional design of courses utilizing Yellowdig or other social media-like, gamification course elements.

Repeating Game Rules

The first lesson learned was that students needed constant reminders of the game rules (Kapp, 2016) in the first three to four weeks of the term. Instructors learned to save dedicated time for revisiting the weekly point targets, the many ways to earn points, how buffer points worked, and when the earning period began and ended. Additionally, the instructor may need to reinforce the notion of planning ahead to students. Instructors may also need to offer specific online community reminders along with other course assignments and remind busy learners of the various options to enhance their learning (such as authoring their own posts that extend the course content.) As reflected in Figure 3, the analytics for both instructors and students offered support for learning. Progress bars (Kapp, 2016; Subhash & Cudney, 2018) guided learners, while network graphs for instructors revealed struggling learners needing additional support. Students can feel a sense of relief and familiarity once they gain a clear understanding of the rules. As one student noted, "The format was very modern and fun; the gamification aspect of it made interactions more significant and required more critical thinking than most discussion boards."

Reframing the Purpose Beyond the Game

Once students understood how the online community worked functionally as a game, instructors needed to leverage the resources in this platform and help students understand the opportunities this platform offers them. The unique affordances of this gamified social media-like instructional approach allowed students to extend the course content and the course community outside the physical or virtual classroom doors. Instead of the typical discussion board that ends at Week 1 and begins at Week 2 and so on through the term, this instructional approach allows students to comment continuously through the term as they grow as learners. As one student noted, "I liked how it was easy to use and rack up points, enjoyable to scroll through, and that we were permitted to post about whatever we wanted to. It also definitely allowed me to become more acquainted with my classmates than I would have otherwise." Moreover, this approach offers instructors an automated point-based system (Subhash & Cudney, 2018; Kapp, 2016) and valuable data analytics to monitor student engagement. This supports instructors to allow them to use the time they would typically spend grading discussion boards in better and more effective ways, such as maximizing higher-level engagement. The more effective use of instructional time is an essential ingredient that propels these disruptive technologies to advance learning (Meyers, 2011).

Helping Students Appreciate Their Course Community

Many students have been conditioned to seek their instructor's approval and may come into a course disparaging the value of their peers' contributions to the course community. Additionally, for content that requires a lecture-based approach to help students master the required material, instructors may leverage Yellowdig to continue the conversation, and build relationships through inquiry-based learning (Blaschke, 2012; Conrad & Donaldson, 2012; Cook & Gregory, 2018). Thus, the instructors in this study needed to help students appreciate their peers' comments, suggestions, and experiences and understand the value of a course community.

As a result, student participants in this study reflected upon the peer-to-peer engagement and motivation of the gameful experience: "I liked how we could engage with other students and get to know each other a lot better with all the interactions." Another offered, "Easy collaborative efforts, the points earned are rewarding to see and encouraging." These students found the online community helpful in offering options for them to advance their own learning.

Guiding Students to Lead Their Own Posts and Gain Social Media Reactions

Rather than wait for the professor to make a prompt at the beginning of the week, the faculty in this study redirected learners to leverage the affordances of the social media-like community to lead their own posts (Le Busque & Mingoia, 2021; Nelimarkka et al., 2021; Sohoni, 2019). Furthermore, data analytics provided instructors the platform to prompt low-achieving learners to focus on their own self-efficacy (Bandura, 1982) to market themselves by improving posts with thought-provoking questions, polls, literature, or videos. Figure 6 shows an example of a learner making critical connections between material read and previous lessons on self-related learning.

Figure 6

Making Critical Connections

Reflection - ARCS and Self-Regulation

COLLABORATIVE LEARNING ENGAGEMENT

04/15/2022

Hi Everyone!

I hope you are all having a wonderful week! I found the "Motivation for instruction" and Storyline activity in this week's content interesting and useful. It related very closely to Zimmerman's theory of self-regulation from previous weeks. ARCS is a simplified way for designers to ensure they are producing instruction that focuses on the learners' needs and perspectives to maintain maximum motivation and engagement.

A = Attention - Gaining attention is much like Gagne's first step of instruction
 R = Relevance - Making instructional content that learners can connect to personally
 C = Confidence - Building learners' confidence by setting goals & giving some learner agency
 S = Satisfaction - Learners' desire to continue learning is a key indicator and can be accomplished by appealing extrinsic and intrinsic motivational factors.

By designing instruction that is personally meaningful and providing opportunities to take accountability for their own learning, learners develop intrinsic motivation and self-regulation skills.

2

Comment

Collapse comments (4)

04/20/2022

I love our team! thank you for always adding to my information and complementing my ideas. I am so excited about our final conceptual outcome. I see it standing out with the amount of research we are putting in. Also, the multiple theories we are using came in our favor, supporting our topic.

1

Once learners begin to lead discussions with their own posts, they pave the way to engage with responses and affective expressions as they would with other social media as they earn points for each interaction (Martin et al., 2017). Thus, the platform promotes earning points for leading a post and then, allows them to gain more points from their peers' social media reactions (likes, dislikes, and emojis allowing for cultural and diverse expression). In doing so, learners earned points when they prompted others to engage in their ideas, and they also extended their knowledge and created critical connections within the course community.

Thwarting Those Trying to Game the System

Once the rules and norms of the community are well established, members of the course community are empowered to self-regulate (Zimmerman, 2008). Gamers who play for entertainment purposes understand that if they choose not to engage or if they do not follow the rules, they lose the opportunity for advancement that day. In a fail-safe gamified environment, they learn either by losing points, failing to advance in levels, or losing critical connections. Likewise, in this Yellowdig platform, any community member (instructor or student) can flag a post, and they can offer a rationale for their assertion of why a post is worth more or fewer points.

Students, particularly those who are entertainment gamers, may resist these same gameful experience rules for educational purposes when they fail to see a gain from themselves and do not fully appreciate the course community. They may try to simply add superfluous words to posts to game the system or try to bend the established rules. As one participant noted in response to the open-ended question in the eLSS, "My only gripe with it was at times I needed to make posts or comments that did not necessarily benefit me and seemed forced." These five lessons learned—(a) repeating the game rules, (b) reframing the purpose beyond the game, (c) helping students appreciate their community, (d) guiding students to lead their own posts and gain reactions, and (e) thwarting those trying to game the system—provide a set of best practices that may help instructors and researchers to help with learner satisfaction in the future.

Conclusion

This study explores a gamified social media-like approach for college students, spanning disciplines, delivery formats, and subjects. The guiding framework for this study posits that disrupting traditional teaching can improve student learning and interaction and decrease long-term costs by saving faculty time on repetitive efforts (Meyer, 2011; Twigg, 2003; Wingard, 2004). This study offered findings reflective of these elements embodied in Christensen's disruptive innovation framework. Students rated their satisfaction in all nine different areas of the eLSS as above average.

Additionally, the open-ended data suggests that, in the context of these learning communities, this instructional approach with Yellowdig offered an effective platform for student engagement, sharing of ideas, and extending their learning (Vygotsky, 1978, 1997). Moreover, this approach allowed faculty to invest in guiding the learning experience, rather than counting discussion board posts. As Meyer (2011) suggests, "It isn't the technology per se, but the new thinking it inspires, that can be disruptive" (p. 45). Ultimately, this gamified social media-like approach offers new thinking—a paradigm shift for the learners, allowing them to drive their own learning rather than waiting for a prompt from an instructor.

Based on the statistical significance in regard to clarity between Generation Y and Z, researchers suggest future research studies using interviews, observations, and other qualitative methods to dig deeper into how the generations are using this instructional approach. Future studies might examine how variables affect the learning experience including teaching strategies, such as directives for posting, subject-specific, classification, or delivery format. Additionally, researchers might explore performance-based research to examine student learning outcomes to support this instructional approach as well as the return on investment of this disruptive technology.

This study yielded several best practices and lessons learned: (a) repeating the game rules, (b) reframing the purpose beyond the game, (c) helping students appreciate their community, (d) guiding students to lead their own posts and gain reactions, and (e) thwarting those trying to game the system. Ultimately, the gameful experience occurs when platforms offer connected elements designed to provide a yin and yang reaction. One element leads the learner to the next task to problem-solve, compete, collaborate, and collect incentives to achieve higher-order thinking desired outcomes.

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Declarations

In compliance with ethical standards at the University of Tampa, researchers obtained informed consent from all individual participants.

All procedures performed in this study involving human participants followed ethical standards and the 1964 Helsinki declaration and its later amendments.

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The eLSS conceptual model showing nine items on the semantic differential scale was included in this article with written permission from Albert Ritzhaupt.

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Appendix A Rules Post

Instructor Owner
01/01/2021 (Edited 08/23/2021)

Let's get started!

Yellowdig is all about helping you connect and have meaningful conversations with the people you would normally sit next to in class or talk to in a study lounge. The posts you make and the articles you share should be things that genuinely interest you because they will probably be interesting to your peers as well. Most importantly, read a lot and comment often. You can't have a good conversation without listening to and responding to your peers. Remember that this is your community to create, and you're in control of how well it works.

In Yellowdig, you get points for how much you engage and interact with others. The point system allows you to earn points for **posting or commenting** and **receiving comments, reactions, and accolades** from other people reading your posts. The more you interact, and the more people you have conversations with, the more points you'll get. You can track more about your point earning by clicking "**My Participation**" in the blue points display. You can always learn more about earning points by clicking "**How to earn points**" on that same display. The conversations should build upon connecting your community of practice in IDT and the knowledge you are learning in the course content. So, if someone goes "off-topic," you as the community can flag those posts to stay focused on building skills and knowledge in the field of IDT. **Flagged points lose points rather than insightful or helpful conversations that can earn extra points**, so focus on your learning to excel in the field (and in this class)!

If you see a "current grade" in your points display, you should know that your "current grade" represents your **pace** towards reaching your total goal for this Yellowdig community until the end of the course. So, if you are on track to meet the participation target at the end of week one, your grade will be a 100% even though there are still plenty of points left to earn in the class. 100 At the start of each week, your grade will go down, even though your earned points do not. That's because your current grade is re-calculated based on the points you'll need to stay on **pace** for the new week. To understand more about points and grading, this article may help.

At the end of the term, the percent of total Yellowdig points you earn will transfer back as the percent of participation points you can earn in this class, as noted on your syllabus.

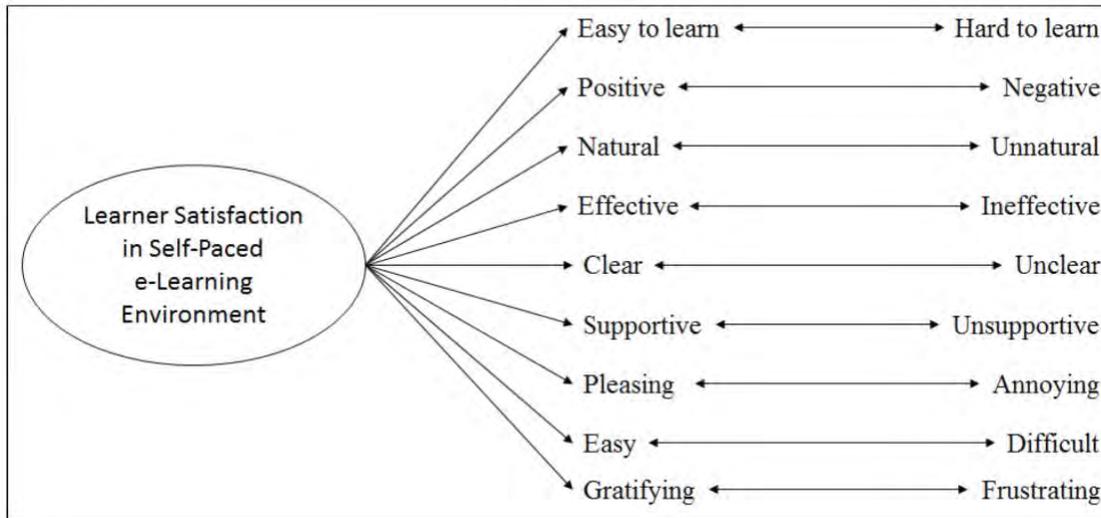
Any time you have a question about Yellowdig, you can click on your avatar picture and select "Help." That will take you to our Knowledge Base. From there, you can also "Contact Support" (at the top right).

The rules here are simple, make posts and comments that spark good conversations about topics that help your community, be respectful of others with different backgrounds and opinions, and don't be afraid to have some fun while doing it!

Happy Yellowdigging!

Appendix B

eLSS Conceptual Model (Ritzhaupt, 2019)



Note: Image and model used with permission from Albert Ritzhaupt.