A Critique and Defense of Gamification

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Abstract

Gamification has received increased attention in education in recent years, and is seen as a way to improve student engagement, motivation, attendance, and academic performance. While empirical studies on gamification in higher education are showing modest gains in some areas, this data can be difficult to interpret because of the many ways that gamification can be designed and implemented. Gamification is also controversial for appearing exploitative, seeming over-simplified, and having the tendency to rely on extrinsic motivation and learning analytics that may not translate to student learning. This paper provides a brief overview of gamification in higher education and looks at findings from recent empirical studies. It then examines its key criticisms as well as its potential contributions to improving instructional design in higher education. A practical example and a set of recommendations are provided to show how instructors new to gamification and interested in implementing it can adapt it for their courses.

Gamification is the application of game mechanics in a non-gaming context (Deterding, Dixon, Khaled, & Nacke, 2011; Zichermann & Cunningham, 2011). Typically, this involves the use of mechanisms such as quests, levels, badges, points, leaderboards, virtual goods, avatars, narratives, and progress bars, used in isolation or in various combinations. Other forms of gamification draw on design principles inspired by digital games, such as giving students the freedom to fail and retry a task without penalty, and freedom to choose activities and learning pathways that best suit their interests. The growing interest in learning analytics (Dietz-Uhler & Hurn, 2013; Dyckhoff, Zielke, Bültmann, Chatti, & Schroeder, 2012) and big data generated by learning management systems (LMS) has also made gamification a potential way to leverage this data to inform instructional design and improve student performance.

Gamification overlaps with other game-related educational interventions, including game-based learning, serious games, and learning by design, each of which values different aspects of games and tends to approach games and learning from different points of departure. Game-based learning involves learning by playing games, either ones developed specifically for education or commercial games seen to have educational value (Squire, 2005, 2011). Serious games tend to focus on raising awareness on social issues (Sanford, Starr, Merkel, & Kurki, 2015) or improving lifestyles, for example, by teaching players how to improve health, control addiction, and boost nutrition. Learning by design involves having students design games in order to learn about complex issues and to promote systems thinking (Kafai, 1995, 2006). The influence of gamification on education has been promising but controversial. On the one hand, gamification has seen its share of success in areas such as business and marketing, for example,

with frequent flier miles and loyalty points (Burke, 2014). On the other hand, its use has been criticized, even by game designers themselves, as a form of exploitation (Bogost, 2011b) and an over-simplified approach to game design (Robertson, 2010). Empirical studies on gamification in higher education have been growing, and the results have been mixed to positive (Dicheva, Dichev, Agre, & Angelova, 2015; Nah, Zeng, Telaprolu, Ayyappa, & Eschenbrenner, 2014; Wiggins, 2016). However, it is hard to interpret the implications of these studies because of how broadly gamification is defined and implemented.

The present article focuses on gamification in higher education. It begins with a brief overview of gamification and the empirical studies so far that show its impact on higher education. It then discusses the main criticisms and concerns raised against gamification and its implementation. The article then examines ways that gamification can improve instructional practice when gamification is designed meaningfully with a user-centered approach, drawing on the author's own experience of using it as a way to inform instructional design.

A Review of Literature

Defining Gamification

Gamification, game-based learning, serious games, and learning by design can be seen as different ways of addressing the question: What is the most effective way to use games in the classroom? Is it the "game-ness" of the game that holds the most potential, or the encouragement of playful behaviors that are conducive to learning?

Proponents of gamification focus primarily on game mechanics, which are the building blocks of games. The aim is not to design a full-fledged game; instead, the goal is to harness these mechanics to encourage and reward behaviors that support learning and foster productive social interactions. One way is to add coherence and purpose by giving the course a narrative or designing quests that students have to complete in order to show their competence (Kapp, 2012). This is also to give the course a better sense of direction and relevance because the activities are directly related to a larger storyline (Bartel, Figas, & Hagel, 2015). Ideally, there would also be different kinds of quests that students can choose from, depending on their interests and preferences, giving them multiple pathways to reach the same goal. For example, Sheldon (2011) re-designed his university course by turning grades into experience points (XP) and student groups into guilds. XP corresponded to levels, which in turn corresponded to grades. Students were greeted on the first day of class with an F but were told they could level up by completing required and optional assignments. Students also had the opportunity to re-do assignments for re-scoring, just as they could with a digital game.

Gamification can also create cooperation and/or competition, where individuals and teams compete for finite resources, levels, badges, and points. Leaderboards can further emphasize competition by displaying how students are ranked, letting them compare themselves against their fellow classmates (de Byl, 2013). These rewards can also serve as a form of feedback for students to get a sense of where they are in the class. Projects such as Open Badges extend gamification beyond the classroom by allowing students to connect their earned badges to professional social networks such as LinkedIn for potential employees to see.

Empirical Studies

Most empirical studies on gamification and higher education so far have focused on enhancing the visible status of students by displaying achievements with points, levels, badges,

and leaderboards (Dicheva et al., 2015). Other priorities include improving social engagement, giving students the freedom to fail and re-do assignments, giving students more choice, and providing faster feedback. Since most of these studies were conducted in computer science (CS) or game design courses, some of the researchers were able to program customized scripts to process data logged by the LMS and generate information based on student logins, page visits, and so on. Gamification plug-ins for LMSs also allow instructors to gamify the LMS, for example, by designing badges that would be automatically awarded to students who have met the criteria set by the instructor. Third-party platforms designed with gamification in mind (e.g. Classcraft) or have gamification plug-ins (e.g., Wordpress) have also been used in these studies.

In general, these studies suggest a positive response to gamification from the students (Dicheva et al., 2015; Nah et al., 2014; Wiggins, 2016), with most improvements seen in attendance, participation, and motivation (Barata, Gama, Jorge, & Gonçalves, 2013; Caton & Greenhill, 2014; Mitchell, Danino, & May, 2013; O'Donovan, Gain, Marais, Donovan, & Marais, 2013). Other studies show a more mixed response, with some students finding the gamification too complex or overly competitive (Berkling & Thomas, 2013; Domínguez et al., 2013; Haaranen, Ihantola, Hakulinen, & Korhonen, 2014). Barata, Gama, Jorge and Gonçalves (2014) suggest that different types of students may be drawn to gamification in different ways, with "achievers" being the most proactive and engaged, "disheartened" being those who start strong and lose interest along the way, and "underachievers" showing low levels of participation, least engagement, and poorer performance.

There are a few challenges in interpreting what these studies mean. Firstly, gamification is broad. For example, badges, a common form for gamification, can be designed and implemented in any number of ways. Game mechanics can also be implemented in combination with other mechanics, making it hard to isolate what aspect of a gamified class had the most impact. Furthermore, a given course can be gamified to varying degrees. Gamification can be an additional layer or it can be deeply integrated into every part of the course. Secondly, it takes a lot of effort to design and implement gamification, and even more to get it to work well (Nicholson, 2013; O'Donovan et al, 2013). Even the studies that show improvements in student motivation and engagement admit that there is little to no impact on student grades (Barata et al., 2013). If the choice is between a class that awards badges and one that does not, it is unsurprising that students would prefer one that does. An important question is whether the positive student responses also translate to other improvements and/or lead to long-term benefits. Thirdly, since most of these studies have been conducted with students in CS, game design, and engineering schools (Dicheva et al., 2015), it is important to consider whether gamification will have the same impact in other disciplines. Students studying to become computer programmers and game designers are likely to be more familiar with games and systems thinking, and, therefore, are more comfortable with gamified courses. Finally, as Berkling and Thomas (2013) note, it is challenging to make gamification work for students who have gone through many years of traditional schooling. For example, Nicholson (2013) designed a course based on Sheldon's (2011) model, having students start with a zero and acquire points by completing required assignments and choosing from optional ones. Many of his students voted to go back to a traditional grading scheme and felt that the use of optional assignments gave them an excuse to procrastinate. Nicholson notes that student responses may also depend on whether the course is a required or elective course. If students are only taking the course because it is required, and not because they are intrinsically motivated, then the effects of gamification may be different.

Criticisms

Rhetorical Questions

In an address at the Design, Innovate, Communicate, Entertain (DICE) conference, game designer Jesse Schell (2010) gave a presentation entitled "Design Outside the Box" that has often been dubbed as "the most disturbing presentation of the year" (Peck, 2010). In this presentation, he imagines a world where every activity and choice we make on a daily basis – how we brush our teeth, what cereal we eat for breakfast, how we perform at school, what books we read for leisure – would be measured by sensors and gamified, with the goal to change our behavior for the better. In McGonigal's (2011) book, *Reality is Broken*, which has become seminal reading in gamification, she argues that the world is broken and filled with problems, but that it can be perfected if game mechanics are added and used to solve problems and score "epic wins." Game designer Ian Bogost (2011a, 2011b), who usually comes out strongly against gamification (Bogost, 2015), suggests that McGonigal's optimism is welcome but cautions against the view that games can solve problems on their own. Instead, he suggests that games might be a good way of conceptualizing and understanding problems. Morozov (2013) calls McGonigal's approach, as well as other innovations such as big data and learning analytics, a form of "technological solutionism," where people jump to technology as solutions to problems before the nature of the problem is properly defined and understood.

Many of the criticisms have to do with the term "gamification" itself. McGonigal and Sheldon both avoid the term, despite being key figures associated with the movement. Deterding et al's (2011) definition, widely cited in gamification research, note that gamification is not aimed at designing coherent games and point out that "whereas serious games fulfill all necessary and sufficient conditions for being a game, 'gamified' applications merely use several design elements from games" (p. 12). This is precisely the issue that critics like Bogost (2011a, 2011b) and Robertson (2010) have indicated as the fundamental flaw of gamification. Robertson (2010) argues that gamification should be called "pointsification" because it often reduces the gamified system to points and badges. She notes that:

> [Points and badges are] great tools for communicating progress and acknowledging effort, but neither points nor badges in any way constitute a game…They are the least important bit of a game, the bit that has the least to do with all of the rich cognitive, emotional and social drivers which gamifiers are intending to connect with. (para. 4)

Bogost (2011b) argues that gamification has gained popular attention because it is framed in a way that simplifies the difficulty of the process. By presenting the "gam(e)-" part of the concept upfront, the complex work that goes into designing a workable solution is rendered opaque by the "-ification." Addressing commercial uses of gamification in particular, Bogost (2011b) suggests the term "exploitationware" instead because:

> gamification proposes to replace real incentives with fictional ones. Real incentives come at a cost but provide value for both parties based on a relationship of trust. By contrast, pretend incentives reduce or eliminate costs, but in so doing they strip away both value and trust. (Exploitationware section, para. 5)

Gamification by Learning Analytics

Gamification takes a lot of work. Unlike grades, which may be updated a few times a semester with major assignments and projects, gamification needs to be kept alive on a more regularly basis. While it may be possible for the instructor to monitor how gamification

manifests in a small class, this becomes increasingly cumbersome as the class size starts to exceed 15 students. In larger classes, some have relied on quantifiable data collected by the LMS to inform gamification rules. Presently, learning analytics can give instructors some insights into their courses, such as seeing what resources are accessed most often or which discussion forums are most active (Dyckhoff et al., 2012), but not how resources are used or how much thought went into a discussion post. A student can click on a resource or download a slideshow but not read it. Basing gamification around superficial measures such as the number of clicks, file downloads, and page views runs the risk of reifying learning profiles that do not correspond to actual learning. In their study, Song and McNary (2011) note that the number of posts students made on discussion forums did not correlate with their final grades. As Dietz-Uhler and Hurn (2013) point out:

> If one considers the types of data that are mined for learning analytics, such as the number of course tools accessed in an LMS, or the number of posts "read" on the discussion forum, are these really proxies for learning? This is not to suggest that learning analytics cannot boost learning, but we need to be clear about what we are measuring and predicting. (p. 24)

To illustrate, consider Figure 1, which shows the number of total logins, forum visits and resource views from nine students (selected out of 24 students) in one of my courses whose grades and participation varied from excellent to poor. Can the reader extrapolate how the students performed based on these statistics gathered from the learning analytics alone?
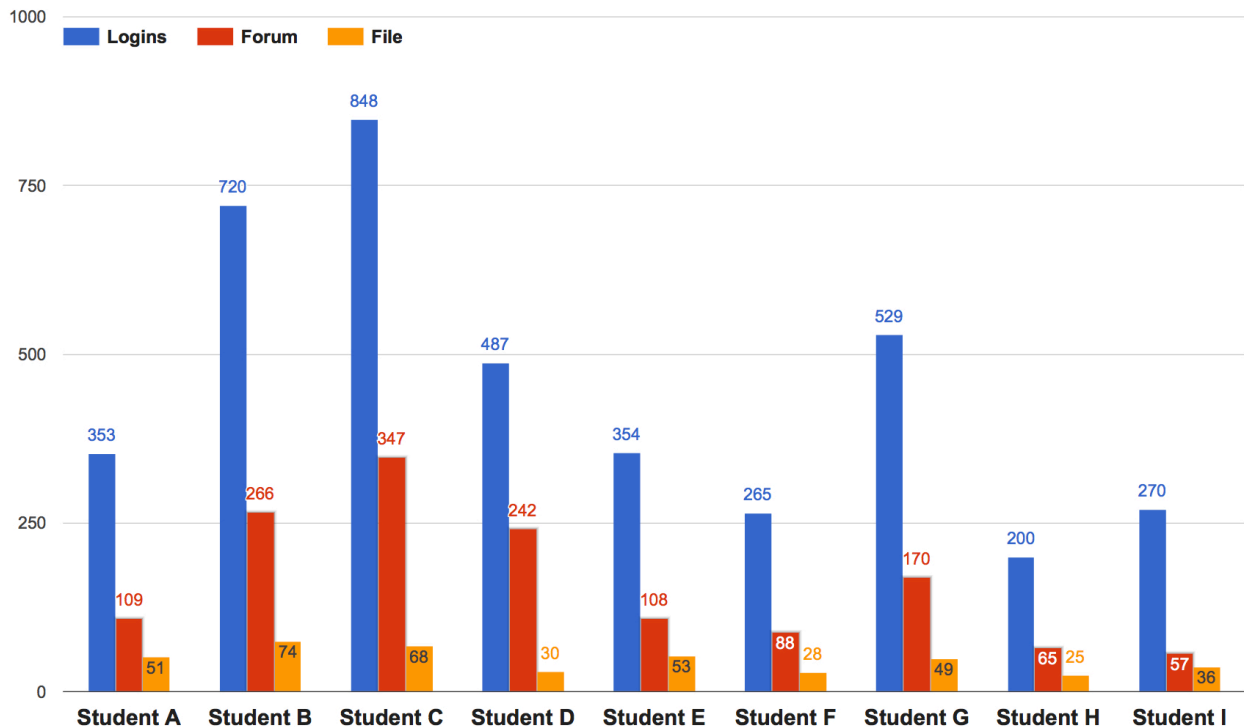

Figure 1. Learning analytics from sample students showing number of logins, forum visits and file downloads.

The top students were A, B, and G; the average students were D, E, and H; and the lowest performing students were C, F and I. Graphing these activities by week or by day did not reveal any patterns either. There are simply too many variables that may affect how often a student chooses to log into the LMS. Even if identifiable patterns were to emerge from these analytics, one must ask, as Uhler and Hurn (2013) do, whether these patterns are meaningful proxies for learning? A gamified system based only on the number of logins, forum visits, or resource views will not capture students' performance accurately and cannot be used as a useful tool to inform gamification. This does not mean learning analytics are meaningless, and more sophisticated tools are currently in development that may be able to dig more deeply into what students do, but until these tools are properly evaluated and made widely available, the utility of learning analytics as a tool for gamification remains limited.

In Defense of Gamification

Despite the criticisms above, gamification research is still in its infancy and its potential should not be written off. In the remainder of this article, some promising directions for gamification research are discussed, drawing on both insights from other scholars as well as personal experience.

Meaningful Gamification

One thing that all approaches to gamification share is the focus on giving feedback to users/players/students to let them know how they are doing. However, the feedback should be meaningful; that is, it should help students know how they are doing in the class. Nicholson (2015) suggests that reward-based gamification, such as using badges and points to reward good behavior, has, limited, short-term effectiveness at best. If an airline stops giving out frequent flier miles or a retailer stops honoring loyalty points, the customer is unlikely to continue the relationship in the same manner. Instead, Nicholson suggests "meaningful gamification" as a more humanistic approach that allows students to demonstrate mastery in different ways.

Nicholson (2015) uses Deci and Ryan's (1985, 2004) self-determination theory, a framework that describes how intrinsic and extrinsic sources of motivation, as well as social and cultural conditions sustain or thwart an individual's sense of motivation. Deci and Ryan argue that every individual has the need to feel in control (i.e., self-determining) and connected to their environment. With learning, students who are primarily motivated intrinsically have less need for external motivation because they are driven by the activity itself. On the other hand, those who prefer extrinsic motivation are more driven by incentives that are external to the activity, for example, getting good grades or receiving scores and badges. Finally, they argue that learners are not only intrinsic or extrinsic; instead, the source of motivation depends highly on the context (Hartnett, 2016). Likewise, any given approach to gamification will not benefit every learner the same way and that students should be allowed to choose how they want to demonstrate their competencies and understanding of what they learned (Nicholson, 2015). Nicholson also draws on Universal Design for Learning (UDL), a set of design principles that guides instructional design for all learners (Rose & Meyer, 2002). These design principles can be grouped broadly under three main goals: to provide multiple means of conveying information to students, to provide multiple means of letting students demonstrate their understanding, and to provide multiple means of engaging students. In online courses, this involves instructors providing course material using different media, giving students choice in how they participate, and finding

ways for students to connect with the content meaningfully and reflectively (Novak & Thibodeau, 2016).

Nicholson's (2015) recipe for meaningful gamification synthesizes these theories of learning and instructional design, as well as concepts from other gamification scholars into six elements: play, exposition, choice, information, engagement, and reflection.

"Play" gives students a chance to explore, try things out, and fail without penalty. Such a space is more flexible because it evolves based on the learner's interest and is not shaped by a pre-determined set of criteria. A playful space gives students more control over their learning and allows them to make decisions about which learning pathways they want to pursue. Nicholson suggests that, if such a space is properly created, then students will not need external rewards because they are able to decide what "fun" means to them.

"Exposition" is the representation of the narrative layer that gives students a way to connect the course with their world. Nicholson cautions against using narratives situated in fantastical settings because they may take the students out of the real world and make it difficult for them to connect their learning to the ultimate goals of the course, which is to acquire skills, gain knowledge, and develop competencies they can use in their lives. Using self-determination theory (Deci & Ryan, 1985, 2004), Nicholson suggests giving students control over challenges and goals they want to pursue and/or what narrative layer they want to use as an overlay.

"Choice" is a key part to both self-determination theory and UDL, and refers to giving students control over what they want to learn, how they want to learn, and what assignments they want to complete. For self-determination theory, choice is important because it gives students a sense of autonomy over their environment; for UDL, choice helps remove barriers to learning. In the context of gamification, choice refers to giving students control over the end product of their work and providing guides along the way that help students arrive at that goal. In this case, external rewards, such as badges and points, may serve as the signposts that guide the path.

"Information" communicates the rationale behind the gamified course, and not simply how many points an achievement or badge is worth. By emphasizing the rationale, this approach to gamification moves it out of behaviorism, which focuses on reward, and towards a more humanistic approach that informs students why they were rewarded and how it moves them down the path to mastery. Information can and should be conveyed in a variety of ways. An informative graphic display would also help in giving students real time information about their progress or it can be tied in with the exposition layer, helping them connect with the real world.

"Engagement" refers to a student's engagement with other students as well as with the gamified mechanics. In online courses, social engagement can be managed through the use of leaderboards or student profiles, although these should not be imposed on the student. The gamified system itself has to offer increasing and/or differing levels of difficulty in order to reduce or avoid boredom from setting in. Both engagement with students and system can be enhanced with solo or team-based cooperative and competitive encounters.

Finally, "reflection" gives students a chance to think about their learning experiences, connect these experiences with their lives, and share these insights with their peers. UDL suggests using reflection and self-assessment to help students develop a better sense of their learning. Nicholson (2015) suggests three components to reflection: description, analysis, and application. During reflection, students think about the activity and share these thoughts with their peers (describing), analyze it by making connections to their lives (analysis), and apply what they learned to a different context (application).

A Practical Example

Although Nicholson (2015) suggests that not every element of his framework needs to be part of a gamification system for it to be successful, the more elements it contains, the more likely the system would offer different ways of engaging students. The present example is based on multiple iterations of a design that draws on aspects of meaningful gamification. While it is not the most sophisticated example, it is one that has been adapted to fit into a higher education context. This example comes from a graduate level, fully online course on instructional design, with 16 students coming from a variety of backgrounds. Table 1 summarizes how each of the elements of meaningful gamification has been addressed in the example.

Table 1.
Applying Nicholson's (2015) gamification elements to an online course on instructional design

Element	Application
Play	• Students are allowed to revise and re-submit assignments up until the end of the semester; early attempts are not penalizing, giving them the freedom to explore
Exposition	• The course does not have a "storyline" per se, but students can follow three pathways, each relating to their career goals: pre-service K-12 teachers, in-service K-12 teachers, and private/higher education; this ties the course objectives more closely with their real world identities
Choice	• Students have choice regarding the final projects: 1) pre-service teachers are encouraged to choose to do a unit plan; 2) more experienced teachers are encouraged to do a deep investigation of a technology they can integrate into a unit; and 3) students interested in higher education are encouraged to get hands-on experience with a university faculty, designing a technology-rich unit for their courses • Every week, students have choice regarding which discussion question to address • Certain weekly readings are assigned based on their project choices
Information	• Students see a progress bar that shows where they are in the course (see Figures 2 and 4) • Progress report also includes all the rubrics and comments, including suggested improvements for revisions • Students submit drafts of their final projects for peers and myself to review before submitting their final product • Effort made to make their progress visually appealing and easy to interpret
Engagement	• Students are assigned to collaborate with partners on a presentation about learning theories • Students are required to interact with their peers every week using VoiceThread

Reflection	• Weekly responses often ask students to reflect on their own learning and teaching experiences, during which they are asked to make connections between theory and practice; final projects require them to apply what they read and discussed in class to a real world problem
	• Weekly discussion prompts are adjusted based on their responses, requiring them to be more reflective and to make more connections from week to week

Figure 2 shows a sample progress report that was created using Google Sheets and shared with each individual student. Like the students in Sheldon's (2011) class, everyone is greeted with
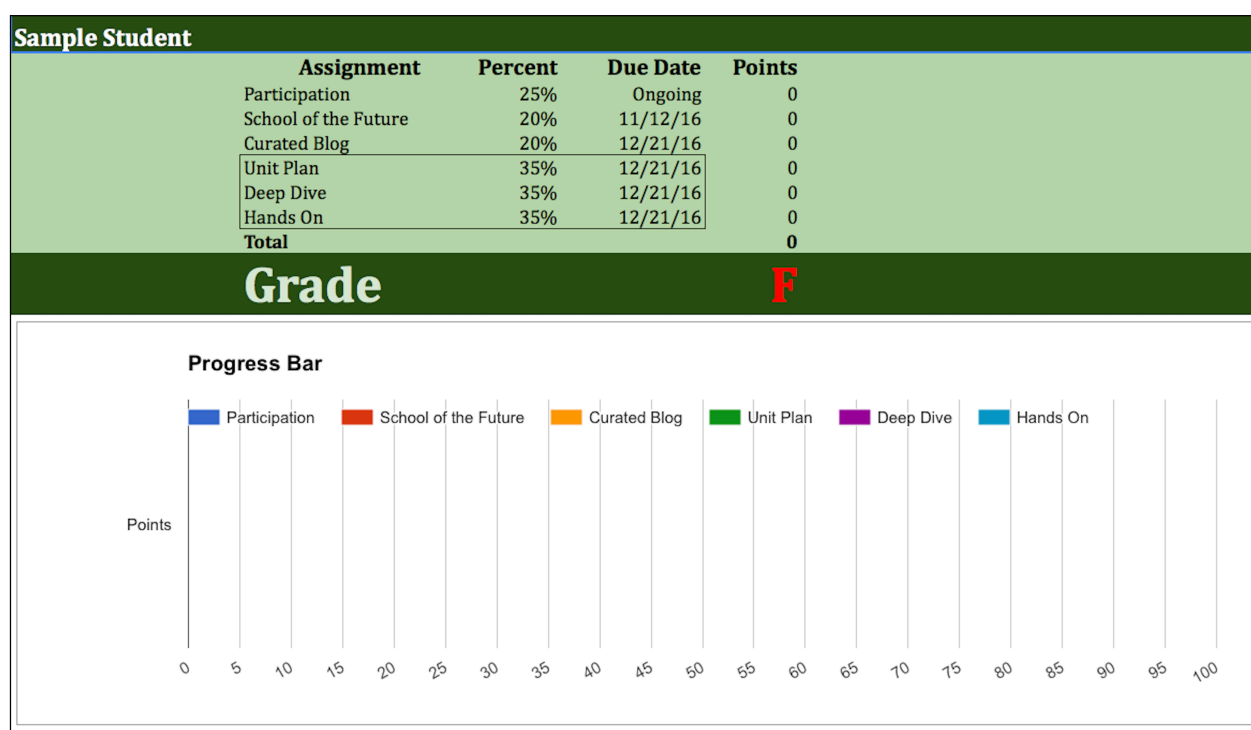

Figure 2. Progress report at the beginning of the semester.

an F at the beginning of class. Since the students come from a variety of backgrounds and follow different career paths – some are teachers in K-12 classrooms, others are instructional designers in higher education and the private sector – there was no coherent narrative or quest design that would work for everyone. As such, grades are kept as grades and not replaced with experience points or levels. The progress report contains multiple tabs, each displaying the rubric for an assignment. The rubrics not only show students how they are evaluated, it also feeds its points to the main sheet (Figure 2). With this progress report, students see where every single point comes from.

A survey was sent out to the students a few weeks before the course began to gather information about their background knowledge, interests, and experience. The final project

choices were designed around this information. Students who were pre-service teachers and new to instructional design and unit planning were invited to do the unit plan project, students who were already experienced teachers were encouraged to do the deep dive and explore a technology they might find useful in their future classes, and students who were planning to work in higher education or the private sector were suggested to choose the hands-on project, which focused on needs assessment and instructional design for adult learners. Throughout the semester, discussion prompts were also differentiated. Every week, there were some prompts that everyone had to address and others that were for particular students only, although everyone was welcome to respond to any of the prompts.

The participation grade was also assigned on a weekly basis on a 0-4 scale, where 0 meant they missed a week, 1 meant they were late or only fulfilled part of the assignment, 2 meant they completed the assignment satisfactorily, 3 meant their input was particularly insightful, and 4 meant their contribution was outstanding. Students were told that getting a 3 and 4 were rare, but they were sometimes given "Bonus" activities (for example, an extra reading or response prompt) that would help them get additional points. Assigning their participation grades weekly made their grade a lot less arbitrary, for them and for myself. Instead of being a chunk of points they would receive at the end of the semester, students could see their weekly progress. Their participation was also presented as a percentage so that it was immediately clear how well they were doing. Figure 3 shows the "participation multiplier" for this sample student as 89%, which means she would receive 89% of the full participation grade (i.e., 89% of 25). The participation was set to a maximum of 27, so that students could not end up with, for example, 40 participation points and then be able to skip the other assignments.

Your Participation Multiplier	89%		
Date	**Max Score**	**Sample Student**	**Additional Comments**
10/22/16	2	2	
10/29/16	2	2	
11/5/16	2	1	Missing peer response.
11/12/16	2	3	I liked your post on constructivist learning theories. The examples you gave were excellent.
11/19/16	2	2	
11/26/16	2	2	
12/3/16	2	2	
12/10/16	2	1	
12/17/16	2	1	
Total Class	18		
Your Class Total	16		

Figure 3. Participation grade calculator.

Conditional formatting (i.e., having the cell background change based on its contents) was added to the cells containing grades so that their percentages go from red to green. This simple aesthetic may seem trivial but, as Kapp (2012) pointed out, the visual component is important. The goal was to make their progress clear and precise so that they have an instant snapshot of their progress.

By the end of the semester, their progress report should begin to resemble Figure 4, with the progress bar building towards 100% or A. In addition to this progress report, students were given the chance to re-do all their assignments (except participation). This was not only for gamification purposes but also to give them a sense of how they were graded. Since instructors
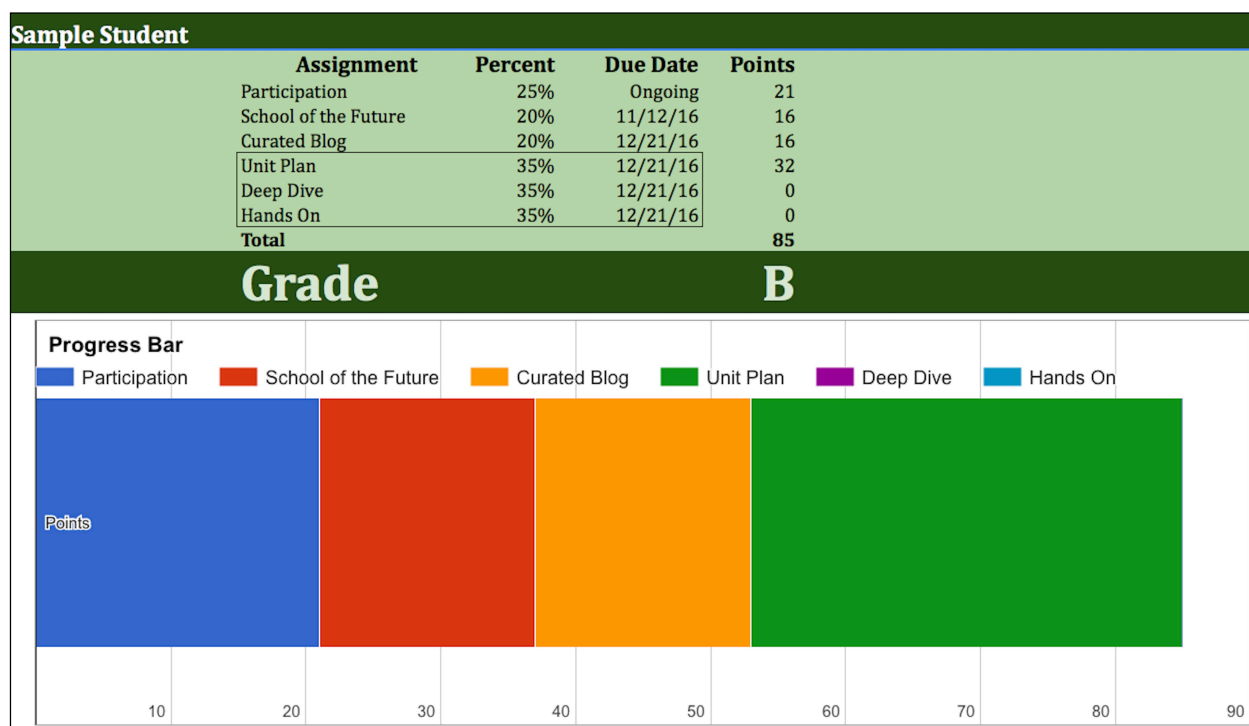
Sample Student

Assignment	Percent	Due Date	Points
Participation	25%	Ongoing	21
School of the Future	20%	11/12/16	16
Curated Blog	20%	12/21/16	16
Unit Plan	35%	12/21/16	32
Deep Dive	35%	12/21/16	0
Hands On	35%	12/21/16	0
Total			**85**

Grade	**B**

Progress Bar

Participation ■ School of the Future ■ Curated Blog ■ Unit Plan ■ Deep Dive ■ Hands On

Figure 4. Progress report at the end of the semester.

differ in how leniently or harshly they grade and what they look for, it is important for students to know that ahead of time without penalty. It also made the feedback they received more useful; if the only feedback they received on a major assignment was after it had been submitted and they were not allowed to improve upon it, then the feedback served little purpose. Students were given a temporary grade on their progress reports to show what they would receive if they chose not to re-do an assignment. They were also told that only substantial revisions would be re-evaluated, so as to avoid students only making surface changes just to get an extra point or two.

To make this easier to manage, a central spreadsheet was created that contained all the important categories, such as student names, assignments, percentage breakdowns, deadlines, and rubrics. All the progress reports pulled information from this central spreadsheet, making it easier to adjust items such as deadlines and rubric criteria from one location instead of having to adjust each spreadsheet individually after they have been shared. Participation grades were also

assigned from this central spreadsheet. This is important because gamification can become burdensome if it has to be managed and sustained regularly over the entire semester.

In my implementation, I have found that students pay a lot more attention to their performance when they know exactly how they are graded. On the one hand, this can be a little tedious because some students would inquire why their participation grades were not updated, thinking that this was automated or forgetting that the grades were only updated after I have had a chance to look at them. On the other hand, it was valuable to hear students justify why they deserved a certain grade, especially when they were able to rationalize it in a way that reveal what they learned and what effort they expended. This rationale also exemplifies Nicholson's (2015) notion of reflection. Instead of finding this a nuisance, this can be an insight into their learning. In my experience, students who paid close attention to their progress reports almost always ended up with better grades. The weekly participation updates also communicated to them that I was paying attention to their progress, and showed that the participation grade was not an arbitrary number that was assigned at the end of class. By showing them where every single point they earned comes from, students had a better sense of their performance. It also made us (instructor and student) mutually accountable to one another.

This is a fairly tame example of gamification that emphasizes the importance of visual information, feedback, choice, and freedom to fail. Since our students do not come from computer science or gaming backgrounds, the course did not integrate more complex forms of gamification (although they are being prototyped in other courses).

Recommendations

This progress report is a simple example of how gamification has inspired my approach to instructional design. It is far from perfect and continues to go through improvement. Each summer, a few weeks are devoted to reimagining how instructional design can be improved. This includes the progress reports, the syllabus design, and the course content itself. These redesigns are based on reflections from the previous year, ongoing feedback from students, and new research that may have emerged since the last design.

For instructional designers interested in gamification in general, the following recommendations may help:

- Focus on the students: Think of how the gamification is intended to improve the students' experience of the course. This can be to improve their learning or to give them a better sense of their progress through better, more timely and useful feedback.
- Start small: Pick one or two game mechanics that you are comfortable with.
- Don't put the technology at the center: The technology is important, especially in relation to the LMS and what the institution includes a part of the delivery platform package, but it should not be the starting point.
- Don't over-rely on learning analytics: Learning analytic data is interesting to look at but can be misleading if used improperly.
- Consider scalability: No matter how well a class is gamified, it quickly becomes cumbersome if the work to keep it going takes too much effort. Designing with scalability in mind, such as having a centralized place from which to control and make changes, makes the gamification run a lot smoother.
- Revise and reiterate: Gamified designs should go through continuous improvement as new research emerges and more data is accumulated.

- Play and have fun: Gamification should be about having fun, not just for the students but for the instructor too. If neither party is having fun, then gamification serves no purpose.

Google Sheets is a good tool to use because many institutions are already integrated with its email system. With the use of formulas, Sheets can be a robust gamification platform that gives instructors more control over how the gamification works, as opposed to having it dictated by a third-party platform. While it does take some time to play with the formulas, there is a large community of novice and expert users who can provide support.

Conclusion

This article has highlighted some criticisms that others have raised against gamification and also defended its role as a tool to improve instructional design through meaningful gamification. Gamification, like many other educational innovations, is not intrinsically good or bad. A lot depends on how it is designed and used. Gamification embraces many principles of good instructional design and is a useful tool to use in an online course because of the availability of digital tools and platforms that support it directly or through plug-ins. Other tools, like Google Sheets, can be appropriated for the purpose. Future research on gamification should involve more instructors and researchers from across the disciplines in order to see how it affects other students and whether certain designs work better than others for different disciplines.

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