

Enter Hogwarts: Lessons on how to gamify education from the wizarding world of Harry Potter

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Abstract: The design of an engaging educational experience is a challenging endeavor. Various attempts have been made to gamify education as means to improve learner engagement and learning outcomes, yet the search for more engaging and effective educational designs continues. This pursuit can borrow inspiration from the fruits of popular media; namely from, e.g. the global, sensational school of magic education: Hogwarts, as described in the *Harry Potter* novel series by *J. K. Rowling*. In this paper we investigate the research question: *What can we determine about gamified education at Hogwarts and what implications can gamifying education have?* We employed a textual analysis method and coded evidence of gamified education in the first novel in the popular media series: *Harry Potter and the Philosopher's Stone*. We identified overlaps between the design of Hogwarts and the gamification design practices that attempt to cultivate learner engagement through the self-determination theory, competition, collaboration, clear rules, roles, badges and aesthetics. This work hence enriches the discussion of the possible positive and negative consequences of gamification in education. Moreover, this treatise functions as a cultural commentary on the interaction between artefacts of popular media and what we perceive as virtuous in the different walks of life.

1. Introduction

The question of how to motivate and engage ourselves and others in perceptually virtuous activities is a question that is being actively asked in different domains and for various purposes. In the education field, it is thought that motivation and engagement could positively influence learning outcomes, students' wellbeing, and practices of educators (Landers, 2014; Malone, 1981; Rigby 2015). Rresearch has hence, extensively explored ways through which educational settings could

be designed to be more engaging (Malone, 1981) and there has been an increased interest in the gamification of education (Hamari, Koivisto, & Sarsa, 2014; Koivisto & Hamari, 2017) to cultivate motivation and positive outcomes in educational settings. Gamification is a practice of designing services and experiences to be positively engaging by employing game design (such as goal structures, roleplay and fantasy) as inspiration (Deterding, Dixon, Khaled, & Nacke, 2011; Huotari & Hamari, 2017). Game design and inherently gamification design rely on an in depth psychological understanding of motivation, the stimulation of basic psychological needs to influence engagement (Morschheuser, Hassan, Werder, & Hamari, 2017a; Rigby, 2015). While many gamified education endeavors are successful in these regards (e.g. Hamari, Shernoff, Rowe, Collier, Asbell-Clarke & Edwards, 2016; Landers, Bauer, & Callan, 2017), many still struggle and it is hardly expected that one motivational design would fit the preferences of all individuals or be suitable in all educational settings.

Fiction is relatively rarely studied as a source of inspiration for gamification (e.g. Koivisto & Hamari 2017). However, fictive realities are present and are an endless source of inspiration and comparative study for gamification. We can extrapolate learnings from the study of fictive contexts that can expand our understanding of motivational design. One fictive contexts around which high engagement is observed and possibly induced by the same mechanics that create engagement in games and gamification is the context of the fan community around the fantasy novels and movies of *Harry Potter* (HP). The series of seven HP novels - on which eight movies were later based - paint a wizarding world where adolescents with magical potential attend the magic school of *Hogwarts* to receive their formal education. The story is naturally more complex than summarized here, involving many protagonists, antagonists and fantasy but it remains evident that the last book in the series "*Harry Potter and the Deathly Hallows*" has been released in 2007, yet fan engagement around the HP universe remains strong, and often channeled for serious purposes through for example the Harry Potter Alliance: an NGO formed by HP fans, highly active in humanitarian purposes. There are additionally many spin-off books and movies such as the recently released spin-offs in 2016 and 2017 respectively: *Harry Potter and the Cursed Child* (play and print book) and *Fantastic Beasts and Where to Find Them* (movie and book). A large number of individuals in HP fan communities and on social media have expressed a wish that their formal education had been organized in a Hogwarts-like manner. Many scholars have not been oblivious to this interests in HP as scientific, peer-reviewed research has been considerably carried out around the HP universe in the context of for example social networks topology analysis (Waumans et al. 2015), education (Conn 2002), and fantasy studies (Mendlesohn 2011).

At a glance, it appears that the manner through which the magic school of Hogwarts is run, mirrors many principle design patterns of games and gamification, and it is a design that possibly attends to some of the psychological and motivational needs of individuals. It is possible that this fandom around the school exists merely because of the fantasy elements or individuals' need for escapism, yet it is also possible that the educational design of Hogwarts could offer insight into how educational practices could be improved (Conn 2002) and how motivational theory could be integrated towards the creation of holistic educational programs that individuals find engaging, hence increasing learning outcomes (Malone, 1981), and reducing education costs. Additionally, extrapolating the design of Hogwarts means that real educational settings could be built based on the Hogwarts design as a fantasy design for serious purposes which might be appealing for some learners. Even if the study of Hogwarts could end up being solely anecdotal, the treatise here nevertheless provides an interesting comparison between pedagogy and products of popular media.

We hence aim to answer: *What can we determine about gamified education at Hogwarts and what implications can gamifying education have?* This is carried out through a textual analysis of the first novel in the popular media series: *Harry Potter and the Philosopher's Stone*.

2. Methods

We approached the research question through textual analysis by coding evidence of gameful education in the first novel in the series: *Harry Potter and the Philosopher's Stone* (Rowling, 1997), and identifying instances of (supposed) gamified, playful, and game-based learning. Identifying first and foremost as gamification (Hassan and Hamari) and educational gaming (Harviainen) scholars, we applied our hermeneutical pre-understanding for the purpose of analyzing the gamified learning practices of Hogwarts. As noted by Bogost (2007) and Harviainen, Lainema, & Saarinen (2014), learning to play a designed, restricted system (whether a wizarding school, a business simulation, or an educational program) can lead to learning the wrong things, or to the learning remaining contextualized (e.g., Kim, 1993) The question of interest is additionally whether Hogwarts-like education could be efficient and if students could possibly learn under such an educational system.

A part of hermeneutical analysis is the acknowledgement of one's own biases (Jeanrond, 1994). To approach a text requires a pre-knowledge of genre, topic, values, and style, but that same pre-knowledge may distort the analyses (Ricoeur, 1976). To counteract this inherent bias, we coded key instances of gamified education at Hogwarts and analyzed them in contrast to popular gamification design practices (see for reviews of gamification practices Hamari et al., 2014; Koivisto & Hamari, 2017) that attempt to cultivate learner engagement through the stimulation of intrinsic needs (Ryan & Deci, 2000), or through competition or cooperation designs (e.g. Harviainen et al., 2014), clear rules and consequences, roles, badges, aesthetics and awarding of trophies. Table 1 provides the codes and selected coded lines according to this scheme.

Table 1: Coding of key instances of gamified education at Hogwarts

Code	Description in text	Page	ID
SDT: Autonomy	Students may also bring an owl or a cat or a toad	75	#1
	Everybody finished the song at different times. At last, only the Weasley twins were left singing along to a very slow funeral march. Dumbledore conducted their last few lines with his wand and when they had finished, he was one of those who clapped loudest.	144	#2
	Dumbledore had swapped his pointed wizard's hat for a flowered bonnet.	228	#3
SDT: Mastery	They were all very impressed and couldn't wait to get started, but soon realized they weren't going to be changing the furniture into animals for a long time. After taking a lot of complicated notes, they were each given a match and started trying to turn it into a needle.	149	#4
	His lessons, too, were becoming more and more interesting now that they had mastered the basics..... Even better, Professor Flitwick announced in Charms that he thought they were ready to start making objects fly, something they had all been dying to try since they'd seen him make Neville's toad zoom around the classroom.	191	#5

SDT: Relatedness	“you will be sorted into your Houses..... while you are here, your House will be something like your family within Hogwarts. You will have classes with the rest of your House, sleep in your House dormitory, and spend free time in your House common room. “	128	#6
	“And now, before we go to bed, let us sing the school song!” cried Dumbledore.	143	#7
	By eleven o’clock the whole school seemed to be out in the stands around the Quidditch pitch	206	#8
	“....., Mr. Potter, I thought Gryffindor meant more to you than this” McGonagall	273	#9
Gameplay: Competition	While you are at Hogwarts, your triumphs will earn your House points, while any rule-breaking will lose House points. At the end of the year, the House with the most points is awarded the House cup, a great honor.”	128	#10
	Gryffindor versus Slytherin. If Gryffindor won, they would move up into second place in the House Championship.	202	#11
	“Don’t want to pressure you, Potter, but if we ever need an early capture of the Snitch it’s now. Finish the game before Snape can favor Hufflepuff too much.”	248-249	#12
Gameplay: Cooperation	“Don’t you care about Gryffindor, I don’t want Slytherin to win the House Cup, and you’ll lose all the points I got	174	#13
	Hermione was the last person to do anything against the rules, and here she was, pretending she had, to get them out of trouble.	200	#14
	Hermione had now started making study schedules for Harry and Ron.	262	#15
	“I don’t think you should be breaking any more rules! And you were the one who told me to stand up to people!”	306	#16
Rules & pre-known consequences	“First years should note that the forest on the grounds is forbidden to all pupils. And a few of our older students would do well to remember that as well. no magic should be used between classes in the corridors. And finally, the third- floor corridor on the right-hand side is out of bounds to everyone who does not wish to die a very painful death.”	142	#17
	“Library books are not to be taken outside the school,” said Snape. “Give it to me. Five points from Gryffindor.”	204	#18
	“He’s just made that rule up,” Harry muttered angrily as Snape limped away.		
Ranks and responsibilities	Minerva McGonagall, Deputy Headmistress	57	#19
	Percy the Prefect	137	#20
	And there, in the center of the High Table, in a large gold chair, sat Albus Dumbledore	137	#21
	“Wood’s captain of the Gryffindor team,” Professor McGonagall explained.	169	#22
	But even Quidditch had lost its fun. The rest of the team wouldn’t speak to Harry during practice, and if they had to speak about him, they called him “the Seeker.”	275	#23
Points	“Miss Granger, five points will be taken from Gryffindor for this,” said Professor McGonagall.	200	#24
	“You each win Gryffindor five points.”	200	#25

	Harry had forgotten they still had detentions to do in the furor over the points they'd lost.	278	#26
badges and trophies	Harry noticed a shiny red and gold badge on his chest with the letter P on it.	107	#27
	The crystal trophy cases glimmered where the moonlight caught them. Cups, shields, plates, and statues winked silver and gold in the darkness	176	#28
	That Quidditch Cup'll have our name on it this year," said Wood happily	191	#29
Aesthetics	The people in the portraits along the corridors whispered and pointed as they passed	144	#30
	the Great Hall was already full. It was decked out in the Slytherin colors of green and silver to celebrate Slytherin's winning the House Cup for the seventh year in a row. A huge banner showing the Slytherin serpent covered the wall behind the High Table.	342	#31

3. Findings and discussion

Game design overlaps with many aspects of educational programs design. In both design practices, we for example observe the existence of clear rules, pre-known consequences for behavior, aesthetics to facilitate enjoyment, mystery and a sense of discovery and challenge suited to the presumed skills of individuals (Malone, 1981). It appears that the Hogwarts educational design is no exception. Since it exists in fiction, Hogwarts might allow for a rich, multifaceted, yet relatively safe discussion of the positive and negative consequences of gamifying education.

3.1. The Self-Determination Theory (SDT) and gamified (magic) education

The self-determination theory (Ryan & Deci, 2000) is a cornerstone psychological theory of motivation, often employed as a gamification design guideline for stimulating intrinsic needs (*autonomy, mastery and relatedness*), the stimulation of which can drive intrinsic motivation and engagement in virtuous behavior. Similar to gamification, such stimulation of intrinsic needs is observed (and sometimes, de-stimulation) at Hogwarts in the following matter:

Autonomy represents the desire for independence and acting in accordance with one's internal desires (Ryan & Deci, 2000). In educational systems, there are avenues for both discipline and autonomy. For example, in many cases, students wear uniforms and are required to conform to codes of conduct that are necessary and helpful in school organization, yet inhibit their autonomy. Hogwarts is similar in these regards. On the positive end of stimulating autonomy, Hogwarts, still within its rules parameters, encourages self-expression and uniqueness. While students for example are observed to collectively engage in a communal, collective activity of singing a song (#2), they are allowed the room to improvise. They are allowed - although still within boundaries - to choose what they personally prefer in terms of pets (#1) or minor customizations to their dress code during holidays (#3). Yet means of autonomy expression at the school are not extensive, as the emphasis within it appears to mostly be on obedience that is most likely with the purpose to ensure the manageability of the school.

Mastery represents the desire to improve skills and personal abilities (Ryan & Deci, 2000). This desire may encourage individuals to pursue education more if the education is an internalized goal or relates to a skill that the individuals would like to master (Deci & Ryan, 2002), otherwise engagement levels with education may be relatively low. While it may appear that magic education

is nothing but magical and engaging, students are still observed, as in many education programs, to complain about the amounts of homework they have to do, boring teachers, or material hard to follow. It is interesting to observe however, how within that sphere, educational goals are made relevant to students, fueling their desire for mastery. Teachers often illustrated engaging learning outcomes at the start of their classes (#4, #5) so that students might look forward to attaining these goals by learning and improving their skills (Conn 2002). We additionally often observed teachers' attempts (#4, #5) to match the challenge of the tasks assigned to students to their expected skill level, which is a practice encouraged in education (Malone, 1981) and common in video game design to create a sense of flow (Csíkszentmihályi, 1975) that keeps individuals right at the appropriate challenge level for them to be positively challenged rather than frustrated and hence they stay longer with the task at hand - whether gaming or learning - and their mastery and skill levels are expected to increase while in the enjoyable state of flow.

Relatedness represents the desire for connectedness with others and belonging to a community (Ryan & Deci, 2000). This perhaps might be the key strength of Hogwarts and the communal design around its four school houses (#6). This is a design similar to that employed in, especially, primary education schools and a few higher education schools, where students belong to one class with which they attend all classes. This is also a design occasionally abolished to allow students increased autonomy in choosing classes and class times that best fit them. These two goals of facilitating autonomy and relatedness, however, are not at odds. Communal spaces assist in building relatedness as in Hogwarts's use of common rooms, sleeping wards, a Quidditch field (pitch) and a great hall. Communal activities similarly can induce relatedness such as singing and playing sports (Quidditch) (#6-9). Similar communal spaces and activities are often observed in schools and they can be used on a continuum of inducing and managing relatedness and autonomy. A heightened sense of relatedness such as that observed in Hogwarts often leads to increased engagement, which could be channeled towards for example engagement in group educational goals, yet this heightened relatedness might place higher weights on social norms and abiding to them as seen in (#9), which, in turn, might hinder autonomy and be used to shame individuals when going against their group (#9, #13) even if for justifiable purposes or uncontrollable reasons.

3.2. The “gameplay” of gamified (magic) education

Hogwarts mainly induces competition across its four main houses (#6, #10) and through the Quidditch house championship (#11). Yet, the rules of such competition were not always clear or arguably fair, often leading to adverse outcomes. Clear rules and pre-known outcomes for behavior as for example communicated in (#17) are important in game design (Juul, 2010) and most educational programs (McGinnis, Frederick, & Edwards, 1995) to guide individuals towards the attainment of a concrete goal such as finishing a game, or learning and to ensure positive conduct in educational settings. The lack of such clear rules makes a game or an educational program difficult to understand or to reap benefits from. It, additionally, increases the chances at “playing the system” for one's benefit, if one can for example align themselves with key individuals in the educational system (e.g. Dumbledore, McGonigal) and break the system to their favor. It similarly increases chances for unfair teacher treatment or at least complaints about it (#12, #18).

There often appears to be little standardized rules to determine the points students earn for behavior outside except for a limited few (e.g., #12). Students often commented on the unfairness of how points were awarded as some activities or individuals were favored by certain teachers but

not others (#18). For example, during Quidditch, the “school’s sport”, catching the Snitch, worth a whopping 150 points, is the same as scoring 15 goals, and it unequivocally ends the game. Similarly, “favorable” rebellious activities, such as going against Voldemort while clearly breaking school rules, were generously rewarded often to an extreme especially when compared to the rewards earned for positive, non-rule-breaking, academic behavior. This created an increasingly subjective educational experience, in which personal and consequently group success depend on personal student-teacher relationships, and on how the “rules of the game” could be played or happen to naturally favor a behavior, even if it is generally frowned upon.

We cannot argue that non-gamified educational settings are more objective or better able at providing and enforcing clear rules and rewards. Similar behavior is observed in schools where teachers favor some students or allow leniency for others (or in certain situations), but not others. This is a dual edged sword as this allows teachers to customize the educational experience to their students’ needs and abilities yet creates animosity amongst students and also between students and teachers. In the situation of a gamified educational systems, such subjective rewards and leniency might be easier to “see” and negatively respond to, when students are instantaneously and apically award or subtracted points against performed behavior (#24-25). Designers of gamified education should therefore be mindful of this design challenge and outline rules for behavior and rewards and punishments while additionally outlining the room for where subjective evaluations and rule bending could be expected if needed. Subjectivity might hence become easier to understand than before.

This same competitive design of Hogwarts also fuels cooperation within the student houses. In order to win the house cup or the Quidditch house championship, cooperation is needed amongst students to collectively advance the group against the competing houses, otherwise the group would not be able to win the competition (#110). This could be of value to underachieving or struggling group members who need the help of others to keep pace (#15), and it can encourage individuals to stand up to rule breaking and socially unacceptable behavior (#16) to guard the points earned by the group. Yet, this cooperation also encourages potentially malicious behavior such as covering for misbehaving students (#14) and creates social pressure (#13) that in extreme incidents leads to shunning individuals as a punishment for failing the group. Heightened competition, on the other hand, might hinder “cooperation”: beneficial, dual competitor-cooperation behavior between houses or group members (Harviainen et al., 2014). Researchers argue that negative consequences from competition are hardly avoidable (Bandura, 1991), and often look at cooperation as a design that remedies the shortcomings of competition. Yet, cooperation as an organizational pattern does have its shortcomings too, as cooperation tends to occur on the attainment of an agreed upon goal (Harviainen et al., 2014; Morschheuser, Riar, Hamari, & Maedche, 2017b), which might place pressure on the group and create a pursuit of goals that are not beneficial to everyone in the group. The mixed competitive-cooperative design of Hogwarts is not perfect, but it has merits in encouraging individuals to work as part of a group and pull each other up. More work is however needed to refine design practices for competition, cooperation, and cooperation in educational settings.

3.3. Other gamification elements in gamified (magic) education

Ranks and responsibilities: A hierarchy of ranks and responsibilities exists in most institutes or organizations. Hogwarts is no exception. Ranks and roles exist amongst teachers (#19), often manifesting in privileges allowed to some teachers but not others (#21). A hierarchy is similarly observed amongst students (#20, #22) so as to assist in school organization, manifesting in badges and ribbons students with special roles wear (#27). While the teacher hierarchy is often observed in most educational institutes, the student one is relatively less emphasized as it is at Hogwarts. Interestingly, students in school nickname students who cooperate with teachers as “teacher’s pet” and it is both a rank admired and looked down upon. The student ranks in Hogwarts however seems to hold some mesmerizing value and are often sought after, although the same behavior is still observed when the rank a student holds becomes a means of social retribution (#243).

Points: A scoring system is naturally needed in any educational setting to keep track of progress and reward or punish behavior. Points are the main means of that at Hogwarts (#10, #24-25). While independent school tests still do exist, it is interesting to observe that the two systems exist simultaneously and separately for different purposes: one appears to reward and direct daily behavior (points), the other to measure overall educational progress (standardized tests), suggesting that one cannot replace the other. This is especially important, as the mechanisms for awarding points at Hogwarts appear to be subjective as discussed earlier, hence a more formal measure is needed. Yet, standardized tests often do not account for individual differences, and hence the existence of a parallel point system may - at least for some students - compensate for failures at a standardized test and work to communicate to themselves and to others some sense of mastery. The heightened sense of relatedness at Hogwarts makes the points system of high value: students often experienced negative affects for letting their house down, more than they appear to experience with receiving other forms of punishment (#26). This suggests that building relatedness is valuable to attain learner engagement with their communities and its goals, which might include learning or at least the attainment of goals that coincide with learning (earning points to win the house championship by learning). Learning here becomes a means to a gameful, personal and often collective goal.

Aesthetics: Aesthetics create an enjoyable engaging experience and are often core in the design of many artefacts e.g., games and gamified applications (Suh, Cheung, Ahuja, & Wagner, 2017). Hogwarts similarly heavily utilizes aesthetics in hallways (#30) and it is enjoyable to observe the transformation of the school’s great hall during special seasons such as Halloween or Christmas or the end of the academic year (#31). Such heightened aesthetical displays would be difficult and expensive to attain in real life, however, a level of it is often observed and encouraged depending on available resources and the culture of the educational setting.

Badges and trophies: As discussed before, student badges are used to communicate roles (#18) while various trophies are awarded to reward extraordinary behavior, the most significant of these trophies are the House Cup (#10) and the Quidditch cup (#29) however a trophy room does exist (#28) suggesting the possibility that other trophies are available to suit students’ differentiated needs and abilities as not everyone is for example expected to be of athletically inclined to win a Quidditch cup. Offering various possibilities for earning rewards or recognition allows students increased means for autonomy in choosing goals to work towards or venues for communicating mastery.

4. Conclusion

This paper looks at the gamified educational design of the school of magic education: Hogwarts, as described in the first novel of the popular novel series by *J. K. Rowling: Harry Potter and the Philosopher's Stone*. We coded overlaps between the design of Hogwarts and gamification design practices in order to identify overlaps and discern possible positive and negative consequences from the gamification of education. While this endeavor certainly has its biases and limitations, especially that it is an analysis of a fictional work, it offers one holistic example of how various gamification design elements could be combined to provide a large gamified educational experience. Hogwarts furthermore shows, how important a clear, consistent, rule-based application of gamification in education is. Points or other rewards should not be administered on a whim. While such a decision may feel good to a protagonist (and readers), it in the end erodes trust in the educational system. This work hence enriches the discussion of the possible positive and negative consequences of gamification in education. We therefore encourage practitioners to attempt an evaluation of the extrapolated Hogwarts design in a real setting to evaluate and refine it and provide more research on fantasy in education. Additionally, this treatise functions as a cultural commentary on the interaction between artefacts of popular media and what we perceive as virtuous in the different walks of life. We hence encourage the examination of such popular media works to discuss and highlight the merits and demerits of what we hold of value and to employ such treatises as lenses into future scenarios and cause and consequences of the human endeavor.

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