Work and Gameplay in the Transparent 'Magic Circle' of Gamification

Insights from a Gameful Collaborative Review Exercise

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Abstract. We analyze the 'Revision Fever' gamification exercise and the challenges of adjusting the logic of gameplay to the logic of the non-game activity. We rely on 'instrumental genesis' theory (Béguin & Rabardel, 2000) and a conceptualization of the 'magic circle' of gameplay (Stenros, 2012) to highlight points of divergence and possibilities of adjustment on two dimensions: the gamification artifact, including the rules of the game layer and the organization of the arena of play, and players' activity schemes, especially their play strategies and their engagement with the game layer. The work of adjustment is collective and distributed across roles, participants, and time. Gamification involves the design and continuous enactment of a 'magic circle' that is transparent towards the associated non-game activity.

Keywords: Gamification, magic circle, collaborative work, distributed work, instrumental genesis theory.

1 Introduction

Gamification consists in framing a non-game activity as a gameplay experience, using game design methods and mechanics (Deterding, Dixon, Khaled, & Nacke, 2011). While the idea of transforming work through play is not new (Nelson, 2012), the concept of "gamification" is a recent neologism (Hagglund, 2012), usually referring to digital game mechanics applied to online services. The "gamification" movement developed mostly in business, education, and health care, in a broader social context including the transformation of video games into a mainstream medium for entertainment, and the diffusion of gaming into non-game contexts through serious games, pervasive games, games with a purpose etc. As gaming became more widespread across demographic and social strata, and gaming experiences were more and more common in varied situations of life, the use of game design elements to create value for customers, service beneficiaries (including students or patients), and employees has also increased. In recent years the concept of gamification has gained increased acceptance as a design instrument and as a research topic.

Deterding et al. (2011) define gamification as the "use of game elements in non-game contexts" (p. 2), distinguishing gamefulness from playfulness and, consequently,

A. Marcus (Ed.): DUXU/HCII 2013, Part II, LNCS 8013, pp. 577–586, 2013.

differentiating gameful from playful design; along these lines we can formulate a narrower of gamification as distinctive from 'playification' (Nicholson, 2012). Still, as Deterding et al. also observe, gamification often gives rise to playful behaviors and attitudes. We consider that the 'gameful' vs. 'playful' distinction is important in analysis, but should not restrain concept extension; gameplay involves elements of play, unless it becomes pure rule-bound competition. Therefore, we discuss gamification as the process of inviting gameplay through gameful and playful design of non-game (and non-play) activities.

The concept and the practices of gamification have been criticized for the promise of quasi-mechanical motivational efficiency of game elements, seen as degrading for users and also for games as sophisticated cultural creations. Bogost (2011) translates the concept rhetorically as "exploitationware", denouncing unfair deals in which valuable customer information and engagement is exchanged for simplistic, empty imitations of games, while Robertson (2012) comments on the use of "pointsification" as design panacea. Indeed, the addition of points, badges and leaderboards, three of the most often used game mechanics, do not automatically give rise to gamefulness and improved engagement: *there is nothing algorithmic about motivating through gameful design*. Reflecting on this controversy, we study gamification in practical, situated use, and we observe participants' work in sustaining meaningful gamefulness in their activity.

Gamification does not involve exclusively digital gaming (Deterding et al., 2011); for example, Foster, Sheridan, Irish, & Frost (2012) use a card-based game layer to stimulate safety awareness, reflection, and engagement in an Engineering Design course. We also discuss a gamification initiative that mostly relies on face-to-face gameful interaction. Our design is also simple and low-cost, allowing replication (and variations) with little effort, in similar activity settings.

Our objectives in the present study[1] are:

- To present the "Revision Fever" (RF) gamification exercise, and to discuss its challenges in attending to divergent logics of gameplay and work;
- To examine the solutions put in place by RF designers and participants, before and during gameplay;
- At a more general level, to highlight the specificity of gamification projects as 'transparent magic circles' that require collective, distributed work for balancing divergent logics of gameplay and non-game activity.

2 Gamification: A 'Magic Circle' Transparent-By-Design

Gamification is yet another type of situation that explicitly challenges the distinction between game and non-game worlds, similar with other types of ambiguous, borderline activities such as pervasive games or dark play. Gamification is openly *instrumental*: while games often extend invitations to autotelic play (which are then taken over by participants in various configurations of play-bound or ulterior motives),

[1] This research has been supported by the program EXCEL, grant POSDRU/89/1.5/S/62557.

gamification extends an openly ambivalent invitation: to pursue non-game goals with a (partially) 'lusory' attitude (Salen & Zimmerman, 2004). Gamification may be fruitfully conceptualized as a specific strategy of *configuring the 'magic circle' of play as transparent-by-design*.

The concept of "magic circle" has been introduced by Huizinga (1938) in his discussion of the rupture between the world of gameplay and the real world that surrounds it, but does not assimilate it. The concept has been re-created in academic scholarship through Salen and Zimmerman's work (2004), generating substantial debate on the distinction between play and non-play (Stenros, 2012). On the one hand, play is often shaped by real-world, non-play considerations, including matters of money, social status and relationships with significant others (Juul, 2008; Malaby, 2007; Stenros, 2012). On the other hand, the creation (often through negotiation) of a boundary between play and non-play remains, in each empirical instance of play, a core activity of participants. Both Juul (2008) and Stenros (2012) indicate that the 'magic circle' is a concept of heuristic value if we do not take it as a binary distinction. The establishment of a "magic circle" is a defining feature of gameplay, which has, each and every time, a different shape that should be empirically observed in order to understand what is going on: "the magic circle is best understood as *the boundary that players negotiate*" (Juul, 2008, p. 64, emphasis in original).

Stenros (2012) distinguishes three dimensions of this boundary: the "psychological bubble", the "magic circle", and the "arena of play" (pp. 10-14). As we find this differentiation useful for our discussion, we present it succinctly.

The "arena of play" refers to the spatial and temporal arrangements created to host players and play, such as sports fields, Carnival periods, and game products. At any given moment arenas may be populated or empty, used playfully or with other orientations (ibid.). Pervasive games and pervasive play (such as flash mobs) are challenging because they stage gameplay in arenas that are socially understood as serious.

The "psychological bubble" refers to players' attitude towards their activities in the game; the ideal-type of playful attitude combines a feeling of *safety* and disposition to take risks in the gameworld, with the *intention* to pursue game goals, and with *disattention* to elements of the situation that are not marked as relevant in the game (ibid.). The ambivalence of dark play is visible on this dimension: participants' awareness that they are playing (in) a game may be dim, oscillating, or even absent. This sort of duality is also visible in the case of gamers that play for money or other real-world rewards (Dibbell, 2007).

The "magic circle" refers to the socially shaped and agreed-upon set of rules and relevancies of a particular instance of gameplay (Stenros, 2012). Participants may participate in this magic circle with full engagement, or with ulterior motives or half-beliefs. Still, in any situation of gameplay, participants establish some rules of what counts as valuable and relevant, and what is to be ignored in the game. By communicating these rules, they frame their activity, symbolically, as "just play" – to some extent.

Gamification projects are openly dual, attending to the logic of their non-game activity (such as working, learning, improving one's physical condition, consuming,

buying etc.) and to the logic of a game layer that affords simple gameplay. This ambivalence can be observed on all three dimensions introduced by Stenros (2012).

As regards the arena of play, gamified activities often include heterogeneous sets of equipment – some with in-game value, some with real world value. For example, gamified education combines fictive, playful, and educational messages. Work tools are used alongside gameplay instruments. Space and time arrangements must be devised to invite gameplay, but also to afford efficiency in the non-game activity.

As regards the 'magic circle' understood as a set of locally settled rules of engagement, gamification mixes practices of 'serious', non-game activity (such as work or learning) with practices of gameplay. Trouble may arise when one practice overrides the other, because then the composite activity turns into something else than expected by designers and organizers. For example, in-game competition may disrupt work collaboration; the value of fictional resources may confound the values of real-world resources. This difficulty is also shared by serious games, which attempt to cultivate a 'serious' competence or achievement through gameplay. In-game skills often do not overlap completely with the real-world skills sought after (Rughiniş, 2012).

Last but not least, participants' attitudes towards the activity may vary from playful to gameful to instrumental, changing through time, or from one person to another. Gamified applications, such as Foursquare, may be "played" by some but "used" by others (Deterding et al., 2011). For example, Frank discusses the "gamer mode" in educational gaming, a style of playing serious games without regard to the non-game logic which they aim to cultivate (Frank, 2012). Moral stakes and interpretations depend on participants' attitudes: the more playful may be more tolerant of cheating and rule bending (Berne, 2012; Glas, 2011) than those oriented more gamefully (rule-bound) or instrumentally (towards real-world value).

This ambivalent attention towards gameplay and 'serious' activity means that gamification requires a 'transparent' magic circle, by introducing signals of gameplay and game-relevant resources, while at the same time keeping participants' eyes open to non-game relevancies. Unlike activities in serious games, that are ultimately accountable to the gameworld rules, activities in gamified projects remain accountable to two logics:1) the gameplay order and 2) the real-world value system of the non-game activity. We propose that this is a useful dimension on which we can differentiate serious games from gamification – namely, the degree to which participants are invited to be 'nothing but players', or to remain "user/players" attentive to two structures of relevance.

Both in serious games and in gamified projects, designers must accommodate two potentially divergent sets of requirements: the gameplay and the 'serious' activity. Still, in gamified projects this adjustment work is required not only from designers, but also from participants: the gamified 'magic circle' is sketched such as to draw their attention, but not to engage them completely. Non-game elements remain visible and demanding. In what follows we study designers' and participants' work of balancing conflicting orientations in the Revision Fever exercise, on three dimensions: 1) establishing the 'magic circle' of gameplay rules and relevancies, 2) subjectively engaging the gamified activity, and 3) configuring the play arena.

3 Gamification as Instrument

Gamification may be fruitfully studied through the theoretical lens of "instrumental genesis" (Béguin & Rabardel, 2000; Longchamp, 2012). Béguin and Rabardel observe that an instrument cannot be conceptualized only as an artifact, because it is a *composite* entity with two main elements: "artifact structures", including material and symbolic resources that facilitate action, and "psychological structures", including users' schemes for organizing and conducting the mediated activity. Béguin and Rabardel also highlight the *developmental* nature of the instrument: both artifact structures and psychological structures emerge and change through activity, in the very process of using the instrument. The process of change in artifact structures is called "instrumentalization", while the process of change in users' activity schemes is called "instrumentation"; both represent dimensions in the genesis and evolution of an instrument (Béguin & Rabardel, 2000).

We conceptualize gamification as a socio-technical instrument consisting of an *artifact* and participants' *activity schemes*. This approach maps well with Stenros' (2012) three dimensions, introduced above:

1. The *gamification artifact* includes the set of symbolic and material elements that define the game layer: stories, rules, messages, material requisites for play, etc. We also include here the *accessory set* of elements (hardware, software, furniture, consumables) that support implementation, making the play arena practicable and hospitable. For example, the rules of the game may not explicitly require food and drinks for participants, but they may be essential resources for actual gameplay. The gamification artifact, therefore, includes the locally established 'magic circle' of in-game relevance, and the play arena.
2. We distinguish two types of *users' schemes*, following Glas (2011): a) gameplay styles, including ways of cheating, and b) players' degrees of engagement with the game frame. Each game opens the possibility for multiple strategies within a given rule system, and multiple interpretations of the rules themselves – including what may seem to be, to some or to all, rule-bending or outright cheating. Participants' engagement with the game, their identification with in-game characters and goals, is also variable, both within players, who change their attitudes in time, and between players. Participants may play from within the "psychological bubble" or, alternatively, take a more mundane orientation.

There are situations in which an instrument involves different categories of users. For example, Longchamp (2012) discusses CSCL solutions that involve "teachers" and "students" as two types of roles. Flexible design may include differential rights and incentives of adjustment work for such categories of users; Longchamp differentiates "teacher-instrumentalizable" versus "learner-instrumentalizable" systems (ibid.). Games often include privileged roles, such as game masters, arbiters, judges etc. Gamification projects may, therefore, be "arbiter-instrumentalizable" or "player-instrumentalizable", to different degrees.

4 Case Study

We study the implementation of "Revision Fever" (RF), a gamified exercise of collaborative review, in two sessions of play, through observation and 11 interviews with project participants (designers, players, and judges).

Each year, instructors from the Cisco Networking Academy of University Politehnica of Bucharest[2] review last year's course presentations. In previous years instructors revised materials individually, working wherever and whenever they wanted in the limits of a given period, discussing with colleagues freely, through any means they chose. This review work was not particularly cherished, being rather defined as tedious. In order to address what seemed to be an attention and motivation deficit in revising the curriculum, in the fall of 2012 we initiated a collaborative review exercise. We designed a flexible instrument that would adapt through use, and through feedback in-between sessions. The main idea was to transform individual reviewing into a competition between teams, organized and supervised in a play arena organized to this purpose.

The RF *gamification artifact* included three main *gameful interactional devices* (some elements were modified in the 2nd session, organized one week later):

1. *Competition between teams*: reviewers were grouped in three teams of five, sending 'error tickets' ('typo', 'graphic design', 'rewording', 'missing concept', and 'wrong concept') to a judge committee via an issue tracker. In the first edition, the actual corrections based on the approved error tickets were done by reviewers individually, after the game – for fear that, in hurry, teams would introduce additional errors into presentations. This has proven to be cumbersome, defying the purpose of transforming individual review work in playful teamwork. In the 2nd session, teams implemented repairs prior to sending the tickets. With their approved tickets teams gained points, which they could spend (on various items detailed below) or re-invest by 'buying' more presentations to review, more computers to work on, or an additional member (in the 2nd edition). The highest scoring team at the end of the 3-hour review session was the winner.
2. *Limited resources*: each team started with only one computer (increased to 2 computers in the 2nd session), one chair, and two presentations; they could buy additional ones, as well as water, pizza, and they could bid to include a supplementary expert team member for 15 minutes (in the 2nd session), on the game market.
3. *Tempo*: a combination of mediated communication via Trac v.1 and Dropbox with face-to-face communication, supported by organization of the work space (Figure 1), evolved to support a fast paced gameful interaction (Rughiniş, 2013).

The play arena was organized in a training room. In Fig. 1 we present the spatial organization of participants; while there were available chairs for everybody, the rules of limited resources meant that, at least in the beginning, some were not occupied. When lacking chairs, reviewers could stand, sit on the floor, or sit in pairs on the same chair. In retrospect, a few of them also decided to "bend the rules" and sit on chairs they did were not entitled to.

[2] http://www.ccna.ro/

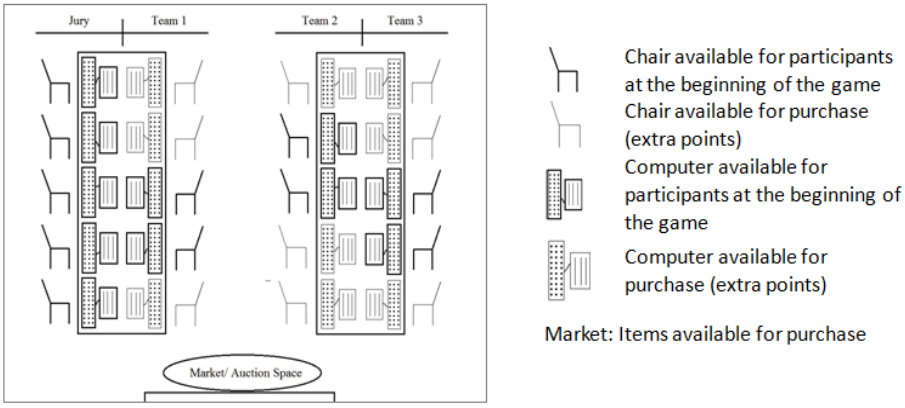

Fig. 1. The play arena in Revision Fever gamification exercise: spatial arrangements encouraged collaboration across team borders

4.1 Convergence and Divergence between Work and Gameplay Profiles

The game layer of the Revision Fever exercise introduced significant changes in the previous organization of the review activity: teamwork and competition instead of individual independent work; a clear allocation of space and time; a fast tempo; a division of labor between players and arbiters; strategies for division of labor within reviewer teams; a classification of corrections in five types, with points that indicated their relative value; more intense communication and public visibility of one's work.

Some RF elements were explicitly gameful and signaled that the exercise invites gameplay: the competition, the rules of limited resources, and the game market. The 'magic circle' was particularly signaled by those elements that countered the work logic. The rules of limited resources were in manifest divergence from requirements of effective work: teams did not have enough chairs and computers to work as they chose, but had to "buy" them through points gained by reviewing presentations. Of course, the fact that reviewers worked hard, in the game, in order to be able to work even more added to the overall sense of playfulness and humor, at least for most participants. (A couple of instructors did not see the point of this gamified arrangement and, more or less explicitly, chose to review presentations individually, on computers outside the play arena.)

Besides the collectively self-imposed limitation of resources, other elements of the gamification exercise also had the potential to conflict with the logic of revision work:

- *Competition between teams* could interfere with review work productivity, if it hampered communication between reviewers in different teams; comments and advice from senior instructors, distributed across adversary teams, were essential for correcting more subtle errors and for proposing improvements in structure and choice of relevant topics;

- The *allocation of reward points* per type of revision could encourage some corrections at the expense of others. Indeed, in the first edition there were an immense number of 'typo' corrections; in the second edition 'typos' were no longer eligible for points, but reviewers were required to correct them "for free".
- Unexpectedly, trouble appeared from the *division of labor* between reviewers and judges: in the first edition judges were overwhelmed by the number of tickets, thus blocking the flow of resources and teams' abilities to buy new presentations. This is how "buying on credit" was introduced as a new rule.

4.2 Distributed Adjustment Work in Revision Fever

A close examination indicates that flexible gamification, in practice, is not a straightforward application of game elements: participants fine tune not only the balance of various mechanics and resources, but also their styles of play and engagement with the game frame.

We focus on the locally problematic divergence of the game logic versus the review activity logic. There is a constant work of adjustment, through which participants modify the gamification artifact (*instrumentalization*) and their schemes of play and engagement (*instrumentation*), to support the flow of gamified activity. As discussed, there were many instances of conflict between the game logic and the review work logic – some by design, some unintended. For example, players initially sent 'typo' tickets in large numbers, ignoring more substantive errors; the initial restriction of 1 computer per team seriously restricted the productivity of the review process.

Participants pursued convergence by three types of solutions:

- *Re-designing the gamification artifact,* including game rules and the play arena (such as: declaring 'typos' ineligible; giving teams 2 computers to start with, in the 2nd edition; adjusting the tempo and duration of the event; spatial reorganization of participants);
- *Shaping play styles*, which included forms of cheating (such as spiriting away a glass of water or a chair) or the division of labor between participants in a team (by instructing junior instructors to focus on typo and graphic style errors, and senior instructors to look for missing concepts and other technical errors);
- *Fine-tuning engagement* with the game frame: participants alternatively observed and ignored the game frame; most of them managed the relative priorities of game and non-game objectives through an attitude of *half-engagement*. For example, players constantly collaborated with members of competing teams and the judge committee, thus entering and exiting the game frame according to the task at hand.

It is also important to observe here that the work of adjustment between the game layer and work requirements is *distributed* across multiple participants, and there is a division of labor across various types of participants. By design, changes in the RF gamification artifact during gameplay were allowed for the judge committee, but not for players – although they could make suggestions; designers also changed the

gamification artifact from one edition to the second. Players developed and changed their activity schemes, by alternatively observing and ignoring gameplay requirements, by cheating, and by searching for productive work / play strategies.

5 Conclusions

On the basis of our case study, we conclude that a flexible gamification instrument may develop considerably by adjustment in use. The conceptual framework proposed by Stenros (2012) and the theory of instrumental genesis (Béguin & Rabardel, 2000) draws our attention to the fact that troubles and adjustments can appear in different *dimensions*: in participants' psychological orientations, in the 'magic circle' of locally established game rules and relevancies, and in the play arena, which includes gameplay requisites as well as various accessories. For example, face-to-face communication is shaped by the spatial disposition of players and the temporal organization of their interaction. Adjustment work is *distributed:* a) across different *types* of participants (such as designers, judges and players); b) across *time* (players were more engaged in the first edition and more work-oriented in the second edition) and c) across *participants* themselves (some "played" the Review Fever, while others "worked" within its arena).

In a generalization attempt, we can identify three types of gamification solutions, according to strategies for distributing adjustment work:

- *No adjustment* during gameplay: rules in the game layer remain formally unchanged during gameplay; this does not prevent players from modifying their strategies, interpretations, and degrees of involvement – but, formally, the game does not change;
- *Role-bound adjustment*: privileged participants (instructors, judges) are allowed to change the rules of the game during gameplay, in order to accommodate conflicts and maladjustments. Privileged participants see through the 'magic circle' in order to monitor work effectiveness and to translate work requirements into elements of gameplay; the other participants may carry on their activity without minding divergences between the game layer and the non-game activity;
- Delegated adjustment: all participants have a certain degree of autonomy in configuring their gameplay, and they are in charge of monitoring work success while playing; the 'magic circle' is transparent for everybody.

Some instances of divergence between the game logic and the work logic are introduced by design in order to frame the activity as gameplay; some others are unintended, or just partially expected. Such divergent elements and their consequences for the gamified activity may not be fully visible at a glance; given that gamification openly invites and thrives on such dual logics, it is recommendable that designers and organizers of gamified projects also plan for *debriefing sessions* or other types of qualitative evaluations, involving all types of participants.

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