

Reimagining gamification through the lens of Activity Theory

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Abstract

Gamification is maturing as an academic research object, but still suffers from growing pains. Challenges identified in a practical gamification activity are used to anchor a discussion of theoretical challenges currently facing gamification. We argue that some of the pain can be attributed to the exceptionalist and formalist definitions of game, and believe that these interpretations assume a dualistic ontological perspective of the world, resulting in problematic dichotomies. An alternative dialectical perspective from which to reimagine gamification and address some of the challenges is offered. This perspective is concretized through the lens of activity theory. The value of applying activity theory is illustrated by reflecting back on the practical and theoretical challenges identified. Reimagining gamification has the potential to afford participants with greater opportunities for action, and also to drive transformation of existing practices and thus enable agency. It is captured by considering it as an expansive cycle of activity.

1. Introduction

Games are significant in our contemporary culture and the rise and evolution of culture is considered by some to occur in play [1]. The digital game industry is currently the fastest growing entertainment industry, with a worldwide turnover of about \$93 billion in 2013, and is estimated to reach \$111 billion in 2015 [2]. The cultural, economic and technological impact of games is noteworthy in contemporary society. Media theorists posit that gaming and its associated notion of play may become a master metaphor for a range of human social relations, with the potential for new freedoms and creativity, and new oppressions and inequality [3]. The “Ludification of Culture”, as theorists call it, happens when games and play emerge in activities that we typically do not consider “leisure” [4]. Gamification, Serious Games, Hedonic Information Systems, and

Playful Interaction are some of the emerging concepts that indicate how we are becoming more playful as a society. Gamification emerged in the early 2000s, but only received substantial academic interest after 2010 [5]. Despite the promise of the concept [5]–[7], few scholarly definitions have been proposed for gamification [8], and its current conception is regarded as problematic [9], contentious [10], and paradoxical [11]. Gamification also lacks appropriate theoretical frameworks [5] [6] [12]–[14]. It is therefore not surprising that various challenges have emerged in practice [6] [8] [15] [10].

The aim of this paper is to contribute to gamification practice and theory as follows: Section 2 draws on challenges identified during gamification practice in a computer game development course. It links these examples to theoretical challenges identified in the gamification literature regarding the frameworks currently adopted from psychology and game studies. This section also argues that some of these theoretical challenges stem from dichotomies deriving from a dualistic ontological position, and introduces the dialectical ontology as an alternative. Section 3 proposes activity theory as an alternative theoretical framework for gamification. After introducing activity theory the concept of “game-play” and a “game activity system” model is developed to address the dichotomies identified. The practical and theoretical challenges identified in section 2 are then reconsidered using activity theory. This illustrates the utility of activity theory, the conceptual tools developed and the dialectical perspective on gamification. This culminates in a new conception of gamification as an expansive cycle of activity.

2. Gamification challenges

The conceptual and theoretical developments stem from practical challenges that emerged during the gamification of a game course, which we developed and coordinated from 2012 to 2015. In this context, the gamification aims to enhance the existing

game courses offered to 2nd and 3rd year university students, in computer science. The research approach is ethnographic and the methodology used a participatory design. It is beyond the scope of this paper to provide a comprehensive case study of the gamification activities, which will be part of our future research. Instead, the inclusion of practical accounts from our gamification experience aims to contextualize the theoretical development and provide anchors to orient later discussion. We struggled with the theoretical deficiencies of contemporary gamification, and these examples illustrate why and how we arrived at our conclusions. The anchors are given in the form of a short vignette at the beginning of each of the following subsections: individual differences, ethics, and context specificity.

2.1. Individual differences

There were many examples of individual differences and participant subjectivity affecting the gamification of the game course. Some students, for example, found the competitive aspects of the gamification highly motivating, while others were less affected, and many students mentioned getting and staying on the leaderboard as being a highly motivating factor. Students had a clear vision of being on the leaderboard. They understood the reward structure and knew what was required to progress. However, some students reported being more interested in the story and the puzzles. This variability contradicts one particular gamification reward that escaped individual difference altogether: hand-in extensions. The gamification system rewarded students with points for attending and participating in lectures and completing other gamification activities. These points could be spent on the additional rewards of Quiz do-overs, Puzzle hints, a Class reward and Extensions on assignments. The reward of extending an assignment hand-in date was proposed by students and was rated the top reward for all students across all years.

In order to understand and influence a participant's behavior, gamification practitioners require theories and models that can guide gamification design and the interpretation of the results. Currently, few theoretical frameworks exist by which gamification systems can be analyzed [5] [6]. Frameworks in the literature derive primarily from game studies and psychology. The psychological theory of self-determination [16] is a consistent choice among authors developing theoretical frameworks for gamification [6]. It is based on the distinction of intrinsic opposed to

extrinsic motivation, which has a long history in psychology. Self-Determination theory (SDT) provides a framework suggesting that if a gamification system is designed to optimize the innate psychological needs of people, they can be extrinsically motivated to perform tasks they are not innately interested in. This is an appealing prospect for gamification practitioners in its application, for example, to the design of reward systems. However, mounting empirical evidence [5] [8] [17] indicates that such homogenous motivational effects are unfounded. According to SDT, individual differences can be accounted for through intrinsic motives or different levels of extrinsic regulation. We find SDT useful conceptually. However, it does not adequately deal with the complexity of gamification practice. Deci and Ryan maintains that rewards can be effective and appropriate for simple and rote tasks. However, in the context of complex tasks that make up most of our lives, these rewards generate behavior that is shallow and short-term and miss out on the inner resources of intrinsic motivation and volition which are the wellsprings of true engagement and creativity [18]. Current gamification also assumes the classic behaviorist stimulus-response model from psychology [15] [19] [20]. Behaviorism has subsequently been severely criticized for being reductionist and for casting people in a passive role. Reiss [21] highlights the similarities between Deci's [22] classic distinction between intrinsic and extrinsic motivation and Plato's dualistic distinction between mind and body. The dualistic root of behaviorism is acknowledged as part of this critique [23].

Numerous player typologies [24] [25] attest that human beings have complex psychological and behavioral patterns and differ demographically [26]. Drawing on psychology and marketing literature, various player typologies have been developed. Hamari and Tuunanen [25] review how players have been typified in past research and synthesize the player types into seven primary dimensions. Player types were analyzed for the design of the gamification of our game course [27]. We used the Brainhex survey [28], which extends Bartle's [29] model to overcome some of its deficiencies [30]. However, designing for a homogenous group will marginalize some participants. Player types are reductionistic in that they simplify and abstract complex human beings and their subjective experiences [25]. The psychological frameworks considered also do not account for the paradoxical finding that despite overall individual differences reported, one reward was valued by all. It is evident from the gamification literature that different player types experience the same affordances differently [8].

2.2. Context specificity

Successes in achieving the aims of the 2nd year gamification objectives prompted application of the gamification to a 3rd year game development course. The 3rd year gamification retained the 2nd year gamification reward structure, but omitted the puzzle and story components. Puzzles were related to the course material in the form of lateral-thinking questions to complete every week. Students received points for solving a puzzle and an additional clue toward the overall game mystery story. As these components were integrated with the 2nd year course content, they could not be transferred to the 3rd year. The 3rd year gamification was less successful and students reported lower levels of engagement. There are several possible explanations for the reduced effectiveness of this gamification, including individual differences of students and the omission of story and puzzle elements. However, we also consider specific contextual differences between 2nd and 3rd year courses to be significant.

Practical effectiveness of gamification has been found to be context bound [5] [6]. Furthermore, the same motivational affordances of a given gamification do not necessarily transfer between contexts [14] [17] [31] and the context of the gamification can be an essential antecedent for engaging gamification [5]. Interestingly, context is an important aspect of gamification, but has been largely unexplored [5] [6] [15]. We did not consider the context significant until we encountered the results and literature. To explore this oversight, focus should be shifted from the psychological frameworks to the conceptual frameworks of game studies. The term gamification infers that games are easily distinguished from non-games [19]. This suggests that the expectations of gamification practitioners, which follow from this assumption, are that games and therefore gamification are separate from context (non-game). Malaby [32] notes there has been a harmful tendency in Western thought to construct a distinction between productive action as a contribution to society and unproductive action such as play. In the West, play is conceptualized as distinct and separate from everyday life, occurring in a Magic Circle as conceived by Salen and Zimmerman [33]. This exceptionalist position [32] is most strongly expressed in Caillos's [34] statement that "Play is an occasion of pure waste" (p. 5). This division between play and ordinary life is invalid [35] and is not empirically supported [32].

Our understanding of gamification is dependent on our definition of "game" [19]. The dominant

definition in gamification scholarship derives from Salen and Zimmerman [33] and Jesper Juul [36]. This suggests that gamification presently considers games as systemic artifacts [13]. Juul's [36] definition derives from analyzing many of the game definitions used to define current gamification [1] [33] [34]. However, Malaby [32] warns that attempts to formalize games by defining them in essential terms of rules or taxonomy of types, fails to capture how games are moving targets. He regards games as many social processes, dynamic and recursive. Largely reproducing their form through time, but always containing the possibility of emergent change [32]. Huotari and Hamari [8] also criticizes Juul for not mentioning the *experiential* aspect of games, that being play. Deterding *et al.* [20] explicitly relate gamification to game and not to play. They also define gamification in terms of gameful design as analytically distinguished from playful design. This distinction of gamefulness vs playfulness is productive in that it defines gamification as a distinct research object. Current gamification rethinking, however, acknowledges that gamification focuses squarely on the *ludic*, and misses out on the *paidic* pole of playful experiences [8] [15]. The close connection between play and game has not received thorough attention [37]. Exceptionalism has transferred to the dichotomous distinction between game and play [32]. The digitization and ubiquity of games has resulted in another form of exceptionalism: the dichotomy constructed between the "virtual" and the "real" [38]. Malaby [32] is optimistic that if the dichotomy between real vs virtual can be overturned, so can that for game vs play; and this would open up new vistas for game scholarship.

2.3. Ethics

During the gamification of the game course, students exploited the query script of the online system to gain information in order to solve a puzzle based on the "Prisoners' Dilemma". The automatic feedback of the quiz system was also exploited through multiple attempts to calculate probability for questions that students were unsure about. Students also worked with each other to attempt quizzes together, discussing challenging quiz questions amongst themselves and negotiating different options. Students also managed to solve very difficult puzzles by negotiation and exchanging results, calculating and eliminating answers probabilistically.

Clearly, the students were not behaving as we intended. The implications for ethical considerations regarding gamification are twofold: gamification can result in unintended behavior that might be considered unethical, and the recognition of unwanted behaviors reveals the manipulative motive of gamification itself. Stenros [13] notes that although there is a tendency in the discourse around play to see it as inherently positive, it can also be transgressive and destructive. He uses the term “bad play” when referring to norm-defying bouts of play to emphasize that this category is selected on moral grounds. Games are unique in their ability to create a balance between the open-ended nature of uncertainty and the generative reproduction of conditions for action which sustain stable cultural meanings [32]. Uncertainty and consequently change are core aspects of what makes games uniquely what they are. Players often have to interpret game rules and negotiate their shared meaning and expectations. It is therefore not surprising that people play games in unforeseen ways. However, in the gamification literature practitioners are not interested in creating gameful or playful experiences *per se* [6]. Gamification has been criticized for being manipulative and focused on what is least interesting about games [6]. There is a long history of harnessing games and play for extrinsic purposes, but what gamification offers is that it is applied “outside” of games [13].

The fact that unexpected behaviors are surprising to gamification practitioners and that we expect players to behave as we intend, suggests that our assumptions are flawed. When considering the theoretical frameworks we employed to understand the practical gamification challenges from our game course, it seems that a deterministic relationship between a game element [5] or combination of elements [12], and resulting motivational affordance and behavior, is inferred. These assumptions are supported by the dichotomy of internal vs external motivation underlying Self-Determination theory. It is also supported in the distinctions made between game vs play and game vs non-game in game studies. These dichotomies suggest that people and games are separate, closed systems with a cause and effect relationship reminiscent of a behavioristic stimulus-response mechanism. The problem is exacerbated by terminological confusion relating to the concept of game. The term “game” is used to signify the psychological, social or material aspects of games.

Stenros [13] considers these aspects, through his social constructionist framework as a holistic amalgam that treats games as meaningful intersubjective social processes, rooted in material reality.

The concepts of playfulness, play, and game are analytically separated and their genesis is traced from biology to complex cultural constructs. He emphasizes that these distinctions are analytical and that these processes are deeply intertwined. Stenros [39] relates the social and psychological aspects of play through his matrix of mindsets and contexts of play. However, the relationships between the material, psychological and social aspects of games remain under developed in game studies. Klabbers [37] highlights the four-decade legacy of terminological ambiguity in the related domain of games and simulations, and argues that games have been conceptualized and evaluated through frameworks and models suited to simulation, but unfortunately only partially suited to games. Klabbers [37] proposes that gaming better fits in the nominalist tradition of knowledge construction and meaning making. It therefore requires a tailor-made evaluation methodology that accounts for outward behavior as an unreliable index of psychological processes [37].

2.4. Methodological deficiencies

Theory relates to the selection and implementation of research methodology, which in turn impacts on findings and results. This is problematic when the theory chosen does not adequately capture the complexity of the phenomena studied. Hamari *et al.* [5] identify several methodological shortcomings in current gamification research. There is a gap between the theory and practice of gamification [5] [6] [12]–[14]. The vignette examples from our game course also illustrate that current gamification frameworks lack support of practical challenges. It is suggested that some of the theoretical deficiencies of the current conception of gamification can be attributed to theoretical frameworks that assume a dualistic ontological perspective. This notion is supported by the dualities identified underlying the problematic frameworks used in the current conception of gamification. These include: game vs non-game, game vs play, and intrinsic vs extrinsic motivation.

Dualism is a narrow, two-sided view of the world, which can lead to theoretical contradictions. Ontology in philosophy asks what is the nature of reality and existence? The dualistic perspective presupposes the existence of two distinct worlds: the world of change and appearance, and the stable “real” world (reality) that can only be known through reason. It can be traced back to Plato’s “Theory of Forms”. Dualism has provided us with a particular way of seeing and knowing the world, but it is a limited, closed and static perspective that categorizes

the world into opposing classes. The dualistic ontology cannot provide the appropriate perspective to know and theorize about phenomena that are unities of complex related elements, processes and transformations.

Dialectics is the philosophy of process, change and transformation and can be traced to Heraclitus “doctrine of flux”, whereby the nature of reality is regarded as flowing, transforming and complex. This distinction is subtle, yet profound. Where dualism regards reality as consisting of two distinct and separate worlds, dialectics regards these as simply two facets of a mutually transformative process in unity. Central to the science of dialectics is the study of “phenomena in movement”. Like a river is defined by the movement of water, dialectical science accounts for phenomena by their transformation. Since phenomena transform over time, the history of these transformations is key to the dialectical approach. Dialectical materialism and its epistemology played a constitutive role in the formulation of the first generation of Activity Theory by Lev Semyonovich Vygotsky.

3. Activity theory

An alternative dialectical perspective for reconsidering the challenges introduced in the previous section is offered. This is concretized through the lens of activity theory. Activity theory, formally referred to as Cultural-historical Activity Theory, is an evolving theoretical framework established firmly in dialectical materialism. As such, it is a reflexive theory that posits a dialectical relationship between theory and practice emerging in the context of history and culture. One of its features is that it addresses the gap between theory and practice by putting material, work-related activity, before language and theory [40]. Activity theory is a unique lens to review human development as it unfolds in social and material contexts. As a result of its cultural and historical focus, it has been found valuable across diverse domains, and has risen in prominence as a framework for the analysis and design of interactive systems in Human Computer Interaction [41], Virtual Worlds [42], and Serious Games [43]. However, it has as yet not been developed as a theoretical framework for gamification.

The key activity theoretical concept of object relatedness, was developed by Vygotsky as a response to the dominant behavioristic psychology of his time, and thus addresses the challenge of current gamification, assuming the classic behaviorist

stimulus-response model. He observed that unlike other species, humans do not interact directly with their environment. They do so using systems of objects that mediate between them and the world. In an attempt to expand the basic stimulus-response relationship to represent higher mediated human behavior, Vygotsky introduces mediating artifacts as link between the stimulus and the response.

The development of cultural tools and sign systems in the form of mediating artifacts is the crucial historical moment when “lower” cognitive functions are transformed into qualitatively different “higher” cognitive and cultural functions [44]. According to Vygotsky, this unique capability is the result of purposeful social activities and practices, which develop historically and give rise to new resources and forms of culture. Activities are therefore the appropriate unit of analysis for considering cognitive and cultural development. Cognitive abilities develop as a result of the internalization of actions with objects and other people. Once internalized, these abilities and objects can be creatively externalized, leading to innovation and new cultural resources. This process unifies the internal and external aspects in mutual transformation.

Beyond this, activity theory has further insights to offer regarding cognition and culture. Leontiev [45] contributed to the reformulation of activity as a mediated “subject-object” and by introducing the distinction between activity, action, and operation. The “-” notation is used by some activity theorists to indicate that the terms it connect are dialectically related. The subject-object therefore refers to a singular entity, the mediated act. It, however, also acknowledges the two forces united in the dialectical transformative process. The subject refers to the person or people engaging in the activity and also aims to capture their subjectivities, perspectives and cognition. The object refers to the material and/or mental product, at which the activity is directed. Action is the process whereby the subject interacting on it, transforms the object. The activity is then realized through concrete actions, which are goal directed. These goals determine the conditions for sequencing the unconscious elements that realize them, this being operations. Activities are flexible structures and although identified according to an object, the components of the activity (actions and operations) can change as the conditions change.

Game-play as a solution to the problematic game vs play dichotomy underlying the current conception of gamification is proposed. Game-play, thus represented, relates to the inverted object-subject of the mediated act. Key to understanding game-play is

clarifying the constitutive relationship uniting play and game. Vygotsky's work and, in particular his observations and experiments in early childhood development, are again relevant. Toward the beginning of pre-school age, when desires that cannot be immediately gratified or forgotten make their appearance, the child may enter an imaginary situation in which the unrealizable desires can be realized, and this world is what we call play [44]. The imaginary situations of young children ironically do not diverge widely from their experience of the world. They typically imagine themselves as adults, and their play typically takes the form of role-play. These play activities are often regarded as mimicry, free-form play, and as having no rules. However, these children are adhering closely to the rules of their world experiences. Just as the imaginary situation (play) has to contain rules of behavior, so every game with rules contains an imaginary situation [44]. Prior to the development of play, the motives of children are in union with their perception, which is not independent but an integrated feature of a motor reaction. Every perception is a stimulus to activity [44]. When children start to play, they develop the ability to detach meaning from their usual objects and actions. This ability is under-developed and challenging for young children. In play, children use a mediating pivot object to pry meaning from objects and actions in the situation. Play is therefore not free substitution, and not fully developed symbolic thought. It liberates the child from situational constraints and helps them relinquish the impulsive needs that motivate play. Immediate needs are superseded by the pleasure of self-control and volition, which constitute the path to maximum pleasure in play [44]. It is therefore not surprising that there is growing empirical evidence to suggest that autonomy is crucial for the enjoyment and efficacy of serious games and gamification [15].

The dialectical relationship between play and games in early child development is the seed for the development of games as activities. As children mature, their play becomes more symbolic and culturally determined. Play mediated by cultural objects and rule systems found in formalized game-play is best considered as an activity system. Engeström [46] extended Vygotsky's representation of the mediated act by introducing the community as an additional mediator for cultural activities.

The "game activity system" is suggested to address theoretical challenges of the internal vs external motivational dichotomy and to clarify the distinction between game and non-game. The "game activity system" is shown in Figure 1 using Engeström's triangular heuristic [46]. In a game activity system, the subjects of the activity are the players who are engaged in the game and provide the participant view, e.g. two people playing chess. The players represent the psychological aspect of games. It is important to emphasize that according to the proposed game activity system, the game-play object is produced and consumed by the players. Game designers create game elements, mechanics and roles in completely different activity systems. Chess pieces and rules have been historically produced through different activities. The players transform the game-play object's digital or physical configuration towards the game-play activity's outcome, which embodies the motive of the activity. This object-motive is the target at which the activity is aimed. It defines the activity. Each player has a vision for their next moves for winning, which determines their current action. The end-game is the imagined situation, which is based on the player's prior experience participating in game activities. Thus the outcome of the game activity partly depends on the player's prior game-play.

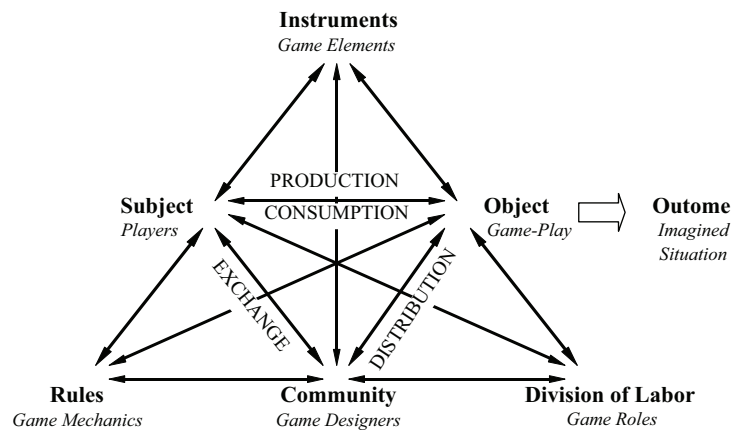


Figure 1. Game activity system

The game-play object is never static and is dynamically transformed through all the dialectically related components of the activity system. The mediating artifacts or instruments of the game activity are the game elements (chess pieces) that represent the object of game-play. Game elements include all mediating artifacts or instruments (material, digital and conceptual) used to represent and constitute game-play. They represent the material aspect of games. In games, elements can also be dynamic representational systems. As a result, the game elements and object are tied very closely together and it is often difficult to separate them. However, the functional distinction is clear: game elements are used to transform the game-play object.

The community of the activity is the stakeholders who share in the general object of the activity, and constitute the larger cultural context. They represent the social aspect of games. Game designers as the community of games is proposed. This sets up the productive player-designer relationship. During play testing, designers move to the position of players in the activity system. Players can also become designers when they produce or alter game elements and rules. The rules of the activity mediate between subject and community. Game designers create game mechanics to both afford and constrain the player's actions in the game. The game mechanics are the economy of the game activity, where action is the currency and the exchange between player and designer's rules results in resources being distributed in game-play. These resources enable the player to transform the game-play object towards their goal. The division of labor mediates between the community and the production of the object. Clearly, the player and designer share this responsibility. However, as they are already represented in Figure 1, it is more productive to use this position for specific in-game roles created by game designers as part of the game economy.

Activity systems are dialectical systems in persistent tension. These tensions are represented in Figure 1 by the arrows pointing between the elements of the activity system. These contradictions manifest as problems, ruptures, breakdowns, and clashes; activities are virtually always in the process of working through these contradictions [41]. Activity systems are hierarchical structures comprising other activity systems, actions or operations. It is useful to think of them in terms of hierarchical networks sharing connections. The "game activity system" dialectically relates the material, psychological and social aspects of games. In the following subsections, the practical vignettes from the game course are reconsidered through the lens of activity theory.

3.1. Individual differences

The second principle of the current generation of activity theory, is the multi-voicedness of activity systems [47]. Activity systems are always a collection of multiple points of view or voices. These voices represent the different histories and subjectivities of participants. The division of labor orients participants' views and voices into a collective, multi-voiced construction of their past, present, and future zones of proximal development [48]. Considering such multi-voiced activities as a network of interacting activity systems can contribute to understanding their complexity. Individual differences can be challenging, and yet they are also a source of innovation, demanding actions of translation and negotiation [47]. Individual differences and views voiced by participants in gamification activities should therefore be celebrated and used as opportunities for innovation. Such diversity is a resource, as it provides energy towards the transformation of the activity system. Our activity theoretical analysis only revealed this opportunity in hindsight.

The vignette on the individual differences also included the reward of an assignment extension. This reward was consistently rated as the top reward for all students across all years. We believe that all people share this need for autonomy, which accounts for the reward escaping individual differences. From the perspective of activity theory, a person is motivated when they are participating in the activity. Activities are identified by their object-motive. When a participant in a situation is following another object-motive, they are participating in another activity in the same situation. The realization of the object of the activity is its motive. Control over the activity object is therefore essential for motivation. The prospect of expanded control and the action possibilities this creates, leads participants to a positive emotional response in which they buy into and realize the activity. Emotions are integral to the functioning of the activity system as a whole, for they reflect relationships between motives and success or the possibility of success [40]. Games are particularly powerful activities for affording new action possibilities and autonomy.

3.2. Context specificity

Activity theory makes a valuable contribution to the problem of context specificity of gamification, by asserting that the activity is the context. Through the dialectical process of internalization-externalization it

unifies the internal (goals, mental objects, subjectivity) with the external material (artifacts, people, and setting) aspects of the activity [41]. The activity constitutes the context as a mediatory space that relates participants to their objectives, motives, tools, community rules and roles. The situation is important, in that it locates the activity and provides the material resources. However, it is not the context. Context is infused with shared meaning, as it mediates between the subjectivities of participants and the external social world.

The gamification of our game course aimed to deeply infiltrate the course content and to be more than a cosmetic layer on top of the course. A cosmetic change was much less effective when implemented in the gamification activity for 3rd year game students. When considering the vignette on context specificity, we propose that such specificity is evidence of a deeper and less superficial level of gamification. When we consider gamification as transforming activity systems by infusing them with meaningful game-play, the aim is to transform the very nature of the gamified context. The means and mechanisms that achieve such a transformation are unlikely to be as effective for another context. Context specificity from the perspective of activity theory is therefore a positive indication of a less superficial penetration of gamification within the context.

3.3. Ethics

The ethics vignette highlights two related ethical concerns in gamification. Firstly, gamification can result in unintended player behaviors that might be considered unethical. From the perspective of a traditional academic course activity system, such practices would go against the formal rules. However, a gamified system creates social signals that the activity is to be considered a “gaming” situation, where myopic min-maxing is allowed and expected [15]. From the perspective of activity theory, cheating is a significant form of student agency [49]. Gaming the system is an indication of a very high level of player engagement and motivation. When gamification is applied in an academic context, a clash of cultures can occur and the components of the two activity systems, that are transforming one another, can cause contradictions. These contradictions are valuable as they can transform both activities and ideally emerge as an enhanced activity system that affords participant agency. Agency lies at the heart of motivation, as the prospect of expanding the sphere of control and action possibilities within an activity, facilitates positive

emotions and a feeling of ownership for participants. The activity is also transformed through the volition of participants, leading to the development of more advanced activities as resources for society. This conception of gamification reflects the activity theoretical concept of the “expansive cycle of activity” [47]. This is the iterative formulation and resolution of the internal contradictions of an activity system, driving the transformation of the activity through the developmental processes of internalization and externalization. It contributes to an enlarged space to maneuver for the individual, whereby new action possibilities are formed. However, it is also mediated by the division of labor in collaboration that inherently leads to outcomes and new forms of societal activity [40]. Activity theory considers learning in the broad sense, where both the individual and society are dialectically transforming each other. The gamification of the game course is proposed as an example of just such an expansive cycle of activity. The current iteration of this gamification was transformed and produced by various internal contradictions over the last four years, including the clash of cultures between academia and games.

Agency from the perspective of activity theory also has important implications for a second ethical concern: being the manipulative motive of gamification itself. Huotari and Hamari [8] contributed the notion of gamification as a service enhancement in their definition. However, the nature of this enhancement was described as motivational affordances, which assumes a motivational objective for gamification. We suggest a more concrete objective for gamification, namely affording agency.

4. Conclusion

A reimagining of gamification is proposed. This paper develops this vision by seeing gamification from a dialectical ontological perspective, and makes this concrete through activity theory and its application in practice. The following contributions are made: First, activity theory is proposed as a framework for gamification and its value is demonstrated in practice. Second, the concept of “game-play” as the dialectical constitutive relationship between game and play is introduced. Third, a “game activity system” model that dialectically relates the material, social and psychological aspects of games as activities, is outlined. Fourth, gamification as the enhancement of activities toward affording participant agency is reimagined. This reimagined gamification does not

imply that the current conception of gamification and the theoretical frameworks that support it should be discarded. One limitation is that our vision might not be applicable to all use cases. For example, some organizations might not be comfortable with the idea of offering agency through gamification to their employees or customers. However, the model offers another perspective on gamification, which might be particularly well suited for gamification within education contexts. The phenomena of games and gamification revealed through activity theory are complex, multi-dimensional entities, composing a myriad of forces united in transformation. Games viewed thus, represent Malaby's [32] conception of games, always in the process of becoming. The complexity thus revealed poses other challenges for theorists and practitioners of gamification. However, complexity can be mastered through the use and development of conceptual, digital and physical tools. Activity theory is one such tool. Being a tool forged by human minds it is not infallible and complete. However, it is reflexive, cultural-historical, critical and open to innovation. Games and gamification are excellent contexts for the innovation of activity theory – in particular with regard to agency, which is currently underdeveloped [49] [42]. Also within gamification, other cognitive dimensions have been left unexplored. Imagination and creativity are particularly valuable when considering design and innovation.

5. References

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