TWEAKING MORAL COMPLEXITY IN VIDEOGAMES?
OPTIMISING PLAYER EXPERIENCES ON BASIS OF MORAL COMPETENCE

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ABSTRACT
The gaming industry has been, compared to social media platforms, rather slow in developing its effective methods of game analytics. Considering the difficulty of interpreting player behaviour, this might be no surprise, yet the possibility of modelling player ethics might bring more reliable user metrics. Modelling ethics is the creation of user profiles based on their ethical decisions in-game. Recent publications in that field show an increasing interest in this practice and consider the outcome of succeeding in creating profiles containing data on applied player ethics as highly valuable. Modelling ethics is still not a well-studied practice, but its implications in perspective to cases of data abuse by Big Tech companies seem troubling. It is important to consider, interrogate and discuss the possibilities of this emerging practice critically. How can ethical profiles be rendered? How does inconsistent player behaviour affect the ethical metric? Who owns this kind of data, and for which purpose is its utilisation admitted? These and many more questions must be addressed immediately before unethical practices take place, and policies lag behind. Therefore, we intend to present the work of Pereira Santos to define the modelling of ethics as a new method of Game Analytics, how it can be applied, which data it can extract and how it can be interpreted. Further, we propose a new experimental design for how the modelling of ethics may be approached. For that, we want to shift the attention from trying to create full-fledged ethical profiles of players to their measurable moral competence as a more reliable metric. Moreover, we discuss the prospects of modelling ethics and the moral implications for the industry and move towards a conclusion that urges immediate policies to address the method.

KEYWORDS
Moral Competence, Moral Complexity, Player Modelling, Game Analytics, Game Studies, Videogame Ethics

1. INTRODUCTION
The production of videogames has been, from a historical standpoint, not data-driven (El-Nasr et al. 2016: 3). This has changed in the last decade, and game analytics have become increasingly important in the industry's decision-making processes. "Game analytics is the application of analytics that should provide Business Intelligence for game development. Game analytics consist of telemetry data, which are raw data collected outside organisational boundaries, and game metrics, which provide visualisation and quantitative measures of this raw data" (Lassila et al. 2019: 2149).

Applying Game Analytics to develop and optimise videogames is connected to the more substantial emergence of free-to-play business models around 2010 (cf. Livermore 2016: 35-36; Mäntymäki et al. 2019: 1164) and is hence "heavily inspired by web- and mobile analytics [that] relies on analysis of comprehensive user behaviour data to drive revenue." (El Nasr et al. 2013: 4). While game analytics seems to be an aspiring methodology for the industry to optimise development procedures and in-game performance, player metrics remain challenging to analyse and interpret (Santos Pereira 2020: 104).

While player metrics can assess player behaviour as fact, players' motivations or emotional states that endorse particular behaviour is a black box to the data analyst. S/he cannot know why a player chose to design an avatar in a certain way or why a player applied specific behaviour based on that singular metric (Zagal 2013: 80-81). This black box causes a considerable problem to the reliability and value of user data from players' in-game behaviour. So, the question is not if or how player metrics should be rendered but rather which data applies for a faithful rendition.
In 2013, the game designer Sylvester described videogames to be engines of experiences that are fundamentally concerned with engaging players on an emotional basis. Emotional triggers are used in games to engage players, create attachment, anticipation and an overall desirable experience (Sylvester 2013: 11). Emotional triggers cause intimate emotional reactions by players which can be representative of the players' self-esteem, mental state, beliefs, socio-cultural background and ethical understanding (Sylvester 2013: 12-13; Pereira Santos 2019: 32-33).

However, the question remains: which design decision within a game causes which emotion, thus making a game a desirable experience to the player? I argue that moral encounters in videogames may be an effective opportunity to extract, analyse and interpret player experiences and preferences.

This approach of modelling ethics can be considered as a sub branch of Player Modelling. "Player Modelling [...] is applied directly to games and explores the detection, modelling, prediction and expression of human player characteristics which are manifested through cognitive, affective and behavioural patterns." (Pereira Santos 2019: 4). In regards to modelling ethics, this is a method that brings at this early stage three main concerns with it. (1) The inconsistency of applied in-game ethics by players. (2) Useful and valid methods of rendering applied in-game ethics by players (3) The ethical and respectful use of such data by game developers.

Therefore, we intend to present Pereira Santos’s work on "Profiling Ethics Orientation through play" (2019) to define the modelling of ethics as a new method of Game Analytics; how it can be applied, which data it can extract and how it can be interpreted. Further, we propose an experimental design that refrains from trying to assess clearly defined ethical profiles on basis of player behaviour. Instead, moral competence (Lind 2015) shall be used as a metric to assess players’ interest in degrees of moral complexity in order to capture player preferences, thus subsequently being able to tweak moral encounters in videogames according to the individual moral competence of a player. At the end, we will discuss remaining problems but also prospects of this approach to data rendition. Also, the moral implications for (both) the industry and players will be addressed.

2. MODELLING ETHICS

Profiling players based on their reaction towards moral encounters has been barely tested, but may offer a valuable understanding of how players perceive these encounters as either constitutive or distracting in terms of their desired in-game experience. This approach draws on the tools of Game Analytics to look at Game User[er][E]X[perience]. Game UX deals with “how [players] will perceive the game and interact with it, and the emotions and engagement elicited from this interaction, relative to the design intentions” (Hodent 2020: 28). Games such as Papers Please (Pope 2013) or Frostpunk (11bit Studios 2017) are wrapped in moral dilemmas. Complex predicaments that let players decide over the fate of their or other in-game characters. The dilemmas are presented to players through powerful rhetoric devices and strategies to engage them emotionally (Zagal 2013: 71). Therefore, ethical decisions by players (i.e., saving character A but causing character B to suffer consequences) may hold representative data to their actual moral competence through the intimate emotional engagement. These moral dilemmas in games are often designed to be experienced in a limited or rather pressing time frame which can cause affective responses by the player (Hodent 2018: 77).

However, how should one approach the assessment and interpretation of player ethics? Pereira Santos has proposed two crucial research questions in that regard. "Is players' moral judgment related to their in-game behaviour?" and "How can an interactive narrative be designed to allow implicit profiling of players' ethical orientation?" (Pereira Santos 2019: 63). These questions indicate that it is not sufficient to have singular moral dilemmas or give players the possibility to apply ethics in-game, but the game design must include a carefully implemented and scientifically backed evaluation plan. Alternatively, subsequent moral dilemmas in a game must follow a scheme of a scientific test that can profile player ethics.

Pereira Santos implemented the Multi-Dimensional Ethics Scale (Reidenbach & Robin 1990) into a prototype of an interactive narrative game in his research. The MES can measure the ethical orientation of a participant within five dimensions. (a) Moral Equity (ethics based on concepts such as fairness or justice); (b) Contractualism/Deontology (ethics based on principles such as Kant's categorical imperative); (c) Utilitarianism (ethics oriented towards the greater good of society); (d) Ethical Relativism (ethics based on individual culture, feelings or religion; and (e) Egoism/Consequentialism (ethics based on one's [long-term] interest) (Pereira Santos 2019: 63-66).
The MES was implemented as a sci-fi adaptation into an interactive story using a branching narrative that suggested different plot outcomes. 80 participants were paid to participate and needed, on average, 30 minutes to complete the game (Pereira Santos 2019: 68-69). Participants had to complete a raw MES questionnaire before they played the game, and the results were then compared. The outcomes showed no statistically significant correlation at first. (Pereira Santos 2019: 71-72).

However, based on these data sets, a genetic machine learning algorithm was applied to create weights for the individual decisions within branching narrative. A new test group with similar age and gender participants like the original group were invited to do the test again (Pereira Santos 2019: 72). This time, the results correlated in a statistically significant way. Pereira Santos concluded “identifying one’s ethical inclinations through the choices they make in interactive stories is a promising direction as an alternative to questionnaires.” (Pereira Santos 2019: 76). However, how could developers make use of this kind of data? His conclusion suggests that the development and optimisation of video games (i.e., improving applied rhetoric and design of moral dilemmas or ethical encounters) and the commercialisation of player profiles could result from harvesting data sets on player ethics on a large scale (Pereira Santos 2019: 75).

Nevertheless, no matter how innovative Pereira Santos research may be, his research design includes an aspect that already causes friction in the collected data. Players are given the MES test before playing the interactive narrative with the adapted test. This implies that the MES test already biases players before attempting the game (Hodent 2016: 92). Players may recognise patterns within the narrative and remain faithful to their decisions of the questionnaire as a reaction and not by situational decision making. That may have led to a misrepresented correlation of ethical behaviour in between the decisions of the MES questionnaire and the narrative game.

However, Pereira Santos pioneering work on profiling player ethics has provided substantial perspectives and has proven the significant role of machine learning techniques in assessing patterns in telemetric user ethics to predict moral decision making in simulated experiences. The experiment shows also how game design choices could be affected by basing gameplay on the ethical evaluation of the player. Regarding videogames as procedural artefacts one needs to consider “how software functions and thereby directs its use and users” (Sotamaa 2016: 5). Should optimised modelling possibilities be prioritised in game design? Or should it remain a side feature for the developer?

3. MORAL COMPLEXITY & MORAL COMPETENCE

In the previously described experiment, the MES was used to create complex ethics-based profiles of players. This approach seems problematic due to (1) the inconsistency of applied in-game ethics by players. In facing the black box problem of unidentifiable player motivations for certain ethical behaviour, such a complex rendering method seems unreliable. Only on the basis of a plethora of data, machine learning could possibly conclude a tendency of players to act on behalf of, for example, deontology or consequentialism.

Therefore, we decided to use a simpler but more reliable method, namely Lind’s Moral Competence Test (2014). While moral competence can be described as “not only how people think about moral dilemmas and their solution, but also their moral conduct and prosocial behaviour” (Park & Peterson 2006: 892), for Lind, it was essential to include within this definition “the ability to solve conflicts between opposing moral concerns by discussion with opponents.” (Lind 2019: 52).

The MCT can test the moral competence of a participant by presenting fictional moral dilemmas and how a person resolved them. On a scale from -3 to +3, participants are asked to rate the decision made by a third party. Furthermore, “after each story, the participants are confronted with six arguments for and six arguments against the third party’s decision – and, therewith, also for and against their opinion on this decision […] They must mark their answers on a scale from -4 (completely reject) to +4 (completely agree)” (Lind 2019: 56). Based on the test results, a score (0-100) will be assigned that represents the degree of moral competence (low/high) of the participant (Lind 2019: 62).

Using this test enforces a shift in focus from players’ distinct ethical preferences to players’ moral competence or rather their interest in moral complexity. For now, we define moral complexity in videogames as an indicator for the presence of conflicts that can be solved non-violently or as the depth in which a critical commentary on violent solutions of conflicts is presented. This allows us to formulate the working hypothesis that players with a higher moral competence would be more satisfied with a game that provides a higher degree
of moral complexity (i.e., Papers Please, Frostpunk) than players with a lower moral competence, who would be rather satisfied with a game that provides a lower degree of moral complexity (i.e., GTA 5, Call of Duty: Modern Warfare). Based on this assumption, we have conceptualised an experimental design which is divided into three parts.

The first part encompasses the pre-test based on the MCT in which the participants receive their moral competence score. The second part is the randomised assignment of one of two versions of the same self-developed videogame. Moreover, the third part entails the assessment of the subjective satisfaction with the game experience which is operationalised by the three basic needs in social-determination theory: (a) competence, (b) autonomy and (c) relatedness (Adams et al. 2017: 49).

(a) The need for competence entails the “desire to effectively master [one’s] environment and experience a sense of competence in it” (Adams et al. 2017: 49)
(b) The need for autonomy encompasses an experience of “choice and volition in [one’s] action”, and the feeling “to be the origin of [one’s] actions (Adams et al. 2017: 49)
(c) The need for relatedness is constituted by “a sense of connectedness with others; to care and be cared by others” (Adams et al. 2017: 49)

While the first part concerning the MCT has been already previously explained, the second part needs further clarification. To provide valid results, both of the randomly assigned games would need to be identical in terms of their core aesthetics (graphics, mechanics, gameplay, etc.). The only difference allowed would be the distinct forms of behavior that would be permitted in each game.

Therefore, we have conceptualised a game with two versions (A & B) that sets out players on a quest to get medicine for their sick mother from another town. On their way (traversing from their mother’s home to the doctor and back), they encounter three distinct situations in which the player is forced to take action. In game A, all options involve socially appropriate forms of dialogue (i.e., convincing, bargaining, asking) while in game B, all options involve forms of socially inappropriate or violent behavior (i.e., fighting, threatening, stealing). In both cases the player is always allowed to proceed to the next stage and besides the modes of interactions in these distinct situations game A and game B are identical. Once players finish the game, which should take them no longer than 3-5 minutes, they are asked to fill out a questionnaire that assesses their subjective satisfaction with the game itself. Our hypothesis is that the subjective satisfaction with the game can be predicted by the compatibility of the persons MCT score and the given version of the game. Thus players with a higher MCT score should show higher ratings of satisfaction when given version A, while players with a lower MCT score should show higher ratings of satisfaction when given version B.

If the results will back the hypothesis, this means that a diametrically opposed playership could be reached and satisfied within the same game. Being able to not just adjust difficulty but also moral complexity within games according to players’ moral competence, could prove as an innovative game design method to foster the optimisation of individual player experience while pushing the boundaries of inclusion further.

4. CONCLUSION: TOWARDS ETHICAL MODELLING

Game analytics will become more critical to the industry in the upcoming years (Pereira Santos 2019; Mäntymäki et al. 2019; Lassila et al. 2019). Therefore, it is not unlikely to expect an increased interest in further developing effective methods such as the modelling of applied player ethics or, as shown here, measuring moral competence and adjusting moral complexity. Certainly, there are many issues that arise from this approach, including the specific game design choices for the experiment, as for how interactivity is established can already distort what is being measured. Also, participants’ reactivity must be considered, however as the final questionnaire does not measure the ethical preferences of players but the satisfaction with the game, we are able to control this factor. In addition, what moral complexity and the players’ interest in resolving moral conflicts constitutes must be clearly defined before the experiment and effectively implemented into both versions of the game to ensure a clean acquisition and analysis of data. Also, we admit that what we have termed subjective satisfaction must be defined with care. Whether we are asking the player to assess something such as replay value of the game or if we remain faithful to the social-determination theory and its understanding of satisfying “basic psychological needs” (Adams et al. 2017: 49) remains under discussion, for now.
However, we see in the eyes of the data-driven turn of the industry and the increased use of automated, personalized and procedurally generated content a high chance that this method might provide an innovative way to consider the modelling of player ethics as useful for game development to optimize the individual player experience and addressing diametrically opposed player demographics with one game.

Yet, if further substantial research in this field will be pursued, it must be stated that new forms of data abuse might emerge with the advent of new ways to extract and render data. Hence, we propose not the mere modelling of ethics but instead Ethical Modelling as a progressive practice in Game Analytics that can help create and optimise novel virtual experiences while respecting and protecting players’ privacy. After all, “as game scholars, we are often called upon to illuminate power relations and networks of production to interrogate ideological systems that may or may not be in the best interest of the people involved” (Conway & deWinter 2017: 3).

And while the ability to model ethics in videogames remains at an early stage, it seems best to address these issues far before unregulated practices take place.

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