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# Conducting ethical research with a game-based intervention for groups at risk of social exclusion

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**Abstract.** With developers of entertainment games increasingly exploiting the potential the platform affords for capturing rich data on user behaviour, adopting similar paradigms for "serious" purposes such as positive social change or public health intervention is a tempting prospect. However, exploitation of this potential must be tempered by a careful consideration of how ethical principles can be adhered to and applied to foster and sustain trust amongst end-users. This is particularly the case for at-risk groups, who may be particularly vulnerable to misunderstanding or misinterpreting requests to participate in research activities. In this paper, several key areas in which serious games present unique ethical considerations are presented and discussed: the unique nature of play as a source of data for analysis, the motivating role of the game and its use as an incentive for participation, and the impact of the entertainment gaming industry and its conventions user expectations. A case is presented based on preliminary work in developing a serious game for European migrants, and a number of key areas for consideration described. Through discussion of the emergence of methods and techniques for the analysis of data arising through play, the technological urgency for development of mechanisms to support ethical capture and processing of data from game-based learning environments is noted. To conclude the paper, future ethical dilemmas brought by success in achieving technological platforms capable of stimulating and managing behavioural changes are discussed.

## 1 Introduction

Entertainment games, and their serious counterparts, have attracted a wide range of attention from various sectors of the research community. With a little over a quarter of 13,000 Europeans surveyed in 2010 agreeing they considered themselves "gamers" [1], the pervasiveness and widespread appeal of this emerging medium is apparent. Attempts to demonstrate the impact and value of these serious outcomes often seek to utilize data captured from interactions between user and game, however, as an emergent medium, how users perceive and trust games requires careful consideration to ensure both an ethical and methodologically-sound approach to research. Since the early 1990s, the potential negative impact of emerging technology on exclusion

through a "digital divide" has been well documented [2]. However, as technology has matured and become increasingly pervasive, interventions seeking to harness this same technology to promote inclusion and empower groups at-risk of social exclusion have equally been observed to emerge [3-5]. In this article, we refer to "at-risk" groups specifically in terms of their risk of social exclusion; itself a concept lacking a ubiquitous definition, though broadly described as a state in which individuals fail to contribute economically, socially, and politically to the society in which they live [6]. In Section 2, this paper presents from a pragmatic perspective a number of ethical considerations specific to serious games intended for these at-risk groups, reflecting on the unique case of game-based interventions, leading to discussion of both the need for trust, and routes towards obtaining it. Section 3 then reflects upon these considerations in light of the European Mobile Assistance for Social Inclusion and Empowerment of Immigrants with Persuasive Learning Technologies and Social Network Services (MASELTOV). The paper concludes by considering the broader ethical questions that must be confronted in the drive to create effective game-based methods for social, societal, and behavioural change.

## **2 Fostering trust in at-risk groups through an ethical approach**

The challenges posed in ethically assessing the impact of technology with at-risk groups have been explored in general terms in a wide range of frameworks [7]. What, then, makes serious games worthy of special consideration? Interesting is the ease with which games are labeled as either "serious" or "entertainment" when few other media are defined in such absolute terms (consider, for example, the notion of "serious television"). Yet does this distinction extend to the end-user? It is not uncommon for serious games to adopt a stealthy approach to their learning objectives [8], and in doing so particular care must be taken in ensuring fundamental ethical processes such as informed consent are adhered to. However, the issue here is self-evident: if the user is informed of the objectives of the game, the pedagogical method is compromised, and a study of users in a naturalistic context becomes impossible. The lack of immediate solutions to this problem is no doubt a contributory factor to the paucity of conclusive, generalizable and objective studies showing the impact of game-based learning in a natural usage context. Whilst a range of studies have demonstrated the situational benefits of such approaches [9-11], a need still exists for a fuller understanding of how the indirect nature of learning through play is best selected and applied to meet a given learning requirement.

The depth of interaction, and possibility games afford for increased connection and emotional investment from users [12] can be argued as one of the primary mechanisms through which they sustain engagement and foster intrinsic motivation to play [13]. In the case where the rationale behind the selection of a game-based approach stems from its perceived ability to reach at-risk groups outside of formal or structured contact, adhering to ethical principles can be particularly challenging when seeking to compete for screen-time in a leisure context. Commercial games such as Farmville achieve success by adapting to the user [14], based on data capture methods that have been argued as unethical [15]. We may seek to implement our ethical

approach, yet can we reasonably expect to attract users when we actively obstruct their access to ensure they are informed? Similarly, without the ability to customize and adapt our games without the express consent of the user, we should expect to provide an inferior service to those users who opt-out. If we allow users to opt-out of research activity, what incentive do we offer for them to participate, and if none, can we reasonably expect sufficient participants to ascertain whether our serious game achieves serious impact? Shifting context to a classroom, trial, or other environment where extrinsic motivation can be relied upon is an obvious solution, though if this is unrepresentative of the actual usage context, findings may be of limited value.

Fostering trust is therefore essential in guiding the decisions of participants to allow researchers access to their data, as well as allowing serious games to exploit the adaptive and iterative approaches shown to improve their efficacy [16]. In entertainment gaming, and more generally software development, an End User Licensing Agreement (EULA) commonly accompanies the process for installation and first access. Increasingly, these agreements include consent to have data analyzed and kept for marketing purposes. A study of 80,000 users found that 50% of users took less than 8 seconds to read the agreement. Such was the extent of over-familiarity with the EULA process, users were observed to be more inclined to blindly accept terms if the presented screen resembled an EULA [17]. In short, the majority of users have become accustomed to accepting these agreements without review; an unsurprising finding when considering that, in terms of perceivable impact on the user, the EULA is hard to recognize as more consequential than any other confirmation dialogue during an installation or startup process. Yet does this lack of attention from the user stem from a lack of understanding of what they are consenting to, or is it that these users understand the implications of a standard EULA and are happy to consent? Even presented with research addressing this question, it would be unlikely to apply to broader or generalized usage contexts.

An EULA is typically deployed with provision of service as an incentive: users unwilling to consent cannot typically access the software or game, therefore should we also consider the ethical implications of using a serious game as a vehicle to incentivize consent? For any intervention with intrinsic appeal, particular attention needs to be paid to the impact incentivisation may have on decisions to opt-out. A participant eager to play the game may not be a willing test subject; yet they may be willing to disregard this concern to gain continued access to the game. The extent to which this effect needs to be considered and planned for does, as with any other intervention, depend highly on the ability to ensure the participant makes the decision to participate in an informed manner, with the capacity to play the game whilst opting-out of the associated research activity. Thus, care should be taken when conducting research alongside users who are intrinsically motivated to play the game, but not necessarily to participate within the research programme. The title of this section acknowledges that an ethical approach is central in developing the trust required amongst end-users to perform effective evaluations. Important is not only the need to adopt an ethical approach, but how to communicate it effectively to the end-users without compromising the pedagogic or behavioural model at the core of the intervention's design. In the next section, we discuss how these principles might be applied in the specific case of a game-based intervention seeking to lower the risk of social exclusion amongst migrants entering the EU.

### **3 Game-based intervention for European migrants**

We consider specifically in this section the case of a serious game currently being developed to support migrants entering the European Union (EU) from non-EU states as part of the MASELTOV project. The audience, therefore, is typified by the need to develop an understanding of the language and culture of the host country, as well as form social ties which lead to inclusion. In such a case, it is suggested games can form an effective basis for cultural learning through playful scenarios, and the gamification of existing resources. In this case the ethical approach builds upon the established principles of informed consent, though also notes the difficulties that can be posed in achieving this with an audience whose linguistic and cultural skill-set is defined by their country of origin rather than destination. Key, then, is to limit the requirements for these skills within the game, and to make the consent process highly transparent and accessible, as well as giving reference to the cultural context of the user. Technology is increasingly allowing data from users to be monitored and assessed. As the game developed for MASELTOV will be employed through a mobile device, technological methods for gaining consent for tools such as location awareness can be capitalized upon. However, again consideration must be afforded to the evidence given in the previous section, which suggests consent achieved through user agreements may not be fully informed. To address this, secondary mechanisms for ethical validation and information must be fully explored.

In addressing the general problem of social exclusion, the game must also be considered in its wider context as a single tool amongst a broader set of applications. The motivation games can stimulate, as outlined in the previous section, must be carefully considered with respect to its implications for how users might interact with the broader MASELTOV platform. A technological need to ensure users retain ownership of the data the system generates on their behaviour therefore emerges; a complex challenge when considering the interactions between multiple applications as well as the social context of the platform. Work within the MASELTOV project will therefore explore the role the game can play as both a conveyor of content and stimulus of intrinsic motivation, and central to this work will be an understanding of how trust can be sustained through a transparent, accessible, and integrated approach to data capture.

### **4 Conclusions**

This paper has focused primarily on the pragmatic aspects of implementing a game-based solution or intervention to a problem. Indeed, serious games are commonly put forth as a medium with high potential as a means of behavioural change in a public audience. Many games already exist seeking to shift behaviour to certain ends; for example stimulating healthier eating [18], treatment adherence [10], and behavioural science frequently underpins their design [19]. Taking the general goal of these approaches to be games capable of changing behaviour to any stated set of parameters, and ethical questions immediately emerge, particularly when one of the largest scale serious games to-date has functioned as a military recruiting tool [20].

More to the point, can, or should, we expect users to "trust" interventions which seek to covertly, or even insidiously, change their behaviour? Whilst games are by no means the sole technology for which these concerns must be raised, they are, based upon the above cited examples, one of the most powerful.

A future where these approaches are effective enough to require these questions to be answered fully is perhaps not as far away as we might like to think. Approaches to understanding "big data" [21] are increasingly allowing us to interpret meaning and models from complex systems and behaviours. Significant future investiture will undoubtedly enable research that explores how these techniques to be applied to iterate and adjust these complex systems to our own ends. Yet in the context of platforms for social, societal, or behavioural change, the ethical dilemmas these systems may raise cannot be understated. In fact, there can be little doubt that an information-driven approach capable of adjusting societies and behaviours on a large-scale is no less of an ethical conundrum, or, indeed, as potentially devastating, as Oppenheimer's bomb. We might, as well-meaning researchers, seek to shift behaviour for short term public health gain, such as promotion of healthier lifestyles, but we cannot truly understand the "butterfly effect" our actions might stimulate. Though digital technologies and other emerging media only constitute individual parts of the complex structures underlying changes in behaviour, it is important to be mindful of this wider picture. In doing so, we must ask ourselves not only how we achieve our goals of change, but how we can expect to understand fully their consequences.

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