PLAY TO GROW:
Augmenting Agriculture with Social Impact Games

Play to Grow is an Arts Humanities Research Council (AHRC) funded research project exploring and testing the use of computer games as a method of storytelling and learning to engage urban users in complexities of rural development, agricultural practices and issues facing farmers in India.

This is the first of a series of reports on the progress and findings of the Play to Grow project. The project follows on from an AHRC and British Council funded UnBox Fellowship in India in February 2013, involving a partnership with and challenge proposed by Digital Green, a non-profit organisation based in Delhi that combines technology and community engagement to improve the social, economic, and environmental sustainability of small farmer livelihoods. This report focuses on the preliminary work done as part of the UnBox Fellowship and introduces the work to be undertaken with the follow on funding.

The Team

For the Fellowship, UnBox Fellows Dr. Misha Myers, Saswat Mahapatra and Joshua Oliver worked with Digital Green to design Crop Cycle, a live action prototype for an online interactive social impact game aimed at promoting a better understanding of the reality of small farmers' lives in India. In Play to Grow, the next phase of development of the game will be advanced by a new project team led by Dr. Misha Myers (Falmouth University) as Principal Investigator, and including Saswat Mahapatra as Animation Consultant, Professor Nina Sabnani (IIT Bombay) as Video Consultant, and Professor Anirudha Joshi (IIT Bombay) as User Research Consultant.

Research Question

While social impact games are an expanding sub-genre of serious games, further robust evaluation and comparative study is necessary to determine what game technology and design properties and mechanisms might be most effective at promoting change-related agendas. While there is a range of activity in this area, there is also a need for more focused research on specific sociocultural contexts.
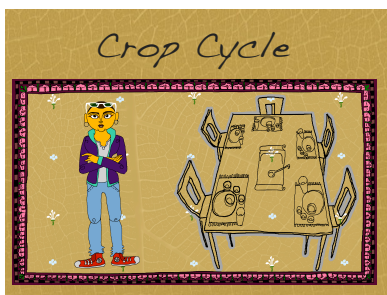
The Context

While small farmers symbolise the Indian countryside, their livelihood and existence is threatened by inequalities in bargaining powers of growers, financiers and distributors of food. Market-led economic reform in India threatens to intensify inequalities directly linked to hierarchies of power that prevail across rural Indian society, related to caste, gender, religion and politics. Representation of farmers takes a variety of forms in Indian media (e.g., rising food prices, GM versus organic debates) with farmers portrayed as poor and plagued by suicide (Padney & Kaur 2009).

Romanticised perceptions of village life persist amongst urban elites as does an urban-rural divide. While India has the third most socially active web-connected citizens worldwide with many of these from urban areas who connect on social media to discuss politics (Shrinivasan and Anwer 2012), realities of farmers' lives in India remain relatively unknown and misunderstood by most web-connected urban users.

Gamivism

Serious games are emerging as a distinct genre of interactive media that integrates informational content within games technology for educational opportunities with a range of different types of educational content, learning principles, target audiences and platforms (Ratan and Ritterfeld audiences and platforms (Ratan and Ritterfeld 2009). The alignment of gamification with activism, or *gamivism* (Myers 2013), may be a powerful

tool to promote engagement with social issues. Research such as that offered by Kimmt has found that computer games can promote more direct, self-connection between players and game world events (Klimmt 2009: 251) and identification and empathy formation across cultural divides (Bachen et al 2012).

While existing empirical research has demonstrated the persuasive power of fictional media content (Green & Brock 2000), further evaluation is required on impacts of immersive capacities afforded through games' multimodal and interactive media content. As a growing sub-genre, games such as Darfur is Dying (2006), Ayiti (2006) and ICED (2008) to name a few, draw upon these capabilities to promote social change agendas.

Meaningful Exchange

Many existing social impact games like Sojo Studios' *WeTopia* (2011) make rewards for a achieved points in gameplay tangible by transforming them into real-life monetary contributions to charitable causes. Such monetised methods aim to utilise games' capacity to extend a sense of personal power into the world, such as in *Tilt World* (2009) where players' achieved points translate into real trees grown in Madagascar.

Through our research we are exploring how this global reach might be experienced as more concrete and meaningful exchanges between farmers and players in the real world to bring direct benefit to farmers. The challenge for the *Play to Grow* project is to explore how Digital Green's knowledge bank and network might be best used to encourage and engage players to take more concrete and direct action offline and in the world, to use skills they will learn through watching DG's videos to change their own lives and make meaningful connections with farmers and policy makers.

Aims & Objectives

Recent research has shown that younger generations are increasingly using new social media tools for entertainment and self-gratification, but in moments of crisis, they are also using them to mobilise significant human and infrastructural resources to make immediate interventions (Shah 2011). While these users may remain ambivalent about identifying with particular political causes, this project's main aim is to leverage that knowledge through a social impact game. By increasing their awareness, empathy and identification with the crisis that is facing small Indian farmers, we endeavor to develop and test a game aimed at motivating urban users to take action that can promote farmers', urban inhabitants' and India's socio-economic sustainability.

Methodology

Our partner Digital Green's primary business is to generate and disseminate videos co-created with farmers for farmers about sustainable farming practices. These videos provide a window into the world of small and marginal farmers in India. The organisation has also developed an existing online Facebook game Wonder Village, which is based on a Farmville-like simulation platform. As part of the UnBox Fellowship, Digital Green challenged the UnBox Fellows to reconceptualise the game so that it promotes a better understanding of rural development issues. Our first concern with the existing platform was that it is does not communicate the complexities and realities of farmer's lives. As our first step to address this problem and to devise a concept for a game based on real life experiences, we consulted with farmers and Wonder Village players. As part of our iterative protoype development process, we will consult with stakeholders again.
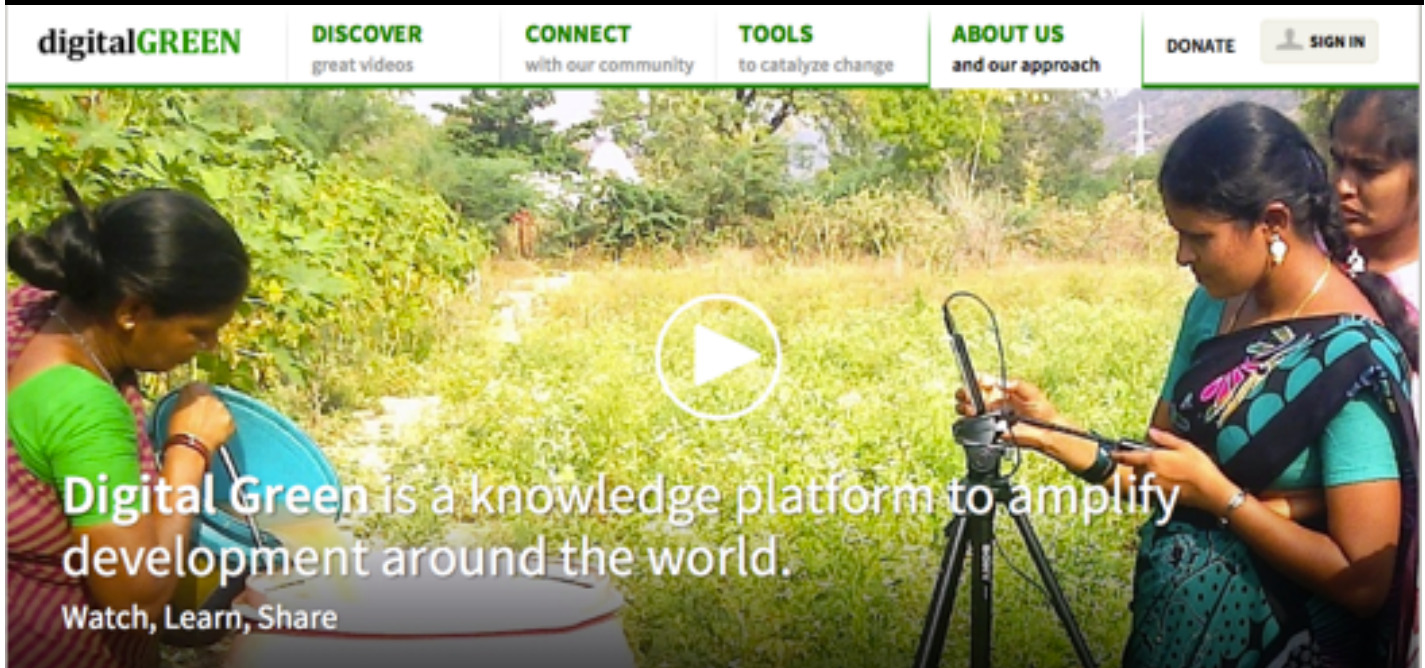

Wonder Village: Game

To see how our core work in the field can connect with external audiences who could learn and engage in issues related to rural development, we have created a social game, Wonder Village, which is hosted on Facebook. Through the game, players set up a simulated village economy and have opportunities to relate with actual farmers in the field. Players are placed in a resource-constrained setting and pursue quests like setting up small farms of paddy and maize and supplying raw materials to farmers' markets. The game follows a "freemium" model, which allows users to play for free and allows users to purchase virtual currency to advance more quickly.

With over 80 million users playing games on Facebook every month for an average of 15 minutes a day, Wonder Village has the potential to be an effective awareness-building and fundraising tool for the development sector.

Play WonderVillage at apps.facebook.com/wondervillage/.

digitalGREEN   **DISCOVER**   **CONNECT**   **TOOLS**   **ABOUT US**   DONATE   SIGN IN
                great videos   with our community   to catalyze change   and our approach

Digital Green is a knowledge platform to amplify development around the world.
Watch, Learn, Share

Consultation with Farmers

During the UnBox Fellowship we made field visits to several small scale farms in the region of Mahdya Pradesh where we met with around 40 farmers and attended Digital Green video screenings in villages. We had conversations with both individuals and communities of farmers to identify what problems or issues were most relevant to them and what narratives a game might communicate to an urban user. We invited them to share stories of their daily lives and the challenges they experience while farming to develop content for the game. We were told about how villagers were dependent on one another. If one farmer isn't able to pay their electricity bill then the entire village gets cut off and then they aren't able to pump water to irrigate their crops and they all go bankrupt. A reoccurring message was that urban people need farmers to survive. We decided to focus on this as the over-arching theme for the game.

Consultation with Players

We also conducted a survey and interviews with players of the organisation's existing game *Wonder Village* to determine what aspects of the game were more effective and what players wanted from the game. The platform is very similar to that of *Farmville* where the player constructs a village and gets help from other players and virtual gurus who are actual farmers from Digital Green's network. With the game Digital Green set out to attract a wider audience who could learn from the video content of their archive and engage with issues of rural development. However, from our survey and and interview of Wonder Village players we found that the interaction with this content was indirect and did not have any consequences in the game play experience. Players were not learning about specific issues or the complexities of small farming in India from the narrative

content of the game. Also, the data provided in farmers' profiles included in Digital Green's Farmerbook pages of their website is mostly in a format that is only comprehensible and useful to Digital Green staff and partners.

First Game Prototype

Following our interviews with farmers and with Wonder Village players, we devised the concept for the live action playtest *Crop Cycle* presented at the UnBox Festival in Delhi to test out a game narrative based on the theme and stories gathered from our conversations with farmers and to experiment with a combination of role play, social interaction and action selection along branched narratives that involve making some decisions based on real-life dilemmas faced by farmers.

Crop Cycle

In *Crop Cycle* the player's goal is to grow food to put on their table. The game's journey narrative follows the entire cycle of growing a crop to getting it to market, from ploughing and preparing the field, planting and sowing, tending, harvesting, transporting and selling. The player must undertake specific tasks and solve problems with their progress determined by choices made to form alliances or co-operatives to work towards mutually beneficial goals, or to farm by ox or tractor.

The player's success or failure is also determined by weather, fuel, health and market cards which include narratives based on real-world challenges faced by farmers such as monsoons, drought, insect infestations, malaria, inadequate access to electricity, insufficient

Growing Part 2 - Caterpillar Conundrum - Option 2

You didn't plough deep enough and missed some caterpillar eggs. They are now eating your chickpeas. You need to choose from one of two options to protect your crop.

Option 2:
Your can build a T Guard which is a simple structure made out of sticks. It attracts someone that will help you protect your crop against the caterpillars. Watch the Digital Green video and find out four things:
1. How to make a T-Guard
2. Who it is that it attracts
3. How it protects your crop.
4. Why you should remove the T-Guard once your crop grows.

You'll receive 1 Karma point for each correct answer.

If you choose this option, you also earn 1 Health point, as this took little effort and benefited you and someone else's well-being and you will need to draw a Weather card to see how the weather is impacting on your crop.

irrigation systems, exploitation by distributors, poor road networks, fluctuating fuel prices. As they succeed at growing a crop, they are rewarded with a recipe provided by the Delhi-based food organisation FoodLab.

The live action prototype of *Crop Cycle* involves a combination of manual and problem solving tasks that can be played as an individual or as part of a co-operative, which encourages social interaction and decision making with other members of the group. The game invites players to make choices that require negotiation and discussion of different issues and values of farming in India, such as the mechanisation of farming over traditional practices, use of pesticides over more organic methods, etc.

Board Game Prototype

A bursary was received from Catalyst Projects of Lancaster University to present Crop Cycle in an exhibition, conference paper and playtest workshop as part of the Mobility Futures conference 4-6 September 2013. The bursary enabled us to print and package the game cards as a physical board game-like prototype. Seeing the game in this format confirmed an earlier hunch that this 'offline' analogue version of the game has potential as a platform in itself that could be useful to Digital Green as a training tool to employ in their work with their mediators, farmers and young people to engage with issues in their own communities. This opens up unexpected or additional areas for the research.

Mixed-Media Prototype

With the next prototype, the project team will work towards integrating interaction with Digital Green videos as the main narrative context of the game play so that we end up with a multi-media board game that involves watching videos and interaction with a group of players and will eventually be built for an online social platform.

Our approach will be to create a more immersive narrative experience of farmer's lives and the complexities of the agricultural system in India through role-play and tasks that invite players to solve problems through watching the farmer's videos and to build a

virtual community or co-operatives through their social relationships rather than animated simulation.

Work Plan

The project team will meet for a game jam/workshop at the Indian Institute of Technology Bombay (IIT Bombay), 18-22 November 2013, and then present our ideas for discussion and feedback to an audience of researchers, students and external advisors on 22 November. During the week at IIT Bombay the team will build upon the existing ideas and content of the live action prototype developed as part of UnBox to develop user stories of target audience together with a paper mock up of the game platform as it would appear in an online context.

The team will also develop a user research methodology to test what mechanisms are most effective to reach our target users, change their perceptions, behaviors, sense of personal power and influence in the world, assist learning about rural development issues, facilitate meaningful and concrete connections between the urban user and farmers, and are sustainable and practically manageable in the context of a charitable organization.

We will meet again in March when the testable prototype will be ready for playtesting and evaluation. We will then analyse and interpret the data and prepare a conference presentation and publication abstract for a paper on our findings. We are aiming to present our research at an international social impact game conference.

Project Timeline

November 2: Expanded Narrative Symposium Presentation, University of Plymouth
November 12: Poster Presentation at RCUK Celebrating Collaborations Plenary, Delhi
November 18-22: Iterative Design Workshop
December: Report on Design & Evaluation Plan
December- February: Prototype Development
February: Report on Prototype Development
March: Evaluation & Playtesting
April-June: Evaluation of Data
June: Conference Presentation of Data
July: Submission of Publication Abstracts/Close of Project

Project Team Biographies

Dr. Misha Myers, Principal Investigator, is a performance practitioner and researcher who creates digital, participatory and located performance that engages percipients in co-production and co-presentation of knowledge to story complex social issues and geographies. She is leader and founder of Falmouth University's Articulating Space Research Centre. Her project *way from home* (2002-2008) involved partnerships with refugee and asylum seeker support organisations to explore practices and experiences of home-making through processes of walking, talking and mapping (www.wayfromhome.org). Her on-going *Walking Library* project, co-created with Deirdre Heddon, is a peripatetic library and reading group bringing together books and walking, first commissioned and carried 334km across Belgium for Sideways 2012 – a walking festival engaging the public with issues of sustainability and ecology (**www.walkinglibraryproject.wordpress.com**). Myers has published a number of articles and chapters about walking, locative media, and participation.

Saswat Mahapatra, Animation Consultant, is a creative entrepreneur, who has an experience of working with brands like Walt Disney Co., Cartoon Network, BBC UK, Channel 4, Cambridge University Press, Scottish Institute for Enterprises and few more. He has handled diverse responsibilities in video, print and games industry such as television dpromo producer, animation director, script writer, visual designer, book producer, video editor, game designer etc. He has conducted exhibitions and workshops at London, Dundee, Glasgow and New Delhi. Saswat completed his design education from Glasgow School of Art with the help of Scotland Saltire scholarship. Currently he works with DG Media College, Mumbai where he conducts campaigns, workshops and handles web and interior branding of the organisation. He runs a blog at http://mahapatra-saswat.blogspot.co.uk/

Dr. Nina Sabnani, Video Consultant, is a storyteller who uses film, illustration and writing to inform and enlighten her audience. Her research interests focus on exploring the dynamics between words and images in storytelling. As a filmmaker, she brings together animation and ethnography in old and new ways. Her published stories are often rich collaborations with artists and folk fablers and have earned critical acclaim. Nina graduated from the Faculty of Fine Arts, Vadodara, and received a master's degree in film from Syracuse University, NY, which she pursued as a Fulbright Fellow in 1997. Her doctoral research at the IDC focused on Rajasthan's Kaavad storytelling tradition. She taught at the National Institute of Design for 22 years before moving to Mumbai in 2006. Nina draws inspiration from her students at the Industrial Design Centre, IIT, Bombay, where she teaches and coordinates the PhD programme.

Dr. Anirudha Joshi (IIT Bombay), User Research Consultant, is Professor in the Industrial Design Centre (IDC), IIT Bombay. He works in the field of Human-Computer Interaction (HCI) design, education and research in India. Anirudha interacts with the industry regularly. He conducts open workshops on HCI for the professionals and internal training programs for companies. He is a consultant to companies and helps them develop a user-centered design approach to product development. He helps companies to integrate their internal product development processes with the design process. Anirudha's research is focussed on designing interactive products for less educated users in developing economies. He also works in integrating HCI activities with software engineering. He was co-chair of the program committee of the first India HCI 2004 conference held in December, 2004.

Advisory Panel Members

David Griffiths, Game Designer, FoAM (UK); Professor Naomi Alderman, Game Designer, Zombie Run (UK); Tasso Stevens, Co-Director of Coney (UK); Michael Straeubig, Game Designer, i3 Games (DE); Megan Lloyd-Laney, Comm Consult (UK); Nance Klehm, Social Ecologies (US); Jen Southern, Centre for Mobilities Research (CeMoRe) (UK); Dr. Katerina Psarikidou, Centre for Mobilities Research (CeMoRe)(UK).

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