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'Homeless Monopoly': Co-Creative Community Engagement Model for Transmedia Educational Game Design.

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Abstract: This paper traces the research and development of a prototype transmedia game designed to raise awareness in young people of the issues surrounding homelessness. In Coventry the number of people in temporary accommodation has doubled in the 12 months up to March 2018 and those accepted as homeless has risen by over 50% to 964. Across the UK, homelessness is on the sharp increase and Shelter note a 59% increase in the number of homeless children in the past five years. This research project, positioned in relation to Coventry's status as City of Culture 2021, addresses the question of how gamification and methodologies from artistic practice can provide capacity to intervene in the representational apparatus attached to those living on the margins of society and cast as 'social objects'.

From its inception during a workshop with students to address social issues via gamification, this transmedia research project innovates mechanisms by which to place the agency of target communities at the centre of the design and production process. Through a partnership instigated with local charity Coventry Cyrenians, creative focus groups were used to collect real-life testimonies from Coventry's homeless and ex-homeless. Secondary school students engaged, via Cyrenian outreach, in the early stages of development and subsequently to user-test the prototype games. University students also made significant contributions to the project development.

The author will discuss the nature of collaboration and the emergent forms of co-creative participation within the project, and how such engagement informed the game mechanics, components and strategies of play as well as providing content for the game. Findings will be presented from the initial testing of prototype board-game, evaluated via a mixed methods approach. The model of engagement offers affordances for re-use as a transcontextual and transdisciplinary tool in games development.

A concluding discussion will assess the impact to date and potential for future development as traditional board-game with educational resource pack, and hybrid forms of personal or group game that may be delivered via mobile or web-based technologies.

Keywords: gamification, board-game, homelessness, co-creativity, Cyrenians, monopoly

1. Introduction

'*Homeless Monopoly*' is the working title for this research and development innovation action that aims to raise awareness in young people of the issues surrounding homelessness and street-sleeping in Coventry, UK. The project has multiple layers of exploration and engagement, in its initial stages as development of a prototype educational game, and in its ambitions for future augmentation and migration of that game across platforms and contexts. This paper introduces the concerns and approaches at the heart of the development. The author, who is Principal Investigator on the project, discusses progress to date, the methodology of design and emergent model of co-creative community engagement afforded by the research.

1.1 Background Context

'*Homeless Monopoly*' seeks to create an educational game that juxtaposes the traditional property-purchasing board-game (based on central London locations) with the immediacy and complexity of the homelessness crisis facing Coventry as one of the UK's major cities. It does this at a time when Coventry is preparing to celebrate its status as City of Culture 2021.

Coventry is the second largest city in the West Midlands region of the United Kingdom, with a growing population of around 360,000. The city has a rich history dating back to Saxon times. In the Mediaeval period it played a significant role in governance, receiving the first English municipal charter – the Royal 'Charter of Incorporation' in 1345, and twice housing the nation's Parliament during the 15th Century. In more recent times the city has transformed from a centre for textiles to a leader of the automobile industry with the first British

car built in Coventry by Daimler in 1897. Jaguar Land Rover is still based in Coventry, however recent decades have shown a swing from the automobile industry as main employer in the area to the rapidly expanding University taking on this role. The University attracts thousands of overseas students to the city each year, adding to the already rich diversity of the population. The face of homelessness is startlingly present as increasing numbers of people live and sleep on the streets. Many more experience 'hidden homelessness' living temporarily with friends or family, sofa-surfing, or drawing on the stretched support services provided by local organisations, charities and volunteers, for example local churches working together in winter to ensure an open door for some of the city's most vulnerable people seeking a safe place to pass the night. The number of people in temporary accommodation in Coventry doubled in the 12 months up to March 2018, and those accepted as homeless rose by over 50% to 964 (Coventry Telegraph, 2018).

Within this context, the '*Homeless Monopoly*' project proposes a methodology that aspires to give voice to and draw on the experiences of some of these people experiencing homelessness in Coventry. Development of the project examines the potential of combining real-life testimonies and gamification as a means of mapping homelessness in Coventry, raising awareness and encouraging empathy through an approach of gamification, as part of City of Culture activity.

1.2 Concept Origin

The initial idea for a '*Homeless Monopoly*' was conceived during a gamification workshop run by the author for Foundation Year Engineering and Digital Technologies students from CU Coventry (a flexible-learning, career-focused Coventry-situated Higher Education Institution within the Coventry University Group). The workshop at Coventry University's Disruptive Media Learning Lab (DMLL) introduced students to theory and examples of gamification applied for social innovation using the Remixing Play format developed by researchers at the DMLL (Arnab, Morini & Clarke, 2017). The workshop format has been developed and iterated through the DMLL Game Changers programmes, and used successfully in a variety of educational contexts including Primary and Higher Education in both Coventry and Malaysia. After seeing examples of real-world success cases, the students developed and pitched ideas for a gameplan as the solution to an issue of their choice. Students began with a needs analysis and then selected common games from which to unpick the mechanics of play, matching appropriate strategies to their chosen goal, Figure 1.

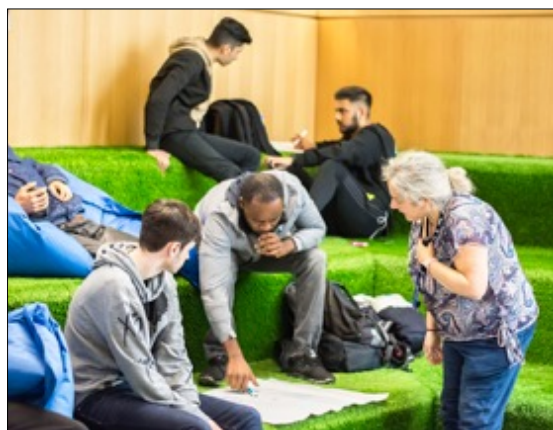


Figure 1: CU Coventry students' '*Homeless Monopoly*' concept development, Remixing Play workshop, DMLL.

The final stage of the workshop, pitching their gameplan to the group and other DMLL staff members, culminated in feedback via a public vote measuring popular response for two categories: (i) the 'most impactful' (ii) the most 'fun' gameplan. Whilst the idea of a '*Homeless Monopoly*' was amongst the lowest vote scores for perceived 'fun', it was one of two outstanding games selected in the vote on perceived 'impact'. The original '*Homeless Monopoly*' concept that was developed in the workshop by students Joseph Kudjoe and Richard Matthews-Stroud, proposed to augment the traditional board-game with a branching narrative and areas of homelessness contrasting to areas of affluence, as players travelled the board as though they were homeless. The objective identified was education for young people aged 13-18, and the winning goal would be to get a job. After discussion it was agreed that adding real-life stories to the back of cards could give authenticity and help to raise awareness and empathy of issues faced by the homeless population.

1.3 From Concept to Project Start

Drawing on the experience of the Disruptive Media Learning Lab in gamification and applied innovation, and the author's background in eudaimonic co-creative community engagement through the arts (Calderwood, 2017), DMLL researchers considered both winning 'impact' propositions from the gamification workshop to have potential for development. Synchronistically, the University of Warwick City of Culture Seed Funding call opened on the same day as the workshop, for collaboration between the two Universities (Warwick and Coventry). Following positive response to initial conversations about 'Homeless Monopoly' with people working in the field, a proposal was worked up and project team established, consisting of the author Dr Jackie Calderwood as Principal Investigator, Professor Nadine Holdsworth, Professor of Theatre and Performance at the University of Warwick as Co-Investigator, Ushma Mulji Lecturer from CU Coventry, Cyrenians Operations Manager Izzy Hawkins and Team Manager James Forsyth. The students who had pitched the idea were invited to join the project team and have a small paid role, however neither of them took up this opportunity. From the start, a key objective was to make this educational game as true-to-life as possible by involving a local homelessness support agency and through them, people currently or recently homeless in the city. This would align with geographies of homelessness that challenge conventional representations of homelessness (DeVerteuil, 2009), moving beyond the punitive frame to construct accounts that recognise the work done by support services and that 'give voice to homeless people themselves so we can better understand their experiences of homelessness, and champion their hopes and aspirations.' (Takashi, 1996 p. 662).

Coventry Cyrenians are a local charity that have been supporting homeless people in the area since 1974. As well as providing over two hundred furnished units of accommodation integrated in residential areas (rather than as institutionalised blocks), Coventry Cyrenians take a client-led approach with an allocated support worker for each client. Through a personal support plan, clients work at their own pace on general needs such as moving on, money management, physical and mental health, preparation for employment, and if appropriate, when they are ready, on substance issues. Coventry Cyrenians are not currently funded by the Council and rely instead on 80% of income through housing benefit and the remainder from fundraising. Services are in high demand with an average fifteen to twenty assessments carried out each week, and a total of over four hundred people coming through the service in the past year. Further services in Warwick offer support and accommodation in the Stratford and Warwick districts. Coventry Cyrenians run a Young Person Project as part of their Alcohol Intervention Mediation Services (AIMS) for young people aged 13 to 18 years as a preventative measure to try to reduce the likelihood of them becoming homeless. Coventry Cyrenians AIMS Co-ordinator Phil Smith also works with Peace and Justice students at Cardinal Newman School in Coventry as part of an innovative community awareness programme run by the school's History teacher Mr R. Davies.

The holistic, client-centred approach of Coventry Cyrenians, their parallel work with young people, and longstanding independent position, all resonated with the ethos and ambitions of the 'Homeless Monopoly' project. Coventry Cyrenians Managers responded enthusiastically to the invitation to collaborate, remarking that some of their clients and volunteers (who are usually ex-service-users) liked to tell the 'story' of their experience. Hawkins and Forsyth assured that using these stories in a tangible output for others' engagement would be appreciated by the people they support.

2. Discussion of Results

2.1 Overview

Receipt of seed funding enabled the project to launch with sufficient resource to support and acknowledge participation of Coventry Cyrenian clientele, to commission and create artwork for the game and to produce and pilot three prototype board-game sets. Content has been gathered from consultation with homeless and ex-homeless people, staff and volunteers working with the homeless, and young people with an interest in social issues. This content has been worked into the board-game prototype, and also forms the basis of an in-progress proof-of-concept mobile adaptation of the game. The researchers envisage a second stage of the project that will see the content reworked into an educational resource pack to accompany the board game, and may explore other formats that will be touched on briefly in the concluding discussion. The prototype board-game created makes strong visual reference to the layout of the traditional game, and packs of player cards. Significant deviations have emerged in order to deliver the content gathered and edited from our consultation. Four sets of cards are placed in the centre of the board forming the main drivers of the game, as a card is taken by a player

on every dice throw. These four sets consist of Weather, Utilities, Opportunity and Choice cards which stimulate movement backwards and forwards, loss and gain, dialogue and discussion (Figure 2). The winning objective changed from that proposed initially by the students, following consultation with Coventry Cyrenians. Contrary to common mis-conceptions about homelessness, it is not uncommon for someone to be employed and homeless – perhaps due to relationship breakdown, or to arriving in the city for a new job only to find pre-planned accommodation falls through. Therefore, the winning goal of Homeless Monopoly has become the key to one’s own home. However, the aim of the project is far from the traditional game’s aim of winning at the cost of every other players’ loss. As part of a reworking of the game mechanics to promote collaboration and empathy, an alternate winning strategy is to pool resources and announce the intention to co-habit with another player.

At the time of writing, the prototype board-game has been piloted with three groups, and the project presented as part of an event on gamification for social change. Further pilots and events are underway in response to popular demand. Initial findings indicate that the board-game is delivering on the expectation of its ‘potential impact’ (as voted in the Remixing Play workshop) for raising awareness, not only in young people but also for older students and adults. Contra to the ‘potential fun’ vote, feedback show that players find the game both serious and fun, with young people suggesting it is ‘a fun way to learn’.



Figure 2: ‘Homeless Monopoly’ pilot at DMLL – asking players for advice on a Choice card scenario.

2.2 Innovating Mechanisms for Creative Engagement

Throughout the project we promoted creative engagement from the partners in the project team, staff and service users supported by Coventry Cyrenians, and young people with an interest in social issues. Some of these modes of engagement were planned into the project from the start, others result from emergent opportunities during the development of the prototype, the timeline of which is presented in Table 1.

2018	25 Oct	Gamification Workshop: Concept Pitched by Students
	25 Oct	University of Warwick’s City of Culture Seed Funding Call Opens
	31 Oct	First contact with Coventry Cyrenians
	Nov	Search for a collaborator from University of Warwick
	19 Nov	First contact with Prof. Nadine Holdsworth, University of Warwick
	29 Nov	Skype project planning, draft proposal agreed (Jackie & Nadine)
	6 Dec	Proposal submitted
	Dec	Work on Ethics application
2019	8 Jan	*Awarded £2K Seed funding for Homeless Monopoly*
	29 Jan	First Project Team meeting
	Feb	3 FOCUS GROUPS with Cyrenians service users, volunteers & staff
	28 Feb	Student Activator artwork applicants interviewed
	Mar	Student Activators recruited & briefed (illustration undergraduates)
	Mar	Researchers edit content
	Mar	Cyrenians AIMS Co-ordinator consults school students

Apr	Researchers create draft content structure & game mechanics
Apr	Student Activators create illustrations, card & board designs
May	Artwork & content iterative revisions, prepped for print
End May	Prototype board-game printed and compiled
Jun	PILOTS with students & staff at CU Coventry, Coventry University, University of Warwick, Coventry Cyrenians, CU Online
Jun	Cyrenians AIMS Co-ordinator consults school students
27 Jun	Celebration Event for all project participants at DMLL
Jul	Further pilots by request with Coventry City Council, CU London
Jul	Stakeholder feedback, analysis, report and future plans

Table 1: ‘Homeless Monopoly’ project timeline and structure of prototype (stage one).

Ideas for content, design, game mechanics and rules of play have all emerged from an iterative and collaborative process of co-creativity. As one element or issue rose to the fore, solutions for other elements would come into focus, and vice versa. The following extracts from the project structure highlight just some examples of this development process in action.

2.2.1 Focus Groups – Creative Engagement

Three focus groups were held at Coventry Cyrenians’ office in a space already familiar to service users, with staff support for participants pre-, during and post- focus group. Each group had up to 6 participants plus two research facilitators. We selected arts-based methods that would offer a range of ways into conversation, aimed at putting participants at ease. Activities harvested a vocabulary of words associated with homelessness and with participants’ aspiration for change (Figure 3), as well as inviting testimonies of personal or shared experience, and factual information about the places, services and scenarios that impact homelessness in the city.

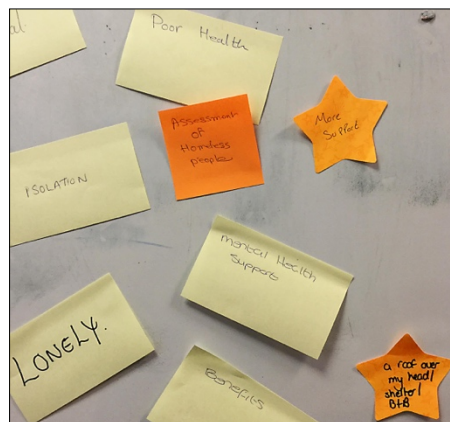


Figure 3: ‘Homeless Monopoly’ Focus Group with homeless and ex-homeless people, Coventry Cyrenians.

We asked participants their ideas for specific game components such as player pieces, and what information or tips they could offer to young people who may find themselves on the edge of homelessness. Initial ideas for player pieces focused on objects that might be associated with homelessness and street-sleeping, such as a sleeping bag, coffee cup or companion dog. During the course of the focus groups, the idea emerged of travelling around the board ‘naked’ where everything, even clothing, had to be acquired. Other discussion focused on characterisation of players, with the idea of taking on a specific scenario of homelessness to experience during the game. These ideas informed the games mechanics and design, culminating in the design of a generic human player piece onto which different scenarios could be layered. These scenarios are encountered through the Choice and Opportunity cards of the board-game. Ideas initially destined for player pieces led instead towards the innovation of twenty-two ‘resource tokens’, a selection of which are shown in Figure 4. These tokens complement and contrast the traditional monetary system, providing mechanism for players to collaborate and stimulating choice and discussion as to what resources might be most valuable under a variety of circumstances. Game mechanics adapted due to the innovation of resource tokens, this in turn informed our thinking about the

Opportunity cards, with the result that we created a subset of 'All Change' Opportunity cards, shuffled into the pack, which denote global events effecting all players, for example, a flood in which all resource tokens belonging to players out in the open are lost (and returned to the 'bank').

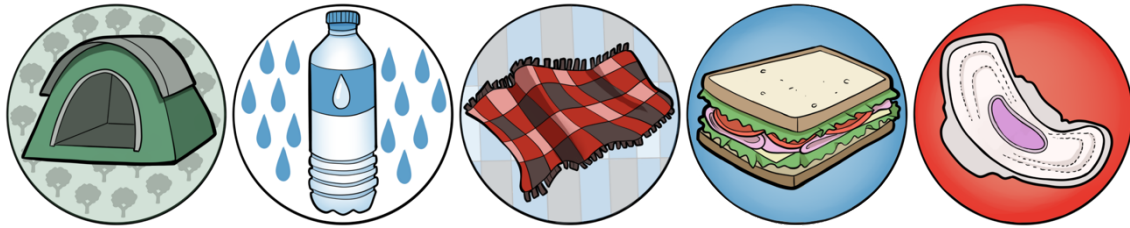


Figure 4: 'Homeless Monopoly' resource tokens, from left: pop up tent, water, blanket, sandwich, sanitary pad.

2.2.2 Project Team – Innovation Partnership

The Project Team partnership has been integral to planning the various phases of the project. Beyond this, having a transdisciplinary and transcontextual range of partners has helped to ensure that the game innovation is focused towards the project objective and the target audience. Cyrenians staff input on draft content and artwork proofs has assured integrity and agency of participant voice. CU Coventry participation in the project team and one of the Focus Groups has ensured knowledge transfer and maintained a link with students from the initial workshop cohort and their peers. Discussions about selection of content for the target age-group led to the suggestion from Coventry Cyrenians for an 'adult-rated' version of the game that they could use as an educational resource with their staff and clients. Opening up the idea of differentiated versions of 'Homeless Monopoly' has led to suggestions for other customised contexts, some of which may be explored in further stages of the project in future.

2.2.3 Young People as Creative Consultants

During the content development stage of 'Homeless Monopoly', Coventry Cyrenians AIMS Co-ordinator Phil Smith ran a consultation session with Peace and Justice students at Cardinal Newman School. Forthcoming ideas engaged with game mechanics and player piece design as well as providing a wealth of content suggestions for places that young people associated with homelessness, support services they were aware of, scenarios that may impact homelessness, some of which have featured in cards or been represented as spaces on the board (Figure 5). The consultees paid particular attention to choice points at which a young person's life may change depending on the decision made. These choice points informed the mechanics of the Choice cards, in which a player is presented with a scenario and instructed to 'ask two players for their advice on what to do in this situation. Decide whose advice to take, pay them an appropriate exchange (coins or resources tokens)'. However, to retain player agency and reinforce the significance of making a decision whether to take someone else's advice, each choice scenario also offers an alternative, for example '... OR go to A&E and miss a turn.' Choice cards form the main stimulus for discussion amongst players, as well as providing a mechanism for establishing worth, creating an exchange, or choosing to act independently should the suggested action be unwanted.

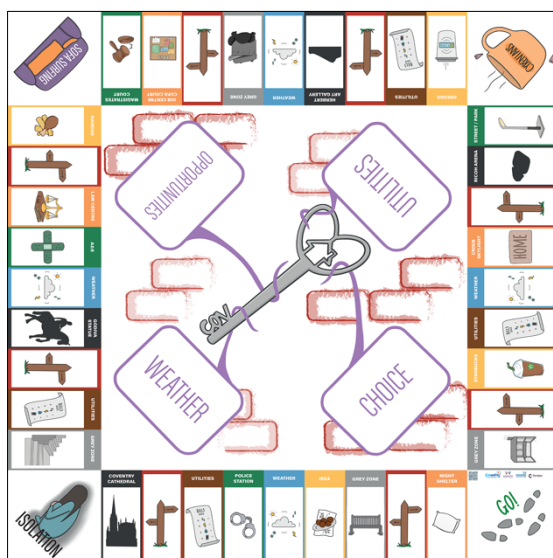


Figure 5: ‘Homeless Monopoly’ prototype board design

As part of the pilot, the Peace and Justice students played the board-game in a session facilitated by Smith and Davies, providing feedback on the prototype game as an artefact and as a playful educational experience.

2.2.4 Research Collaboration – Transdisciplinary Improvisation

‘Homeless Monopoly’ is a new research collaboration that aligns with both of the researcher’s complementary interests. Holdsworth, Professor of Theatre and Performance at the University of Warwick, has previously written on the company Cardboard Citizens (Holdsworth 2014), who make work with and for those with experience of homelessness. Her current monograph project *Theatre, Nation and Social Abjection* also tackles this issue. Calderwood’s practice-based research explores the affordances of co-creative digital and pervasive media for holistic user experience and raising awareness of the challenges faced by disenfranchised members of our society (Calderwood 2017). The project methodology reflects these transdisciplinary interests rooted in arts practice and social re-presentation. Both researchers have a focus on co-creativity and user experience. Taking an improvisational approach (Hallam & Ingold, 2007) has allowed the project development to be responsive to research interests, context and the sensibilities of emergence, creating a robust and issue-focused innovation process and product. The positioning of the player in the game reflects these concerns, as Opportunity and Choice cards invite the player to act as if experiencing a particular scenario or impact of homelessness, and game mechanics interject opportunity for improvisation and creative response.

2.2.5 Student Activators – Co-creative Contribution

Student Activator roles are paid positions at Coventry University that enable students to gain valuable experience working on specific real-world projects alongside staff, bringing a fresh ‘next-generation’ perspective with their input. The roles are administered through Thefutureworks, the University’s subsidiary employment service. The DMLL has a history of providing Activator roles as part of the DMLL remit to drive forward innovation of teaching, learning and practice. The author has worked with two Student Activators on an extended project and was keen to use the seed funding as a mechanism to engage with University students and to commission artwork that would appeal to the target audience. After consultation with the course director of Fine Art and Illustration, the project was promoted to the current cohort and portfolio-based interviews offered to all applicants. Three undergraduate illustrators with complementary artistic styles were recruited for ‘Homeless Monopoly’ on the basis of their portfolios and thematic interests. The Student Activator team’s prior work included an illustrated booklet about mental health from the sufferer’s perspective, work on transgender issues, and character design for educational games. The brief was written in response to the students’ portfolio skills, such that different artist’s work would be seen at different stages of play (first layout of the board, player movement, turning over Opportunity and Choice cards). In addition to the adaptation of artwork to fit the artists, the students also contributed ideas and critique of the content with which they had been asked to work. As a direct result of this, additional scenarios related to LGBTQ+ homelessness were added, as the team were

directed towards research findings that 24% of homeless young people in the UK identify as LGBT (AKT, 2019; Cull et al., 2006).

2.2.6 Prototype Piloting – Participation and Promotion

The complete 'Homeless Monopoly' prototype board-game kit consists of 2 die, one 47cm² board, five copies of each of 22 resource token designs, sixteen sets of coin cards (each showing 1,2,3,4 or 5 coins falling from a paper cup), 8 multi-coloured 'generic human' player pieces with stands, 16 Utilities Cards (4 each of Electric, Gas, Water and Phone), 18 Weather cards, 25 Choice cards and 54 Opportunity cards consisting of 30 'daily' scenarios, 16 'character' scenarios and 8 'All Change' cards. Rule sheets are provided, and are undergoing revision with each pilot session's feedback.

Whilst the intended audience for the game is secondary age children, the pilot has deliberately targeted 18+ in order to gather feedback from adults about the suitability of content and gameplay before piloting extensively with under 18's. An exception to this has been Coventry Cyrenians AIMS consultation on the game with the Peace and Justice students, on which Smith has provided feedback to inform pilot findings. Adults piloting during this first stage of the pilot have comprised CU Coventry students (Figure 6) in order to get feedback from peers of the students who initially pitched the Homeless Monopoly concept. Also, with CU Online staff who create and deliver the University's fully online degree material and who have supported another local homelessness charity, Crisis, over the past two years and thus have relevant interests and experience to draw upon. The first pilot consisted of project team members, one of the Student Activators, a subject Librarian who has experience of voluntary work with homeless people in Coventry, and an Applied Innovation senior project manager. Each pilot session has been set up with rule sheets for each player, a researcher present to observe/play/answer questions as required, and online survey for completion immediately after play. Rule sheets have been revised following each session as we clarify instructions and address unanticipated scenarios that unfold during play. Play to first win takes around 70-80 minutes with a group of approximately 6 players.



Figure 6: 'Homeless Monopoly' pilot with students at CU Coventry.

3. Conclusion

3.1 Pilot Findings

"I felt like everyone won, even though technically only two players did." – Pilot player. !

At the time of writing, pilot sessions are ongoing and data analysis not yet complete. From observation and feedback to date there is a common experience of play as both serious and fun, openness of expression, ! behaviours range from highly competitive to generous and empathic, with one player giving coins and resources ! to another in order to help them towards a home of their own. Most players display some collaborative ! behaviours, and empathy for each other's misfortunes increases throughout the game. !

Discussion is at times, and initially, brief and lacking confidence, however all pilots have also had very thoughtful ! and genuine discussions that have spread beyond the two players consulted and paused game play whilst the ! group discusses, for up to 10 minutes, their concerns, experiences or uncertainties around the issues raised. ! Initial indications suggest there could be additional cards or resources added to provide informative 'answers' !

for example guidance on what support agencies suggest as response when someone asks for money on the street.

Artwork, rules and mechanics are popular, with some suggestions for alternative mechanisms, for example to limit duration for a 'quick play' and to add features that impact players responses to the scenarios they befall. Adults and young people generally feel the game is suitable for age 11, 12 or 13 upwards, though some adults feel it should be over 14 or over 18 years. Survey results to date indicate that players' awareness of issues and support services surrounding homelessness is immediately increased by playing the game, the game is enjoyable, and further information on services would be welcome.

"The local specificity of the game was really effective and meant I learnt a lot about services and experiences relevant to Coventry." – Pilot player.

3.2 Model and Application

The stages of project development discussed in section 2 above, together form a model of co-creative community engagement for gamification production as social innovation (Figure 7). Initial engagement with students is at the centre of the model, which spirals outwards to the current point whereby the prototype artefact is used to engage students' peers in creative engagement through the game, raising awareness of and eliciting empathy for homeless people in Coventry. The spiral is open and continuation of the project will see the prototype building on the first iteration of co-creative community engagement, for example pilot play with transdisciplinary research workshops to develop the mobile version of the game content (in July), and another layer of creative engagement with homeless people, in the project Celebration event at the end of June.



Figure 7: Co-creative Community Engagement: Spiral Model of Product Development for Social Innovation !

3.3 Transmedia Developments for Social Innovation

Working with Cyrenians has given supported access on their own territory and terms to homeless and ex-homeless people. It has also provided guidance and a safety-net checking system for the content to make sure that it is true-to-life whilst also appropriate, with guidance, for the target age-group.

The initial proof-of-concept mobile version of the game uses the BEACONING platform developed by a European consortium of partners led by the DMLL, on which the author has worked for the past year. The game is shaped by the affordances of the platform such that it uses BEACONING's authorable educational mini-games to engage the player with information on homelessness through an interactive quiz and digital game format. For the demonstration version (for play on tablet and smartphone) each game is triggered at a new location by scanning a Quick Response (QR) code. Initial piloting alongside the board-game produced unanticipated results – players found the mobile experience complementary (rather than alternative) to the board-game and particularly liked the contextual information and statistics that they discovered through the quiz format. Playing in small groups meant that Choice scenarios built into the mobile version worked effectively to stimulate discussion. For solo players this was less effective.

“Loved how it gave the game a different and personal feel. Good for people who struggle with group games.”
– Pilot player (mobile version).

Homeless Monopoly' captures the imagination of how to address complex major social issues through innovative intervention that spans theoretical and practical enquiry, engages with diverse segments of community, and interrogates the relationship of user as co-creator and user as player, providing a transferrable model of games design. The next stage for the board-game will be revisions based on pilot analysis, creation of an educational resource pack, and pilots with the identified target age-group, drawing on and developing the transdisciplinary methodology for game-based interventions, proposed by Arnab and Clarke (2017).

Future plans include the completion of proof of concept mobile game, interrogating relationship between material and virtual, and affordances of play in the city or online.

Once consolidated, the model of engagement offers affordances for re-use as a transcontextual and transdisciplinary tool in games development, for contrasted investigation into homelessness in other areas of the country and world, and for similar treatment of other social issues through a co-creative gamified approach.

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