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In this pictorial, we discuss the design of Exchangeopoly, a boardgame developed to investigate exchanges between people in communities when they help each other out. Such exchanges are often acts of kindness for forms of volunteering that are not remunerated financially and are built on social capital. The boardgame scaffolded explorations of scenarios with participants where informal altruistic interactions in their communities are tokenised, rewarded and incentivised. We focus on the designed-in features and considerations that went into the visual and material production of the game and its gameplay mechanics. We discuss how Exchangeopoly was a valuable method that surfaced existing and speculated practices of exchange, and supported participants to explore the opportunities and problems of representing and rewarding such interactions. We contribute insights about the usefulness of exchangeopoly as a tool to explore scenarios and surface tensions about tokenisation in community value exchange.

Monopoly, Community Technologies, Value Exchange, Boardgames, Co-design

- Human-centered computing~Human computer interaction (HC)~HCI design and evaluation methods~Field studies



# INTRODUCTION

Designing for civic engagement and to strengthen social connections within community contexts has been an important area of focus within the DIS and broader HCI communities [e.g. 13]. In this pictorial, we build on this work by discussing in detail the design decisions that went into the development of a boardgame used in co-design workshops to investigate how community members engage in value exchange with each other. We define value exchange as practices of exchange and interaction between community members where time, skills, resources (and more) are shared or transacted. Value exchange might be voluntary and could be implicit in nature, thereby, seen as a form of goodwill. Such exchanges might be built on social and emotional connection [25], or be acts of kindness for another for no financial return or gain [8], to instil a feeling of relatedness and closeness [23]. Such interactions are also helpful in creating resilience in the face of shrinking resources and austerity within communities [6, 7].

Our research is situated within a larger project that was funded by the UK's research and innovation agency to develop novel forms of social-technical infrastructure in communities to foster social connectivity between community members. In this pictorial we focus on the development of a method we used to explore scenarios of existing community value exchange and surface opportunities and conflicts within the types of systems the project was looking to develop. We align our exploration of value exchange within assets-based approaches that seek to achieve sustainable, emancipatory outcomes in vulnerable communities [1, 24]. Such approaches argue against deficit-focused approaches to design, which emphasise fixing problems and addressing unmet needs, and instead centres on building upon the strengths and assets that individuals and communities already possess [5]. However, our research also critically explores value and worth as qualities within reciprocal exchanges between community members. Building on Speed and Maxwell's work on digital currencies and value constellations [22], our work set out to explore new forms of collaborative infrastructures for increased value exchange in communities where acts of kindness translate it into amenable

forms of tokenised exchange. As such, in this work we critically asked what value might community members place on exchanges between one-another, could and should this value be represented, and how might representing exchanges of value reward, incentivise or even problematise future exchanges.

As a key part of our design process, we aimed to create an accessible method for exploring the concept of value exchange within communities and eliciting reflection on and discussion of these questions. This meant that we were not just looking to elicit reflections on existing practices and experiences of local residents, but also how exchanges that are voluntary or implicit in communities might be represented and pro-actively facilitated through new services, platforms and initiatives. We have been particularly inspired by a recent interest in investigating digital games and gameplay [12, 14]; and the use of games-based methods to investigate complex situations and future scenarios within design teams and with research participants [3, 6]. For example, Blythe et al. created "solutionism", a solutionist boardgame used to generate design concepts. They observed how their game, which was created for designers to respond to insights related to earlier stages of their project on healthy ageing, facilitated playfulness that helped generate design concepts but also foregrounded the limitations of technological quick fixes to complex challenges [3]. Chopra et al. used a different boardgame to co-speculate with participants about future practices of food growing in neighbourhoods. However, they report on the challenges faced by participants in the speculation process due to fear of uncertainty and lack of agency clouding the future lands on the board. They also emphasise that the speculative lands were abstract and away from the everyday reality of their lives, which led to political debate and agonistic deliberation [6]. In comparison, Rogerson et al. emphasised the importance of the materiality of boardgames [17] along with character and immersion [21] which are essential in enhancing the player experience. These were important considerations for us to be able to materialise tacit and implicit interactions between community members during the gameplay. We contribute to this lineage of using boardgames to engage participants in complex social conversations and within ongoing Research through Design projects.

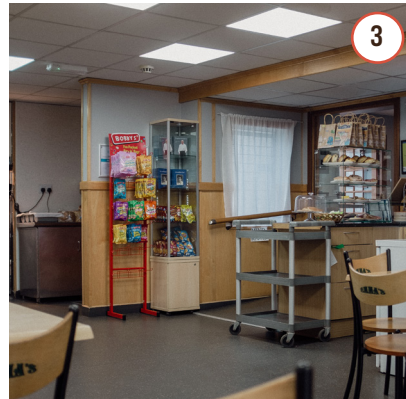
In this pictorial, we detail the design of a boardgame - Exchangeopoly ① - we used in workshops for elicitation and co-speculation with participants. The pictorial format allows the material and visual qualities and design decisions surrounding the boardgame to be more closely documented, inspected, and showcased - which is key to communicating the detailed design work on methods and enabling other researchers to learn from these. Through the pictorial we reflect on the implications for our design choices, the usefulness of Exchangeopoly as a tool to surfacing hopes and concerns around existing exchanges, and how it helped participants think of about tokenisation as a new way of creating and sharing value in their community.

## RESEARCH CONTEXT

Our project involved collaborating with four communities located in different parts of Scotland over an 18-month period. Throughout the project, we worked closely with our partners, who were providers of residential care homes, and affordable and public funded social housing in these communities. They played a crucial role as facilitators in recruiting participants for various project activities and in helping the team build relationships with community members. Our partners' motivation to work with us came from a recognition of increased numbers of socially isolated people living in these communities, reductions in social capital and connection between residents, and how community interactions were facilitated by a small number of hard-working, but very stretched, volunteers.

The locations we worked in for the project could be defined as post-industrial towns, grappling with economic challenges. They shared common issues like financial hardship, limited amenities, scarce resources, diminished public transportation connectivity, and high unemployment rates. In our early engagements with residents in these locations, we were often told how they lacked a sense of community and continuity of normalcy. Residents from these neighbourhoods typically commute to larger towns or cities for employment, and in recent times, there has been an increase in a transient population, including immigrants, asylum seekers, and offshore workers in the oil and gas industry. What were once





predominantly inhabited by white residents, these neighbourhoods now exhibit a more diverse ethnic composition and an increased sense that newcomers were being poorly welcomed, supported and integrated into the communities.

On various occasions during our initial visits to meet with local residents, community members voiced concerns about local economies, such as abandoned infrastructure, shutting down of businesses and high-street shops (7) (8) (9), and organised crime and vandalism (4) (5) were amongst other concerns. Despite facing these ongoing challenges, many also spoke about how they strove to maintain resilience, cohesion, and mutual support within their neighbourhoods through remaining community infrastructure and organisations. Community members took pride in how they maintained their homes (2), created ad-hoc cafes in vacant spaces (3) and had access to assets and spaces such as local

libraries, churches and centres to meet in groups (6). During our research, even when feeling disheartened by existing and future uncertainties, members often remained optimistic and receptive to new initiatives. They wanted the focus of the research to promote the creation and exchange of value and values between existing and new community members.

The project's main objective therefore was to explore with people living in these four different locations ways forward to promote new exchanges between community members, and what sorts of interventions might be needed with each location to facilitate and represent these. This involved understanding and leveraging established social connectors within the community, such as the project partners we were primarily working with and pre-existing volunteer groups.

Our approach to examining value exchange with residents was

rooted in Research through Design [26], and the use of design practices and methods to explore the social dynamics of giving, receiving and exchanging in communities. This meant we worked in an iterative manner, making multiple visits to each location, developing materials and activities to explore these phenomena with residents. These activities built on one- another, with insights, data and observations from earlier activities influencing the design of the next stage. This ultimately led to the development of our boardgame - Exchangeopoly - but first, we quickly introduce the engagements and methods we used that led up to this.

Initially, we made field site visits to each location which included facilitated tours of local area by staff from our project partner and local residents. Shortly after these visits, we conducted an initial exploratory workshop in each location with residents, volunteers and staff at our partner organisation, where participants visually





mapped the communities with us and then created a 'Help Wanted' notice board representing unmet help and needs in their community.

After these initial workshops, we returned to the communities with the 'Value Scales' (10 11). These were a set of weighing scales built to initiate conversations with residents about the perceived value they place on responding to various 'Help Wanted' requests generated in the earlier workshop. The activity invited participants to choose two adverts they could respond to, and assign different weighted blocks to these jobs (10). They would then "weigh" these on the scales, and we initiated discussions around which jobs had more "weight" than others (11). We used the Value Scales at community events in each location to playfully elicit conversations with 28 participants about the values of community members and their needs. A key insight was that most residents felt all requests for help should be equally valued, rather than creating disparity of some jobs outweighing others and thus being under-valued and appreciated.

The next engagement was a 'Community Probe'. This was designed as a continuation of the 'Help Wanted' and 'Value Scales', but to reach out to a wider number of residents living in each community. The probe pack (12) was formed of a series of metaphor-based activities that invited participants to reflect on the key ingredients of their communities (card 1), what wish



## VALUE SCALES

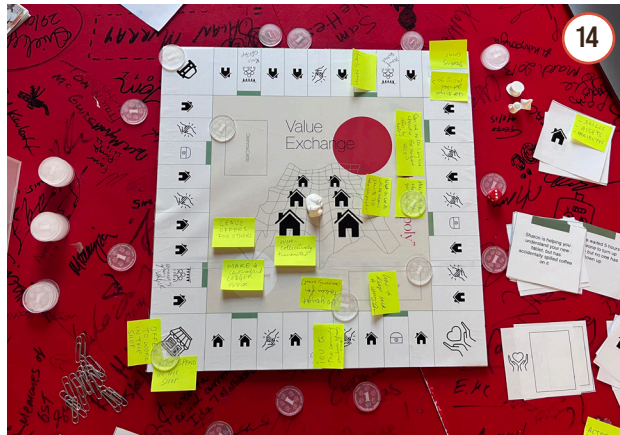


tags they would leave to ask for help (card 2), and what seeds of kindness they would want to plant in the local area (card 3). The probe pack also gave participants a community token for completing each activity, which they could "spend" in different ways by depositing in a box at a local community space when returning their pack (13). The Community Probes were distributed around each community 300 households in total, and we received 26 returns. While the return rate of the packs was low, the responses we received strongly demonstrated how participants desired for the tokens to remain in circulation in their community, or for them to be gifted to another resident in need of help.

After each engagement we drew out key insights and built them into the subsequent activity. Iteratively collecting data from these initial engagements served as a starting point for us to develop a method that continued to foster play and explore scenarios of community collaboration. We were also keen to bring residents together to explore these scenarios and discuss them together. On this basis, we started to develop a boardgame, keeping in mind Rogerson et al.'s work which examines the different forms of cooperation and collaboration that occur during play while also enabling competition [18]. However, in our boardgame we intended to emphasise cooperative rather than competitive play, and prompt discussions between participants on the incentivisation and rewarding of value exchange in their local communities.

## COMMUNITY PROBE

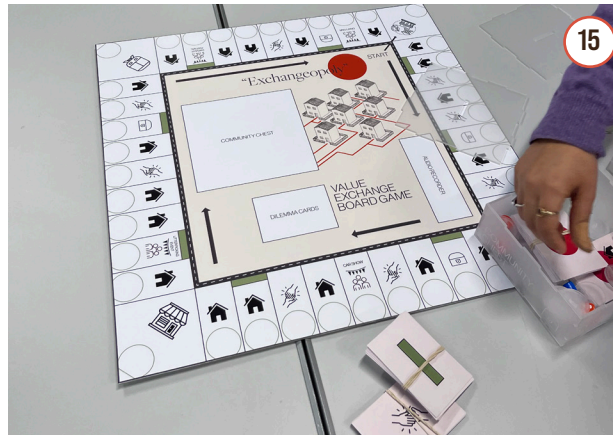
# DESIGN OF THE BOARDGAME



Boardgames have been used to support the creative exploration of scenarios with participants offering an accessible means to delve into complex topics, like mitigating the impact of public funding cuts on park services [9, 16]. Our eventual game - Exchangeopolis - was initially inspired by Monopoly, a popular boardgame in the UK, and integrates themes from previous community engagement activities. We built on Monopoly for two reasons.

First, it offered a reference point in terms of basic gameplay mechanics which, we assumed, would be accessible to many residents who may have played it previously.

Second, the game is able to reflect and discuss existing economic structures, which was voiced as a concern by the participants early on. However, contrary to Monopoly's capitalist tones, we sought to design Exchangeopolis based on a collaborative ethos, aligning more with the original 'The Landlord's Game' by Lizzie Maggie [15] which was inspired by the theories of American economist Henry George [11]. By taking Monopoly as a starting point, we sought to use its focus on monetary exchange as a reflective tool, with the intention of fostering conversations on value exchange in communities and the implications of tokenising or rewarding altruistic community interactions.



The game went through a series of iterations of mechanics and aesthetics. Initially it had a very simple mechanic, where players took it in turns to roll a dice and move around the board, with the aim to accrue as many tokens as possible. Tokens could be earned by responding to requests for help (house icons on the board) or opportunities to offer skills or knowledge that may be useful to the community (hands exchange icons on the board). In pilot playtests of this initial version of the game (14), we recognised this mechanic was overly repetitive and simplistic, and over-emphasised the earning of tokens rather than their exchange and sharing.

In the second iteration (15) we extended the range of components in the game. This included prototyping additional card types that were related to new icons distributed around the board. These new cards were introduced to prompt greater discussion amongst players around how the tokens they earned during the gameplay might be redistributed around the community. For example, one of the card decks proposed different types of community events that were proposed for players to contribute tokens towards and help run the events. The biggest change to this version however was the introduction of a "community chest", which tracked the overall number of exchanges made by players in the game and



would occasionally make requests for players to donate token for community causes. In the second round of pilot playtests, the community chest posed to be suitably provocative.

The final iteration of the game (16) involved us iterating the visual design and refining the aesthetic for consistency. The only significant change in mechanics was changing the segments inviting players to offer a skill to a new card type, where players were invited to discuss adverts posted in the community where other people have offered their skills and expertise.

The final version of Exchangeopolis played in 6 sessions across the participating communities. In total we played Exchangeopolis with 25 participants (6 participants in community A, 3 in community B, 4, 11 in community C, and 5 in community D) with between 3 and 7 participants per play session. We audio recorded the sessions and took photographs after informed consent was collected. These recordings were later transcribed, anonymised and the participants were assigned pseudonyms. The data was reflexively thematically coded and analysed (4) to define themes to understand the role of the boardgame as a tool to surface tensions and scenarios of value exchange. The next pages detail out the key boardgame elements.



# PLAYING EXCHANGEOPOLY

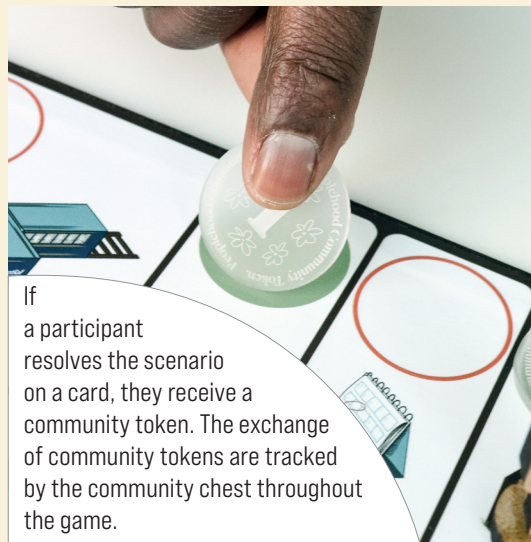


Exchangeopoly is a boardgame where participants take it in turns to move around the board. As is common with boardgames like this, it starts with a roll of a dice.

Participants are invited to move along the board and when arriving on a square are asked to pick up an associated card.



A deck of cards is associated with each square on the board



The community scoreboard tracks the number exchanges between the participants. The aim of the game is to reach 30 exchanges between participants - typically this was between 1-2 hours of gameplay.

# BOARDGAME ICONS

**AD for Help:** This is an advertisement by a community member offering their time, interests and abilities. The player, needs to decide if they would accept the help and why they would do so. They can discuss this with the rest of the group. A token must be used as a form of payment.

**Community Chest:** Placed in the centre of the board, the community chest keeps track of the tokens spent in the community. This helps to record the different transactions that have taken place in the community. The community can discuss how the contributed tokens can be spent at the end of the game.

**Community Event Icon:** Visualised through a calendar, this icon represents upcoming events in the community that players might want to attend.

**Shop Icon:** Players are given the opportunity to discuss what types of shops or services they would want to spend their token in, where these are located, and what value a community token has.

**Transport:** Represented visually as a train, this icon asks the player to discuss with the rest of the group what form of public transport would they like to use their community token on.

**Community Chest:** Players must contribute at least one token back into the community chest. This is a form of community tax.



**Start:** The starting point of the game.

**Leisure Activities:** Represented as an image of a museum, this icon represents leisure activities that community members could spend their tokens on.

**House Icons:** Landing on a house icon invited the player to pick up a House Card. The card presents a scenario of someone in the community asking for help. Players have to decide if they have the relevant skills to offer the help. A token is given to the player in return.

**Green Circles:** This represents areas on the board where you can earn a community token if you land on it.

**Orange Outline Circles:** This represents areas on the board where you can spend a community token if you land on it.

**Donate Icon:** Represented by two figures exchanging a token, this icon asks the player who they would donate a community token to and why.

**Dilemma:** Throughout the board, this amber mark means a participant has to select a Dilemma Card. These cards prompt a group discussion around certain dilemmas that may occur in the value exchange system. Players must discuss how they would resolve it.



**House Card:**

“Family seeking asylum in the UK have been given second hand furniture but need help up cycling it, would you be able to help this family...?”



Discussions such as these threw light on existing technology use for seeking social support within the local community. They also started to highlight the complexity of factors that needed to be aligned to provide help or respond to certain requests. This included access to the right skills, appropriate local spaces in the neighbourhood, and in some cases materials and tools, which may need to be contributed from different community members. Such discussions often led to speculation of details not stated on the cards about the people in the request, such as the personal interests, hobbies or pastimes someone has, and if there may be opportunities to foster enduring social relationships based on these.



# ASKING AND RECEIVING HELP

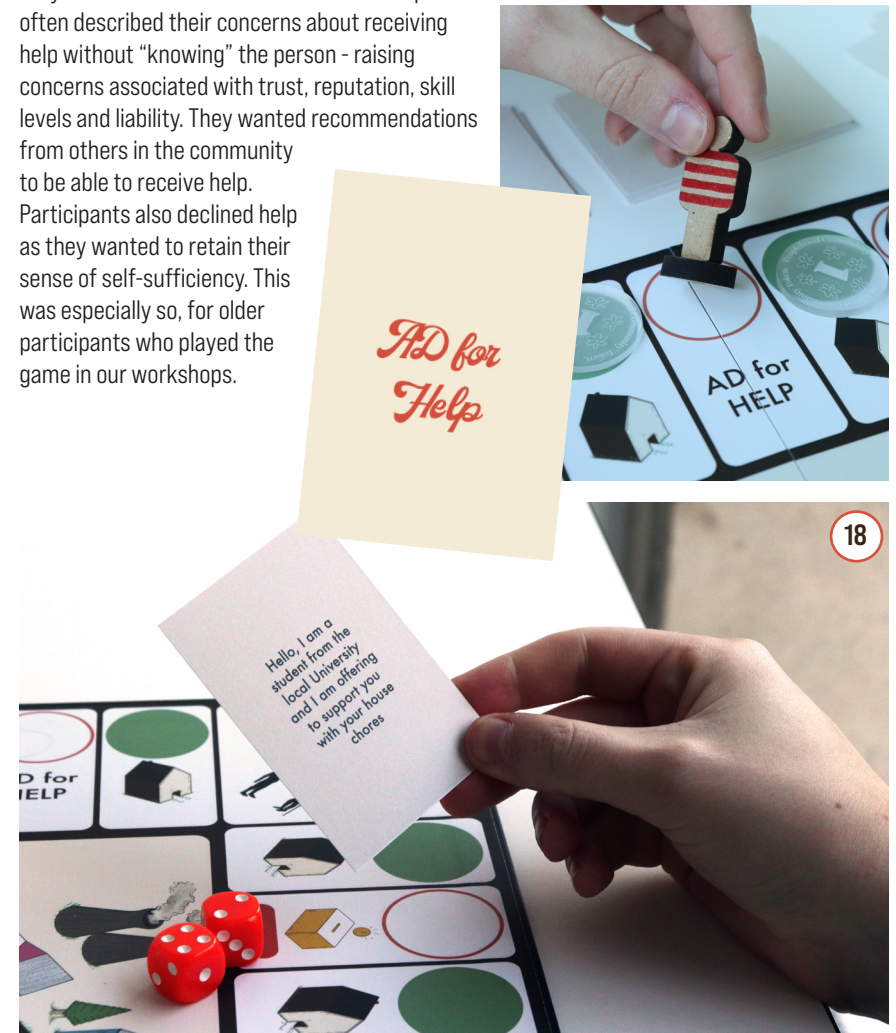


**House:** When a participant lands on a house on the board they pick up a House Card. Each card has a scenario associated with it where a community member is asking for help (17). These scenarios are based on examples in the data we gathered in our previous engagements. The participant can choose to help the person(s) in need, for example, an

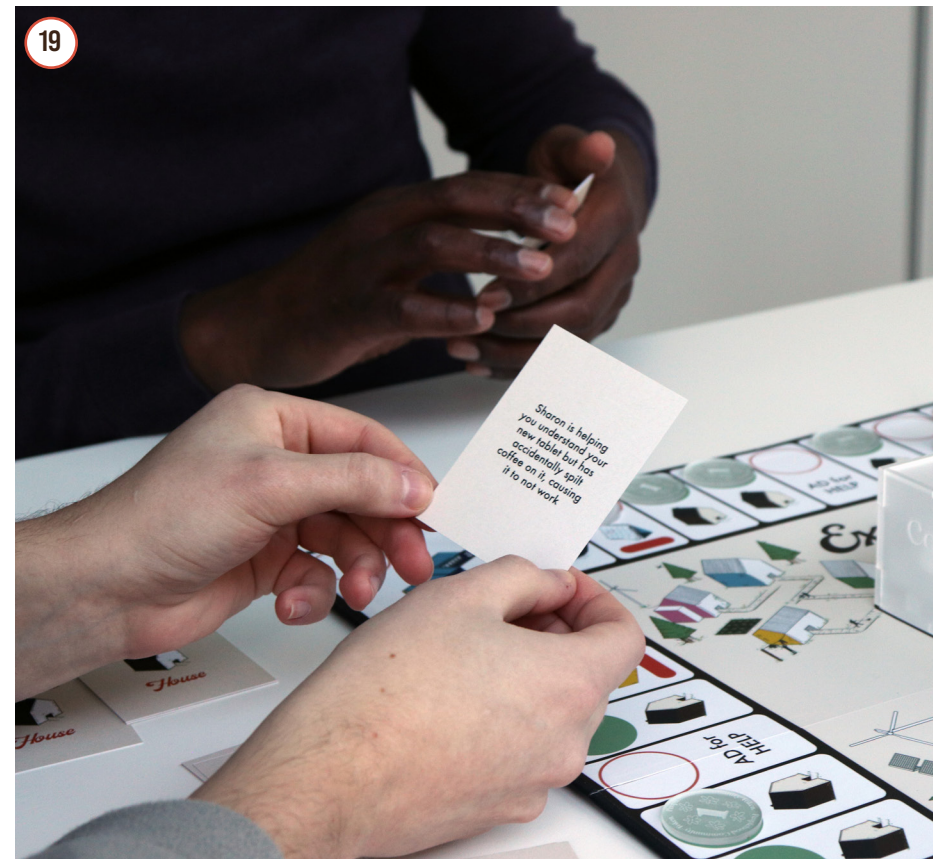
elderly couple who needs help with a food shop. If the participant was willing to do so, they explain how they would provide the help and later collect a Community Token as a thank you. There have been instances in our workshops where participants have refused to help as they lacked the necessary skills or resources - e.g., of they don't have a vehicle to help with a shop. Participants would also decline requests for help where they felt they did not have enough context about the requestees circumstances. Some also declined to receive the token after helping, voicing that these interactions are part of everyday community life and should not be associated with any material thanks. However, in other cases, participants happily accepted the token and appreciated its use in shopping for goods in local shops. They also felt that having a token was useful to ask for and receive help from others when they needed it, or to give it away for someone else to make use of.

**AD for Help:** Similarly, when a participant lands on Ad for Help, they pick up a scenario which is an advertisement from a community member to offer help to others (18). These scenarios are based on the

skills community members described they would be happy to offer in prior engagements. However, the scenarios were kept short and vague to spark discussions around whether the participant would be willing to receive help from this person, and in doing so what is it that they would like to know beforehand. Participants often described their concerns about receiving help without "knowing" the person - raising concerns associated with trust, reputation, skill levels and liability. They wanted recommendations from others in the community to be able to receive help. Participants also declined help as they wanted to retain their sense of self-sufficiency. This was especially so, for older participants who played the game in our workshops.



# DILEMMA CARD AND DISCUSSIONS



**Dilemma:** When a participant lands on a dilemma they are faced with a scenario which can be troublesome and difficult to handle. These are real life instances that can occur during an value exchange between community members, e.g. if someone is helping you learn your new tablet and accidentally spills coffee on it <sup>19</sup> or when someone says they would help with something but did not turn up. These scenarios provoked discussions within the group

about how they would navigate such instances when someone else is involved. Participants related to these scenarios and the cards proved helpful in reflecting on various life situations that people already face in community interactions which are often tricky because of their altruistic and in-kind nature. In our workshops, participants more experienced with volunteering raised issues of liability and insurance of the jobs being fulfilled in these scenarios.

They were concerned about who takes responsibility if something breaks down or if there is an accident. They also raised questions about the skill level of people who would respond to requests for help. These deliberations provoked the need to build fail-safes in any associated systems and look at the vetting processes of the volunteers. However, there was recognition that these processes should be kept light touch so as not to discourage participation.



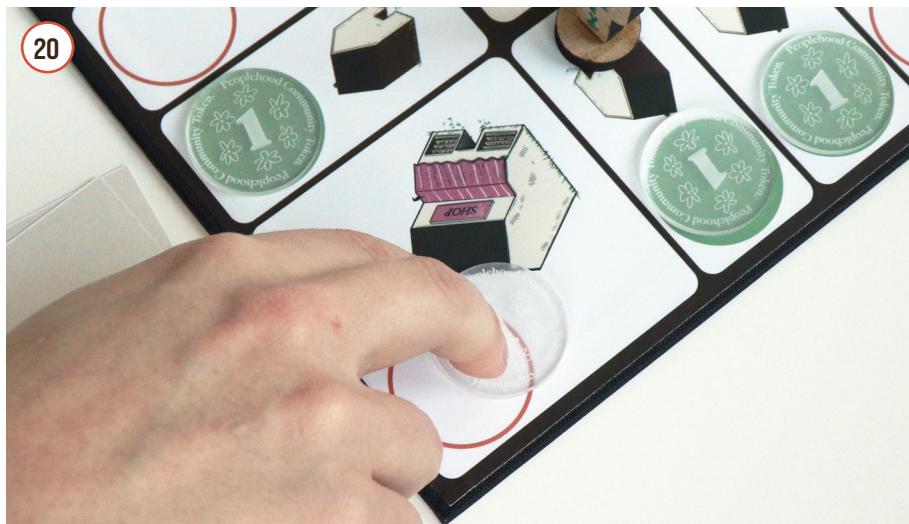
# COMMUNITY TOKENS AND COMMUNITY CHEST

**Community Tokens:** These tokens <sup>(20)</sup> are rewards that participants receive for helping others or are given out to community members on accepting help in return. The exchange of tokens from community interactions in the game provoked a range of reactions. The first time giving out a token was often fruitful in surfacing an initial discussion on the tokenisation, and perceived “monetisation”, of kindness, and what alternative value or values could be associated with the community tokens. Some participants strongly believe the exchanges happening through the game were part of the daily social fabric of community living. These participants would typically refuse to accept the tokens or donate them to the community chest. At the same time, the community tokens were appreciated by many as a means to keep value flowing in the hyper-local economy (like the Bristol Pound but at a more localised scale [2]), or in accruing community funds to run public events (via the Chest, as seen in <sup>(21)</sup>). Incentivisation through tokens was also seen as a vehicle to invite and interest new members into community engagements, especially the immigrant

population, young adults, and school children. Participants also described feeling awkward and shy in the past when reaching out to others when they needed help. The use of tokens was therefore seen to lower the barriers in asking for help within the community.

**Community Chest:** The Community Chest <sup>(21)</sup> was conceptualised as an accounting mechanism where exchanges between community members were “monitored”. The Chest also held a fund that participants voluntarily contributed to or, at times, had to donate to depending on where they were on the board. As noted, several participants also chose to donate their tokens whenever they received them. The presence of the Community Chest in the gameplay drove participants to consider how the more they volunteered to help, the more they would be contributing to this community fund over

time. The chest was seen as a uniquely appealing aspect of the scenarios being played out in the game and shifted away from just transactions between individuals. However, there were discussions about how decisions on spending the tokens accumulated in the chest would be arrived at. This included suggestions of “weighting” so those who donated more had more votes. Others considered it more important to allow a more public vote on spending, with a physical display of the votes in a local public space to ensure community members who are less digitally connected or literate and non-english speakers could still participate.



# DISCUSSION

This pictorial presents how we designed a boardgame - Exchangeopoly - to explore the exchange of time, skills, and resources in four communities as part of an ongoing RtD process. Exchangeopoly surfaced conversations around existing forms of value exchange, and supported the probing and elicitation of conversations around scenarios with complex interpersonal dynamics. Drawing on play as a situated and meaningful activity [20], the game enabled participants to enter an imagined situation that was both strange (having interactions with other local people being coordinated for you) and familiar (they could relate many of the scenarios and situations to lived experiences in their neighbourhood). Exchangeopoly worked well across all the participating communities and groups - perhaps because it provided a general structure for which situational specifics in communities could be layered onto. The play mechanics also enabled a balance to be struck between keeping pace and momentum in turn-taking and making space for deeper dialogue. The diversity of card types meant that the game avoided being repetitive, fostered situations where participants had to share their tokens with one-another, and in some circumstances contribute to community causes.

Reflecting on participant engagement in the game, one of its major successes was in providing rules and actions, while also bringing significant ambiguity that enabled elements of the play to be questioned. For example, it was left unclear who it was that was running the Community Chest, and the association made between the requests to give tokens to it and some form of taxation led to participants questioning the values of the Chest and who was behind it. These led to generative conversations however around who should have a say in spending of the contents of the chest, what were appropriate things to spend its contents on, and under what circumstances should we expect someone not to contribute towards it. There was ambiguity in the contents of the card decks and the stories they portrayed that led to useful speculations. The relative brevity and lack of context in some of the House and Dilemma cards lead to deep discussions about the circumstances of

those requesting help, or about what may have caused a particular dilemma to occur. These offered practical design insights about the types of information that may need to be incorporated in any platform that might facilitate value exchange. However, the ambiguity on the cards also led a small number of participants associating the fragments of situations shared with cultural stereotypes. This would lead to an aversion to get involved in resolving a dilemma, or helping a specific household out.

In the conceptualisation of Exchangeopoly, we assumed Monopoly to be culturally accessible to many residents in these communities and thus a helpful reference point for our own game. However, these assumptions were incorrect. Some younger participants were unfamiliar with the basic mechanics of the game. Community members who were migrants to the UK often had no prior experience of the game. Generally, participant unfamiliarity with similar games was offset by other participants who were familiar, and they would spend time to explain the basic mechanics and rules to those who were unaware and also share personal experiences of playing it with friends and family. As such, in some respects this engendered a positive group environment prior to playing the game, but it's unclear how this would work should all participants lack prior experience or awareness of Monopoly.

Finally, as Flanigan [10] notes in her seminal work on Critical Play, the playing of games enables everyday citizens to critique the status quo. Through play of Exchangeopoly, participants entered deep conversations about the existing social and economic deprivation in their communities, and how community value exchange could be part of a process of local social change. At the same time, they challenged some of the assumptions around value exchange that were designed into the mechanics of the game. They advocated for community members needing to have a "stake" in the community fund, and how any local currency or shared pot of community funds needed shared access rights. They challenged the underlying principle that helping people in the community could be considered transactional in nature, stating preferences towards tokens that could easily be transferred and donated between people, or tokens that represented the altruistic labour of the community at an aggregate rather than individual level. They strongly advocated

for every persons contributions and needs to be treated equally, and that the value placed on an exchange should not be measured against its perceived worth. And they challenged the idea that what should be bottom-up and grassroots activity could be facilitated by any sort of platform or automated systems. Indeed, they were especially worried that value exchange could further take away responsibility from local government and the state to provide critical support to vulnerable community members.

# CONCLUSION

In this pictorial, we have contributed a novel boardgame method - Exchangeopoly - and provided insights around its usefulness as a tool to explore scenarios and surface tensions in workshops with participants. We are currently building on the Exchangeopoly workshops to prototype socio-digital infrastructures for alternative community currencies with our participating communities. Here, the community currency is seen as a response to the local 'social and economic consequences of globalisation and capitalism' [19], and as a resource for the development of 'areas suffering from a shortage of cash where untapped capacity is accompanied by unmet needs' [19]. Therefore, extending the work presented here, future work aims to codesign with the community members a community token that would be useful to the local economy and further scaffold value exchange.





# ACKNOWLEDGEMENTS

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