

Article

## Co-Designing Urban Planning Engagement and Innovation: Using LEGO® to Facilitate Collaboration, Participation and Ideas

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### Abstract

There is a growing academic interest in the idea of co-designing methods to achieve urban innovation and urban planning. As we see cities as “living laboratories,” beyond the control of elected city government, there is a momentum to develop and test shared responses to the social, environmental, and economic challenges present in contemporary urbanism. These living laboratories are a function of open innovation or “quadruple helix” actors, drawn from state, business, higher education, and community sectors. However, translating the often-good intention principles of working together through shared and co-designed arrangements in any major urban area is often a significant challenge and a topic neglected to date. This article addresses this gap through the case study of Newcastle City Futures, a university-anchored platform in the north-east of the UK, that sought to co-design collaborative urban research, public engagement, and innovation. Newcastle City Futures created novel working methods centred on participatory games to facilitate shared understanding and joint ideas for new urban innovation projects across established sectors. This article will examine one method that was successful in generating collaboration and participation: “LEGO® mash-ups.” Detailed empirical accounts of the development of the LEGO® mash-up method are used to illustrate attitudes to urban challenges, the fostering of a spirit of open collaboration, and the development of innovative responses through co-design. These are used to support the conceptual argument that the use of the quadruple helix as a form of urban innovation system needs to be accompanied by accessible, workable, and easily interpreted translation methods, such as games, by intermediaries.

### Keywords

co-design; engagement; innovation; LEGO®; LEGO® mash-up; Newcastle City Futures; quadruple helix

### Issue

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### 1. Introduction

Designing and delivering innovative solutions for the range of problems that cities now face has become a key focus for researchers, policymakers, and consultants all over the world. Traditional sectoral and policy responses through urban planning and other mechanisms are no longer, arguably, fit for purpose, having been devised in another century when cities were managed and controlled predominantly by city authorities,

and governance was less fragmented (Phelps, 2021). As new smarter forms of digitalisation and technological innovation have become more embedded within the life and operation of urban areas, so has the management of change started to occur in increasingly more physically distant ways from citizens (Wilson & Tewdwr-Jones, 2022). Representative democracy and government remain a cornerstone of urban planning approaches across many cities and regions; but they may also be seen to be archaic to the way people—

governments, businesses, citizens—now interact with service providers and access intelligence and live data about aspects of territorial change.

Against this backdrop, there is a need to find new methods that can begin to analyse the complexity, speed, and nature of urban and regional change in places through a range of digital and non-digital devices (Batty, 2018). A concern with the future of cities in the 21st century encompasses a range of issues, from demography, climate change, and socioeconomic differentials, to infrastructure, well-being, and decent affordable housing. These challenges are corollaries of an increasingly urbanising world (Nijkamp & Kourtit, 2013) but are also present in cities in developed nations. Technology may provide some new systems to help us recognise these challenges and begin to find timely solutions. But equally, it could be argued that there are also limitations of more corporate-driven, technology-centred, smart city interventions in and across cities, especially if they are not as transparent and accessible as traditional forms of urban democracy and are more remote from the citizens themselves (Dixon & Tewdwr-Jones, 2021).

One area of academic interest that has developed through the 2010s and 2020s is the question of how universities can contribute knowledge and skills back into the cities in which they are located and support new ways to understand and plan for the challenges of complex cities (Goddard & Vallance, 2013). This work has started to see the city itself as a living laboratory since it is a site or pathway for a range of actors to experiment, learn, and precipitate change in their local areas (Bulkeley et al., 2018; Karvonen & van Heur, 2013). In this context, new scientific knowledge is seen as the product not just of academic experts or government officials, but rather as a mode of practice that is multiple, transdisciplinary, and socially reflexive; it is designed and produced by a range of actors from state, business, community, and education sectors working collaboratively for practical application beyond the academy (Gibbons et al., 2012; Nowotny et al., 2011).

One conceptual framework that has been used to analyse relationships and collaborations between representatives of the four sectors is the quadruple helix model (Carayannis & Campbell, 2009). This framework acknowledges that citizens of cities may be beneficiaries of collaboration and innovation, but may also contribute to those ideas themselves, resonating most strikingly with the idea of a living laboratory (Arnkil et al., 2010). But the question remains: What practical method could be developed that enables the quadruple helix government, business, community, and academic sectors to make sense together and collaborate most effectively to generate co-produced ideas (cf. Healey, 1997)? This has led to the development of experiments and pilots in specific places to test out novel partnership practices and to assess whether new methodologies are required to support and enable sectoral interaction.

This article examines the design and development of one of these new methodological approaches for

urban co-produced innovation. The innovative methodological approach, that drew from the literature on new approaches to facilitate discussions on issues related to governance and place, aimed to explore the applicability of more creative approaches to facilitating workshops and discussions amongst city stakeholders. The purpose of the research was to identify, design, and pilot a workable and practicable collaborative method with organisations beyond the research community, to examine the stages of implementation, and to assess its outcomes. This case study draws upon a UK Research and Innovation-funded initiative rolled out in the UK city of Newcastle upon Tyne from 2016, led by the university's Newcastle City Futures (NCF) initiative, but involving representatives from other sectors in the city, aiming to work with each other to develop new projects and ideas. The method used gaming to instil collaboration across different sets of people possessing their own languages and organisational objectives. The example specifically used LEGO® bricks as a device for participants to collaborate, develop shared ideas, and communicate.

The work is structured into a series of parts: Following this introduction, the article looks at the recent use of gaming in urban and built environment change, before going on to consider the use of LEGO® specifically. After that, the article sets out the role of the Newcastle case study, its purpose, and form, prior to a detailed examination of the LEGO® method in design and practice. A final section analyses the case study in relation to a wider conceptual debate about whether gaming and LEGO® may be useful methods to generate participation and interaction.

## **2. The Use of Gaming for Cities and the Built Environment: Service Design and Innovation**

Approaches to facilitating discussion—whether research or practice-focused—have explored the role of non-verbal communication in overcoming barriers to self-expression and communication. These approaches have been necessary to encourage creative, authentic, and legitimate discussions (McCusker, 2019), and reduced some of the barriers associated with more traditional debating approaches—for example, the most powerful or talkative person dominating meetings (Clavering & McLaughlin, 2007). One way this can be overcome is through rethinking how exploratory events can encourage equitable engagement from a broad range of people.

An approach gaining traction within education, business, and government is the use of tangible objects as a tool for structuring, sustaining, and evidencing collaborative events. The qualities of tangible objects lend themselves to becoming items of discussion and critique that can address some of the difficulties of traditional approaches to facilitated discussions and events. The tangible object physically embodies and represents a shared understanding and vision. Objects are better the more abstract they are, otherwise, there is a tendency for

people to think about the details, rather than the overall picture (Buur & Mitchell, 2011). One example of a tangible object could be a game.

Games can take many forms, with no single agreed definition. Salen and Zimmerman (2003, p. 83) posit that a game is “a system in which players engage in an artificial conflict, defined by rules, which results in a quantifiable outcome.” The use of games in exploring issues pertinent to urban planning and wider society (rather than just playing a game for enjoyment; see Abt, 1970) has a long lineage. Shakeri (2017) dates games that mirror society back to chess, where chess pieces and their movement replicate the power, place, and authority in society. The roots of gaming are argued to be in ancient war games, where battles and military exercises were planned out, predicted, and explored (Mayer, 2009). Their use later, around World War II, developed into increasingly sophisticated predictions and simulations. As Mayer (2009) argues, games, policy, and decision-making have shared a lineage for centuries, allowing experts to experiment and play through scenarios.

More recently, however, the link between games and serious issues has become more tightly bound. “Serious games” are conceptualised as games that go beyond just providing entertainment, possibly employing strategy or role playing (cf. Abt, 1970). Serious games can also facilitate and encourage debate among the players, but may borrow many useful attributes from elements of more playful games. These may include: sharing ideas and approaches visually; requiring decisions to be made within a set of rules, procedures, or constraints; competition between the participants; and introducing chance and unexpected outcomes (Dresher, 1961). Serious games unite “the seriousness of thought and problems that...combine the analytic and questioning concentration of the scientific viewpoint with the intuitive freedom and rewards of imaginative, artistic acts” (Abt, 1970, pp. 11–12), and “offer us a rich field for a risk-free, active exploration of serious intellectual and social problems” (Abt, 1970, p. 13). These games are increasingly being co-opted into civic contexts where games present alternative formats for discussion that can make formal engagement approaches more open and participatory, and possibly fun (Gordon & Baldwin-Philippi, 2014).

Based upon the lineage and potential of serious games to stimulate discussion, LEGO® began to develop the “LEGO® SERIOUS PLAY® method” (Roos et al., 2004), and later a series of kits, as a method for businesses to encourage “group discussion, knowledge sharing, problem solving and decision making” (The LEGO Group, 2021). Their aim was to develop a “higher energy method” as an alternative to “their two-dimensional visual presentations of texts, graphs, and numbers using flipcharts, overheads, slides, spreadsheets, and the like” (Roos & Victor, 2018, p. 334). The intention was to encourage senior managers to think long-term, rather than on a day-to-day basis. Using the approach, three-

dimensional models are made from LEGO® pieces in response to questions asked by a facilitator, which become the topic of further discussion and analysis (The LEGO Group, 2021) and “bring hidden insights to the surface and generate entirely new ideas” (Roos et al., 2004, p. 565).

Zenk et al. (2018, p. 248) note the effectiveness of using LEGO® for engaging thinking around complex problems: “Build[ing] models and metaphors...support[s] a mindset for solving ill-defined problems. In that sense, the bricks are used as a language for collaborative creativity,” that can entice questions about other people’s models and facilitate the sharing of viewpoints and build shared understandings (Gauntlett, 2018; Zenk et al., 2018). Gauntlett (2018, p. 12) notes:

The idea is that going through the physical, thoughtful process of making something...an individual is given the opportunity to reflect, and to make their thoughts, feelings or experiences manifest and tangible. This unusual experience gets the brain firing in different ways, and can generate insights which would most likely not have emerged through directed conversation.

### 3. Methodology

As described earlier, Roos and Victor (2018, p. 337), early pioneers of the LEGO® SERIOUS PLAY® methodology, called attention to five characteristics and considerations to stimulate engaging SERIOUS PLAY® opportunities:

The concept is exciting, but people can be anxious to engage; warming up is vital; material choices matter and there should be neither too much nor too little; the atmosphere must be safe, playful and comfortable, though there is flexibility in this setting; and the process is delicate.

With these considerations in mind and, as the article goes on to discuss, the research team of NCF devoted significant attention towards how they might develop practically a LEGO®-based game that encouraged interaction, critical reflection, and innovation in urban planning ideas with representatives of the four quadruple helix sectors. Recognising—as Roos and Victor (2018) note—that professionals and participants may see a serious game as an indulgence and something they need not attend, the team combined the game approach with more typical participatory workshop practices at the outset so that attendees might feel more comfortable.

This new gaming device was trialed in May 2017 with 40 participants. The following section outlines the way it happened and the experience of running what eventually became eight workshops over 15 months. But it is important to note here that the objective of the trial was to identify whether representatives of different sectors could collaborate and work together in a meaningful

way on urban planning issues using a gaming approach. The trials were run by the research team acting as facilitators and took place in a new one-room innovation district building in Newcastle city centre, known as The Key (a neutral centrally located space). Before setting out the way the gaming workshops were designed and operationalised, it is first necessary to reveal more about the urban engagement and innovation platform in Newcastle that enabled the method to be trialled in the first place.

#### **4. Newcastle City Futures: A Quadruple-Helix Urban Platform**

Newcastle City Futures (NCF), led by Newcastle University, was an engagement and innovation platform in existence from 2014 to 2019 that attempted to create shared opportunities to shape the future of Newcastle and Gateshead through research, engagement, and innovation. It was designed as an agile initiative that used engagement to broker new research and innovation opportunities for the city, region, and university, while acting as a supporting partner to government, businesses, and communities, and as a project facilitator between Newcastle University and external agencies (Vallance et al., 2019).

The model of NCF was to work as a quadruple-helix intermediary (Vallance et al., 2020), linking together government, businesses, communities, and the academy to generate test-bed demonstrator projects and deliver four objectives (simultaneously, if possible): excellent research, business growth, public expenditure savings, and citizen engagement. NCF linked together existing university initiatives and funded research projects, to new audiences and opportunities in a hub and spoke approach, drawing together blue-chip projects focused on the region with user groups from policy, businesses, and communities.

The work included developing both a trust-building exercise through visual means (Tewdwr-Jones et al., 2019) and a state of the region report (Tewdwr-Jones et al., 2015) that would be used in the later period of NCF's endeavour. This was an attempt to get partners across sectors to work together to think of new shared project ideas. These new project initiatives were not imposed on participating partners by NCF but rather were intended to be identified by the organisations themselves, working together, but facilitated by NCF. The expectations of this approach were ambitious: New project ideas had to address multiple sectors rather than single sectors; had to have multi-partner involvement; and they had to employ some aspect of digital, visualization, or engagement methods. Projects that were developed and matured through this approach would then be submitted to the City Futures Development Group, a special-purpose Newcastle City Council committee, for comment and endorsement. That did not, in itself, imply a direct route to project delivery. It was vital from the outset to remind all participants that no funding was guar-

anteed for any project; the aim, rather, was to develop good ideas.

This heady mix of expectations reflected the purposeful “in-between” model devised to work across and between existing organisations, their vested interests, and silo policy sectors, to unleash something that might not otherwise have been considered due to the peculiarly fragmented English governance arrangements existing in the region (Pike et al., 2019). And although there was much merit in plugging the governance gap with a joining-up initiative based in higher education, it also meant that NCF continually had to be sensitive to political and governmental pressures, changing economic contexts and social needs, and the politicised position of the university. The phase of work involving facilitating partners' joint innovation ideas would be one of the more challenging requirements of the initiative and eventually led to a completely new approach and method being devised; this was how the gaming LEGO® workshops came about.

#### **5. Developing a Co-Produced Participatory Method: The LEGO® Mash-Up**

##### *5.1. Overcoming the Challenges of Fragmentation*

NCF had to find constructive and practical ways for all participating partners across the four sectors of the quadruple helix to start collaborating. Such a move was not without its challenges: each of the four sectors had their own legitimate reasons to participate; each partner came with their pre-existing objectives and working practices; most organisations could work independently from each other; and many were sceptical about the merits of participating in what was seen initially as “a talking shop.” Additionally, some of the biggest barriers related to an unwillingness to listen to other sectors and a reluctance to share information and ideas. Such barriers to collaboration and co-production have been well documented in the literature and are not easily overcome, at least quickly (Bertosa et al., 2017).

The team had previously run participatory workshops of mixed participants and had been acutely aware of the unevenness of participation; people were divided between those who were happy to talk and those who were passengers, or—more likely—those who regarded themselves as being there only to observe events. Some who attended were senior managers with a decade or more of experience, whereas others were recent appointees. There were also participants who were uncertain whether they could speak out as individuals or whether they were there to represent their employing agency.

What was required, ideally, was a co-production method that would deliver several outcomes in sequence:

1. To be an icebreaker to warm the room up, relax people, and allow everyone to speak in front of each other;

2. To be a level and fair platform where nobody’s pre-existing knowledge drowned out the potential of other people’s input;
3. To develop a common language to ensure everyone could communicate openly with each other;
4. To serve as a fun participatory activity that would entice people to get involved without worrying about getting things wrong in front of other professionals.

**5.2. The LEGO® Mash-Up Workshop**

Having weighed up a number of options, the team settled on a three-hour morning co-production participatory workshop. Forty people representing different organisations from all four government, business, community, and education sectors attended each event that was divided into a number of key stages. The early stages were of a more traditional participatory workshop style, whereas the latter stages developed the gaming through a LEGO® approach. Table 1 illustrates how Roos and Victor’s (2018) principles of successful SERIOUS PLAY® were adopted within the LEGO® mash-ups. Rather than seeing each activity as standing alone, the purpose was to structure a series of activities that led to sustained discussions on the practicalities and details of a potential project through LEGO®.

**5.2.1. Arrival**

Participants were encouraged to sit at any one of the round tables set out in the room. Each round table had six chairs around it. Participants were also encouraged to help themselves to coffee, tea, and pastries or fruit on arrival and engage in small talk with other participants. Once everyone had arrived and chosen a seat, the resul-

tant random seat pattern on a single roundtable meant that the participants were mixed up. There was a chance, for example, that a local government policy officer would be sat next to a schoolteacher, who was sat next to a company director, who sat next to someone representing a mental health charity, who was next to a director of a telecom company, who was next to an academic. This was an intentional objective. The NCF director then introduced the team and the purpose of the event. The details were kept to an absolute minimum, but particular emphasis was placed on developing new and long-term ideas that would benefit the city; that is, participants should not be worried about working within current policy parameters, financial constraints, or employers’ practices.

**5.2.2. Icebreaker**

The director put up a single PowerPoint slide with just one question: “What were you doing in 1992?” The specific year could be amended as necessary, but the point was for each person, in turn, to say what they were doing, what employment they were in, and where they lived. This was a deliberate different set question to asking everyone to state their name, their job title, and affiliation. There was no need for this information at that point as the objective was for everyone to harness their own skills and knowledge for a greater collaborative purpose. The whole exercise took about 20 minutes. In some cases, people had very different jobs or lived overseas; in others, the participants were not yet born. The exercise was intended to make people feel relaxed and leave their professional status and rank at the door, but also to consider, through a backcasting technique, what had changed in their personal circumstances in the interim period as a way of encouraging people to think about what might happen in the following 25 years.

**Table 1.** Sequential stages of the LEGO® mash-up process.

|                |  |  |  |  |  |  |
|----------------|---|---|---|--|---|---|
|                | 1. Arrival  | 2. Icebreaker   | 3. Introduction to Place Issues   | 4. Idea Development  | 5. Building the Model   | 6. Sharing the Outcomes   |
| Purpose        | Making introductions  | Facilitating mutuality  | Setting the scene   | Understanding challenges and opportunities   | Visualising a project   | Explaining and listening  |
| Materials      | Coffee  | Round-the-room question   | Image prompts, A1 paper, marker pens, and coloured sticky notes                     | Hand-drawn bubbles and keywords  | LEGO®   | LEGO® and video   |
| Gaming Element | Space set-up  | Team building   | Game rules set-up   | Team-working   | Shared game task  | Team game results   |

Note: Images retrieved from Flaticon (<https://www.flaticon.com>; left to right: Good Ware, Uniconlabs, Pixel Perfect, Freepik, Payungkead, Freepik).

5.2.3. Introduction to Place Issues

The team then put up a handful of very selective image-based slides intended to act as prompts to the workshop, shown in Figure 1. These slides represented some of the results of the state of the region report previously undertaken (Tewdwr-Jones et al., 2015), showing a list of the positive features or assets of the region on the left-hand side (such as city heritage and profile, prevalence of nature, community spirit, digitisation) together with a list of the negative socio-economic indices on the right-hand side (such as educational attainment, skills ability, climate impacts, mental well-being). There then followed a quick-fire set of tasks. The first task required each roundtable—following their own agreement—to take one issue from the left of the slide and one issue from the right of the slide and start to list all detailed aspects of each they wished to highlight. This exercise was undertaken using an A1 piece of paper, marker pens, and coloured sticky notes for people to jot down their ideas. That task was limited to just 15 minutes. This was followed by a second 15-minute task, where the roundtable was then asked to consider what the relationships were—if any—between their selective pairs. This comprised a second piece of A1 paper with a series of hand-drawn bubbles around keywords, linked together by a possible rather than identifiable relationship.

5.2.4. Idea Development

The third task, of 25 minutes, required the roundtable participants to choose one paired link of their choice and develop it further. This necessitated going into more detail about the feasibility of the pairing, overcoming potential obstacles to pair them, or considering the possible benefits of pairing and for whom. At this stage, the roundtable participants—having invested deeply in the exercise and the choice of issues over the previous 55 minutes—would embark on a detailed discussion, producing a single agreed outcome or project idea.

5.2.5. Building the Model

After a further quick refreshment break, the NCF team would distribute a bucket of LEGO® Classic bricks to each table with the expectation that the participants would construct their agreed final project or at least a repre-

sentation of it. This allowed everyone, over the following 25 minutes, a chance to play with LEGO®, and was a necessary fun finale of the morning tasks, but also allowed some people to be more creative with their ideas and forms. This was vital in order to communicate possibly complex ideas publicly in a succinct way (Figure 2).

5.2.6. Sharing the Outcomes

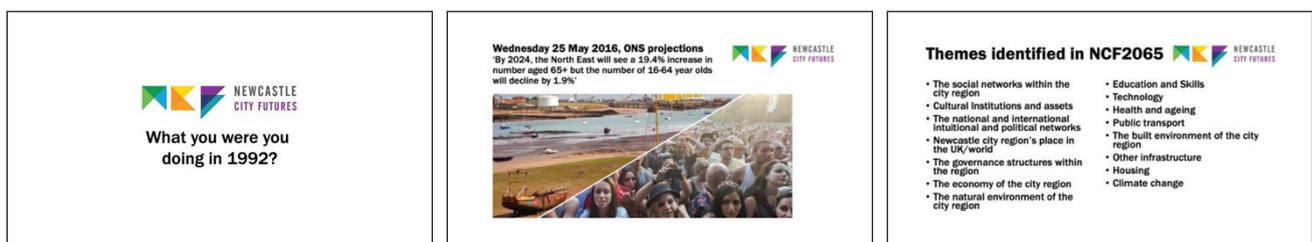
Once the models were constructed, one volunteer from each table would present their project to all the participants, outlining the justification for selection, highlighting the potential benefits, and linking the project idea back to the original themes of the city and region.

5.3. Outcomes and Review

This approach, which lasted no more than two hours, proved to be a popular, inclusive, collaborative, and fun method to generate new urban innovation project ideas. It was so popular that, over the course of a year, NCF ran eight LEGO® workshops of 40 people in each case, and most of the participants had not been involved in anything like this exercise previously.

By inviting the participants to build and physically represent an idea, they were able to discuss the idea piece-by-piece in a structured way, which encouraged group members to scrutinise how the idea might be developed. This included an understanding of the individual steps and links between them that would be necessary to progress the idea further. Through engaging with the tangible objects, literal structures of joint understanding began to develop the practicality of realising ideas. The LEGO® bricks echoed the overall aim of the events that everyone had something to contribute and should be included in discussions to help explore, identify, and potentially work towards a solution of city- or region-wide problems.

The outcome of the eight LEGO® mash-ups was over 50 innovative co-produced project ideas for the city, multi-themed and related to the specific issues facing the place and people. The project ideas generated at each workshop differed enormously, with a noticeable distinction between the ideas of senior managers and those of non-senior managers. The latter group tended to think of projects that could relate to specific sectoral issues, such as digitally-enabled lifestyle housing for older age



**Figure 1.** Examples of prompt slides used during LEGO® mash-up, from an icebreaker question to introducing place issues.



**Figure 2.** Participants during LEGO® mash-up and project idea outcomes built as LEGO® models.

groups that could address dementia and assisted living in the city centre, or a community sports facility for young people that was digitised to enable them to learn digital skills as they played football. But the senior manager groups tended to address broader structural and governance issues because they viewed these as critical barriers that needed to be overcome to facilitate new innovations. For example, among the more memorable ideas for Newcastle and its region in 2047 presented by the senior managers to the participants were:

- *A single service regional delivery model for social enterprise and growth* with digital connectivity through the customisation of services.
- *An integrated lifecourse skills plan based on partnership as a new industrial regional strategy* that builds on existing assets rather than trying to land initiatives that have been successful elsewhere.
- *An inclusive growth and equitable societal infrastructure platform* to support a circular economy and fit-for-purpose public transport infrastructure, with less reliance on private car ownership.
- *A new Newcastle Gateshead City State* that encouraged self-sufficient regional food production that would be located across all parts of the city fabric.
- *A city built on ambition and aspiration*, with a fit-for-purpose education system to deliver skilled workforce and an urban area comprising shared spaces of real quality, but also where leadership was distributed between local government and business service providers, and the community played an active role in shaping and deciding the future of their own places.

In the two years following the workshops, many of the project ideas developed further, and the NCF team ensured that the project ideas did not fade away once the mash-ups were over. In some cases, the mixed group of people on individual roundtables asked NCF to facilitate a second meeting to identify whether the

ideas could be taken at least one step further. Some of the mash-up projects did eventually morph into real-world projects, including the development of the Future Homes Alliance that is in the process of building 66 digitally-enabled age-friendly housing units on a city-centre site, and NUCASTLE, a £10 million community sports hub that is a digital and technological skills site for young people from deprived backgrounds.

## 6. Learning From Gaming and Creative Design Methods

The beneficiaries of the approach were many: for the research community, it was to develop inter-disciplinary cross-sectoral thinking in how they look at the city and understand and analyse problems; for participants, it was to identify opportunities to collaborate with individuals and agencies that they would not otherwise have considered working with, and creating a platform of trust for future partnership working; for urban planning specifically, it was to demonstrate how creative gaming methods such as LEGO® could be used proactively for more serious discussion about resolving complex place-based challenges.

Creative methods, more so than traditional social science research methods or planning consultation methods, allow for improvisation and messiness, and open opportunities for researchers to wander outside of their disciplinary fields to both reflect and reconnect with the social life they profess to be concerned with. Unlike discipline-defined social science research methods, creative methods can be shaped by their object of study and suit collaborative and interdisciplinary approaches.

These creative methods are not meant to change existing approaches, replace well-established methods, or usurp formal democratic forums. But they can serve a purpose in collaboration with other research methods and can be used at any stage within the research process and participatory design, from data gathering, analysis, and reporting. New and innovative creative methods are being used increasingly within the

social science tradition but their development within urban planning consultation remains largely untested. The creative methods include arts-based formats, especially visual and gaming methods, and technological approaches. They allow participants to focus on issues in a different way that might then lead to more expressive and alternative views.

There are now many more combinations of methods that can be harnessed by the social scientist, a mixed-methods approach that uses a variety of quantitative, qualitative, and creative methods. This can be particularly helpful if the researcher is dealing with really complex research or even place-based questions. Multiple mixed methods could provide richer data and more insight into critical questions.

As a pilot of a game approach, the workshops did prove to be popular with participants, and it did lead to a number of concrete outcomes that were developed further; these manifested themselves into real-world projects, policy, and strategy discussions, and additional forms of engagement. The approach, therefore, testifies to the decision taken to adopt a combined traditional and LEGO® based participatory workshop. There had been a conscious decision to keep the bricks back from participants until the latter half of the workshop, for fear that the roundtables would focus on the LEGO® too early rather than generating joint ideas and shared project agreements first. That decision was borne out when it was discovered, during the course of some workshops, that individuals were going around to other participants roundtables and bartering for certain coloured bricks in exchange for others to represent their project ideas (for example, green to represent environmental issues).

The gaming element was initially viewed to be more of a secondary consideration in the participatory design, compared to the desire to create a collaborative and engaging activity that could generate agreed actions and outcomes about the city's problems. In the event, for some of the participants, they saw the LEGO® element as more of a game than the organisers had anticipated and developed a much more competitive attitude to both constructing their models, presenting them to the rest of the participants, and winning attention. Accordingly, if this method was adopted for similar purposes in future, a more intensive gaming element could be developed further to allow people to compete in the workshop, team against team. Although there might be a danger that this would undermine the collaborative objective of the meeting, it would not be allowed to dominate proceedings, but it would still require careful management on the day.

## 7. Conclusions

The whole LEGO® experience was intended to pilot workshops that allowed for the co-production of ideas from quadruple helix actors that specifically related to urban and regional problems. Through a careful choreography

and structuring of events, cross-sectoral working was placed central to discussions, as this was identified by the research team as critical to respond to the complex problems of places. The choices that were made while designing and developing the workshop events were all intended to achieve this—the venue, the table placement, the number of seats available, the random seat allocation, even the coffee breaks—to create an environment for both opportunistic conversation, as well as more structured (but still open) discussions on a broad range of urban and regional topics.

The entire process was new for all participants. The trial was therefore intended to identify the degree of comfort that participants experienced in a different format to ones they had experienced previously. The unique circumstances of trying to address place-specific problems, across a large urban area, with representatives of so many different organisations, while instilling greater trust and partnership between them, all meant that the choices made by the research team differed from those advocated within more structured LEGO® SERIOUS PLAY® methodologies.

The innovative methodological approach certainly developed the relevance and applicability of using more creative methods to facilitate workshops for and discussions amongst city stakeholders. Identifying, designing, and piloting a workable and practicable collaborative method with organisations beyond the research community from scratch was an uncertainty, but it did generate the trust the facilitators had hoped for. It also allowed for much more reflection and questioning of new solutions for urban problems than traditional planning consultation methods.

Overall, the LEGO® mash-up demonstrated that a playful, fun, and colourful method could be used with a diverse group of people from different professional backgrounds to facilitate, generate, and produce urban planning project ideas that nevertheless addressed serious problems of the city. The novelty of the participatory method was viewed by participants as an innovation but, ultimately, the real test was whether participants were willing to stay for the whole duration of the workshop, were happy to present their achievements to others, and could see how the outcomes of the collaboration could be taken further practicably. Despite the fact that many of the urban issues addressed by participants were some of the most complex and structurally challenging in government and in society, they demonstrated not only a willingness to find innovative solutions in a co-produced way, but also to find common understanding and language across different groups of actors. Set against the more archaic forms of urban planning consultation methods currently employed by governments, more innovative co-production methods, including those using gaming techniques, could unlock not only a much more proactive and focused response among agencies and citizens in places, but also address the nature of multi-faceted urban challenges in a dynamic way.

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## Conflict of Interests

The authors declare no conflict of interests.

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