

Designing 'youth master plans' in a CLE Space (constructivist learning environment space): lessons from using Minecraft in secondary school outreach project in Scotland.

### **Abstract**

In response to problems of neoliberal urbanism agenda, Lefebvre (1991) argued for a 'right to the city' so that more people are involved in the (re-) production of urban spaces (Purcell 2002). The challenge being to translate this 'right' into practice particularly to involve 'hard-to-reach' groups such as young people. With growing use of technology in participation, visualization techniques are gaining currency. But what is missing is an important consideration of the 'environment', where these approaches are applied and particularly in how/whether shared learning and visioning is possible. I argue in this commentary that 'constructivist learning environments (Savery and Duffy 2001) has the potential, both as theory and method, to frame the characteristics of 'virtual spaces of participation', where children and young people can critically assess and re-design the spaces in the 'real' world. The CLE space marks departure from current understanding and argues instead that: (1) 'expertise' should reside in the participants (in this case, young people) at all levels and that enablers (such as urban designers, architects, planning consultants etc.) ought to only 'enable' the activity; (2) the spaces where conventional participatory approaches unfold e.g. a community hall should give way to those 'relational spaces' (such as an IT suite) where young people take on the role of experts – this is where gaming software such as Minecraft have potential and which would prevent 'enablers' of participatory workshops, in providing an *a priori* blueprint as to how design needs to be carried out by the participants. Policy makers can use this innovative framework for developing for instance 'child-friendly cities' or 'youth master plans' as part of regeneration initiatives.

### **Keywords:**

Youth master plans, constructivist learning environments, CLE space, right to the city, Minecraft, young people, city planning, Dundee waterfront.

### **Framing the problem**

Citizenship education is gaining importance in both academic as well as policy discourse. Particularly with regard to young people, this raises questions of where we teach citizenship and what sorts of professional skills young graduates need in practice in response to rapid urban/environmental changes. Therefore, the spaces where citizenship education is imparted becomes important to explore and from an academic point of view, it becomes necessary to re-examine what forms of knowledge and practices are produced and re-produced in these spaces. Particularly for built environment professionals, there is also increasing need to involve more and more people in shaping the cities they live in. This is shaped by the 'right to city' discourse (Lefebvre 1991) that argues how every urban resident can/should be able to decide on the production and (re-) production of urban spaces (Purcell 2002).

One aspect of 'right to the city' is a 'right to appropriation' whereby urban residents have the right to move through, and shape urban spaces. However, when visualization techniques and/or participatory tools are used to involve hard-to-reach groups, they create a distinction between a 'real world' that needs intervention and a 'virtual space of participation' where access to participatory tools and/or visualization techniques is provided. This poses particular challenges as the focus shifts from conceptualizing the 'virtual space of participation' to the effective deployment of tools/techniques. In other scenarios where the spaces of participation overlap with the 'real world' as in participatory public art projects (Breitbart 1995; Askins and Pain 2011), there is no additional effort needed to conceptualize the spaces of participation or the 'environment'.

In addition, when making decisions on public spaces, there are two key inter-connected problems: (1) the way in which urban spaces are produced and re-produced tends to be less inclusive given the hegemony of dominant classes making decisions; (2) lack of trust and low levels of involvement of ordinary people in decision making. As a result, the hard-to-reach

groups are not only 'excluded' from decision making arenas, but they also lack motivation to 'join in' when opportunities for participation are made accessible.

This then raises questions as to how policy makers can find ways to involve the hard-to-reach groups (including young people, disabled, ethnic minorities...) and whether solutions to which might lie in framing effective 'spaces' for citizenship education. More importantly, if we knew, when to teach citizenship, and reinforce citizens' right to the city, as a fundamental right, then it might change the way urban spaces are produced and re-produced. Further, in such spaces of engagement, citizenship education will seek to negate the hegemony of dominant classes, because policy makers will have adopted a new role, that of 'educators', with a view to implementing decision making more inclusive. This by extension, as an inclusive space has the potential to improve levels of trust. Such an approach will have implications on the sorts of professional skills our graduates as 'future policy makers' need to have.

Therefore, from an academic and practitioner point of view, it becomes necessary to explore the role of spaces of engagement, which be both spaces of learning as well as sites for production of future urban spaces. Because the spaces of engagement have a component, that tends to re-produce practices in creating future urban spaces, it becomes necessary to bring in 'shared learning and critique' as a bulwark to the hegemonizing nature of reproduction of urban spaces. Thus, an engagement with the question, '*what might re-imagined/virtual public forums offer lessons for current practices in engagement?*' becomes central in this discussion. In response, this commentary will first present a critique of existing approaches to engagement and how it links up with the 'right to the city' discourse. By doing so, we will set out how 'spaces of engagement' matter in realizing the 'right to the city' agenda. I then present CLE (Constructivist learning environments) as one such 'spaces of engagement'. I conclude with key considerations on how spaces of engagement ought to be conceptualized and how policy makers and practitioners can take it forward to operationalize the 'right to the city' agenda in the form of 'youth master plans'.

### **Existing approaches to engagement**

Petts and Leach (2001) developed a typology of methods of engagement/stakeholder consultation and range from: (a) level 1 - education and information provision (e.g. leaflets/brochures, site visits, newspapers etc.); (b) level 2 - information feedback (e.g. staffed exhibits/displays, surveys, public meetings etc.); (c) level 3 - involvement and consultation (e.g. workshops, focus groups etc.); (d) level 4 - extended involvement (e.g. planning for real, community visioning etc.). In this linear approach, there is an underlying assumption that 'extended involvement' would allow inclusion of 'hard-to-reach' groups. Given that this paper is examining effective involvement when preparing youth master plans, I will move beyond tokenistic approaches (levels 1-3) and distil level 4 further to tease out variations within that. This will allow one to probe what is missing in 'extended' involvement practices.

In dissecting level 4 further, I argue that there are three sub-approaches to engagement of people in design/planning of a neighborhood/city/rural area (see Table 1 below). The first is shaped by what Tony Gibson refers to a 'practice story' where communities get an opportunity to learn from one another in the production of new spaces by adopting a "eyes down, hands on, rubbing shoulders, a lot less Big Mouth" approach (Forester 2008:100). This takes place in a physical space that consists of a mock-up, scaled down physical 2d maps or models (or 'working model') both of existing neighborhood (as well as imagined neighborhood at the

end of the engagement). Examples include Planning for Real, Charrettes, Wheel of engagement etc. Criteria for inclusion is for instance a willingness to consider visualization as a learned skill during the engagement process. In addition to community members, a combination of state actors, third sector actors and private sectors are generally present. Hard-to-reach groups including children/young people are generally absent

The second is to reimagine a city/rural space through the eyes of individuals where diversity of viewpoints is a starting point. Here the; ontology/problem definition is individualistic whereas the shared space is for epistemological considerations, i.e. for discussing, categorizing and prioritizing of how design of spaces should be carried out in the future. This is implemented via a two stage approach: (1) a subjective exploration through the use of photos or recording of sounds for example, of the spaces that need re-imagining by individual volunteers; (2) a meeting of volunteers from stage 1 to examine, categorize and prioritize what needs to change/remain in the re-imagined space. Examples include Keep us in the picture initiative. To be include, there must be a willingness to use visualization (e.g. photos) to communicate how one values the existing urban/rural space. In addition to community members, a combination of state actors, third sector actors and private sectors are present. Hard-to-reach groups including children/young people are generally absent.

Lastly, the focus is to reimagine a city/rural space through a bottom-up process, with no expectation of visual language skills and focused on dialogue over issues. Problem definition is a given as the community for example is in the process of reconstructing their homes following an extreme weather event (e.g. floods, hurricanes etc.) or received a grant to strengthen food security in the village. The approach takes form of an activity in a physical space with participants where future urban/rural spaces are re-imagined through dialogue and negotiation and without involving actors from the state and the focus is on action (e.g. rebuilding of homes) with possible capacity building activities. Examples include Participatory appraisal, disaster reconstruction etc. Criteria for inclusion is a willingness to engage in dialogue over issues and to work together as a community - there is no expectation of visual language skills/competence. In addition to community members, third sector actors are generally present.

What one can see that the broad approaches outlined below do not form an ideal template for creating youth master plans. While the first two approaches require not only competence in visualizing a city that is generally outside the comfort zone of young people (both of these are managed by adults, tools reflect skills possessed by adults). The latter has some elements (e.g. problem definition prior to engagement) that can be used for shaping processes for creating youth master plans but a focus on actions in shaping the built environment again links back to competence outside the skill set of young people.

## **Discussion**

In order to involve hard-to-reach groups in the participatory process, the approach that would be effective, I would argue is where practitioners have learnt/willing to learn to look at the world of young people 'through the eyes of young people. The missing piece in current approaches is the space of participation which permits both ontological/problem definition as well as epistemological/re-imagining considerations, framed within the competencies of young people. This is where the notion of 'constructivist learning environments', as relational learning forum that permits sharing of expertise and development of shared values, has great potential

in enabling the creation of effective, youth master plans. For instance, through the use of Minecraft Education, and the use of a large screen in the classroom/forum, as an urban observatory permits all participants to have a simultaneous, and live view of how the 'real' world urban space is being re-imagined in a 'virtual' learning environment.

#### The conceptual framework:

The two key elements of 'constructivist learning environments' are: (1) distributed cognition, that is, one's understanding is developed in our interaction with the environment, and not just about the individual but in context; (2) that knowledge evolves through social negotiation – "other people in the environment are the greatest sources of alternative views to challenge our current views" (Savery and Duffy 2001:1-2). These two elements build from a number of theoretical strands, e.g. learning new skills before it is applied in practice in actual settings (Amati and McNeill 2012), virtual worlds as a platform for 'role play' (de Freitas 2006), Problem-based learning (Barrows 1985, 1986, 1992), Experiential learning (Kolb 1984).

#### Roles and responsibilities:

I applied this notion of 'constructivist learning environments' on an outreach project with secondary schools in Dundee in Scotland, which was jointly funded by the School of the Environment at the University of Dundee and TAYPLAN (a regional planning public authority). Pam Ewen (project lead from TAYPLAN), Lorna Sim (TAYPLAN) and I (project lead from the University of Dundee) worked together on this project along with Julia Frost (Planning Aid Scotland). In terms of roles and responsibilities, I conceptualized the overall academic component of the project in terms of how Minecraft could be an effective tool for engaging young people in city planning and embedded the notion of 'constructivist learning environment' in how various school teams were embedded in the project. TAYPLAN (with Pam and Lorna as lead coordinators) coordinated the overall 'practice' component of the project, that is, they liaised with the participating schools and worked closely with Julia Frost (Planning Aid Scotland) in implementing the project. The Minecraft model of the Dundee Waterfront was designed by Andrew Rennie, then postgraduate student at the University of Dundee and who was employed to build this model. 7 secondary schools participated in this project and included Grove Academy, Perth Grammar School, High School of Dundee, St Paul's RC Academy, Perth High School, Waid Academy and Kinross High School. 7 secondary schools participated through the project from Oct 2014 till Jun 2015. In June 2015, each school was asked to send a team of 3-5 students representing their school and to participate in creating a youth master plan at the University of Dundee.

#### Designing the 'constructivist learning environment' space:

Each school team was allocated a site on the Dundee waterfront and a Minecraft world of the Dundee Waterfront was given to each of the schools along with licenses for Minecraft software (see Figure 1). A project website was created with learning resources for the schools. The teams were given 8 months to develop their thinking and particularly around problem-definition and on a shared basis to re-imagine their designs in the overall youth master plan. Students from the University and PAS volunteers who were involved in the project visited the school teams on a regular basis to get them to think about the levels of learning in the project as shown in Figure 2. The constructivist learning environment (CLE) was set up in a large IT suite at the University of Dundee and all school teams were given a date in June 2015 to arrive at the University to develop a shared youth master plan of the Dundee waterfront.

In designing the CLE space, an important consideration to flatten power relations (e.g. by not allowing teachers to influence what the students were designing) and to ensure a shift from a hierarchical decision making (Figure 3) to a decentered engagement activity (Figure 4). In creating a CLE space, there is need to ensure that the physical and epistemological distance from each of the participants is the safe, in other words, everyone's 'right to the city' in producing youth master plans is ensured (see Figure 5).

Keeping this in mind, the IT suite was arranged to create a constructivist learning environment

space (see Figures 6-7). The IT suite consisted of around 35 workstations and which were installed with Minecraft Edu software. Two large screens were also made available where the whole waterfront was visible whereas at the hubs, school teams were designing on the plots allocated to them. This led to a relational understanding of design responses e.g. some teams who had initially thought of tall buildings on their plot, brought down the heights of their buildings as they saw on the large screen, small scale developments proposed by other school teams on neighboring plots. At the end of the day, each of the school teams could see how the overall waterfront was evolving in totality as they embarked on designing their individual plots (see Figure 8). Yet at the individual levels, there was lots of variations in how each school team responded to the preparation of the youth master plan (see Figures 9). In summary, the project produced a number of outputs: (1) individual master plans of plots allocated to each school team, designed in Minecraft by each participating school team; (2) an overall master plan of the Dundee waterfront, designed in Minecraft, where each team could see how their designs had evolved in relation to designs developed by other school teams on other plots; (3) a public interface where all the designs produced by the school teams were uploaded – this would allow anyone to view the designs without having the need to use Minecraft and simply using a web browser

The CLE space is an important contribution this paper advances and will be an invaluable tool for policy makers to genuinely involve disenfranchised youth in shaping the future of our cities. There are a number of alternative approaches such as ‘planning for real’, which Petts and Leach (2001) refer to as an example within level 4, i.e. ‘extended involvement’. However, what is common in these approaches is that: (1) ‘expertise’ (e.g. on how to design, what counts as aesthetically pleasing etc.) still resides within the ‘enablers’ (e.g. urban designers, architects, planning consultants etc.) of these engagement activities and the young people will feel powerless; (2) the spaces where these approaches unfold e.g. a community hall are insignificant unless the ‘enablers’ provide a blueprint as to how the design needs to be carried out by the participants and provide a reminder that expertise is available (e.g. how to read a map, how to view a 3d model) should the participant needs it. Also, the ‘enablers’ end up acting as gatekeeper or mediators in how the design process evolves and when the young people will have divergent views

This commentary started off with the question, ‘*what might re-imagined/virtual public forums offer lessons for current practices in engagement?*’. In so doing, it offered insights on the potential for digital technology to be embedded into the curriculum to facilitate an ‘effective learning environment’. This learning environment we have discussed enables participants to create what Lefebvre (1967) refers to as radical visions of cities where users design and manage urban spaces for themselves. In that regard, visualization in such learning environments is not just a product but a process, where multiple world views are negotiated and co-produced.

“.. the right to the city is like a cry and a demand. This right slowly meanders through the surprising detours of nostalgia and tourism, the return to the heart of the traditional city, and the call of existent or recently developed centralities.” (Lefebvre 1967, p. 158; Marcuse 2009)

## **Conclusion**

There is general consensus that gaming can incentivize young learners to participate. But it is not just about provision of technology. The provision of spaces of participation and how that is linked to urban governance structures is something that has not been discussed. Equally important, is the lack of conceptualization of how all these work toward the facilitation of a right to appropriation for especially the hard to reach groups. Particularly in an era, where decision makers lack the trust of the communities, they plan for, CLE space, the conceptual framework developed in this paper has the potential to inform both the policy makers, NGOs and communities, on how to get people interested in spaces in their cities. This can also be applied in contexts across the globe where governments are trying hard to find ways to show they are inclusive. Instead, this paper argues that solutions lie in enabling right to appropriation through a ‘constructivist learning environments’, so that citizens emerge as ‘monitorial’ citizens

(Schudson 1998) who when required have the ability to navigate through and co-produce/design city spaces.

At the start of the commentary, the potential of CLE space as 'theory and method' was discussed. Here for the benefit of policy makers and practitioners, when designing youth master plans, an innovative toolkit (Table 2) is presented which can be used to inform the conceptual and practical aspects of the master plan. The toolkit is to be used along with Figure 5.

The CLE space marks a departure from current understanding and argues instead that: (1) 'expertise' should reside in the participants (in this case, young people) at all levels and that enablers ought to only enable the activity. By using a gaming software in this case, Minecraft, young people don't need to be told how to use it as they are the 'experts'; (2) the CLE space as a virtual and relational space, does not allow enablers to act as gatekeepers, and instead allows for checks and balances between participating young people, e.g. a student responsible for designing a part of the city is visually connected and in real-time through a Minecraft model of the whole city being projected on a large screen, how another student is simultaneously designing another site close to him/he.

To conclude, Percy-Smith (2010) raises an interesting question on how 'spaces' for participation for young people are/ought to be constructed. In this regard, the use of 'constructivist learning environments' space (CLE space) as theory and method, is a step in the right direction, and has the potential to strengthen the 'rights to appropriation' for young people. Policy makers can use this as a template for developing for instance 'child-friendly cities' or 'youth master plans' as part of wider regeneration initiatives. At the other end, young people emerge empowered, as what Strachan (2018) refer to, as 'undercover placemakers'. However, challenges remain. What happens when some of the young people are not adequately skilled/competent in the use of the learning environment? What happens to levels of trust when policy makers decide to privilege some ideas generated by young people and not others? More work clearly needs to be done.

#### Acknowledgements:

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## List of Tables

Approach	Ontological/problem definition	Epistemological/ developing understandings of imagined space	Engagement index (e.g. in a community of around 100 households where a new school is being built, will same level of engagement would be assumed to have taken place if 5 or 95 households participated?)
Practice story	Identification of problems is group based but which is potentially influenced by power relations (existing/emergent)	Development of understandings of imagined space is shaped by levels of competencies in the language of 3d visualization (e.g. not everybody involved might be able to see the city from a bird's eye of their city/village), power relations and stakes in the master planning process	Not discussed prior/during/after the engagement
Individual-group story telling	Identification of problems is individualistic in stage one and then there is a transition to group identification of priorities	Shared understanding of how to re-imagine spaces in stage 2, which can be influenced by technical competence in visualization capture, meaning making, power relations and stakes in the master planning process	Not discussed prior/during/after the engagement
Action-centered	The problem is more immediate and concerns the community directly, and so the problem definition has already happened prior to the engagement	Shared understanding of how to re-imagine the future is shaped either by local knowledge/expertise or informed by external frameworks/practices (enabled through capacity building activities)	Engagement index is generally high or near 100%

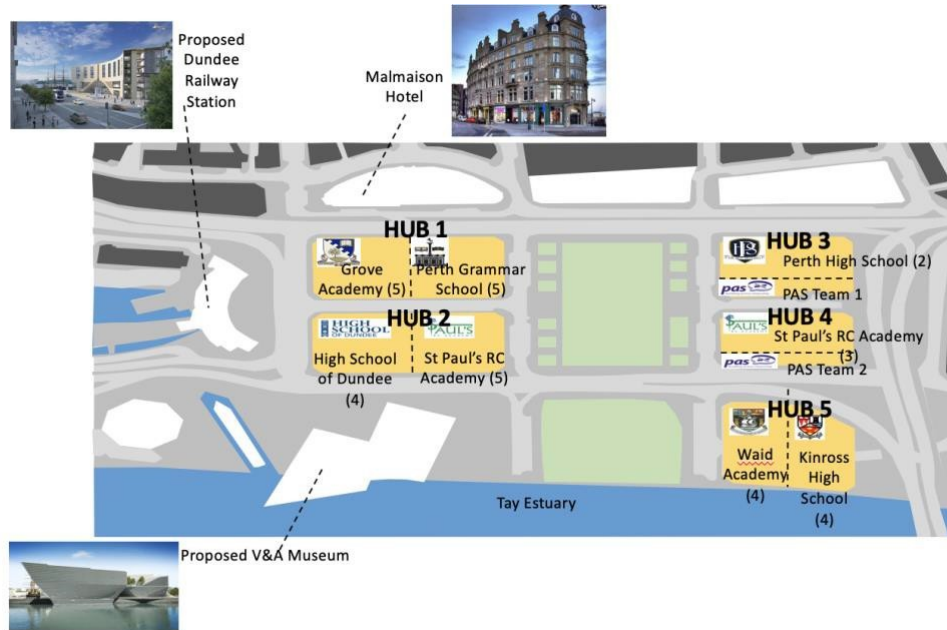
**Table 1:** Current approaches to engagement within level 4 type proposed by Petts and Leach (2001)



CLE as 'theory'			CLE as 'method'	
Domains	Dimensions	Levels	Attributes	Qualifiers
Distributed cognition	The 'designing' environment (the CLE space)	Imagined rights to the city  Tokenistic vs real change	Strengthening contextual attributes of the 'designing environment' (e.g. voices of young people who (will) have a connection to the eventual 'designed environment')	<i>Have relevant tools of engagement that fall within the competencies of young people (e.g. Minecraft) been adopted?</i>
	The 'designed' environment (the 'real' world site)	Shift from competency in designing to responsibility of the 'designed'  Acceptance in variation in stake times – more for young people and lesser for adults	Integrating aspatial attributes on to the 'designing environment' (e.g. experts, decision makers, elected representatives etc.)	<i>Are both young people and adult decision makers in the same 'designing environment' space, during both the initial conceptual as well as later final design phases?</i>
Social negotiation	Rules of engagement	Trusting the gatekeepers – criteria for selection and establishment of 'neutrality'  Legitimization of young people's rights	Presence of citizenship educators (e.g. third sector, academic community)	<i>Are there neutral gatekeepers with stakes over the 'real' world site, and who permit the generation of alternative worldviews in the 'designing environment'?</i>
	Re-designed 'rights to the city'	Decoupling of disadvantage in decision making  Modified relations between young people and adult decision makers	Aggregation of competing views (e.g. third sector, academic community)	<i>Is the transition from problem definition (ontology) to the understanding of the imagined space (epistemology) documented in the public domain, to allow for effective scrutiny?</i>

**Table 2:** Toolkit for designing 'youth master plans' using Constructivist Learning Environments (CLE) as 'theory' and 'method' – the 'domains' drawn from Savery and Thomas (2001), and the rest conceptualized by the author.

## List of Figures



**Figure 1:** Plots allocated to various school teams

**5. learning when/whether** (making judgements in the game), e.g. what aspects of Minecraft make sense and which others not?

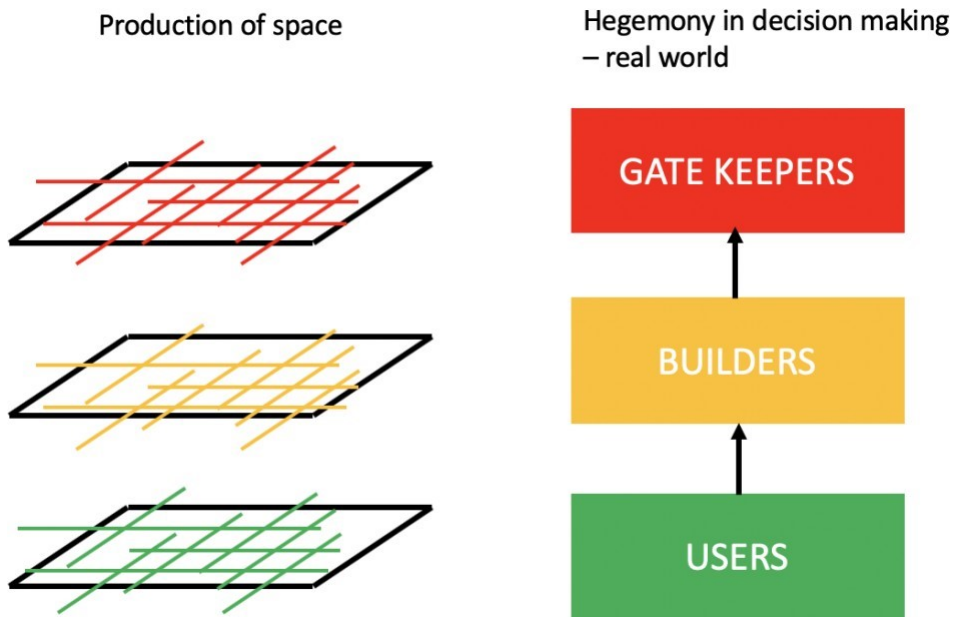
**4. learning where you are** (the context level of the game, state of realisation), at this stage, big ideas in the game are appreciated, for instance, the virtual world I create in minecraft will eventually shape lives of many others and there is only so much I control/influence

**3. learning why** (the strategy of the game), i.e. why should my virtual world look like this, causes and effects...;

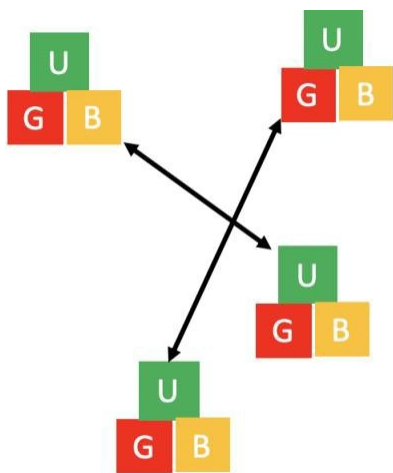
**2. learning what to do and what not to do** (the rules of the game), i.e. one needs to protect oneself by building a home, or to be back home before dark

**1. learning how to do something** (the moves of the game), i.e. how to move blocks in Minecraft to build a virtual world

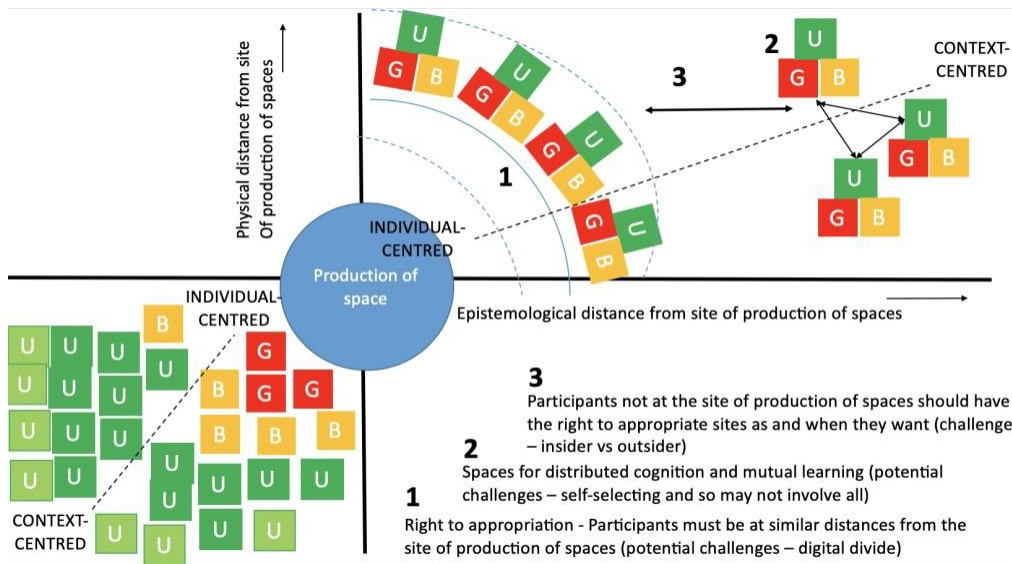
**Figure 2:** Typology of learning (Prensky 2002)



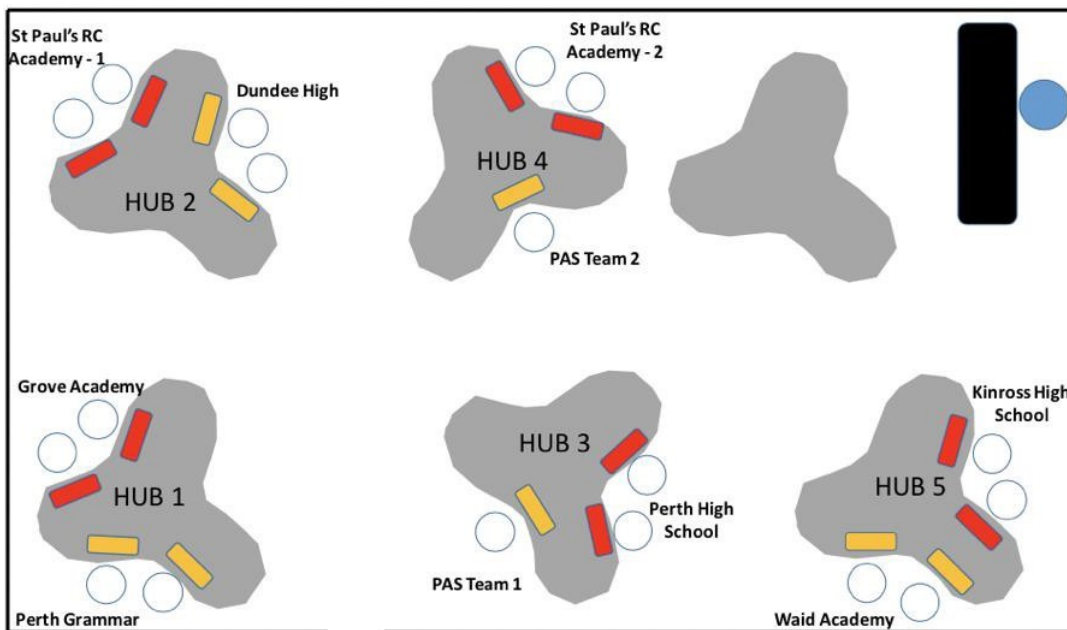
**Figure 3:** Contemporary hierarchical decision making approach in engagement



**Figure 4:** A decentered decision-making approach in CLE (constructivist learning environment) space



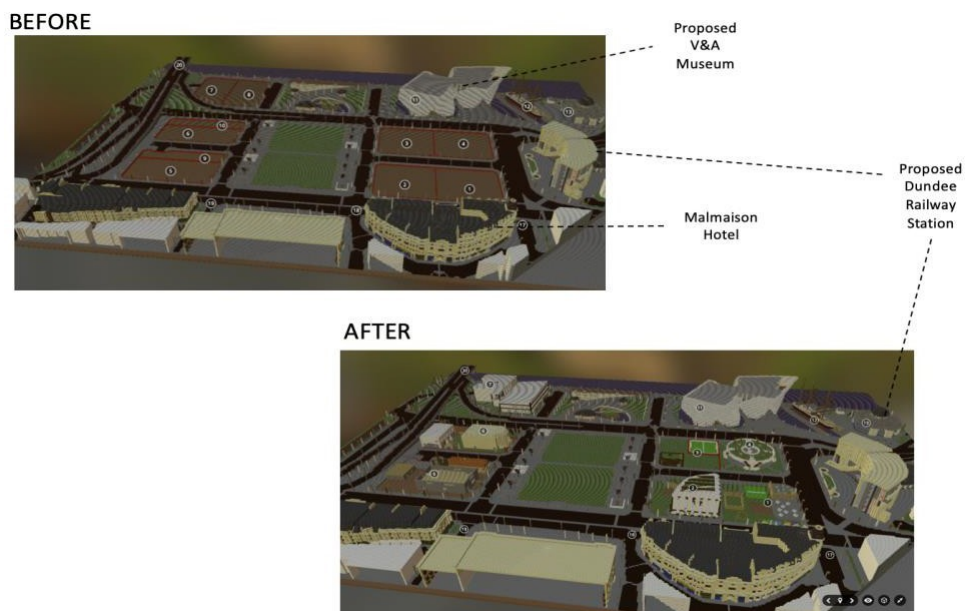
**Figure 5:** Production of space in CLE space - lower left quadrant signifies current approaches to engagement with a hierarchical structure with gatekeepers with greatest proximity to where knowledge is produced, whereas the upper right quadrant conceptualizes an ideal 'constructivist learning space' where a decentered structure permits equal distances from the sites where problems of the city are identified and knowledge for designing futures are produced.



**Figure 6:** The Constructivist Learning Environment



**Figure 7:** Constructivist learning environment in pictures (Photo credits: Tracey Dixon)



**Figure 8:** Re-imagined Dundee Waterfront



**Figure 9:** Examples of designs created by school teams in Minecraft