

# **Investigating agentive urban learning: An assembly of situated experiences for sustainable futures**

Andrew Morrison, Ola Erstad, Gunnar Liestøl, Nicholas Pinfold, Bruce Snaddon, Peter Hemmersam & Andrea Grant Broom

Corresponding author: Andrew Morrison ([andrew.morrison@aho.no](mailto:andrew.morrison@aho.no))

Prof. Andrew Morrison is the Director of the Centre for Design Research, Institute for Design, the Oslo School of Architecture and Design (AHO), Oslo, Norway.  
[www.designresearch.no](http://www.designresearch.no)

Prof. Ola Erstad is Head of Department of Education at the Faculty of Education, University of Oslo, Oslo, Norway.  
[www.uv.uio.no/iped/english/people/aca/olae/](http://www.uv.uio.no/iped/english/people/aca/olae/)

Prof. Gunnar Liestøl, Department of Media and Communication, University of Oslo, Oslo, Norway.  
[www.hf.uio.no/imk/english/people/aca/gunnarl/](http://www.hf.uio.no/imk/english/people/aca/gunnarl/)

Prof Nicholas Pinfold is a lecturer in the Department of Town and Regional Planning, Cape Peninsula University of Technology, (CPUT), Cape Town, South Africa.  
[www.cput.ac.za/academic/faculties/informaticsdesign/departments/town-and-regional-planning/staff](http://www.cput.ac.za/academic/faculties/informaticsdesign/departments/town-and-regional-planning/staff)

Mr. Bruce Snaddon is a Senior Lecturer in the Department of Design, Faculty of Informatics and Design, Cape Peninsula University of Technology (CPUT), Cape Town, South Africa.  
[www.cput.ac.za/academic/faculties/informaticsdesign/departments/graphic-design/staff](http://www.cput.ac.za/academic/faculties/informaticsdesign/departments/graphic-design/staff)

Assoc. Prof. Peter Hemmersam is the Director of the Centre for Urbanism and Landscape Studies (OCULS), the Oslo School of Architecture and Design (AHO), Oslo, Norway.  
[www.oculs.no](http://www.oculs.no)

Ms. Andrea Grant Broom is a lecturer in the Department of Design, Faculty of Informatics and Design, Cape Peninsula University of Technology (CPUT), Cape Town, South Africa.  
[www.cput.ac.za/academic/faculties/informaticsdesign/departments/graphic-design/staff](http://www.cput.ac.za/academic/faculties/informaticsdesign/departments/graphic-design/staff)

## **Abstract**

In this article we explore the dynamic between the pedagogical and the urban, attending to 'agentive urban learning'. By this we mean processes by which young people build agency in the urban context, in using the resources of the city to develop their own agency and of developing agency to act within the city. By agency, we refer to the capacity to imagine and act to create individual and collective futures. Our interest is how young people develop such agentive urban learning themselves and how it might be enhanced pedagogically at school and university. Three case studies explore different facets— the first on how young people themselves develop this agency in situated settings and the tools that they use to reflect upon the future; the second how digital tools might be used to enhance students' understanding of the city as a site of change, in this instance, climate change; the third how such agency might be developed collectively in partnership with other city dwellers. We conclude that a diversity of students' engagement in urban contexts of learning offers ways from which to further investigate how identity, setting and stakeholder relationships matter as part of potentially sustainable agentive learning futures.

## Introduction

In this article we explore the dynamic between conceptions of education and contextual issues within cities, paying particular attention to what we call ‘agentive urban learning’. This is understood as those processes by which young people build agency in the urban context: using the resources of the city to develop their own agency and developing their agency to act within and on the city. By working with the concept of agency, we refer to young people’s capacity to imagine and act to create their own and collective futures; and by drawing attention to this as an urban practice, we are paying particular attention to how agency may be realised through transformations and practices that happen in places (Rasmussen, 2012), mediated and supported by the physical (Ellsworth, 2006) and digital infrastructures of the city (Liestøl & Morrison, 2014).

The concept of agentive urban learning as a transdisciplinary idea brings together and assembles (e.g. MacFarlane, 2011) insights from design, pedagogy, urban studies and critical pedagogy. It draws on a range of theoretical resources, for example, Edwards & Mackenzie (2008) on agency in learning; Facer (2011) and Osberg (2017) on educational futures; Bringle et al. (2004) on service-learning; Freire (2005) on critical pedagogy; Sanders and Stappers (2008) on co-design as well as Haaspasari (2016) and Salama (2009) on transformative pedagogy. These diverse insights draw attention to questions of power, of ethics, to the relationship between learning and the future, and the processes of developing identity and belonging.

In an age of claims for ‘smart cities’ (e.g. Marvin, et al., 2017), dominated by discourses of infrastructural and technical determinism, it is ever more important that the connections between agency and urban learning are better understood; and that the roles of educators, designers and researchers in facilitating agentive urban learning are explored.

To that end, this article draws together insights from our own collaborative, experimental work as educators, designers and researchers who have been working with this broad concept of agentive urban learning. Here we make connections within and across two cities and countries across three case studies. These three cases from Norway and South Africa are research projects in which we have sought to understand and to support students’ experiential and interpretative experience of agentive learning in the city. The projects have involved upper secondary school, undergraduate and master’s students, as well as stakeholders within a range of urban communities and expert participants.

Our core intention in this paper is to explore how a pedagogy of agentive learning may be theorised and realised in a range of urban settings. In particular, we want to discuss how students’ agency can be enabled to flourish in context of learning in, with, from and through the city and how such learning can be supported by their own digital resources and reflections, by intentional interventions and mediations, and by collective pedagogic practices in the city.

Overall, this article seeks to provide an emergent space for discussing linkages and relations between learning and studies of the city in relation to questions of agency, pedagogy and mediational tools. First, we explore the conceptual bases of the idea of

agentive urban learning before second, discussing the methodologies we employ to study and provoke such learning in our own work. Third we discuss the three cases that are prompts for our analysis before finally, reflecting on our understanding of the significance of agentive urban learning in both educational and urban studies.

## **1. Conceptual concerns: Learning and agentive selves in urban settings**

The traditions of critical pedagogy and co-design that we draw upon in this paper, lead us to view agentive urban learning as an activity of making and shaping that is dialogical, participative, questioning and reflexive. In the context of the contemporary city, however, it is crucial that learners' agency is not seen as essentialised or individualised but as embedded in context and deeply tied to social practices and structures of meaning making.

Socio-cultural theories of learning, in particular, draw attention to processes of negotiation, meaning making and learning in which young people come to operate as 'agentive selves' in *situated* cultural practices (Lave & Wenger, 1991; Gutierrez & Rogoff, 2003; Hull & Katz, 2006; Rajala et al., 2013). Such cultural practices are increasingly understood as dynamic, distributed across space and time (Morrison, et al., 2013; Erstad & Sefton-Green, 2013) and, with the advent of mobile and social media, have taken on a distributed, location based and self-directed character, offering 'new mobilities' (Leander, et al., 2010). In such contexts, communities of cultural and technological diversity represent different opportunities and barriers for participation, engagement and transformation for young people in processes of re-imagining the urban (Amin & Thrift, 2002) and learning to 'see like a city' (Amin & Thrift 2017).

Young people's realisation of their own agency through these processes, may draw on a mix of media, narrative, fact and affect as part of the dynamic process of co-constructing identity, interests and knowledge. How they give body and voice to their views can be seen as much in action as reflection, demonstrated in practices that bring together multiple activities in a form of 'cosmopolitan' practice (Hull & Stornaiuolo, 2010; Stornaiuolo, et al., 2017).

Such agency, however, can also be realised via educational interventions, through the design of curriculum and learning activities and events that are a part of an experimental and 'change laboratory' mode of providing means and conditions to facilitate learning activities and outcomes (Haapasaari, et al., 2016). Such interventions need, however, to pay attention to the distinctive features of learning in the city.

Here, we draw on recent work in urbanism that draws attention to the city as an imperfect and messy setting, infused with the daily agency of its dwellers (Hou et al, 2015), to the city as a site of potential 'learning pathways', defined as '... physical, social, urban, virtual and deterritorial spaces and places where structured and unstructured modes of learning, social interactions and re-presentation of knowledge is orchestrated largely in a self-organized manner' (Bannerjee, 2010: 7). In particular, we draw on a recognition of the city as a contested set of assemblages that need to be disambiguated to 'expose, evaluate and democratise the politics of knowing cities by placing learning explicitly at the heart of the urban debate.' (McFarlane: 2011: 75).

This conceptual framework draws our attention, therefore, to the lived and negotiated experience of learning in the city, to its mediation and distribution via digital tools, to contested and stratified contexts in which young people will be operating. It focuses our attention as pedagogues and designers on the question of how these tools and settings can be mobilised to engage young people in thinking critically and constructively ahead of the world before them. In other words, in developing agentive urban learning, we are interested in developing an ‘anticipatory pedagogy’ that focuses on how urban futures are being imagined and made (Facer, 2011; Osberg, 2016).

Attending to agentive urban learning also means paying attention to how participants and stakeholders are included in processes of urban change at a time when interests of urban developers, planners and policy makers may align closely in market and profit (see also Manchester & Cope, this Special Issue). How young people may become more active and productive in articulating their own agency with wider communities, may become particularly important in escaping historical constraints and shaping different futures (e.g. Costandius & Botes, 2018).

The overarching term, *agentive urban learning*, therefore, encompasses the dynamic between young people’s learning and lived experience and the contexts of cities with wider notions of dwelling and active, participative citizenship.

## **2. Methods: Researching agentive urban learning from multiple perspectives**

This paper reports on three case studies drawn from a wider body of work that focuses on design-centred-pedagogy and students’ agency. The cases have been chosen to highlight three different aspects of what may be central to agentive urban learning: first, to accentuate the forms of agentive urban learning visible as students move through the city and transition from home and school; second, to discuss the potential of locative media to support the development of students’ engagement with change in their city; third; to explore the potential of students to engage actively with city planners and planning decisions in partnership with communities and as active citizens.

Qualitative in character, our research works with methods drawn (Kelly, et al., 2008) from several disciplines: media, design, urbanism and education. These methods move between co-creation and innovation, site specific studies and studio and post-field reflections. They include: close collaborative and interventionist work (e.g. Gutiérrez, et al, 2016) with urban youth in their contexts of mediated meaning making, 2); digital design and foresight methods (Fuller & Loogma, 2009) in a social constructivist approach to shaping prospective inquiry; and consultations with stakeholders in urban community settings. Methodologically, we have employed ethnographic, exploratory inquiry and action research perspectives.

In Case 1 we use ethnography as our ‘logic of inquiry’ (Green, Skukauskaite & Baker, 2012) to describe how teenagers in Oslo express their ‘agentive selves’ through exploring the dynamics between their own identities and the specific urban settings in which they are living (Erstad, 2013). The case is drawn from a longitudinal ethnography that traces the lives of 60 students over 2 years moving from home, to school, to personal activities (Erstad et al., 2016). The study is based in Groruddalen,

a valley in north eastern Oslo characterised by its mix of industry and its historically working class community, which has, in the past decade, become a suburb with one of the largest immigrant populations in the country encompassing a diversity of origins and languages. In the case here, we focus particularly on the experiences and insights of two students with very different ethnic backgrounds whose own photographs and explanations point to key issues for them in negotiating their identity. The data comprises fieldnotes, interviews with all informants four times over a two-year period and data collected by the informants themselves about their own lives such as diaries of 'a week in my life'. We also had access to students's mobile phone photos, some of their social media activity and annotated maps of how they moved around the community, as well as short explanations of places that have specific significance in their upbringing.

Case 2 takes an interventionist approach, experimenting with digital media to explore how students can engage with simulations to reflect on their own and their communities' potential futures in a particular site in the city. This experimentation drew on a body of applied methods on digital 'situated simulations' (Liestøl, 2009; Liestøl, 2011) in conjunction with designers, experts, educators and students (e.g. Liestøl, et al., 2011; Liestøl & Morrison, 2013; Morrison 2014). We drew on methodologies from design fiction, foresight studies and futures literacies. The emergence of design fiction as a broad and mixed category of foresight, conjectural settings and projected scenarios provides a framework from within which to develop a situated simulation cast in the future (e.g. Liestøl, et al., 2015; Morrison, 2018). These simulations connect notions of future change with participants' local settings. This is needed if students are to anticipate, approximate and aspire to futures that might be realised through stance and actions that differ from 'business as usual' today. The case involved a class of 28 high-school students (9th grade, aged 14-15) from a central part of western, largely middle-class, Oslo. The case was part of a wider collaborative research and learning project negotiated between the school and the the University of Oslo in the same suburb. A week long fieldwork activity in autumn 2014 was co-designed between three researchers and one teacher as part of a science class. The school, suburb and the Oslo Opera, the site of the experimentation, are three short metro stops apart and a familiar part of students' lives. The on-site experiment was split into three related activities: 1) general classroom teaching about climate change, 2) a field trip to the Opera roof to test a situated simulation application, and 3) group presentation back at school a week later.

In Case 3 educational and participatory action research methodologies were adopted to create dialogues between students, educators and community members in relation to urban planning activities and processes in Cape Town. The case refers to a wider three-year service learning project that develops education and community partnerships around learning outcomes that broaden a student's disciplinary knowledge and sense of civic responsibility in response to the needs of a specific community (Bringle et al., 2004; Lazarus, et al., 2008; Amin & Cirolia, 2017). This project drew 35 undergraduate students and members of a poor, informally housed urban community into a space requiring the building of trust and negotiation around issues of privilege. The student cohort consisted of 13 females and 22 males, many coming from beyond Cape Town's environs. Having started their tertiary education after school, the average age was 18 years old. Students' home languages included English, Afrikaans and IsiXhosa. The service-learning component of the semester

course involved 20 hours of community engagement. Students spent one day a week (approximately three hours a day) with the community over a period of eight weeks. Such courses are key strategic part of university community partnerships in the western Cape.

None of the students had grown up in an informal settlement and were mostly from a more prosperous, formal urban background. The settlement was characterised by being built without planning permission, using found materials, and structured outside of building and safety codes, with water only accessible at central points. The informal settlement is thought to house 90 households (approximately 450 residents). The main purpose of the collaboration was mapping and enumeration that was negotiated between the course leader and community committee members through a non-profit Community Resource Centre (CORC). Students were invited to keep a record of the engagement through diaries. Pedagogically, active engagement with communities seeks to verify knowledge through actual experience and by facing issues in context, not all connected to given outcomes.

Taken together the three cases point to a number of key aspects that may be included in a wider view of agentic urban learning: students' personal identity building in specific urban locations, their reflective uses of tools and technologies in understanding the changing climate of the city, to learning through collaborative processes of working with the needs and views of a variety of community stakeholders.

### **3. Understanding Agentic Learning Through Three Case Studies**

#### ***Case 1: Identity and agency in urban settings***

In our first case we explore how identity negotiation plays a part in developing late teen and young adults' agentic selves as they negotiate key transitions between home and school, between schools and from schooling to working life or higher education. In particular, we focus on how two 18-year olds, one boy and one girl, go about constructing their identities as part of community life in one specific area of the city of Oslo.

Drawing on material from a larger body of qualitative data gathered and reported elsewhere (Erstad, et al., 2016) these two examples have been selected out of a corpus of 60 young people who participated in a two-year fieldwork. These two participants shared experiences of growing up in this part of the city and going to the same school, but also differ in their cultural backgrounds and how they use community resources to develop a sense of self and in their interpretation of how these spaces within the larger city have significance for their identity formation.

(insert Figures 1, 2 & 3 here)

The first example, of Khalida, an 18 year old girl born in Morocco, concerns her reflections on her identity within this particular part of the city. Figures 1-3 show three photos Khalida took as part of documenting what mattered to her in her daily learning and her longer-term aspirations in the city. She explained that the first image shows the upper secondary school that she had dreamt about being able to enter when

she was a very young girl and that she finally entered when she was 16. Figure 2 shows the sports areas close to where she lives where she meets friends. In an accompanying text Khalida explained that sport occupies a large part of her life and is important for how she sets herself goals to succeed in school subjects. Figure 3 presents a photo she took inside the public library in her community. She observed that the library:

has had enormous significance in my growing up. Here I have borrowed books and it is thanks to those books and what they have introduced me to that I am the person I am today. I went there 3 times a week. The library was the door to a new world.

In this respect, Khalida is not unusual. Many of our interviewees in this study took similar photos and wrote explanations of how these spaces had specific meanings in growing up in this community. The qualities that were emphasised in these important places by our informants were mainly about strong connections with families and friends. Even though many of them had plans to move out of the area, either to other parts of the city or internationally they all had strong ties to their local community and the spaces they referred to as important to them growing up.

However, Khalida was also an example of how several girls growing up in her neighbourhood saw their own futures within this specific area of the city. In an interview she explained how she had decided to become a teacher, and that she had plans to work in a school within her own community:

I then got a teacher that gave us games and things like that and she was really patience with me. So I thought, [I could] give back sort of ... So I thought if I become a teacher, I can give back. Since I am sure there are children that are in the same situation as me, [children] that thought the same as I did: 'No hope to succeed at all'. To give them back that hope! (Interview, girl, 18 years old).

Khalida reflects back on her own education in primary school when she experienced a very patiently teacher who introduced alternative methods to help her reading and writing. Khalida then expresses what some researchers describe as a 'debt of gratitude' (Leirvik, 2014, p. 7), often referring to some sort of gratitude to specific people that means something specific for them, but also to the community itself. By becoming a teacher Khalida frames her future role in the city as drawing on her own experiences to help other young people with multicultural background who struggle to shape their own identity. She reflects on her own future identity and her own role in her community, as a way of providing opportunities for young people in the same community.

(insert Figures 4, 5 & 6 here)

The second example, of Mathias, concerns an 18-year-old boy of Samí background and closely connected to his family and arctic traditions, who has grown up in the same neighbourhood as Khalida. Mathias represents one of the ways that students have themselves gone about 'mapping' their own daily urban experiences as young people, through a form of common 'auto-photography' practice on social media such as Instagram.

In Figures 4-6 Mathias took photos to show where he lives with his mother and others of a graffiti artist friend making a new painting on a wall with permission from the local community. Mathias also provided an annotated map that shows how he moves mostly within a small radius within the community, between home, school, different leisure activities and meeting friends. In interviews Mathias explained how these places had formed him as a person and how he became engaged in rap-music and graffiti through his friend's network, sometimes also travelling to other parts of the city. Of special importance was the local youth club where he met friends, recorded his music and started performing on stage. After a while Mathias performed at youth clubs in other parts of Groruddalen. He also became part of a larger network of rappers in the area. In one of the interviews he explained:

I was probably not the smartest at school, but what I did with music that was what I could do, and there was no one that could do that better than me at that time. I felt like, this is my thing. (Interview, Barnsley upper secondary school, 2012).

Mathias showed us the stage at the youth club where he had begun his performances as a rap artist. He proudly recounted how several hundred young people were cheering him on while he was performing. All this seemed to strengthen a certain kind of identity for him, building not just personal self-confidence, but an awareness of his role in acting widely in the social world of his peers:

It is fun. It is probably the strongest and coolest experiences I have had, when you are on stage and there is strong pressure [trøkk] from the audience and stuff. There is not a lot that is stronger than that. (Interview, youth club, 2012).

In a fieldnote when visiting the youth club with Mathias we wrote that 'When showing me the recording studio and the performing stage it becomes apparent that this place has meant a lot for him in his teenage years, where he could express important interests that he could not express in school.' (Fieldnote, youth club, 2012). However, as part of Media and Communication studies in upper secondary school Mathias takes advantage of his experiences from this youth club as part of a school project about his two graffiti artist friends, where the importance of this youth club for several youngsters in the community becomes apparent. For Mathias the youth club and rapping offered a way to be a person, to create an identity based on the confidence that he was good at something.

In these examples, we can see that students' identity and agency emerges in interaction with the city and specific local characteristics. They move through the valley, access its social and cultural facilities and engage in shared meaning making that is important in their development of a sense of who they can be and their sites of potential agency within the city.

### ***Case 2: Situated simulation and urban climate change***

In this case we explore how digital technologies can be used as pedagogic devices to enable young people to make connections between the past, present and future and to reflect on what this means for their understanding of the city, how it may change and

their role in these changes. While Case 1 is descriptive of what young people already do to make connections and build agency, this case shifts to a focus on how these processes might be enhanced to enable young people to think creatively about both the city and their individual and collective agency, and the sorts of digital tools that might be useful to do so.

The example is drawn from a larger project *Oslo Opera 2222* in which the overarching focus is on climate futures and the city some 200 years beyond today (Liestøl et al., 2015; Smørdal, et al. 2016). Here, we used a ‘situated simulation’ to prompt reflection amongst a group of 9<sup>th</sup> graders (14-15-year-olds) about climate futures and the city. Situated simulation is a form of Indirect Augmented Reality that allows users to make connections between the past, present and future by way of digital overlays on the present drawn from past events and future scenarios. The focus on climate change for the simulation combined with the physical location of the Oslo Opera Building (which has a plaza sloping directly into the city Fjord) was seen as a means of drawing students in the city of Oslo into a discussion of the results of rising sea levels and temperatures.

This AR simulation, in various stages of its development within an ongoing research project, has been tested both with a small group of media students as well as a class of 9<sup>th</sup> graders. The ‘trial’ with 9<sup>th</sup> graders was split into three related activities: 1) general classroom teaching about climate change, 2) a field trip to the Opera roof to test the application, and 3) group presentation back at school a week later.

The assignment was to use the *sitsim* AR app as a means to document the future effects of climate change in downtown Oslo. Students used smart phones and tablets using GPS technology. Clues and questions were posted in the app about action and events between 2015 and 2222. In particular, certain features were included to encourage learning that connected the student’s embodied experience of being in place with their explorations of a potential future scenario for that place. These included: flag-like hypertext links with names (e.g. the appearance of a flower from the Mediterranean in the 2222 scenario) that were placed inside the virtual environment and distributed spatially so that they can be ‘found’ by children as they move around; these links allowed students to add written input, audio and photo, and links to online information. At the same time, students were organized in small groups of 3-5 and each student in the same group could see an avatar with name of collaborating students. Chat and commentary functions allowed collaborative communication within a group (Smørdal, et al., 2016: 31). This made it possible to easily locate group members on a crowded Opera roof and to connect with each other during the process.

Based on features in the app students wrote each other messages, recorded audio, wrote notes, took now/then pictures and placed hypertext nodes inside the environments. These nodes asked questions about possible futures and offered clues, including, for example: why there were exotic plants growing on the site, why very tall although abandoned skyscrapers appeared in the city centre, and what a flickering artificial light in the distance might indicate

When back in the classroom each student group had 10 minutes for a plenary presentation giving their interpretation of what had happened to Oslo and its people

during the period 2015 to 2022. In these presentations they used the app to document their problem solving, added links, composed snapshots combining the present and future scenarios. This was video recorded and students answered a questionnaire about the overall learning process. One pair found the futuristic visualisation a little boring (some iPads had problem with the electronic compass and orientation) and that the graphics could have been more advanced. The majority found the experience of using the app to explore the potential future of the urban space very interesting. They stressed the fact that they could see the potential future instead of ‘just reading about it’ (female student, 14 years), and that the experience was novel as a student said she had ‘never done anything like this before’ (female student (2), 14 years).

The class teacher reported that the enthusiasm among the students were unusual and that students manifested unusual creativity in contributing content to the virtual and real environment as well as their interpretation of the future history of Oslo over the next 200 years. The flickering light in the distance was interpreted by one group as a solar-powered OLED light that refused to shut down, while another group interpreted it as a camp fire because people now were again living like hunters due to the breakdown of advanced civilization. Smørdal et al. (2016) elaborate on the situated and experiential uptake of the *Oslo 2222* sitsim application with the upper secondary school science students, documenting how the process enabled students to make added connections to curricular subjects, taking the locative aspects of the urban climate change experiment into learning activities.

(insert Figures 6 & 7 here)

Overall our goal was to involve students - themselves active users of mobile technologies in their own daily lives in and out of formal school settings - in engaging individually and collectively in investigating aspects of the context within which they are moving. This movement occurs physically in the present and on location and digitally in either the past or future, through virtual overlays. The design was geared towards students’ active participation at the venue. Their additions into the digital environment provided specific views from their own experience of shifts between a mediated dystopian future and the physical materiality and seeming comfort of the present. Using locative tools, students’ authoring within the sitsim app extended beyond the typical school trip. It provided them with their own inputs and annotations for discussion back in the school so that they were further able to reflect together on the effects of climate change on their own known city centre and the need for wider engaged critical debate as part of their own immediate learning.

### ***Case 3: Learning together in an urban community***

While Case 1 focused on individual agentic urban learning and Case 2 focuses on a digital intervention to promote the processes of ideation that may support individual and collective agency, our final case explores how over a sustained period, young people can be supported to engage in a practice of collective agentic urban learning inspired by traditions of critical pedagogy.

Case 3 examines a three-year project conducted as part of undergraduate coursework within the Department of Town and Regional Planning (TRP) at CPUT. Grounded in a service learning approach, this practice-based teaching and learning model is

intended to broaden a student's disciplinary knowledge and sense of civic responsibility and is informed by community-led rather than top-down urban development in post-apartheid South Africa. The pilot project was established in 2013, focusing on an informal settlement on the urban fringe of Cape Town.

'Problem-posing education' (Freire, 2005: 12) in sociocultural settings brings students face-to-face with social and political factors at play. Engagement with these nested and situational problems helps develop agentive learning for students. In SA these problems manifest as deeply layered, complex and interlinked social, cultural, and economic issues. For people living in informal settlements, the indeterminacy of the problems they face appears to be insurmountable, creating a sense of hopelessness. Frustration in not knowing where to start the process of improving the situation often causes violent protest actions (see also Robin et al., this Special Issue). As this project developed over 3 years there was time for critical reflection on how its phases were unfolding, and for learning to be applied within the context of the emergent needs of community and of students. Reflection as a core part of learning in the case of this project was facilitated through student journaling of their experience and how the long-term aims of the project were being served.

The Flamingo Crescent community in Cape Town is comprised of homeless people who live together informally. They are generally unemployed or earn extremely low wages. Local government agreed to implement a basic in-situ services upgrade which includes sewerage, electricity, fresh water and grey water drainage. This type of upgrade is referred to as re-blocking and involves the cooperation of community members in dismantling their dwelling (shacks) and rebuilding them in a structured layout. Although social capital does exist within the community there is a need to inform/educate residents of their right to space and to convince them they are not being evicted. Only once this is done can re-blocking commence.

The task of the TRP students was to enumerate and geographically document each structure by drawing a map. In so doing the students were able to inform/educate residents regarding the re-blocking process as well as inform the local planning department. As part of the activity, undergraduate TRP students are taught Computer Aided Design and the principles of Global Positioning System (GPS) as a means 'to assist in the analyses of complex space and social issues for urban and regional planning projects' (Pinfold & Moodley, 2013). This socio-technical component of coursework became central with the course focus on service-learning and led to a partnership with the Flamingo Crescent community, various local NGOs and government to co-design the upgrading of the built environment of the settlement (ibid). This would in time lead to a relationship where the service-learning outcomes of engaged citizenry and experiential design learning, combined synergistically with the needs of the Flamingo Crescent community. Over three years, this project would involve a total of 105 students and two educators working with a core group of community members, three local NGO's and local government engineers

Critical reflection during the each phase of the project allowed for learning to be applied within the context of the emergent community and student needs. Reflective learning was facilitated through student journaling of their experience and how the long-term aims of the project were being served. Reflective sessions were an integral part of learning with group reflective sessions preferred over self-reflective sessions.

The group sessions provided space for students to performatively reconfigure preconceptions. For example, a student who was initially judgemental about informal living with little understanding of its wider social ramifications, ended up revising her point of view. The group reflective session with other students who looked at the settlement in a different way enabled a discursive space that opened up wider views on embedded political issues.

During this project students were able to think and talk empathically about others and the conditions in which they live. It became evident that the scale, scope and complexity of learning during this service-learning project far outweighed information acquisition in a classroom. One of the students articulated that:

... through a site visit and an exploration of the place, I developed a collective sense of the place that differed from my initial perceptions. My perceptions shifted from viewing the community as a static, rural geographic place to a unique and social constructed place.

(insert Figures 9 & 10 here)

Experiences brought students face to face with issues of socio-economic disparity and community aspirations of social justice. A student commented that

going to the community [exposed me] ... to bad living conditions and inadequate services ... community members were also participative as they also wanted to see themselves living in better conditions.

The close collaboration with community drew students into learning the need for open mindedness and empathy for those living in marginal and informal settings. Another student wrote that 'going and spending much time with the community was good and also important to have strong relationship with the community'.

They also associated learning as situated meaning making emerging out of longer-term relationships of trust, where value systems and other socio-political undercurrents became apparent. This resonates with Winkler's (2013: 224) recommendation that for these sorts of projects to be beneficial to all participants, they should be 'conceptualized as longer-term projects with different cohorts of students'.

There is also some evidence that there were benefits for the community from the project. A quantitative survey was done after this mapping exercise, with 41 of 95 informal households interviewed. Overall, 80% of respondents welcomed the university's initiative to engage with their community. 68% of the respondents worked well with the students during the mapping process and felt they had gained some knowledge. 95% indicated they were well informed about the re-blocking process and supported it. 100% of respondents were positive about their future and felt they would be happier in the coming years. A community committee member said 'in the beginning this place was very bad but now everyone is satisfied because they have toilets, electricity and water'.

What changed for students through agentic learning in such a context was a shift in perception that fuelled their own sense of agency in relation to what they experienced. Agentic selves co-evolved through meaningful interactions during the site visits that manifested the unfolding sociocultural dynamic in all its chaotic complexity. This immersive exposure to the everyday tangled nature of these social problems facilitated transformative and boundary-crossing learning that challenged preconceived static representations of geographical locations. The very technology of GIS mapping used by Apartheid planners was used as an emancipation tool for communities.

The case showed how learning was ‘not an individual act but an interdependent relationship built on trust’ (Baumgartner, 2001: 19). Contemporary urban planning problems in South Africa require students to deal with complexity and uncertainty, and to solve problems collaboratively, especially at community level. Students learned to focus on community advocacy and ways to lobby for better community services. In one student’s words ‘... my involvement in the community helped me to mobilize the community so that they can be activists of their own needs and also assisting in a bottom up approach in grass rooted communities’.

## **Discussion**

These cases highlight three key aspects of agentic urban learning: as students move through the city and develop their own identities through and interaction with the city; as students are supported to engage with emerging digital media to interrogate the relationship between past, present and future; and as students engage actively with the city as learners and as active citizens in collaboration with city inhabitants. Agentic urban learning is thus comprised of many inter-related elements: the wider ecology of students’ processes of meaning making that matters for their own senses of selves, the mobile media that increasingly broker links between environment, motivated interests and change; and the concerns of groups of urban citizens within broader processes of urban development and change. By bringing together these three perspectives – concerned with identity, with ideation/anticipation, with collective practice - we hope to make visible the potentially multi-faceted nature of agentic urban learning. Methodologically these three cases also illustrate diversity in ways researchers engage with young people in ways of negotiating learning pathways within and beyond communities and co-constructions of social futures.

In light of this, the development of students’ capacities to practice agentic urban learning in schools and universities needs to: take account of students’ own identity work as they make meaning moving between different cultural contexts; explore how different mediational means and tools can be used to negotiate personal and collective identity; and enable attention to how the needs of a diversity of stakeholders engaged in processes of urban transformation at a community level might be negotiated.

Our joint view as designers, educators and researchers has been to facilitate learning on the part of students in the context of the city and in relation to the changing character of urban living. The cases are congruent with the view that ontologically learning has shifted (e.g. Christansen & O’Brien, 2003) from the site of the classroom and studio to the city street, public arenas, malls, bedrooms, cafes and increasingly to mobile and locative uses of social media, within and between these settings and their

members. These are complex interpersonal, cultural and communicative changes in how students enact, perform, and engage in the dynamics and venues in their urban meaning making. In these cases, the agentive in the learning has to do with learners finding their own contextual articulations (Hull & Katz, 2006; Ito, et al., 2010) as responses to given societal and trans-disciplinary problematics. Students' critical reflection includes making connections (Ito, et al., 2013) between their own emergent understanding and contextual experiences of learning in and through aspects of the city by way of their own productive inquiry.

Students who are learning in these ways may then themselves take the experience and knowledge gleaned from these contexts into their future making (Facer, 2011). Their experiences and reflections of learning in and through the urban environment has potential to be extended into their continued and lifelong learning. Ideally too, and anticipatorially, it may be taken up into the wider work that it takes to build, change and propose improved and emergent modes of sustainably designing and living in cities, today and tomorrow.

### **Acknowledgements**

To follow final reviews.

### **References**

- Amin, A. & Cirolia, L. (2017). Politics/matter: Governing Cape Town's informal settlements. *Urban Studies*, 55(2), 274-295.
- Amin, A. & Thrift, N. (2002). *Reimagining the urban*. Oxford: Polity.
- Amin, A. & Thrift, N. (2017). *Seeing like a city*. Cambridge: Polity.
- Bannerjee, I. (2010, June). Educational urbanism. Urban, virtual and de-territorial imaginaries of emerging educational spaces. In M. Schrenk, V. Popovich, D. Engelke & P. Elisei (Eds.), *REAL CORP 2010 Proceedings* (pp. 1-16). Vienna: REAL CORP. Retrieved from [https://publik.tuwien.ac.at/files/PubDat\\_193027.pdf](https://publik.tuwien.ac.at/files/PubDat_193027.pdf)
- Bringle, R., Phillips, M. & Hudson, M. (2004). *The measure of service learning: Research scales to assess student experiences*. Washington, DC: American Psychological Association.
- Christansen, P. & O'Brien, M. (2003). (Eds.). *Children in the city: Home, neighbourhood and community*. London: RoutledgeFalmer.
- Costandius, E. & Botes, H. (2018). *Educating citizen designers in South Africa*. SUN PreSS: online.
- Edwards, A. & Lin Mackenzie, L. (2008). Identity shifts in informal learning trajectories. In B. van Oers, W. Wardekker, E. Elbers & R. van der Veer (Eds.), *The transformation of learning* (pp. 163-181). Cambridge: Cambridge University Press.

- Ellsworth, E. (2005). *Place of learning: Media, pedagogy, architecture*. New York: RoutledgeFalmer.
- Erstad, O. (2013). *Digital learning lives: Trajectories, literacies, and schooling*. New York: Peter Lang.
- Erstad, O. & Sefton-Green, J. (2013). *Identity, community, and learning lives in the digital age*. Cambridge: Cambridge University Press.
- Erstad, O., Gilje, Ø., Sefton-Green, J. & Arnseth, H.C. (2016). *Learning identities, education and community. Young lives in the cosmopolitan city*. Cambridge: Cambridge University Press.
- Facer, K. (2011). *Learning futures: Education, technology and social change*. London: Routledge.
- Freire, P. (2005). *Pedagogy of the oppressed* (30th anniversary edn). New York: Continuum.
- Fuller, T. & Loogma, K. (2009). Constructing futures: A social constructionist perspective on foresight methodology. *Futures*, 41(2), 71-79.
- Green, J., Skukauskaite, A. & Baker, W. (2012). Ethnography as epistemology: An introduction to educational ethnography. In J. Arthur, M. J. Warring, R. Coe, & L. Hedges (Eds.), *Research methodologies and method in education* (pp. 309-321). London: Sage.
- Gutierrez, K. & Rogoff, B. (2003). Cultural ways of learning: Individual traits or repertoires of practice. *Educational Researcher*, 32(5), 19-25.
- Gutiérrez, K., Engeström, Y. & Sannino, A. (2016). Expanding educational research and interventionist methodologies. *Cognition and Instruction*, (34)3, 275-284.
- Haapasaari, A., Engeström, Y. & Kerosuo, H. (2016). The emergence of learners' transformative agency in a Change Laboratory intervention. *Journal of Education and Work*, 29(2), 232-262.
- Hou, J., Spencer, B., Way, T. & Yocom, K. (2015). (Eds.). *Now urbanism: The future city is here*. Routledge. (Kindle Edition).
- Hull, G. & Katz, M. (2006). Crafting an agentive self: Case studies of digital storytelling. *Research in the Teaching of English*, 41(1), 43-81.
- Hull, G. & Stornaiuolo, A. (2010). Literate Arts in a global world: Reframing social networking as cosmopolitan practice. *Journal of Adolescent & Adult Literacy*, 54(2), 85-97.
- Ito, M., Baumer, S., Bittanti, M., boyd, d., Cody, R., Herr-Stephenson, B., .... & Tripp, L. (2010). *Hanging out, messing around, geeking out: Living and learning with new media*. Cambridge: The MIT Press.

- Ito, M., Gutiérrez, K., Livingstone, S., Penuel, B., Rhodes, J., Salen, K., Schor, J., Sefton-Green, J., & Watkins, S. G. (2013). *Connected learning: An agenda for research and design*. Irvine, CA: Digital Media and Learning Research Hub.
- Kelly, A., Lesh, R. & Baek, J. (2008). (Eds.). *Handbook of design research methods in education: Innovations in science, technology, engineering, and mathematics learning and teaching*. New York: Routledge.
- Lave, J. & Wenger, E. (1991). *Situated learning*. New York: Cambridge University Press.
- Lazarus, J., Erasmus, M., Hendricks, D., Nduna, J. & Slamet, J. (2008). Embedding community engagement in South African higher education. *Education, Citizenship and Social Justice*, 3(1), 57-83.
- Leander, K., Phillips, N. C., & Taylor, K. H. (2010). The changing social spaces of learning: Mapping new mobilities. *Review of Research in Education*, 34(1), 329-394.
- Leirvik, M. (2014). *Mer enn klasse: betydningen av 'etnisk kapital' og 'subkulturell kapital' for utdanningsatferd blant etterkommere av innvandrere. (More than class. The meaning of 'ethnic capital' and 'subcultural capital' for educational behaviour among descendants of immigrants)*. Doctoral thesis. Oslo: Department of Sociology and Human Geography, University of Oslo.
- Liestøl, G. (2009). Augmented reality and digital genre design – situated simulations on the iPhone. In R. Grasset, C. DiSalvo, J. Pair. & J. Bolter. (Eds), *IEEE International Symposium on Mixed and Augmented Reality - Arts, Media and Humanities, 2009* (pp. 29-34). Orlando: IEEE.
- Liestøl, G. (2011). Situated simulations between virtual reality and mobile augmented reality: Designing a narrative space. In B. Furth, B. (Ed.), *Handbook of augmented reality* (pp. 309-319). New York: Springer.
- Liestøl, G. & Morrison, A. (2013). Views, alignment and incongruity in indirect augmented reality'. In M. Billingham & B. Thomas (Eds.), *Proceedings of ISMAR 2013, IEEE International Symposium on Mixed and Augmented Reality - Arts, Media and Humanities* (pp. 23-28). Adelaide: IEEE.
- Liestøl, G. & Morrison, A. (2014). The power of place and perspective: Sensory media and situated simulations in urban design. In A. de Souza & M. Sheller. (Eds.), *Local and mobile: Linking mobilities, mobile communication and locative media* (pp. 207-222). New York: Routledge.
- Liestøl, G., Morrison, A. & Nitter, Å. (2012). Indirect augmented reality, situated simulations and situated learning. In (n.n.) *Proceedings of the 2nd Workshop on Mobile Augmented Reality* (pp. 23-27). San Francisco: ACM.
- Liestøl, G., Morrison, A. & Stenarson, T. (2015). Visualization of climate change in situ. In J. Shaw, H. Thwaites & S. Kenerdine. (Eds.), *Proceedings of the 2014*

*International Conference on Virtual Systems and Multimedia (VSMM)* (pp. 251-256). Hong Kong: IEEE.

Liestøl, G., Rasmussen, T. & Stenarson, T. (2011). Mobile innovation: Designing & evaluating situated simulations. *Digital Creativity*, 22(3), 172-184.

Marvin, S., Luque-Ayala, A. & McFarlane, C. (2016). (Eds.). *Smart urbanism*. London: Routledge.

McFarlane, C. (2011). *Learning the city: Knowledge and translocal assemblage*. Chichester: Wiley-Blackwell.

Morrison, A., Aspen, J. & Westvang, E. (2013, April). Making the mobile and networked city visible by design. In U. Johansson, L. Svengren Holm, M. Nyström, M. Soila-Wadman, R. Cooper & P. Atkinson (Eds.), *Proceedings of Crafting the Future, 10th European Academy of Design Conference*. Gothenburg/Lancaster: The European Academy of Design. Available: <http://www.trippus.se/web/presentation/web.aspx?evid=qTCRaT4TJ70WGtClyjpKRA==&ecid=vajn7H5hFUL31Hr+O9enuw==&ln=eng&emid=3JGsoZYZZLLPljnOTw8HmA==&view=infopage&template=desktop>

Morrison, A. (2018). Future north, nature forth: Design fiction, anticipation and Arctic futures. In J. Kampeveld Larsen & P. Hemmersam. (Eds.), *Future north. The changing arctic landscapes* (pp. 119-143). London: Routledge.

Osberg, D. (2010). Taking care of the future? In D. Osberg, D. & G. Biesta. (Eds.), *Complexity theory and the politics of education* (pp. 153-166). Rotterdam: Sense Publishers.

Pinfold, N. & Moodley, R. (2013). The Importance of service-learning and community engagement within the GIS pedagogy of the Town and Regional Planning Department (CPUT). *Africa Geo-Spatial Forum 2013*.

Rajala, A., Hilppö, J., Lipponen, L. & Kumpulainen, K. (2013). Expanding the chronotopes of schooling for the promotion of students' agency. In O. Erstad, & J. Sefton-Green (Eds.), *Identity, community, and learning lives in the digital age* (pp. 107-125). Cambridge: Cambridge University Press.

Rasmussen, I. (2012). Trajectories of participation: Temporality and learning. In N. Seel (Ed.), *Encyclopedia of the science of learning*, (pp. 3334-3337). n.p.: Springer US.

Salama, A. (2009). *Transformative pedagogy in architecture and urbanism*. Solingen: UMBAU Forlag.

Sanders, E. & Stappers, P. (2008). Co-creation and the new landscapes of design. *Codesign*, 4(1), 5-18.

Smørdal, O., Liestøl, G. & Erstad, O. (2016). Exploring situated knowledge building using mobile augmented reality. *QWERTY*, 11(1), 26-43.

Stornaiuolo, A., Hull, G. & Hall, M. (2017). Cosmopolitan practices, networks, and flows of literacies. In K. Mills, A. Stornaiuolo, A. Smith & J. Zacher Pandya (Eds.), *Handbook of writing, literacies, and education in digital cultures* (pp. 13-25). New York: Routledge.

Winkler, T. (2013). At the coalface: Community-university engagements and planning education. *Journal of Planning Education and Research*, 33(2), 215-227.

## Figures

Figures 1, 2 & 3.

Figures 4, 5 & 6.

Figure 7.

Figure 8.

Figure 9.

Figure 10.

## Captions list

Figures 1, 2 & 3. Mobile phone photos by Khaida of significant places in her own neighbourhood. She said that she took these photos because they represent the upper secondary school she dreamt about entering when she was young, the sports field she met friends and the public library where she could borrow books and do homework.

Figures 4, 5 & 6. Mobile phone photos by Mathias of the apartment block where he grew up with his mother and a graffiti artist friend, working on a wall in his neighborhood. His map shows the route from home to school (red), places where he meets friends (green) and ones where he makes music and does sports (blue circles, purple cross).

Figure 7. *The Opera2222* situated simulation in use on the Opera roof in Oslo displaying the year 2222 mode and a dystopic future of the same environment. (A video demo of the sitsim in use can be found at [www.sitsim.no](http://www.sitsim.no)).

Figure 8. A student's participative point of view in accessing and writing into the sitsim app of a future climate change scenario in 2222, Oslo Opera 2017.

Figure 9. Students learning with the community about the urban context of Flamingo Crescent. Students show residents how to measure the perimeter of their dwellings using GPS technology and how to sketch its layout.

Figure 10. Group work on understanding possible urban design processes. A cardboard cut-out was made of each dwelling. Students and community residents together placed the cut-outs on the plan in an agreed position that would best suite service delivery.