Making (Non)Sense of Urban Water Flows: Qualities and Processes for Transformative and Transgressive Learning Moments

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Abstract: Urban sustainability and justice depend upon the flow of water across complex urban space. Yet, the characteristics of urban space produce a fragmented sense of our water resources. Cape Town, South Africa, the context of this research, is one such city whose water challenges have been exacerbated by climate change-induced drought, to the extent that the city nearly shut off the water running to residents’ taps. This context presents a particular challenge for the focus of this special issue, transformative and transgressive learning, an emerging arena of thought and practice concerned with learning processes that might foster more sustainable socio-ecological relations. The empirical material for this research draws from 12 arts-based inquiry workshops run with youth in an environmental organisation over four months, exploring a local water crisis. The data were generated through an engaged arts-based research process. The paper traces how transformative and transgressive learning in the context of urban water crisis might be characterised as making (non)sense by bringing the empirical material into dialogue with five entry points of transformative and transgressive learning literature rooted in Freirean educational praxis. This paper crafts and engages the concept of making (non)sense, a way of thinking about qualities and processes of learning praxis that responds to the wicked sustainability challenges we face today, particularly in terms of a Global South perspective. I argue such a praxis needs qualities and processes that disrupt and trouble the norm in the context of the socio-ecological challenge of urban water.

Keywords: transformative and transgressive learning; urban water; arts-based participatory inquiry; making (non)sense

1. Introduction

In Cape Town, South Africa, the rivers that run down from the scenic mountains disappear underneath our roads before flowing silently and secretly into the ocean. Here too, like in many other parts of the world, our sanitation systems send potable water down the toilets, while some people live without sufficient drinking water, let alone dignified sanitation services. With perspective, these practices seem nonsensical, as we could be flushing toilets with grey water instead, and yet we participate daily in flushing a scarce and precious resource down the toilet. In 2018, Cape Town nearly ran out of water due to several consecutive dry years (made three times more likely because of climate change [1] (p. 3). As 68% of the world’s population is projected to be living in urban areas by 2050, with 90% of this increase occurring in Asia and Africa [2], and as the impacts of climate change intensify, Cape Town will not be the only city to experience this. Urban settings and the water that flows through them pose a significant sustainability concern in the future.

A challenge of mobilising a response to this problem can be found in the make-up of urban space, materiality, and ecologies. In some ways, our built environments obscure or abstract our relationship
with water and our relationships through it to other people and living systems. This abstraction is linked to the systematic way in which the water infrastructure system obscures inequality, hides links to other ecological systems, and our connections with other countries as water flows cross state boundaries. This occurs quite literally through historical systems of pipes underground, and more complexly through the multi-scaled nature of urban systems, where something experienced locally is caused by events at multiple macro and meso scales, many of which are not immediately visible (e.g., the climate change impacts on the dam levels, which route water into the cities). In countries of the Global South, where 78% of urbanites live in informal settlements, Apple [3] (p. 10) notes that ignorance about the urban water situation—the opposite of the panopticon position of knowing all—is actually part of how power is maintained and human rights abuses are excused. Water is thus a material phenomenon that should be central to our daily participatory democratic possibilities, in which we cannot participate without knowing. Without such knowledge, our material connections with and through water remain abstracted.

In a country that both aspires to participatory democracy in planning and sustainability decisions, and is facing severe water shortages, this is a significant challenge. Illustrated here is the reality that what we think about as sustainability issues are often intertwined (obscurely) with complex social and political dimensions. These dimensions of interconnection have an impact on our ability to grapple with and unpick the wicked problems in the world today, but they cannot be learned about on the basis of science-based pedagogies only [4]. The process of learning about these intertwined challenges needs to be expanded. Perhaps at the core of the challenge is the question: how do we build a praxis of learning about sustainability challenges that are partly obscured and abstracted? In her discussion of a critically transformative environmental education, Darder—a prominent scholar in Freirean transformative learning—argues that a:

Life-affirming ecological praxis is paramount … one that encompasses a refusal to adhere to political, economic, and philosophical disconnections, which falsely separate humankind from those ecological dynamics that shape local, global, regional, rural, and urban landscapes. [5] (p. xvi)

The challenges described above and the notion of “refusing disconnections” call for an approach to learning about urban water as an integrated, whole system of connections and relationships, that is more than what we can measure. This request is subtle, it is not a rejection of learning about individual aspects of the urban water system, such as grey water, water quality testing, or sanitation systems. Indeed, we need to learn how to read our water systems in all the ways that can give us more insight into how to care for them. However, it is to refuse becoming focused on one way of knowing only. It is about bringing together functional ecological literacy and “cultural and political literacies” through reflective educational praxis [4]. Furthermore, it is to develop methods of inquiry, ways of sensing, that can help us to reimagine the make-up of our world.

This paper intends to contribute to the dialogue on transformative and transgressive learning (the focus of this special issue) with the sustainability concern above. Transformative and transgressive learning can be described as an open concept, which “…intentionally generates critical thinking and collective agency and praxis that directly and explicitly challenges those aspect of society that have become normalized, but which require challenging for substantive sustainability transformations to emerge (e.g., colonial practice or epistemology, gender and race relations, social exclusion, didactical contracts, environmental injustice).” [6] (p. 51) ‘Transformative learning’ derives from a tradition of pedagogy oriented towards changing oppressive social conditions and has now been taken up at international environmental policy level [7] (p. 75). Transgressive learning refers to a kind of transformative learning [6] but emphasizing the process and qualities of crossing boundaries and going beyond. Thus, “transgressive” has come to name a slight nuance in transformative learning that is echoed by environmental learning scholars, one that is highly important at this time of global dysfunction. It is described in this issue as, “…a set of contextually diverse techniques and practices that attempt to bring about change through and in learning” [8]. Despite the applicability of these
concepts for socio-ecological system shifts towards sustainability, these traditions have not yet been substantially explored within "... sustainability and learning literature, and there is little cross cultural engagement on these concepts in the sustainability literature" [6].

Inspired by the possibility of realising practices of education that affirm life [4] in all its forms, this paper develops the notion of making (non)sense as a dimension of the transformative and transgressive learning conversation oriented toward the sustainability challenges we are facing. This notion was developed drawing upon a combination of literature and empirical material: five praxis entry points to the transformative and transgressive learning literature and an analysis of empirical material from an educational encounter with eight members of a youth environmental organisation.

The phrase making (non)sense captures processes and qualities that animate transformative and transgressive learning and contribute to the kind of learning that is necessary to unpack wicked sustainability problems: firstly, “making” relates to learning as a creative practice, a form of response and engagement rather than transmission and memorisation [6]. “Making” is also a recognition of the “...irreducibility of agency, spontaneity and intentionality in social life” [9] (p. 131) and considers an educational encounter as a relational effort. It also alludes to the praxis of arts-based inquiry which informed the workshops I facilitated. Secondly, “(non)sense” refers to a necessity of troubling, disrupting, and provocation that is required if we adopt the ontological position that our world is in process [10,11] and that learning can be a part of re-shaping it. Learning to “read our world” then requires a collective effort towards understanding our participation in reproducing unsustainable ways of being and finding spaces to reflexively change that. Finally, “sense” or sensing is significant too. Lewis [10] (p. 3) drawing on Rancier’s idea of “...recasting of the distribution of the sensible” as an act of democratic education as we learn to reorganise what has been presented to us as sensible and engage in processes of ‘dissensus’ where we realise that our way of sensing is not always mirrored by others. The concept, making (non)sense, contributes to how we learn about obscure sustainability challenges as well as materially grounding what transformative and transgressive learning looks like in the context of ecological praxis.

Who am I in this story? I have spent the last two years as a PhD student suspended between the theory on critical transformative education, extracurricular workshops with high school learners, and water justice movements. However, it is also important I bring my position as a white woman in South Africa painfully aware of how stuck she is in the existing structures that divide us. Learning to reimagine the current relationships across race and class is a constant life-long learning process. It is also part of what inspires me to explore together with young Black South Africans the question of how we might rethink socio-ecological pedagogies that transgress the effects of social positions in a country and world of polarisations.

Staying with the idea of making (non)sense, this paper brings context, theory, and empirical work together in order to articulate qualities and processes of transformative and transgressive learning in the context of urban water crisis. I begin with a description of the context, which describes the setting of the extracurricular workshops where the participants are living and learning, but also describes the urban water crisis, drawing on desktop research and experience of living in the city of Cape Town. In Section 2, I offer five conceptual entry points into the field of transformative and transgressive learning praxis to foreground a reflection of the empirical material from the educational encounter. Launching from the radical tradition of Paulo Freire, each entry point holds a tension between a critique and substantive offering of transformative or transgressive learning theory. In Section 3, I present a section on using the arts in educational praxis, foregrounding the methodological basis of the empirical material generated through arts-based inquiry. Section 4 describes and analyses empirical material in two parts. The first part exhibits the wide arc of the arts-based inquiry processes of forging relationships, mapping senses of urban water and concerns across school, community, and public communication. The second part of Section 4 dives deeply into two learning moments for how they made (non)sense. Section 4 is the heart of this paper, as it brings an in-practice perspective to the question of learning about a significant sustainability concern. Section 5 raises the reflections in
Section 4 and discusses them in relation to the five praxis entry points. Thus, this section articulates the qualities and processes needed to make (non)sense about urban water. Each section constitutes a thread that is woven together into the objective of articulating making (non)sense as a transformative and transgressive learning praxis that can address wicked sustainability challenges.

**Context of Cape Town**

In this section, I describe the context in which the educational encounters took place and how it is situated in relation to the 2018 Cape Town water crisis. It is the neighbourhood in which the youth from the environmental organisation live, attend school, and do their environmental awareness work.

There are many ways to describe the context of Cape Town. Tourist pamphlets will describe it as one of the most beautiful cities in the world. Most recently, it made the international news as the first city to run out of water. A more realistic way to describe the city is a steep slope between the rich and the poor: both in terms of altitude and an income graph. As a city of the Global South, the struggle for daily life in Cape Town can be described as a state of emergency, and yet at the same time, we need to acknowledge the “...fullness and autonomy of ordinary people doing conventional things in extreme and mundane circumstances” [12] (p. 4).

The area in which these workshops took place is a low-income area peripheral to the city, Vleiland (this is a place pseudonym). Its history is a collision of apartheid—a regime which occurred in South Africa between 1948 and 1994 to segregate South Africans by race and exploit black people for their land and labour. Apartheid emerged from was foundations of Dutch and British colonialism from as early as 1652. Today Vleiland experiences the presence of apartheid spatial planning (delineating a ‘township’ for housing black people, who were formally confined to small areas of land known as homelands), and a contemporary proliferation of informal settlements, as rural–urban migration has increased in South Africa since 1994 [13]—the number of households increased by 20,000 in Vleiland between 2001 and 2011. The percentage spread across the housing types (formal, informal backyard and informal non backyards, and other) remains constant for all categories apart from the informal backyard, showing that around 50% of residents in Vleiland lived in informal dwellings in 2011, an upward trend that continues. This would account for the fact that less than 50% of residents have piped water into their dwelling, while the rest have taps outside of their houses and some (around 5000 households) have taps more than 200 m from their house [14]. Piped water to the house is also not necessarily an indicator for permanent water access, as water management device installations have been implemented in Vleiland by the City governing structures to limit water supply according to a “minimum daily allocation” [sic] of 350 litres per household per day [15]. These devices limit the daily water flowing to a household and have been found to be problematic by a number of community-based organisations and housing social movements; they result in inadequate access to water due to the fact that the taps are shared by many more people than the daily allocation can serve, they are only installed in poor households, they have been installed without proper consultation or participation, and further burden the poor with the responsibility of water conservation, which results in an assault on dignity and health [16].

For the participants in this study, who are part of a youth environmental organisation but also working towards school leaving certificates, the school is a significant component of their lived worlds, which is significant as it occupies most of their week days and holds aspirations for their future social mobility. However, as young people within the city there is also an educational struggle, as our education systems are not serving the majority of the country—40% of learners who enter the school system do not complete it and only 6% complete an undergraduate tertiary degree. Material conditions, pedagogical approaches [17], western knowledge paradigms [18], and the emerging global ‘knowledge economy’ [19] are letting down young South African citizens. Research engaging with the everyday lived realities of South African learners reveals the ways in which dominant pedagogical approaches in schools ignore “... the complex processes by which human beings now transact their lives, amidst racialised neoliberal living in newer class formations, collapsing infrastructures, and with
desperate, unorthodox, and informalised livelihoods” [20] (p. 11). Long before the Cape Town water crisis, reached the headlines, the participants in this study experienced school closures as a result of water cut-offs. This is a small example of how experiences of education are both disconnected in terms of pedagogical approaches and yet embedded in precarious living conditions.

The participants who joined me in this research are living at a time in the history of South Africa that has failed to transform in a way that is just and sustainable. It must be acknowledged that the idea of “transformation” in this country has been run into the ground in the 25+ years since the advent of democracy in 1994, by the immanent failure to realise the hoped for, deeply grounded just transition from the apartheid era. The result is that the country is seeing a rising voice of young people calling for decolonisation instead of transformation [21]. This in some ways makes the use of transformative learning theory in South Africa contested, if not ironic, especially if the concept of transformation is used unproblematically. I therefore am careful to engage the term in the spirit of intention produced by, and for what is left from, more radical education traditions occurring within South Africa, embraced by intellectuals and teachers who fought apartheid in their classrooms [22]. I use the term as a contrast to the violent education systems that participated in the segregation of our country. As we think about transformative education and learning today, it is important to understand how it emerged in historical educational struggles.

This section has described the historical and material context in which the educational encounters discussed in this paper took place. The context is an urban site characterised by the Global South [12] and thus an important context in which to listen and from which to grapple with the possibilities of realising deep and just sustainability.

2. Theorising (Non)Sense making: A Root and Shoot of Transformative and Transgressive Learning

This section presents and discusses five theoretical entry points on transformative learning as a basis for critical reflection on the educational encounters and a basis for considering the emergence of the transgressive dimension. If we think of transformative and transgressive learning as battling the stubborn structures that keep us in an unsustainable loop, one of the theories we might benefit from engaging with is notions of transformative that exist in the radical and critical education traditions rooted with Paulo Freire. Under what is becoming known as transformative learning or radical pedagogy, thinkers and educational practitioners have been grappling with unsticking the structures of oppression and global capitalism for some time [23,24], a complex phenomenon that has been identified as a root cause of many of our sustainability challenges today [25]. Thus, I delineate the stream of transformative learning that is rooted in the radical pedagogical tradition of Paulo Freire, not without critique and continuous need for reinvention [23,26,27]. In parallel the discussions in this issue Mckenzie has distinguished transgression as a second kind of ‘critical education’ from that of Freirean transformative learning, as it captures a quality of rupture [28]. A key question that remains constant within critical education is, “… how and why society functions in the way it does to create mass poverty, the ever-widening gap between North and South, the continued displacement of people globally, the constant rape of the earth for profit, and persistent structures that create social injustice along the fault lines of gender, class, race, ethnicity, sexuality, and ability/disability.” [24] (p. 5).

This section offers five points of engagement with transformative learning theory. Each point was crafted in order to achieve two things: firstly, to clarify some of the ways transformative learning has been mis-used and secondly, to offer substance to how we might conceptualise it anew. I did this to show the continuity of thought on this matter for how it has informed theory and practice in education. Thus, in the format of this section I hope to maintain the tensions that help us to work carefully with theory in context.

Point 1: embrace complex social–material life. We need to embed our learning processes in the socio–political–material realities of our world, as learning processes are not found in a “vacuum” [28] (p. 215). Freirean transformative learning has roots in the historical–materialist ontology
of Marx—seeing ‘individuals in social relations’ rather than individuals as autonomous—while other forms of transformative learning theory arise from western liberal ontology [24] (p. 11). This, in part, calls for an engagement with lived experience, while resisting reifying individualised experience. Rather, it requires understanding the historical, material, social, and cultural forces that give rise to the experience through an acknowledgment of interrelated social (and ecological) life [23].

Point 2: resist dogmatisms. To remember that “false consciousness” is not actually false but in some ways part of the real [23] (p. 59) and understand the emergence of “wrong opinions” as one way in which the essences of our world are obscured. This relates back to avoiding the primarily ideational Hegelian dialectical approaches which move too quickly for the resolution of contradictions, failing to fully engage the reasons those contradictions have been maintained, and “false consciousness” emerges in the first place [9] (p. 123). In other words: As Carpenter and Mojab [23] (pp. 52–53) put it, certain practices of knowledge production make complexity invisible in order to “...normalize capitalist social relations”, a point also made by Bhaskar [29]. The way I understand this is that once we come to realize something is “(non)sensical”, we must understand its emergence as a “phenomenological form of capitalism” that helps to keep it in place by making it appear sensible. In Bhaskar’s terms, a step between identifying contradictions and resolving them is to trace the conditions for the thinking and practices that cause and maintain the contradiction in the first place [29]. This allows us to grapple with both the material and the ideal, the ways in which they appear sensible, and then the ways in which they are essentially in contradiction. In which case, a transformation would look something like illuminating “…the ontological and epistemological roots of our society that have created the many global crises, social issues, and individual stressors that shape our daily lives” [30] (p. 291). This stage, in a way, is about uncovering the (non)sensical that makes our unsustainable norms feel sensible.

Point 3: re-order ordering. The chronological ordering that is implicit in theorisations of transformative learning is an important point of tension in the transformative learning literature and this discussion moves us to thinking about a learning that might be described as “transgressive”. Transformative learning can be described as a circular process which begins with experience, dialogues about that experience, and then collectively moves towards a new form of consciousness. Michelson [31] argues that the ordering imposed in this conceptualization ‘purges’ experience of its ‘transgressive’ potential and can result in the potentially oversimplified storying of experience in terms of a narrative of the individual or group overcoming hardships and succeeding in the end. We might think differently in terms of understanding how our experience is sometimes disturbing, emerges from disruption, and then occurs in a world ready to interpret it.

Point 4: imagine intersubjectively. The ability to critically reflect can be supported by intersubjectivity in “...sociopolitical and historical inquiries” [28] (p. 214). Intersubjectivity here is not about entering into a collective, it is the acknowledgment of the fact that we are intersubjective before an individual subject. It is also a practice of imagination where, together with the other, we sense into alternative imaginations of the world, other than our own. These are tentative moments, in which limits become revealed to us and we are able to “undertake explorations of assumptions and understandings” [28] (p. 213). It is thus less about collective consensus and more about the tensions that arise when we discover alternative imaginations of our world with others. These tensions can move inquiries into thinking beyond appearance and more deeply towards essences.

Point 5: ripples breaking through and breaking down. Lange [30], in her suggestions for renewal of transformative education, drawing on Barad’s agentive realism, considered the energy flows that make up our world and argued that perturbations and ripples can more accurately describe the relationship between learning encounters and broader transformations, but also that perturbations that occur in learning encounters, disruptions, and disorienting realisations can be both breakdowns and breakthroughs, and there is an ethical obligation to avoid breakdowns within educational encounters. This requires a balance or perhaps a tension of critique and restoration, which begins to characterise a sensibility that may avoid despair (absence of agency) and move more deeply through the practice and theory elements of a dialectical knowledge production process ([9], pp. 120–138).
Given that transformative and transgressive learning are a set of contextual practices relating to learning towards sustainability, it is important to pause and consider what transformative and transgressive learning mean in the context of this paper. Given the complex challenges of urban water crises, transformative learning might take the form of a disruption to the way urban water is explained, made sense of, within various spaces, school, media, community, as something that is not complex. Through transgressions—disruptions and ruptures—occurring as we try to bring thought and experience together, we achieve transgressive learning and cultivate a transformative curiosity for how simplified stories emerge and how there are gaps in what we understand about the interconnected system of urban water. Thus, transformative and transgressive learning is in part the development of an inquiry method, a processual making that can move from the troubling to an understanding of how ontological and epistemological realms need to be reconciled through learning praxis that is located in social material historical realities.

Of course, transformation should not end with the notion of making (non)sense, however I argue that this is an important element in the process of reading and re-shaping our world. As McKenzie argues, “provocations to agency”, the curiosity and feeling that something does not make sense and needs to be explored further, “can be considered part of that agency” ([28], p. 220), referencing Cloke and Jones 2004. Taking into consideration the points in this section, making (non)sense is, in a way, a process and quality of “provocations to agency”.

This section has engaged five entry points of the transformative learning theory as a basis for the educational praxis which making (non)sense draws from and develops through the empirical reflections that follow in Section 4. Each point is presented in terms of how the conceptual substance can be mis-used in ways that do not correspond to radical transformative praxis, which corresponds to the development of global capitalism.

3. Methodology for Engaged Research: Arts-Based Participatory Inquiry and Reflective Praxis

This inquiry into urban water took place between March and June 2018 in weekly meetings at the public library. I, the researcher, hosted 12 workshops with a group of eight participants from a local youth environmental organization. The selection of participants was determined by learners involved in existing youth environmental organisations. As this research aimed to explore contemporary urban challenges with young people, the selection was done via invitation to learners within organisations who were interested in joining me for this project.

The generative theme of urban water was decided on in conversation with the organisation and the learners. As expanded upon in Section 1 above, the term urban water refers to a complex system of city ecology. Ziervogel reports on the lessons learned from the Cape Town drought. Given the key roles played by governance, communication, adaptive capacity and systems thinking, it is key that one way of knowing city water requires knowing complexity [1]. Thus, it is not just the technical infrastructure but the assemblage of governance, social, economic, and built environment held together in a complex system These inquiries were open ended to the extent that we would work with the complexity of the urban water system and how to understand the crisis as a function of multiple relations across scales and space. As such, the particular themes within urban water (wetland restoration, water access, water sanitation) were important as generative themes for initiating our inquiry.

The workshops were designed as a process of playbuilding, which draws on the tools of applied theatre within a broader praxis of arts-based participatory inquiry [32]. With reference to Norris’s [33] consideration of the various aims and objectives of arts-based education and research, this work was designed as a pedagogical encounter more than the production of a polished play. Arts-based research has emerged to work with complex social challenges in a way that realizes democratic processes, such as participation, between researcher and researched within research ([34], p. 7) and has been engaged as an effective praxis in grappling with socio-ecological challenges (see, for example, [35]).

Arts-based participatory inquiry can be seen as a mode of learning, as well as research which draws upon artistic mediums towards surfacing experience, questions, and imaginations as a way of
generating data with participants [32]. Through engaging arts-based modes such as theatre, storytelling, and drawing, we “...may uncover stories and beliefs that further elucidate not only what one knows but also how what one knows is transformed ...” ([33], p. 5). These data, in multiple forms, are then worked with throughout the inquiry through discussion and further representation. It is not at the exclusion of text-based artefacts or general informational media, but it is encouraging an awareness of how these are forms and aesthetics in their own right. Arts-based forms expand the tools for inquiry through encouraging play, and poiesis (making) that is the emergent meaning from process.

The use of arts in education comes with a number of tensions. One particular tension relevant to this study is the transformative nature of arts-based engagement. Baxter and Low [36] (p. 48) noted the difference between applied theatre that intervenes and inspires community action and applied theatre that can facilitate socio-political analysis of participants’ concerns, getting to the root causes. This consideration is an important one in the context of postcolonial Africa, where interventions sometimes come with sinister suggestions about what local people need. This relates in part to the tension between the pedagogical process and the artistic form. They are not independent of one another, as good art might support effective pedagogical processes, however, engaging applied theatre as participatory research does not result in a perfected play at the end; rather, it is in the process of crafting that we utilise the tools of theatre (improvisation, role play, socio-dramatic play, voicing, listening, imagining) to facilitate our learning/inquiry process. As such, we invited “... research participants and our students to move towards our art forms” [33] (p. 6). The overall arc of the arts-based inquiry process served as background here. However, the modalities included within the process widened the possibility of sense-making beyond the rational (complete, certain, and often text-based). Mediums of storytelling, improvisational theatre and dialogue allowed for the emergence of quandaries, relationality, uncertainty, emotion, and imagination, tools that might enable us to understand capitalism beyond its own terms of abstract certainty. The empirical analysis in this paper draws what our inquiry generated in terms of how urban water is known (Section 4.1) and then the process of analysing together the quandaries (Section 4.2).

The outcome was determined by the integrity of the process involving the collective in raising questions, and deliberating answers. Within the inquiry, we moved through different modes of relationship building, sharing knowledge, posing questions, engaging information, presenting answers, and back to relationship and back to questioning (See Table 1 below). As shown by the spread of workshops in column 1, they did not necessarily occur in order.

<table>
<thead>
<tr>
<th>Relevant Workshops</th>
<th>Process</th>
<th>Details</th>
<th>Activity Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>W1, W2</td>
<td>Matters of concern</td>
<td>Co-defining matters of concern from our position as inhabitants actively experiencing our urban environments.</td>
<td>Individual reflection through writing and discussion</td>
</tr>
<tr>
<td>W2</td>
<td>Generative theme</td>
<td>In conversation with organisers and agreement from learners, settled upon “urban water” as a generative theme towards further learning about our urban environments.</td>
<td>Discussion</td>
</tr>
<tr>
<td>W2, W3</td>
<td>Co-defining curriculum content</td>
<td>Co-defining curriculum content by mapping out the path of urban water from the water cycle to the sea. This helped us to map out the ways in which water is not just a natural resource but mediated by all sorts of social institutions as well.</td>
<td>Input from facilitator and discussion around a map of urban water.</td>
</tr>
</tbody>
</table>
### Table 1. Cont.

<table>
<thead>
<tr>
<th>Relevant Workshops</th>
<th>Process</th>
<th>Details</th>
<th>Activity Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>W2</td>
<td>Initial information gathering, discussing concepts and language, and reflecting upon learning</td>
<td>Engaging with information in a variety of forms: newspaper articles, audio resources, activist hand books, water and climate change information, a bingo game. This initial engagement with information provided the possibility for reflecting on learning itself, unpacking the relationship between experience, information, knowledge, and action.</td>
<td>Reading a piece of information theatre (to present key learnings to the group); discussion (reflection on what it means to learn).</td>
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<tr>
<td>W3</td>
<td></td>
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<td>W4</td>
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<tr>
<td>W4</td>
<td>Surfaces questions</td>
<td>Once we had covered a number of themes relating to urban water through the previous stage, each learner reflected upon a “burning question” that they would like to see answered as the course progressed.</td>
<td>Individual reflection and discussion around mapping questions</td>
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<td>W7</td>
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<td>W8</td>
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<tr>
<td>W5</td>
<td>Reaching for answers and dialoguing around those answers</td>
<td>Guided by the question, they selected a piece of literature from the Amanzi (water) Library and worked with information towards answering those questions. They presented their findings to the collective and engaged some questions.</td>
<td>Reading further; presenting newsprint presentation on the answer to the question.</td>
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<tr>
<td>W6</td>
<td></td>
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<td>W7</td>
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<tr>
<td>W8</td>
<td>Storying facts back to matters of concern</td>
<td>The presentation of information was brought back to the context and in relation to matters of concern in the local context of Vleiland using story forms and forum theatre.</td>
<td>Chain stories; forum theatre unpacking power</td>
</tr>
<tr>
<td>W8</td>
<td>Representing their findings</td>
<td>Animated their learnings and sentiments through short play that unpacked the water crisis: Does Every Drop Really Count?</td>
<td>Scenes based on burning questions; practicing lines and animating scenes through actions and music</td>
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<tr>
<td>W9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W10</td>
<td>Further dialogue through theatre workshop</td>
<td>Work shopped the scenes of this play with the assistance of a theatre and education practitioner.</td>
<td>Forum theatre Discussion Agit prop theatre</td>
</tr>
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### 4. Inquiring Widely and Deeply

This section presents the empirical basis upon which the concept of making (non)sense was derived and animated. It took the form of an in-depth analysis of a collaborative inquiry process, with the objective of understanding the layers behind the 2018 water crisis. This empirical material was thickly described and analysed for the qualities and processes that enabled the participants and myself to generate deeper understandings of the complex and abstract phenomenon of urban water.

Section 4.1 presents the arc of the inquiry in terms of forging relationships between myself and the learners and surfacing entry points into a discussion of urban water across the landscapes of school, community, and public communication. Section 4.2 explores two dialogues, in which we collectively analysed and problematised urban water from the data that were generated together. This empirical material was gathered from video footage, transcripts, and my own reflections.

#### 4.1. Inquiry Wide: Preliminary Data Generation

This section aims to present the setting up of the inquiry in terms of establishing the relationships between myself and the learners and generating matters that concern us within the different landscapes we occupy (school, media, community, social movements). The point of entry was water, inspired by the Cape Town water crisis.
4.1.1. Transforming Relationships

While we were meeting for the first time, these learners and I were already in a particular relationship: one defined by class, race, and age, amongst other dimensions. One learner spoke to this at our first meeting. She said confidently, “Do you know we go to bed listening to gunshots? Where do you live? It must be nice there.” [W0, reflection]. She went straight to the heart of how the quality of life is spatially differentiated in this city and country. I go back to this moment often, because it was an important realisation of what it was possible for me to know and understand. While I had experienced one close encounter with violent crime, read the crime statistics, had heard stories about the violence experienced daily in that neighbourhood, I did not know it in the way that one knows it by living it. I could leave that neighbourhood at the end of our workshop.

In another way, older white women are often associated with an authoritative and teacher role, and in some ways come with a particular environmentalism that is not always culturally relevant [36]. While an awareness of how problematic that approach is is part of the driver of my research, I had to acknowledge that I still ‘looked the part’ and brought that baggage with me. I knew that this was something I would have to work with, as I brought a process that was labeled ‘learning’, but hoped through the use of critical educator skills I have developed to be something in addition to the position of myself as a white middle-class woman talking at the learners.

Our existing relationship was also brought to my attention in a process where, at the first workshop, we all wrote down the hopes and fears for our time together. In particular, the fears articulated such as ‘not knowing’ as well as the hopes articulated of ‘reaching goals’ and ‘succeeding as a group’ led me to think about the nuance of what I was proposing to them, that we do an open-ended inquiry. My own reflection from this workshop reads:

I felt a bit silly trying to explain, . . . the idea of an open-ended inquiry. Quite rightly, the fears generated in some learners were that they may not know what is going on, or they do not understand clearly where this is going, or that they may lose interest. While I have come with the . . . intention of having a learner directed inquiry deriving from their concerns, it is potentially unhelpful for this phase of [their] life, especially in the context of a new and potentially fragile relationship across race, across age, across the space. Do they always know where they are going as they learn in the classroom? Do they direct that learning? Is it important? I guess in the short term it is. [W1: reflection]

This initial struggle reminded me practically that learning praxis does not enter into a vacuum, but rather comes into contact with existing institutional relationships. The reflection traced the way in which our encounter caused a shift in thinking from a learner-led inquiry to a relational inquiry, and the resulting consideration for my role as a responsible participant [35] (p. 70)—a leader, but not a dominator. The acknowledgment of existing institutions and relationships, in this case expectations that come with a white woman entering a predominantly black community, and how we play with institutions and relationships carefully, and transgress them in order to learn, is an important one in transformative and transgressive learning praxis. An absence of this will further reproduce the existing inequality as it plays out in educational institutions.

4.1.2. Mapping the Landscape of Urban Water

It was our second workshop and a hurried session. The learners came out of school late due to a memorial service and the room we were using needed to be locked in 30 min.

Process: I got out a sheet of newsprint and asked the question, “where does our water come from?” As the facilitator, I drew the following image, shown in Figure 1.
From initially discussing the tap, and probing how the water arrived at the tap, the response was “rain”. I drew some rain in a corner away from the tap (shown in Figure 1) and we revised the hydrological cycle, adding in some clouds, and the ocean. We slowly populated the empty space between the rain and the tap, from source to sewerage. Someone noted ground-water, I pointed out the political relationship between bulk water supply managed by National government and municipal infrastructure provision, managed by local government; a learner noted the water meters that are sometimes put onto taps to ‘prevent waste’.

This exercise was important because it alerted me to the knowledge or pieces of information most readily brought forward in relation to water and its origin. Equally, I learned about the missing links, for example, one of the key questions that emerged a number of times was:

Where does the government get the right to sell the water, since it is natural? [W4; Q5]

I had a clear role here, to fill in the gaps of where water comes from but also to link into where the learner curiosity lay, as this would be a way for us to knit together their sense-making with everyday/every night experiences.

4.1.3. The Landscape of School Knowledge

One key question that emerged in W7 was, “why do we have a water crisis if there is a hydrological cycle?” [W7: F1] This learner, in particular, expressed that they learnt that water goes around and around in a circle, so how can it run out? This question was a key (non)sense detector in the way in which urban water was being storied within and outside of school. It opened us up to discussions of the circularity of water in scientific terms, in contradiction with the linearity of water in urban space, relating back to our map of water from source to sewerage.

My review of curriculum documents showed few images that represent source-to-sewerage depictions of the water system. Instead, water sits across various subjects and is thought about in separate pieces, from disciplinary points of view. In reflection conversations with the learners, I was told that they rarely get a chance to go as deeply into water as they did in our workshops. On another occasion, they spoke about what they learned at school. They recalled that they had learned about urban water in grade 4 (age 9–10), however, they felt they were not ready to really engage with it at that age. Now, at age 15–17, they had questions and concerns about it. This phenomenon is echoed around the world, as many educators have questioned how to story the ecological crisis in schools which are organized by “curriculum apartheid” [37] (p. xiii): where topics are fragmented across different subjects. It is rare that educational institutions, with mandates to teach content within subjects, offer the space for young people to explore sustainability concerns in a way that brings together different subject views with everyday/every night lived experience.

Figure 1. Source to sewerage map.
4.1.4. The Landscape of Public Communication

In our third workshop, we engaged with various artefacts from the landscape of media and communication pieces relating to water in Cape Town: materials in the media, pamphlets from social movements, and infographics. I invited the learners to prepare a skit in response to the piece they read. This was an important process in getting an understanding of how water was being spoken about in this community, and how learners related to water in their daily lives.

For example, I learned about the tradition of throwing water over someone on their birthday (see skit in Figure 2). This experience formed an important example of saving water in one skit, where a friend was reprimanded for throwing water, as they were in a drought.

![Figure 2. A skit illustrating the tradition of throwing water over one's friend on their birthday.](image)

Another skit grappled with the concept of DayZero. DayZero was a concept in the City’s communication strategy to note the day when water will stop running to people’s homes. Instead, it will run to points of distribution where everyone will be able to collect 25 litres per day by hand. One of the skits brought up the question of whether DayZero was real or a plot:

> They [the municipality] are just lying to frighten us ... there will be a DayZero whereby we have water but we don’t have water in our taps, meaning they will just switch off our taps. So, there will be no DayZero but there will be a DayZero in our taps. [W3: V3]

The notion that “there will be a DayZero in our taps” alludes to a common tension across the city at this time, where failed trust between communities and the municipalities has led to distrust of “the drought” and suspicion that DayZero is a move by the city to take away water. The experience of this encounter makes clear to me the notion that ecological and political concerns have been conflated to the extent that when ecological information is shared in public communication, it is mistrusted as a disguise for anti-poor and oppressive political agendas (suggested by the relationship between household member and municipal officer shown in Figure 3). The fact that climate change-induced ecological change can be presented as something a-political and detached from those in power is a version of (non)sensing.
4.1.5. Reconciling Matters of Concern

We decided to work with water because that was what was requested from the organisation and the learners. However, I included a process in which the learners elucidated the concerns they had about their urban environments. Few of these concerns included water, with many of them rather falling under the broad themes, organised together with the participants, of crime, unemployment, and teenage pregnancy school dropout [W1; MoC]. However, throughout our inquiries into water, we made links back to many of the initial concerns. One example is that we discussed how prohibiting the washing of cars affected the income of some in the community. The question posed by one of the learners was, “would you prefer crime or the washing of cars?” [W5, V3]

Section 4.1 has presented the inquiry in terms of the various institutional and personal relationships through which the issue of urban water surfaced as a concern. The next section traces two moments which I describe as a form of collective analysis.

4.2. Inquiring Deeply: Learning Moments

This section details two moments of learning (vignettes) which illustrate processes of collective analysis within our water inquiry. I selected these two moments because of the way they appeared to contrast in terms of the pedagogical intentions and aesthetic mode of the engagement. The first section shares the results of a pedagogical intention to seek text-based information that would help us answer the question of why we pay for water when it is our right. The second section describes an exercise in which we told a chain story, where each participant took a turn to contribute a piece to an unfolding story. This exercise had the pedagogical intention regenerating from information overload, but in its distance from information surprisingly generated further analysis. Reflecting upon these moments of collective analysis for how they enabled us to learn more about the urban water situation served to uncover the quality and process of making (non)sense. Exploring these moments together allowed for a generative–explorative analysis of the transformative possibilities enabled in this inquiry.

4.2.1. Vignette 1: Storying Questions and Answers about Valuing Water

“Why do we pay for water when it is our right?” was one of the questions that emerged in the initial phase of our inquiry. The following section describes the answers presented verbatim by the group who grappled with this question:

If people know that they pay for water they will try and conserve water because no one wants to waste money.

We pay the cost of production … it [water] involves everyone so we have to contribute in paying the cost of the production.
We even pay water for boosting our economy. If you pay for water that money can be used for another thing in our country of which our economy can be boosted.

So, the reason why the government sells water to us is so that everyone is able to get water. If every government says that you can use water the way you want, let’s say you are at work then you cannot fetch water because you are at work it may happen that other people . . . those who don’t work can fetch water until they [the water] are done or gone in the taps. [W5, T1]

After they presented, we discussed what they had shared: I asked for clarity of the practices undertaken by those who “use water recklessly” and those who “conserve water”. Using water recklessly includes “washing cars with a pipe”, “flushing the toilet too many times”, and “letting the tap run while brushing your teeth”. On the other hand, those who conserve water put a bucket underneath a dripping tap, wash a car with a bucket, use a cup when brushing their teeth. While these acts are all important, they remain at the personal level.

The local scale continued to be the focus, with the notion that the government uses paying for water as a way to mediate between people: “So, the reason why the government sells water to us is so that everyone is able to get water” (line 4 above). Despite this statement being in contradiction with the initial impulse behind the question—having to pay for a human right—as well as the finding that water payment policies discriminate against the poor as discussed above in Section 4.1.4, this moment required careful listening. This slowing down, resisting the move away from something that seemed like (non)sense to reveal something further about the social, material, and historical conditions that explain the (re)emergence of this claim. I soon learned that the claim arose from a context in which a group of people share a limited resource: “those who don’t work can fetch water until they [the water] are done or gone in the taps” [W5, T1]. The legitimate concern in this case is for those who share taps and spend their days at work and get home to find their homes without water.

With an understanding of the experience which sat behind this claim, the discussion unfolded different experiences relating to housing contexts that characterise the South African urban landscapes. Two learners found examples that troubled the original claim; one who had experienced her household taps being turned off, showing that the requirement to pay also resulted in lack of access. Another learner asked how this idea helps in informal settlements because in that context, one cannot measure the use of water. I tried to address the absence of discussion about water limiters where, despite the crisis, the status quo of wealthy having the greatest access to water was largely maintained, as boreholes were drilled and rain tanks were installed, swimming pools were filled and dishwashing machines were run. I pleaded, “but we all are sharing the water in the end in the city, it comes from the same dam . . . so, is that helping us to conserve the water, the way we are paying for water?” [W5, T1] There was a resounding ‘no’ in response to this. It was not just the presenters, but all of us were there with our certainties, ready to argue.

This process of making (non)sense—generating a story together that surfaced the conflicts of urban ecological space—took the broader inquiry into urban water further by thinking across different experiences within the city. The original claim, that “we pay for water in order to conserve it” comes from a particular experience within the city. In a context of scarcity, where household numbers are large and sharing is hard, not paying for water has justice implications. There is the experience of being genuinely wronged, such as participants’ description of being at work all day, and arriving home to find no water. Understanding water flows through variable social experience across the city troubles even the taken for granted sense of water justice: that water should be freely available to all because there are situations where a limited amount of water being freely available will mean that some people go without.

Municipalities around the world have yet to develop a clear answer to the question posed by these learners, with many municipalities still grappling with how to realise equity in rapidly financialising and privatising local government contexts. In South Africa the lack of this is apt, as the water pricing
system further oppresses those who struggle to pay for basic services. These learners generated material to take the inquiry further by surfacing how claims could be both true and false depending on the context. This (non)sense and set of contradictions enabled us to understand the effects of layers of reality—perceptual, relational, economic, and social—that intersect within urban water flows.

4.2.2. Vignette 2: Re-Storying Wetlands

For the fifth workshop I had prepared a bingo game, inspired by an exercise I participated in at the Know Your Continent African History course hosted in 2015, with some pieces of information I had identified as missing in the previous sessions. One card read:

Bingo answer: Wetland is a land area that is saturated with water, either permanently or seasonally. It acts as a filter for water by cleaning out any excess nutrients and heavy metals. Water flows out of it cleaner than it flows into it.

When someone shouted bingo, we sat and read through all the facts, each learner taking a turn to read through their card. Towards the end of this exercise I felt the energy levels drop, the mood collapsed under the weight of the new information, new words, English words. I suggested we tell a chain story to rejuvenate the energies. I began: “Apiwe (this name is a pseudonym as are all names hereafter) was walking through the wetland and found a shoe lying on the ground, she looked up and . . . ”. The following story emerged with contributions from each learner in a mix of English and isiXhosa as we went around the circle. (The story as it is represented in this paper originates from a transcript that exists in two languages. The written story that follows was re-narrated by the researcher and the translator, where we sat together, carefully considering the meaning of what was said in Xhosa and English):

The shoe was lost by a community member who had attended a meeting on the wetland. The meeting involved a conflict between people who wanted to occupy the wetland space for housing and another group who wanted to protect the wetland for ecological purposes. Anger levels increased and a protest began. Pretty soon the police arrived and those gathered quickly dispersed, one of the members leaving a shoe behind.

Apiwe has an ethical struggle of whether to return the shoe or sell it for some money, but she put this quandary aside momentarily with the idea that she should get her friend, Phindi, a fellow organisation member to go and talk to the people who have built their houses on the wetland. She also, however, consults her friend as to what to do about the shoe. In the end the two of them, feeling greedy, decide to sell the shoe and split the money. As the shoe was a Carvela shoe, R1800 was the price of the pair so she would get half that amount.

Meanwhile, the struggle at the wetland is continuing as more meetings are held, more members of the environmental organisation go and tell them about the disadvantages of building on a wetland; “the wetland would die”, “your houses will be flooded”. Still, the building continues. Then there is a storm and the houses are flooded, the people who built there felt deep regrets and had to move.

It is discovered that the shoe belongs to the aunt of one of the members in the organisation, Onwabile. He finds out that his Aunt’s shoe has been sold for money and confronts Apiwe and Phindi. They ask for forgiveness. Onwabile takes some time to consider this. He and his aunt decide the only way that they will grant forgiveness is if Apiwe and Phindi hand over the money so the shoe can be replaced. They hand over the money and the story ends.

This story is made up of two threads, one following the object of a Carvela shoe, the other a conflict around a group of people occupying a wetland, these threads are stretched through the relationships of people and a particular urban space. The story is textured with generative themes animating the lives of young South Africans with a concern for their environmental surroundings.
In both threads there is a sense of taking/occupying and paying for something. The matter of the shoe is reconciled, forgiveness is granted, while in the wetland thread, the residents are left with “deep regrets”. The community needs land, and through their actions, neglects the recommendation not to build; the girls feel greedy for money and sell the shoe. The resolution in the case of the shoe is largely driven by the fact that there is a personal relationship between the owner of the shoe and those who sold the shoe. The relationship is different between those building houses on the wetland space and those who would like to instruct the occupiers that it is wrong to build houses on a wetland. The protagonists went to tell those building houses that it was a bad idea . . . and there is an underlying feeling of “I told you so” when the houses are flooded and occupiers feel deep regrets and move elsewhere. Perhaps we are moved to action through nurtured personal relationships and not through the provision of information. The extent to which this is possible in a contested and competitive seeking of land is questionable.

A harsh lesson is learned by both the girls and those who build houses, but the extent of the impact is different. The money from the shoe seems to be framed as greedy and excessive, while no comment is made about the need for houses. Perhaps this is to say that it is not necessarily greedy to be building a house.

There is also a theme relating to value here. It is unlikely that one could sell a single shoe and get half the price, because with shoes, as with wetlands, the whole is more than the sum of its parts. The irony in the case of the shoe in some way resonates with what it means to not understand the wetland as a broader and connected ecosystem. The oddity of a single shoe for sale troubles us in a significant way.

This story also contains a critical comment about environmental awareness raising. In this story, there is a feeling of a duty to inform the builders that there are disadvantages to building on the wetland. We know that in this context of contemporary South Africa, where the ability to live and work in the city is valued and it is rarely a situation of personal choice. Thus, it shows the ways in which environmental education initiatives without tools to grapple with the social and economic conditions remain ineffective at achieving a desired kind of behavior.

There is something about this story that encompasses the whole of urban life, young peoples’ aspirations for fashionable items, a non-superficial element of making and shaping an identity in the world. While seemingly peripheral and distant, the story about the wetland was an echo of the experiences in that community at the time, as the whole of South Africa was experiencing increased land occupations. This story added a fuller account of wetland realities in urban peripheral space, including the interrelationship with people and their drastically different livelihood and political positions in relation to urban ecological features. This presents a new platform on which we might discuss and grapple with how we can reshape our worlds.

5. Discussion

In this section I weave together the empirical analysis presented in Section 4 with the transformative learning praxis entry points in Section 2. This process of weaving distills qualities and processes toward the concept of making (non)sense as a nuanced frame for transformative transgressive learning in the context of learning about urban water.

Working with different aesthetic genres provides insight into the (non)sensing possibilities and limitations across different kinds of educational interactions. Presenting answers or reading bingo facts, in a way, brings a certainty of uncomplicated, single-threaded stories. On the other hand, collectively generated stories bring to the fore messy interconnections that make up the world. However, the process of storying exists in all genres, even thoughts that are dressed as facts. The discussion that followed the presentation in Section 4.2.1, about why we pay for water, can be seen as a kind of collectively generated story, where multiple opinions, positions, and experiences were introduced towards (non)sensing the single threaded story about why we pay for water. Thus, from an aesthetic
perspective, making (non)sense is not dependent upon a particular genre, but arises from a sensitivity to the aesthetic modes at play in educational encounters and where they enable us to go.

Collective storytelling can be thought about with McKenzie’s notion of intersubjectivity as an element of transformative transgressive learning (point 4). It is not just discussing and coming to an agreement, but an understanding of tensions and limitations as a result of imagining and disrupting each other’s certainties. As described in Section 4.2.1, I personally did not agree with the statement that paying for water helps everyone to access it, as it went against the “common sense” idea that everyone should have access to free basic water. However, resisting judgement and a dogmatic stance allowed me to develop an imagination of the social and material conditions of precarity in which this claim had a basis. Similarly, in Section 4.2.2 the environmental educators seemed to disagree with those who were building their houses on the wetland. In both cases we established the limits of sense; that having information about a wetland would be enough to change behaviour or that water should be paid for so that everyone has access. Through these we were invited to dig deeper into both the material–social–economic situation, beyond what our immediately accessible sense-making frameworks allowed for.

Multi-voiced stories emerging from collective inquiry processes work towards placing inquiries into a social–material–historical context (point 1). This process of embedding is of particular concern in the context of the South African education system, given research findings such as those of Fataar [20] that young people are alienated from their outside-of-school social lives through the pedagogical orientation of school curricula. As the example of the hydrological cycle shows (Section 4.1.3), the fragmented way in which water features across school curricula does not match the sense-making within the city or community. My reflections in this paper might add that in addition to the curriculum and pedagogical reform proposed by Fataar to address this, we find time and spaces for young people to make (non)sense of their school–life separation, through creative expression, asking questions, and grappling with what seem to be the sensible answers. Through this we may cultivate praxis of (non)sense making as a mode of reading their worlds. Thus, open inquiry into particular social and material contexts has the potential to develop a practice of making nonsense of abstracting ‘sense-making frames’ predominant in educational institutions, enabling them to become spaces for transformative learning.

The material characteristics of the urban water system agree with the scholars on how experience is used in learning; it is not sufficient to explore localised lived experience because that experience is shaped by influences in other places and other levels of urban spatial organisation (point 1). Thus, transformative transgressive learning needs to make (non)sense of lived experience, in this case by asking us to ensure that we position lived experience across scale in urban space, thereby resisting essentialising experience at the local scale. As pointed out by MacDonald [38], the urban materiality that exists in the world today is different to the rural community contexts with which Freire crafted his educational praxis. As found in this inquiry, linking local experience to spaces that are obscured from our awareness, such as dams, the story of water from source to sewerage (Section 4.1.2) is a way of drawing on information in response to missing pieces in the explanation of our experience of accessing water. The problematisation of the conventional curriculum should not be confused with abolishing information, but rather, as Spivak [39] has argued, finding a way of knowing amidst the increasing onslaught of information sharing around the world today. Through connecting lived experiences to broader scales that shape it, information can be engaged as a pedagogical move to transgress the boundaries of our local spaces and scales to uncover their shaping.

This inquiry process required time to explore the experiences and common-sense repetitions presented in Section 4.2 from various landscapes describe in Section 4.1 to arrive at moments where our search for answers became more closely related to our daily experience. We did not begin with experience and end in a pinnacle moment of ‘critical consciousness’ (the concern of point 3), in some ways our learning moments left us less certain that we started. Perhaps we achieved a more rigorous critical consciousness. A more rigorous critical consciousness refers to a process rather than an outcome:
a mode of sense-making that might reduce the distance between thinking and daily life and thus resist dogmatic ideals (point 2) in any direction. It left us more uncertain but with a tension that provoked us to think further about how problems are framed and solutions proposed, towards re-thinking about what needs to change rather than explaining and justifying what was there. For the sustainability challenges today, this is important so as to resist technological solutions that do not take into account the existing quality of social relationships with ecological resources and their distribution. This is a key point in how we think about making (non)sense in learning encounters oriented around wicked sustainability problems.

The surfacing of uncertainty as an element of urban water brings me to a consideration of breakdowns and breakthroughs articulated by Lange [30] and elaborated upon in Section 2, point 5. This might be a moment to pause and ask, what is the point of engaging young people with concerns about urban water, what is the point of overwhelming them with so much complexity? This question is important, in part, to be critical of the ways in which youth become responsible in this age of risk [40], and problems in society get blamed upon a failed education system. We make (non)sense of this when we accept that education systems are part of society, and will therefore be limited by what society makes possible [41], in terms of a life affirming praxis towards just and deep sustainability.

On the other hand, young South Africans are not asleep to their worlds. As experienced in this inquiry, they are awake to the (non)sense that appears in their worlds and they use their agency to challenge each other about that and contribute to making (non)sense of the worlds they have inherited. There needs to be space to breakdown and disrupt processes of ‘sense’ making in the world today that are largely rational and blind to the social–material–historical context. There is work to be done to develop methods of inquiry with young people to support the (non)sensing of the injustices within our worlds, and the ability to read the world for its (non)sense is itself a form of agency.

6. Conclusions

This paper engages the idea of making (non)sense of urban water flows to explore qualities and processes of a learning praxis that might respond to the ways in which our urban spaces need to be understood as relational and multi-scaled. This is important if we are to understand how they might become more sustainably socio-ecologically just. As such, it enters into dialogue with those searching for a transformative transgressive learning praxis towards sustainability. Through bringing together theoretical entry points for learning praxis (Section 2) and empirical analysis (Sections 3 and 4) of an educational encounter, I have developed qualities and processes of making (non)sense, a conceptual tool for a reflective and transformative learning praxis in a contemporary urban challenge characterized by obscurity. These are summarised as follows:

- Making (non)sense needs a quality of being grounded in social material life (point 1), however, it should not remain there in a way that essentialises and bounds lived experience and the sense emerging from there. Given the ontological reality of multi-scaled urban space, processes, or dialogue, story-telling, or questioning are necessary to understand how our experiences, in this example of urban water, connect to and are shaped by in different spaces and at different scales;
- Considering intersubjectivity and the tensions that arise as we imagine across different versions of experience to move the inquiry further and deeper by raising multiple conflicting versions of ‘sense’ and making the (non)sense limitations of our status quo clearer (Point 4);
- Resisting the urge to smooth out the discordant ‘sense’—what is troubling in a collective inquiry—to stay with it to understand how and why it emerged. This quality of discord and conflict is necessary for making (non)sense and understanding the problem more fully (Point 2: resist dogma);
- Instead of rigidly obeying a chronological ordering of generation, discussions, analysis, dissemination, throughout the encounter we worked with the ways in which the distance between explanations of challenges and lived experiences changes over time. I, as the facilitator, had to allow time for the unexpected and allow breathing space into the learning process. (Point 3);
Acknowledging the relational agency in the work of making (non)sense—an analytical method of reading the world in a way that is rewarding because it explains some of the things that are not readily explained in our day to day living. For example, understanding the complexity of urban water might shed light on how local government themselves do not have a clear answer and there is room to engage with them on this.

As this research is layered, being comprised of our collective inquiries as well as the inquiry of the author and reflective educator, I would like to conclude with two points about (non)sensing at the layer of reflective praxis.

Arts-based inquiry with transformative sensibilities has the ability to surface the way in which urban water systems are implicated in re-making relationships across society and vice versa, highlighting the connections that are often lost or hidden in other presentations of these issues. This paper engages making (non)sense to draw out the class and scale intersection with urban water as a way to understand what it is controlled by and what is required towards its conservation. It sits in contrast to individual based interventions promoting water saving behavior, as we saw in Section 4.2, where individuals across the city have different access to water. Such educational interventions also serve to obstruct a deeper knowledge about the situation, as they purport a particular and class-blind sense that everyone already has enough water. In this way, inquiries such as these might draw our attention to reinvented curricula of interconnections co-designed with young South African urban dwellers.

Indeed, deep and authentic transformative and transgressive learning will cease to be just that if it becomes an instrumental process, no matter what modes are engaged. Reflecting upon this educational encounter in some ways makes nonsense of ‘arts-based inquiry’, as the notion of inquiry is often understood as involving rational reason rather than imagination, aesthetic, and the uncertainty of everyday/every night realities. Particular methods or recipes will be limited by existing expectations and ultimately obstruct a process of making (non)sense that can trouble and disrupt.

Instead, modes of engagement enter into particular contexts, bumping up against particular concerns, and enabling space for this could be seen as “bringing a beginning into the world” [40] drawing on Arendt’s conception of the democratic subject. If concerns raised from everyday/every night realities are not resolved in a rapid leap to do education and produce learning, they might be bringing new beginnings into the world in their request for renewed and creative ways of being known, such as urban water, asked to be understood through making (non)sense of what we already knew. Thus, co-engaged processes of arts-based inquiry need to be combined with a quality of responsive reflection on the part of the educator. Transformative pedagogies in the context of urban water inquires can thus benefit from arts-based sensibilities that are responsive to the curiosities that emerge.

Finally, although making (non)sense is a playful concept, it needs to come with a quality of seriousness. Indeed, we need to be careful of (non)sense for the sake of nonsense. We do not want to swim in perpetual uncertainty nor tolerate every proposal in a way that is relativist. It needs to be carefully considered in context in order to find a collectively defined direction. (Non)sense has been a productive word play that has helped me to conceptualise and articulate a case of transformative and transgressive learning praxis for socio-ecological concerns, not as the teacher leading the learners out of their dark cave (Plato’s concept of education), but, as is suggested by Audrey Lorde, as a way to explore that dark cave for how it came to be [42] (p. 20). Thus, in processes of exploring our senses about the world, we need a quality of direction that stems from what matters to us and the deep sense of justice that we all connect to, be it from different places.

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