

# **ENABLING A COMMUNITY OF PRACTICE: PARTICIPATORY PROCESSES IN BUILDING A WATER-SENSITIVE CATCHMENT**

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Author: Andrew Bennett

Student number: BNNAND003

Supervisor: A/Prof Kevin Winter

Department: Environmental & Geographical Science

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## ABSTRACT

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This study explores the conditions for an enabling environment that lends itself to a more inclusive, relational, value-framing approach to nature and biodiversity in the field of urban water management. There are increasing calls in water governance for a better understanding of how participatory processes can be designed and structured to accommodate a range of stakeholders and achieve sustained public value. Although local governments are making progress in establishing formal community participation strategies, the overall engagement undertaken often informs citizens rather than involving them, thus limiting the input from different actors. Literature suggests that by fostering landscapes of communities of practice (CoPs), governments can enable more effective cooperation, interrelationships, and data-driven feedback loops between public authorities and communities that leads to effective policy- and decision-making. In CoPs theory, the notion of a ‘community’ does not refer to the traditional sense of a friendly, harmonious, and bounded group but rather expresses the strength of voluntary, informal, authentic relationships between participants where a sense of belonging is an accomplishment. The rise of CoPs also reflects new societal dynamics in which citizens are more willing and able to be involved in or initiate the processes of policy formulation, implementation, and service delivery. Drawing on the work of the Friends of Liesbeek (FOL) - a community-based organisation (CBO) stewarding the Liesbeek River in Cape Town for over 30 years - the overall aim of this research was to understand how a CoP is initiated, developed, and sustained. The research design was a deductive thematic analysis, using social learning and CoPs theory to interpret the engagements and activities of FOL. The study attempts to show how the natural relational process of social learning spaces (CoPs) can improve the effectiveness of participation across different scales and sectors (from local to global) in the water domain. Although not without its limitations, a CoPs approach offers the potential to address complex water challenges by overcoming situations where state and non-state actors continue to work independently from each other and do not sufficiently share, adopt, and implement solutions that work in practice and can be replicated at scale. Examples of CBOs, such as FOL, illustrate that ordinary citizens can and do play a critical role in managing water resources at local level and shaping water governance and policy.

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Student number	BNNAND003
Student name	Andrew John Bennett
Signature of Student	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Signed by candidate</div>
Date:	12 February 2024

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# 1 INTRODUCTION

## 1.1 Community participation in water governance and management

Around the world, cities are experiencing escalating water stress with the challenge of urban water management exacerbated by climate change, population growth, and urban density (Bichai and Flamini, 2018; Mitchell, 2006). Aging water infrastructure, limited government resources, and increasing demand for adequate water services are confronted with the probability of increased and erratic precipitation leading to intense floods and extended droughts and impacts on hydrological systems, both affecting the quality and quantity of water resources (Bichai *et al.*, 2018; Keath, 2008). In response to the transdisciplinary nature of these challenges, professionals and practitioners are faced with a paradigm shift that aims to complement prevailing centralised linear approaches to water services provision with more inclusive collaborative and participatory approaches to the governance of all water resources and systems (Bichai *et al.*, 2018; Wong *et al.*, 2009).

Water governance refers to the political, social, economic, and administrative systems that influence the use and management of water. With many of humanity's most pressing challenges linked to water, rethinking the water governance domain has become fundamental to the Sustainable Development agenda. In particular, the transition towards collaborative water governance and management has resulted in growing attention to improving how state and non-state actors interact to deliberate on challenges and find solutions through consensus (Lukat *et al.*, 2023; Sigalla *et al.* 2021; Erdiaw-Kwasie *et al.*, 2020; Wong *et al.*, 2020; Pahl-Wostl, 2019). Traditionally, the management of public services and common interests has been the pursuit of government officials and internal stakeholders with limited input from communities (Rijal *et al.*, 2023; Buurman *et al.*, 2018). Over the past few decades, however, there has been a steady increase in various forms of engagement and participatory approaches, in which governments try to involve communities in water policymaking, decision-making, and implementation (Sigalla *et al.*, 2021; Van Buuren *et al.*, 2019). Communities, in this context, refer to a range of non-state actors including individual citizens and residents, community-based organisations, public interest groups, and other civic collectives (Rijal *et al.*, 2023). Driven by the principles of democratic governance and legal frameworks, and new holistic approaches to public water

management, community participation is now considered fundamental to addressing complex systemic challenges linked to climate adaptation, environmental conservation, diversity and inclusion, and resilience-building (Sigalla *et al.*, 2021; Van Buuren *et al.*, 2019; Pahl-Wostl *et al.*, 2007). For example, integrated and adaptive water management approaches advocate strongly for social and political adaptations that unite stakeholders through open access to information and shared learning of what works in practice (Flamini, 2018; Wong and Brown, 2009; Pahl-Wostl, 2008; Mezirow, 1997). Conceptually, enabling community participation offers governments a valuable pathway to establish more equitable and sustainable water resource management practices characterised by enhanced transparency, inclusivity, accountability, innovation, and responsiveness to the diverse needs and aspirations of citizens (Erdiaw-Kwasie *et al.*, 2020; Wong *et al.*, 2020).

The underlying idea behind the involvement of communities and diverse stakeholders in public planning and implementation is that no one party in society alone has the knowledge, resources, capacity, or experience required to solve complex developmental challenges (Sigalla *et al.* 2021; Van Buuren *et al.* 2019; Blackmore *et al.* 2010). However, despite much progress in expanding representation and fostering cooperation, evidence from the literature on collaborative water governance and citizen engagement suggests that participatory processes remain largely ineffective and cannot be sustained over the long term (Lukat *et al.*, 2023; Sigalla *et al.*, 2021; Erdiaw-Kwasie *et al.*, 2020; Pahl-Wostl, 2019). Van Buuren *et al.* (2019) emphasize that, overall, community engagement remains hierarchical and results in authorities *informing* the public rather than *involving* them in decision-making and the creation and management of new ideas. Pahl-Wostl (2019) maintains that creating value for and from the public in the water domain cannot succeed without a good understanding of what constitutes meaningful and effective participatory processes. Therefore, important questions prevalent in the governance literature concern the enabling environment for participatory processes; the settings and conditions that permit effective integration and participation between state and non-state actors (Lukat *et al.*, 2023; Wenger-Trayner *et al.*, 2020; Van Buuren *et al.*, 2019). Coupled with this is an increasing body of research analysing the emerging roles of public water authorities and community-based organisations and how these groups align their activities and find ways to cooperate and realise co-created outcomes (Van Buuren *et al.*, 2019). Several authors

including Lukat *et al.* (2023), Haque *et al.* (2022) and Wenger-Trayner *et al.*, (2020), call for further investigation into meta-thinking (thinking or learning about thinking), which informs the methods by which collaborative and participatory processes are designed and adapted to address the many logics and interdependencies that exist in society. Wenger-Trayner *et al.* (2020), Pahl-Wostl (2019) and Blackmore *et al.* (2010), for instance, offer compelling arguments for improving collaborative governance through natural learning processes that are similar at all levels of society, and where cooperation and solutions arise from local interactions and contexts. To advance the literature on collaborative governance, Lukat *et al.* (2023) recommend that more empirical evidence is needed on critical indicators that interpret conditions for sustaining vertical and horizontal integration across society.

While the shift towards collaborative and participatory governance can be interpreted as a response to the limitations of longstanding institutionalised bureaucratic and technocratic processes (Wong *et al.*, 2020; Farnsworth *et al.*, 2016; Heifetz, 2009; Senge, 2006), it also reflects new societal dynamics, in which individuals, community collectives, and businesses are more willing to be involved in or able to initiate the processes of policy formulation, implementation, and service delivery (Igalla *et al.*, 2020; Head, 2007). The notion that citizens can and do play an important role in the management of public spaces and the commons can be seen in the rise of bottom-up initiatives led by activists, community-based organisations, public interest groups, and industries that take responsibility for issues that matter to them (Head, 2007; Van Buuren *et al.*, 2019). In the water domain, Van Buuren *et al.* (2019) highlight the proliferation of different forms of top-down (state-invited) and bottom-up (non-state-created) alliances and partnerships that aim to find solutions to water supply, irrigation, stormwater, and sanitation challenges. However, Van Buuren *et al.* (2019) also note that much of the work on improving cooperation and participation has highlighted the need to develop trustworthy relationships between government officials and business or community representatives. Building trust becomes critical because although participants may share a common concern with water quality, quantity, and sustainability, diverse actors seldom have the same social position, ideas, or ways of resolving the issues at hand (Sigalla *et al.*, 2021; Erdiaw-Kwasie *et al.*, 2020). Van Buuren *et al.* (2019) identify three main factors that enhance trust and impact the effectiveness of how state and non-state actors interact:

- *The transparency of forum structures and processes,*
- *The capabilities and leadership ability of participants, and*
- *The quality of feedback loops that reflect what works in practice.*

Yet although transparency, leadership ability, and action reflection feedback are all important elements of collaboration, they do not necessarily lead to the design of transformative participatory spaces. New relationships between public authorities and community actors are not yet established, and new forms of equilibrium must still emerge to inform new collaborative governance processes (Lukat *et al.*, 2023; van Buuren *et al.*, 2019). Without effective institutional processes that actively involve the public in decision-making, cities around the world are likely to perpetuate delays in innovation and the implementation of new ideas. Meaningful state and non-state collaboration is unlikely until communities believe that they have a true sense of belonging and loyalty to water resources, water supply services, and infrastructure (Paerregaard *et al.*, 2016; Wong *et al.*, 2009; Pahl-Wostl *et al.*, 2007).

One approach to transforming water governance, with the potential to improve collaborative and participatory processes, is for public authorities and civic entities to work together through communities of practice (CoPs). CoPs consist of groups of practitioners who come together to share their repertoire of resources (e.g., experiences, stories, methods, tools, and ways of addressing complex or recurring problems) and learn with and from each other in a communal environment (McDonald & Mercieca, 2021). The idea of CoPs is not new but has been used in recent decades to explain the concept of social learning systems, which reflects how groups of people and communities have cooperated and worked together since the earliest of humankind (Wenger, 2009; Blackmore *et al.*, 2009). CoPs theory has been used across many disciplines and fields to investigate a range of situations involving groups of people working together to achieve common goals and objectives (Koliba *et al.*, 2009). In the context of collaborative governance approaches, a community of practice (CoP) can be understood as a participatory space that acts as a living curriculum where engagement and practice are dynamic and involve learning on the part of everyone (Wenger *et al.*, 2020). CoPs are known to play an important role in bridging formal and informal organisations, providing an integrative space for professionals and practitioners to gather and share new

information and test and receive feedback on ideas (Wenger *et al.*, 2022; Blackmore *et al.*, 2010; Pahl-Wostl *et al.*, 2007).

The concept of a CoP is both a legitimate home for shared human endeavours and part of a broader framework for thinking about learning in its social dimensions (Farnsworth *et al.*, 2016; Jonassen *et al.*, 2012; Reed *et al.*, 2010; Mostert *et al.*, 2007). Wenger (2009), for example, used CoPs to inform his ideas of a social discipline of learning, describing CoPs as a socially constructed process for developing learning partnerships through practice. CoPs theory has attracted much attention from systems thinkers and learning theorists because it captures traditional and contemporary ideas that view learning as both a *system denoting change* and a *social process* (Blackmore *et al.*, 2010). In a CoP, ‘learning’ is not defined as the acquisition of propositional knowledge; rather, it is viewed as situated in certain forms of social co-participation. Thus, learning in a CoP does not ask what kinds of cognitive processes and conceptual structures are involved but rather what kinds of *social engagement* provide the context for learning to occur (Lave & Wenger, 1991). From this perspective, a CoP is a space in which members' common interests in a particular field or domain can evolve naturally or be deliberately created to gain knowledge related to a specific issue. Participants learn from each other and develop personally and professionally through the social process of sharing information and experiences with a group (Lave & Wenger, 1991). The main features of CoPs include identity formation and accountability to a social history of learning (Farnsworth *et al.*, 2016; Blackmore *et al.*, 2010; Wenger, 1998). Identity formation refers to how individual and group values are shaped (socially constructed) through participation in the CoP, while the social history of learning is collective knowledge and understanding as well as the resources that emerge from sustained engagement in the practice of the CoP (Farnsworth *et al.*, 2016; Wenger, 2009). Learning in a CoP is a natural process based on the experience of living in and negotiating one's position in the landscape of practice (Farnsworth *et al.*, 2016). Over time, the knowledge or understanding that participants gain from their relationships with and involvement in various CoPs becomes deeper or more intrinsic.

CoPs typically form in response to the need to solve problems or improve situations. As a naturally self-organising process, CoPs have become a useful framework for structuring and analysing practice-based social learning systems at all levels of society, from

neighbourhoods to cities, and nationally to globally (Blackmore, 2010). The choice to participate in a CoP is prompted by varying levels of conscious and unconscious motivation, either voluntarily or through varying degrees of obligation (Farnsworth *et al.* 2016). Although CoPs usually have an overarching aim or goal, participants may interpret it differently and be motivated by different factors. People join, participate in, leave, and return to CoPs for various reasons (Wenger 2009). The essence of a CoP, therefore, is not the individuals or groups of people that constitute the CoP but rather the dynamic social process of participants actively learning together and developing relationships related to a specific practice (Farnsworth *et al.*, 2016; Kolbe, 1984). In a CoP, the term community does not refer to the traditional sense of a friendly, harmonious, bounded group (which often has no specific purpose or practice); rather, it expresses the strength of voluntary, informal, and authentic relationships, where a sense of belonging is an accomplishment (Farnsworth *et al.*, 2016). In this way, participants in a CoP acknowledge what is achieved through sustained mutual engagement and hold themselves accountable for their learning history (Wenger, 2009). As CoPs continue to meet, the knowledge of individual participants and the collective deepens. Members of CoPs become more skilled as they participate in learning loops, where shared practices are taken back to the workplace or another CoP, implemented, and returned to the community for more feedback (McDonald & Mercieca, 2021).

Although there are few critiques of CoPs in the literature, the CoP approach is not without its weaknesses and limitations. Roberts (2006) notes that, whether known or unknown by its participants, issues of power, trust, susceptibility, and biases exist in every CoP. Wenger *et al.* (2002) conceded that the qualities that make a community an ideal structure for natural learning (i.e. shared perspectives on a domain, a communal identity, and the opportunity to build long-standing relationships in an established practice, etc.) are also the same qualities that can hold it back, develop complacency and make it resistant to change. CoPs are not immune to the broad socio-cultural environment, and like any organisation or community collective, they can easily become hostages to their history, achievements, and power. However, if decisions are made thoughtfully and deliberately in the way that CoPs are designed and developed, they can potentially provide spaces that are free from hierarchical constructs, power dynamics, and conscious or unconscious biases evident in both formal and informal organisational structures (Roberts 2006). It

remains clear that CoPs is an evolving approach that seeks to provide a means to harness collective thinking and to interpret the transfer of knowledge, meaning, and identity through conditions that recognise the limitations of being human but still offer spaces for freedom, experimentation, and creativity to thrive (Wenger-Trayner *et al.* 2022).

## 1.2 Research Aims and Objectives

The overall aim of this study is to understand how a community of practice (CoP) is initiated, developed, and sustained. Underlying this is a deeper exploration of how values are shaped and shared and how the informality of individuals can establish cooperation and interrelationships that direct attention towards a public interest or common cause. The literature suggests that communities of practice (CoPs) is a logical framework for structuring and analysing practice-based social learning systems (Blackmore *et al.*, 2010; Johannsen *et al.*, 2009). The intention, therefore, is to explore how the adoption of a CoPs approach can lead to a more inclusive, relational-based, values-framing approach to nature and biodiversity in the field of urban water management. The motivation was drawn from the work of Friends of Liesbeek (FOL), a community-based organisation that has acted as a steward for the Liesbeek River in Cape Town, South Africa, bridging public and private interests in the catchment for over 30 years. Through its community-based practice of learning how to care for the Liesbeek, FOL has established a network of relationships with local residents, other civic entities, government officials, and academia. Its work over a sustained period of time has seen the organisation become a widely trusted and respected organisation (both globally and locally), and a proxy or voice for the Liesbeek River.

The research aims were examined through three main objectives used to explain the ‘why’ and ‘how’ elements that form an enabling environment within the Friends of Liesbeek in the context of CoPs.

The three main objectives were as follows:

1. Framing the water-sensitive environment
  - *Understanding the context of protecting water resources: Why do people value it? Why are people concerned about a water-sensitive environment in an urban river system? How is this framed?*

## 2. Implementing a theory of change

- *How do communities of practice and values-framing approaches contribute to changes in the way people connect with nature, biodiversity, and sustainable urban water infrastructure?*

## 3. Forming roles and relationships

- *Interpreting processes that shape a community of practice and create new meanings or identities.*

### **1.3 Introduction to the case study**

The Liesbeek is an urban river in the southern suburbs of Cape Town, South Africa. The river and its surrounds are a public space that serves as the common cause context to explore how the informality of individuals can establish cooperation and interrelationships that lead to changes in how people think about and connect with nature, biodiversity, and sustainable urban water infrastructure. The introduction provides a brief historical account of the Liesbeek river and outlines significant developments in the catchment that highlight its use and management over the past 300 years, including the work of the Friends of Liesbeek (FOL) since 1991. The introduction is intended to provide background and context to the key themes aligned to Communities of Practice that are deduced from theory and discussed and analysed in Chapter 4.

The Liesbeek River is considered the oldest urbanised river valley in South Africa (Fisher-Jeffes 2015, Evans 2007) and is regarded as having significant ecological, social, historical, cultural, and economic value. It is an unusual river, approximately 9 km long, with its source and mouth in the same city. The river flows in a catchment of approximately 2,600 ha situated on the eastern slopes of Table Mountain in the City of Cape Town. Approximately 50% of the catchment is urbanised, with the balance taken up by the Kirstenbosch National Botanical Garden, forestry plantations, and the Table Mountain National Park (Fisher-Jeffes, 2015). Despite its small size, the Liesbeek has attracted regular attention from academics, students (the University of Cape Town is within walking distance), practitioners, schools, community groups, and residents for various reasons. As public property, the Liesbeek also receives attention from tiers of government, including local ward councillors and officials in municipal departments such

as Roads and Stormwater, Recreation and Parks, Water and Sanitation, and Solid Waste Management. Up to 75% of the catchment area is connected to a formal network of stormwater drains and pipes discharged directly into the river, with the lower reaches of the river impacted by the highest levels of urbanisation and pollution (Fisher-Jeffes, 2015; Colvin *et al.*, 2009). During the middle of the twentieth century (1942 to 1962), as urban expansion and development increased, large portions of the Liesbeek River were canalised to reduce the risk of flooding (Colvin, 2009). Canalization has led to several negative social and ecological consequences, with sections of the river described in some development impact assessments as having little ecological value. However, since 1990, there have been various community and development initiatives to re-establish aquatic life and plant indigenous vegetation along the riverbanks to improve the conditions of the river and its surroundings. Recently, an increasing number of academic projects have focused on testing and implementing sustainable drainage systems (SuDS) and Water Sensitive Design (WSD) features. The Friends of Liesbeek have been directly or indirectly involved in all these initiatives, serving the projects in a variety of ways, as a community authority.

There are various theories about the origin of the name 'Liesbeek, but the most common is the derivation from the Dutch words 'lies' meaning reeds, and 'beek' meaning stream (Evans, 2007). Members of the Dutch East India Company (Vereenigde Oostindische Compagnie, VOC) came to the Liesbeek River on 28 April 1652 a few weeks after Jan van Riebeeck, the first commander of the Dutch settlement, arrived at the future site of Cape Town to establish a refreshment station for ships sailing between the Dutch Republic and Batavia (modern-day Jakarta, Indonesia). Van Riebeeck described the Liesbeek as '*the loveliest of fresh rivers*' (Fisher-Jeffes 2015). Initially, the Liesbeek was named '*Varsche*' and subsequently the '*Soete*' and then the '*Amstel*.' Finally, by 1657, Van Riebeeck had settled on the name '*Liesbeek*.' Van Riebeeck began setting up the first European settlement at the Cape but had no intention of developing a colony. Instead, he was tasked with setting up a defensible fort, acquiring fresh water, planting fresh produce, and bartering local Khoikhoi inhabitants for sheep and cattle (Fisher-Jeffes, 2015).

The Khoikhoi were nomadic pastoralists who had arrived in southern Africa about 2000 years earlier and used the 'fynbos tannin-stained brown waters (of the Liesbeek) to water their flocks' (CABO, 2015). Owing to tensions between Khoikhoi and the growing

population of settlers, it became difficult to meet the demand for resources, and the VOC decided to expand its settlement (Fisher-Jeffes, 2015; CABO, 2015). In February 1657, the first real colony was established along the Liesbeek River in Rondebosch. Nine of the Dutch East India Company's servants, known as the 'free burghers', were discharged from Company service and allotted parcels of land of approximately 8.6 hectares each along the Liesbeek (Fisher-Jeffes 2015; Brown & Magoba *eds.* 2009). In this manner, the colonisation of South Africa began with early settlers establishing the first successful wheat, wine, and beer industries along the fertile and sheltered banks of the Liesbeek (Fisher-Jeffes 2015; CABO 2015).

As the Cape colony expanded, keeping the Liesbeek clean became a priority. Rondebosch and neighbouring areas depended on the river and wells for drinking and domestic water use, and the 1744 Resolution of the Council Policy records a flood event along the Liesbeek caused by a blockage of waste material belonging to residents who lived along the river's lower reaches. By 1852, authorities sought stronger measures to prevent 'the commission of nuisances' in the Liesbeek, and a Water Ordinance (No. 6 of 1852) was published in the *Government Gazette* with the following regulations:

1. *To ensure the free flow of water. No dams to be constructed across the river.*
2. *No waste of any sort to be thrown into the river or to enter the river through drains, channels, privies, or water closets.*
3. *Waste includes the blood or offal of slaughtered animals.*
4. *Washing clothes is prohibited, except at certain demarcated places, and only after 8am.*
5. *No activity was allowed in the river between 6pm and 8am. The free flow of water at night enables clean water to be collected before 8am.*

(CABO, 2015)

The Ordinance was reinforced in 1893 by Act No. 32 of 1893, which stipulated that the Rondebosch and Claremont Councils should conserve the Liesbeek throughout its course to prevent pollution. The main sources of pollution in the Liesbeek were washing clothes and animal skins, dumping animal carcasses, and effluent discharging into the river by breweries. The police were instructed to monitor the terms of the Act and impose fines on

transgressors or, in default of payment, imprisonment for periods not exceeding three months (CABO, 2015). None of these measures were effective, and by 1895, the Liesbeek River had been in poor condition despite the construction of public washhouses and a commitment by municipalities to cooperate in cleaning the river.

During the 1890s, as the demand for drinking water increased, the Westerford and Albion springs were used to supply Rondebosch, which diminished flow in the Liesbeek. The flow was insufficient to flush the river and even caused the Liesbeek to run completely dry beyond Mowbray in March 1899 (CABO, 2015). During the early 1900s, the three municipal councils (Rondebosch, Claremont, and Mowbray) continued their efforts to manage the Liesbeek and keep the river clean. Disinfectant was poured into the water at the Belmont Bridge in Rondebosch to eliminate bad smells, and again further upstream where *'a green slime clung to the rocks'* (CABO, 2015 p. 15). The viability of deepening the riverbed was discussed, but instead, the councils undertook to clear leaves that clogged the river channel and cut down trees overhanging the Liesbeek. By 1910, the sanitary inspector reported that the riverbed and banks were clear, and that no washing of clothes in the river had occurred for at least two years. From 1912 to 1913, the Rondebosch and Claremont Councils employed up to four men to keep the Liesbeek clean. Around this time, the Public Works Department was authorised to pave the riverbed at the Belmont Bridge to control the flow and limit pollution. However, with the unification of the municipalities in 1913, responsibility for the Liesbeek was transferred to the Greater Cape Town Municipality (CABO, 2015).

Until the early 1900s, the Liesbeek River and the natural springs connected to it remained the main source of freshwater for the areas of Cape Town east of Table Mountain, including the municipalities of Claremont, Rondebosch, and Mowbray (CABO, 2015). From around 1915 onwards, these suburbs and the city began to be serviced by a piped reticulation system, with fresh water supplied from several reservoirs and large dams. With the Liesbeek no longer required as a municipal water source, the importance of the river then shifted to wastewater management. Liesbeek soon became a convenient natural sump that drained stormwater and industrial effluent from the area into the sea (Table Bay). After the Second World War (1939 – 1945), urbanisation resulted in increased

development along the banks of the Liesbeek, leading authorities to canalise much of the river's lower course by the late 1950s and early 1960s to mitigate the effects of flooding.

The impacts of canalisation rapidly led to the deterioration of the benefits of the Liesbeek as a natural functioning ecosystem and limited public interest in the river. By the 1980s, however, civic engagement around the Liesbeek began to strengthen noticeably, corresponding with the global movement of concerned non-state actors wanting to articulate and implement environmental sustainability ideas and concepts (Egelston 2012). The 1980s and early 1990s were also turbulent political periods in South Africa with much uncertainty around future governance strategies. The nation began transitioning from an apartheid state to a new democracy (following the historic 1994 elections), with insecurity among the South African public about how the new leaders and government officials would tackle environmental issues. Several significant global events and actions around this time had highlighted the incompatibility between prevailing economic development policies and practices and interlocking planetary-scale social and ecological challenges. The 1987 United Nations World Commission on Environment and Development, for example, released the landmark report, *Our Common Future*, also known as the Brundtland Report, which firmly placed environmental issues on the political agenda. The Brundtland Report laid the foundation for convening the 1992 United Nations Conference on Environment and Development (commonly known as the Rio Earth Summit) and the publication of the Earth Charter, which outlines the establishment of a just, sustainable, and peaceful global society in the 21st century.

From the 1992 Earth Summit, Agenda 21, a sustainable development action plan, identified three interdependent pillars (information, integration, and participation) as key building blocks that help countries achieve sustainable development. Agenda 21 emphasises that in sustainable development, everyone is a user and provider of information and stresses the need to change from old sector-centred ways of doing business to new approaches that involve cross-sectoral coordination and the integration of environmental and social concerns into all development processes. Like the 2030 Agenda for Sustainable Development (adopted by the United Nations Member States in 2015), Agenda 21 emphasises that broad public participation in decision-making is a fundamental prerequisite for sustainable development (Lafferty and Eckerberg, 2013). Agenda 21 was

formulated as a non-binding action plan for the United Nations, other multilateral organisations, and individual governments worldwide that can be executed locally, nationally, and globally. Some national and state governments have legislated or advised local authorities to take steps to implement the plan locally, as recommended in Chapter 28 of the document. These programs are known as "Local Agenda 21" or "LA21". The ICLEI-Local Governments for Sustainability Group, formed in 1990, is widely regarded as a model for Agenda 21 implementation. South Africa initially had strong policy support for Agenda 21 from the national government and ICLEI, with 21 member cities across the country (Lafferty and Eckerberg 2013).

It is against the backdrop of increasing environmental awareness and community calls for action during the 1980s that the Friends of Liesbeek (FOL) was formed. Motivated by the importance of conserving green corridors and waterways in a city, four local residents took up the opportunity to 'think global and act local', and initiate a community interest group that later would become the official steering committee for the FOL. The first activities arranged by these community pioneers were simple river walks and clean-ups directed towards public awareness and education of the river environments. One of the groups earliest goals was to create a safe walkway from the source of the Liesbeek to the confluence with the Black River. The pathway was intended to help re-establish people's connection with the river as a place of social, environmental and amenity value. Importantly, the goal also aligned with the City of Cape Town's vision for greening the city (a report published in 1984). Although limited in its initial extent, the *Greening the City Report* contained a broad statement of local government intent that would lead to the drafting of policy and local by-laws around the conservation of urban waterways. On 19 September 1991 the acting town clerk of the City of Cape Town distributed an internal report to the City Amenities and Health Committee advising that several different projects within the Liesbeek catchment were being combined to rekindle interest in the development of a public trail along the lower reaches of the Liesbeek. At the same time, other historic walks were being developed in the area to draw people to the river and highlight its influence through the ages. Encouraged by the commitment of the original four residents, community interest in the construction of the Liesbeek trail was significant with the bulk of the funding raised from the private sector, either through sponsorship or as part of site redevelopment. A requirement of the city council policy recommendation

in the local area plan was that a “Friends of the Liesbeek River” group be formed under the auspices of the Wildlife Society of Southern Africa to manage public interest in the project. Following a public meeting, a Friends of Liesbeek River (FOL) steering committee was officially appointed in December 1991.

Although its origins and early activities were modest, and subsequent years presented many challenges for the organization, today the FOL is an established non-profit company and public benefit community-based organization. For over 30 years, the FOL can be considered the backbone of the Liesbeek’s governance through the organisations ongoing practice of river maintenance and conservation work aimed at restoring and enhancing the value of the Liesbeek as a natural urban corridor. Despite its status as an independent non-governmental organization, the FOL has sought to maintain strong links with all tiers of government and agencies relevant to its work (e.g., the South African National Biodiversity Institute). Similarly, the location of the Liesbeek close to the main campus of the University of Cape Town’s (UCT) Engineering, Sciences and Humanities Faculties (notably the Environmental & Geographical Sciences Department) has enabled strong links with academia. This connection is important because it has encouraged research on the river and its surroundings. The river is a living laboratory whereby the river and its catchment have become a training ground for young students in teaching and fieldwork. With over 500 publications on the Liesbeek River (and 30 on the FOL itself) many UCT students have acknowledged how their personal and career interests were developed through field work on the river. The sustained interconnections and relationships that have been established through the work of FOL linking government, academia and community be regarded as model for participatory water governance through natural learning processes. An example of this is the collaborative project known as the Liesbeek Life Plan (LLP) that was initiated in 2014 between FOL, the University of Cape Town (UCT) Urban Water Management Research Unit (later to be incorporated into UCT’s Future Water Institute), and the City of Cape Town (CoCT). The collaborative aim was to establish an enabling environment in which the government (CoCT), academia (UCT), and civil society (FOL) could contribute to plans and designs for restoring and offering better support for the social and ecological life of the Liesbeek River. The primary aim was to provide a framework plan to guide the building of ecological and social resilience in the Liesbeek River catchment while safeguarding the river for future generations. A

secondary aim was to work and learn together in a community of practice (CoP) where the participants explored new ways of thinking from the knowledge, resources, and experiences of various academic and professional bodies, as well as first-hand knowledge with community groups. The idea was to design and test Water Sensitive Design interventions appropriately and holistically at a site-specific level, without a set of prescribed constraints. The assumption was that it is possible for a combination of varied interests to coalesce around a shared interest or common cause, which is centred on what it means to contribute to learning and experience in the development of a water-sensitive catchment.

Similarly, the story of FOL has attracted the attention of water professionals and practitioners for the way in which FOL incorporates the framework of the South African National Water Act (NWA) (Act 36 of 1998), particularly the principle of subsidiarity or management of water resources at the lowest appropriate level. The NWA was aimed at fundamentally reforming the previous Water Act of 1956, which was not only racially discriminatory but also inappropriate for a water-scarce country such as South Africa. Central to the NWA of 1998 is the principle that water is a scarce natural resource that belongs to all of the people of South Africa, and that it must be used beneficially and in the public interest. However, despite the progressive nature of the 1998 NWA and subsequent amendments, government has struggled with much of the implementation. Some of the challenges include capacity issues (e.g., the loss of experienced water sector employees), process issues (e.g., shifting from a reliance on technical input to processes that included engaging stakeholders), and frequent leadership changes (due to political instability). According to the Water Research Commission, a significant weakness in the implementation of the NWA was government officials trying to do too much too fast with limited accountability resulting in poor decision-making, delays in projects, wasted resources and corruption.

In this context, the sustained Liesbeek governance and management by FOL, a volunteer led community-based organisation with limited resources, is significant. FOL has focused on getting the basics right, by monitoring and maintaining the river and surrounding water infrastructure with mostly volunteer input and experience and small amounts of private sector funding. Additionally, through its trusted networks established over time, FOL

underlines the fact that capacity resides in a number of places, not only government. The creation of networks by FOL is a strategic resource that facilitates the personal connections necessary to develop a collaborative infrastructure and embody participatory water governance and management. FOL has shown the ability to not only represent the community but also consult with wider stakeholders and develop partnerships with key actors from local to national level that harness the capacity and commitment needed to implement innovative solutions.

Looking ahead, FOL has potential to promote the Liesbeek as a model for the City of Cape Town's liveable urban waterways program and contribute to the City's commitment to being a water sensitive city by 2040, not only in the physical/natural environment innovation and rehabilitation but also in how it is governed through community and partnerships. The City of Cape Town is a local authority embracing the need for a whole-of-society approach to water resources management. In response to the severe three-year drought that Cape Town experienced between 2015 and 2017, a 1-in-590-year event based on historical rainfall records (Ziervogel, 2019), the City of Cape Town has acknowledged that a new approach to water governance is needed that will depend on the actions of all the city's people and institutions. To facilitate a 'team effort', the City of Cape Town says it is committed to follow a collaborative approach to its responsibilities for providing water services and managing the urban water environment, recognising that '*collaborative relationships are based on trust, and trust is built where there is transparency and mutual accountability, and where all partners' stated intentions are consistently translated into action*' (City of Cape Town Water Strategy, 2020, p. 4). The underlying assumption is that there is two-way interaction between government and the public with responsibilities on both sides including government acting as resource facilitator and service provider, while citizens are obligated to maintain the common place, keep it clean, and make effective use of the public facilities (Buurman *et al.*, 2018). An additional expectation is that citizens will acquire a relational-based appreciation for water and take ownership of water assets through a communal identity that is linked to a sense of place and the knowledge gained from their lived experience.

## 1.4 Research design

The research design adopted for this study was a qualitative approach, using deductive thematic analysis to address the research question. Deductive thematic analysis is theory-driven and deliberately explores data within the bounds of theoretical frameworks, using existing theory to shape how themes are identified and analysed. Key themes were identified from a literature review of communities of practice (CoPs) and social learning theory. The literature review (Chapter 2) explored the emergence of CoPs and their connection to social learning systems, and how this contributes to an understanding of value-based natural resource governance and management. Within this broader framework, four core elements of Wenger's (2022, 2009) social theory of learning were selected to structure and analyse the dataset:

- *Social learning spaces*
- *Learning citizenship*
- *Social artists, and*
- *Learning governance.*

A case study of the community-based organisation, Friends of Liesbeek (FOL), was used for data collection and a population sample. Since human subjects were involved in the interviews and focus groups for the datasets, research ethics clearance was obtained from the Faculty of Science. A copy of the approval letter and code is supplied in the appendices.

Through its ongoing interaction between public officials, local residents, and community groups, FOL provides a context for the public interest or a common cause that lends itself to a CoP approach. Key indicators and concepts from theory that were applied to FOL to inform the analysis included:

- *'Sense of belonging' or shaping of identity linked to a shared interest,*
- *'Learning' through participation and praxis, and*
- *'Co-creation' of shared value.*

## **1.5 Scope and limitations of the research**

This study is limited to providing an understanding of how communities of practice (CoPs) are initiated, developed, and sustained. The potential exists for a CoPs approach to inform the conditions for effective participatory processes in water governance across different scales and sectors that lead to changes in the way society views and manages water resources. The intention is to test this assumption by understanding the process, not the product or imagined outcome. Creating and maintaining a water-sensitive catchment, and ultimately a whole city focused on conserving water resources, requires actively concerned citizens and an institutional system or some other form of responsible organizational structure or combinations that can rise to the challenge. An active positive response is not based on facts, scientific information, philosophy or leadership. Water sensitivity is not a product, but rather a pursuit driven by a strong moral imperative that becomes tangible when elements of water-sensitive design and cities are seen on the ground, thus offering opportunities for further involvement, education, and learning.

## 2 LITERATURE REVIEW

### 2.1 Introduction to Communities of Practice

The term communities of practice (CoPs) has only recently been identified in the literature, but the idea of CoPs is not new. Numerous studies including those by Blackmore *et al.* (2010), Koliba *et al.* (2009) and Pahl-Wostl *et al.* (2007), Woodhill (2002), and Wenger, McDermott and Snyder (2002), acknowledge that CoPs were the first knowledge-based social structures of early humans discussing strategies for finding water, food, shelter and materials. Wenger, McDermott, and Snyder (2002) explained that in ancient Rome, groups of metalworkers, potters, masons, and other craftsmen both had a social aspect, where members worshipped common deities and celebrated holidays together, and a business function that focused on training apprentices and spreading innovations. Blackmore *et al.* (2010) also refer to other associations or guilds of artisans and merchants during the Middle Ages that fulfilled dual social and occupational roles throughout Europe. Although guilds lost their influence during the Industrial Revolution, CoPs have continued to proliferate in every aspect of human life. Whether formally recognized or not, Wenger, McDermott and Snyder (2002) argue that every organization and industry has its history of practice-based communities. Despite the ubiquity of CoPs, there has been growing interest in these age-old structures over the past few decades, as institutions become more intentional and systematic about how best to acquire and manage knowledge in a world of increasing diversity and complexity. (Farnsworth *et al.*, 2016; Reed *et al.*, 2010; Blackmore *et al.*, 2010; Koliba *et al.*, 2009; Pahl-Wostl *et al.*, 2007; Cox, 2005; Woodhill, 2002; Wenger, McDermott, & Snyder, 2002; Wenger, 1998). CoPs have been closely linked to the concept of knowledge management, as organisations seek to retain institutional knowledge, inform strategies, increase operational efficiencies, and remain relevant and competitive in the marketplace. The literature review that follows in this chapter offers insights into the evolution of the CoP theory and its application, primarily to social learning.

In the book *Theoretical Foundations of Learning Environments*, Land and Jonassen (2000) defined a community of practice (CoP) as a theoretical construct that serves as a legitimate home for shared human endeavours and a framework for social learning.

Farnsworth *et al.* (2016), Wenger-Trayner (2013), Blackmore *et al.* (2010), Koliba *et al.* (2009) and Pahl-Wostl *et al.* (2007) concur that the concept of a CoP has been used to investigate a wide range of situations involving groups of people working together to achieve common goals and objectives. However, the origin of the term and the primary use of the concept has been to develop a social theory of learning. In a review of the use and interpretation of CoPs for the benefit of public administration, Koliba *et al.* (2009) showed that the CoP concept has been applied extensively across multiple social science disciplines and professional fields since it was first introduced in the literature by Lave and Wenger (1991). In a study conducted by Koliba *et al.* (2009), CoPs have come to be used *descriptively* as an analytical framework and *proscriptively* (the act of proscribing) as an intervention to reduce organisational ineffectiveness. CoPs have found appeal as a strategic approach for organisations seeking to gain and make the best use of knowledge in a particular field. However, despite its wide-ranging applications, the literature on CoPs does not offer much discussion or critique on the theory, its critical appraisals, or how theory is augmented through its various applications and interpretations (Farnsworth *et al.*, 2016). Both Farnsworth *et al.* (2016) and Koliba *et al.* (2009) highlight the ‘many tensions and unanswered questions’ regarding CoP theory, concluding that more empirical evidence is needed to operationalise the principles and elements.

Although many academics and practitioners use the CoPs concept, it is arguably Etienne Wenger (also known as Etienne Wenger-Trayner), who has done the most to advance CoP theory and practical implementation (Koliba *et al.*, 2009; Cox, 2005). Wenger, an education theorist, together with the research partner Jean Lave, a cognitive anthropologist, was credited with the first use of the term CoPs while working for the Institute for Research and Learning (IRL) based in California during the late 1980s and the early 1990s. The IRL was a not-for-profit research organisation that analysed learning in schools, workplaces, and informal settings using collaborative multidisciplinary teams. The research questions were based on real-world problems and settings were defined in partnership with people in schools and workplaces who championed these activities (Wenger, 1998). Lave and Wenger (1991) first used the term CoP to describe the learning that takes place through practice and participation, which they named ‘situated learning.’ This work extends the research on apprenticeships and examines how individuals develop professional skills outside the classroom and in day-to-day working environments (Lave

and Wenger, 1991). According to Hanks (1991), the theory of *situated learning* focuses on the relationship between learning and the social situation in which it occurs, and can be contrasted with alternative views of learning. For instance, rather than defining 'learning' as the acquisition of knowledge based on awareness or availability of facts that can be documented, Lave and Wenger (1991) situated or placed learning in certain forms of social co-participation. Rather than asking what kinds of cognitive processes and conceptual structures are involved, they ask what kinds of *social engagement* provide the proper context for learning to occur (Hanks, 1991).

Lave and Wenger (1991) first used the term legitimate peripheral participation (LPP) to explain the conditions under which newcomers become included in a CoP. LPP describes the socialization process where newcomers to a collaborative group interact with experienced members and eventually become old-timers themselves. A newcomer's participation in a CoP often starts on the periphery – “a region that is neither fully inside nor fully outside” (Wenger, 1998, p. 117) and leads towards the centre through growing involvement. Wenger (1998) developed the notion of LPP to articulate the special measures (e.g., observation, special assistance, close supervision, etc.) that may be taken to open up a practice to newcomers. For Wenger, no matter how the peripherality of initial participation is achieved, it must engage newcomers and provide a sense of how the community operates. Floding et al. (2011) suggests that newcomers become members of a community initially by participating in simple 'peripheral' tasks that are nevertheless productive and necessary to further the goals of the community. Through low-risk activities, novices become acquainted with the tasks, vocabulary, and organizing principles of the CoP's practitioners. Gradually, as newcomers gain a recognized level of mastery, their participation takes forms that are more and more central to the functioning of the community. Therefore, membership in a CoP is mediated by the possible forms of participation to which newcomers have access, both physically and socially. Floding et al. (2011) observe that in the case of a mentor-mentee relationship between older timers and newcomers, the old timer has both the power to confer legitimacy to the newcomer, and to control the newcomer's level of access to different community practices and experiences. Learning is enhanced if newcomers can directly observe the practices of experts and understand the broader context into which their own efforts fit. Conversely LPP suggests that newcomers who are separated from the experts have limited access to

their tools and community and therefore have limited growth. Legitimate peripheral participation is an important background condition to the formation of a CoP because it provides a means for self-evaluation as participation increases, and situations arise that allow the participant to assess how well they are contributing through their efforts (Lave & Wenger 1991). From this perspective, a CoP is organic and can evolve naturally because of its members' common interests and motivation in a particular field or domain. However, under the same conditions, a CoP also can be intentionally created to gain knowledge related to a specific field. In each case, members have the opportunity to learn from each other and develop personally and professionally through the social process of sharing information, ideas, and experiences with a group.

Wenger further developed the CoP concept in his popular 1998 book *Communities of Practice: Learning, Meaning, and Identity*, in which he evolved the concept into a social theory of learning by explicitly focusing on what learning is and not what it ought to be (Wenger, 1998). Farnsworth *et al.* (2016) and Blackmore *et al.* (2010) note that Wenger (1998) offers a wide range of conceptual elements that have helped both inform and structure enquiries about learning, and act as analytical lenses. Wenger followed his 1998 work with other publications (some co-authored) that focused on practical applications of the CoP concept as a community-based approach to knowledge management in organisations. From 2006 onwards, Wenger wrote various essays exploring his social theory of learning, including Wenger (2009), and updated an online summary, *Communities of Practice: A Brief Introduction*. The latest version available online was co-authored by his wife, Beverly Wenger-Trayner, with whom he formed a professional partnership. Today, the Wenger-Trayners continue to consult as social learning strategists and have recently published *Learning to Make a Difference: Value Creation in Social Learning Spaces (2020)*, which continues to challenge traditional approaches to learning in the face of complex and uncertain situations. To give the theory of social learning more practical relevance, Wenger-Trayner *et al.*, (2020) specifically position learning as value creation.

In a review and interpretation of the field of public administration, Koliba *et al.* (2009) proposed that CoP phenomena can be understood as relational structures mediated by and through the social construction of knowledge. For Koliba *et al.* (2009), CoPs can be said

to exist at the intersection of intellectual and social capital, through which social networks serve as the basis of knowledge creation and transfer. Based on a study by Koliba et al. (2009), CoPs are spaces through which ‘communicative actions’ occur. Communicative action refers to Habermas’s (1984) sociological theory, which describes cooperative action undertaken by individuals based on mutual deliberation and argumentation. Conceptually, communicative action can be linked to other concepts or models of thinking and learning in professional environments, as developed by Schön (1987), Kolbe (1975), Freire (1968), and the American philosopher and psychologist John Dewey. Schön and Kolbe’s ideas on reflective practice as well as Freire’s conception of praxis capture important elements that are inherent to CoPs. In *Pedagogy of the Oppressed*, Freire (1968) contended that it is not enough for people to come together in dialogue to gain knowledge of their social reality; they must act together in their environment to critically reflect on their reality and transform it through further action and critical reflection.

Wenger acknowledges that the CoP concept does not exist by itself but is part of a broader conceptual framework for thinking about learning in its social dimensions (Farnsworth *et al.*, 2016; Wenger, 2009; Jonassen & Land *eds.*, 2000). For much of the twentieth-century ideas about social learning were heavily influenced by behaviourist approaches (e.g., John B. Watson, B. F. Skinner, and Ivan Pavlov), which focused on learning through imitation, observation and reinforcement through punishment or reward. The influential psychologist Albert Bandura was credited with the originating social learning theory during the 1960s while conducting research into the foundations of human learning. Bandura (1971) proposed that children and adults acquire new behaviours by observing, imitating, and interacting with others. Bandura’s theory, which he later renamed the social cognitive theory, found that models are an important source for learning new behaviours and achieving behavioural change in institutionalised settings (Lindzey and W. M. Runyan, 2012). The recognition that most learning was not a linear process but relied on people’s *interactions* with others led many practitioners and theorists to begin analysing the interconnections and dynamics associated with these interactions. Since the 1970s, several learning processes and systems have been developed (e.g. Vickers, 1968; Freire, 1970; Bateson, 1972; Schön, 1973; Bandura, 1977; Kolb, 1984; Senge, 1990), contributing to the conceptualisation of social learning as a process of social change in which people learn from each other in ways that can benefit wider institutions or

organisations (Blackmore, 2010; Reed *et al.*, 2010). Social learning, with an explicit focus on processes of learning as both a ‘system’ and a ‘social phenomenon’, has emerged more recently (Blackmore *et al.*, 2010; Pahl-Wostl *et al.*, 2004). This emphasis on social learning is concerned with managing or influencing systemic change, and the term is used in various ways to explore the actual and potential connections between people and their environments at different levels, ranging from individuals to groups, organisational to institutional, and local to global (Blackmore *et al.*, 2010). Woodhill (2010), for instance, wrote about building ethical institutional systems and described social learning as concerned with how different actors within society engage with each other to understand, challenge, and influence the direction of social change. Wenger (2009) argued that it is important to view human beings as fundamentally social beings rather than simply interacting beings. Learning is social because human nature is social and from this perspective, many new pathways have opened to express the social nature of human learning (Wenger, 2020).

The varied use of social learning shows that there are still considerable differences in the understanding of the concept, and there is little consensus on the theoretical basis in the literature (Reed *et al.*, 2010; Roberts, 2006). For some, social learning is generally about collective or societal learning, whereas for others, it is about multilevel and multi-stakeholder interactions that lead to concerted action for the change and improvement of situations. Others emphasise individual and group learning in their social contexts (Blackmore *et al.*, 2010). This distinction between individual and collective learning *processes and learning outcomes* has led to considerable discussion and, in some cases, criticism of projects that apply or claim social learning (Reed *et al.*, 2010). Reed *et al.* (2010) argued that the lack of clarity around the concept has made it difficult to assess whether social learning has occurred, and if so, who was involved and to what extent learning took place. To clarify the conceptual basis and initiate more discussion about what is meant by the term, Reed *et al.* (2010) proposed that to be considered social learning, a process must: (1) Show that a change in understanding has taken place in the individuals involved, (2) explain how this change goes beyond the individual and becomes situated within wider social units or communities of practice, and (3) demonstrate how the change occurs through social interactions between actors within a social setting.

The ongoing professional work and practice of Etienne Wenger is captured most recently in Wenger-Trayner *et al.*, (2020), which continues to develop the idea of social learning theory. This work recognises that in today's uncertain world, more people want to know how to make a meaningful difference in what they care about, and traditional approaches to learning can prove inadequate for this. Wenger-Trayner *et al.* (2020) write about social learning spaces to refine their earlier works and build on the theory of social learning and CoPs. To provide additional rigour and practical relevance to their interpretation, Wenger-Trayner *et al.* (2020) specifically link learning in social spaces to the idea of creating value. This perspective shows a deliberate attempt to address the need for engaging uncertainty and reframed their interpretation of social learning theory as learning to make a positive contribution to society or to enable others to make a difference. This difference does not detract from the importance of CoPs, which, for Wenger, remains the cornerstone of social learning theory. Rather it strengthens and reinforces the notion of value obtained by enabling learning through interactions with others (Wenger-Trayner *et al.*, 2020). Fundamentally, learning can be considered the core of human existence and CoPs reflect the fundamental social nature of human learning (Reed *et al.*, 2010; Blackmore *et al.*, 2010). The process of mutual engagement through learning is what can lead to a change in something that people care about. However, for the authenticity of social learning spaces to be upheld, engagement must be mutual. For example, if participants enter a CoP and do not understand what it means to participate in a social learning space, the process can be disrupted (Wenger-Trayner *et al.*, 2020). Self-awareness of the dynamics of power among participants is a critical element in sustaining CoPs (Roberts, 2006).

Alluding to his lesser-known background in Computer Science, Wenger (in Farnsworth *et al.*, 2016) used the term 'plug-and-play' to illustrate that CoPs are compatible with a variety of other theories and concepts. Wenger argued that social theory is neither true nor false. It is not a 'proposition' or a statement of truth, as in the natural sciences but instead, it has been validated by its worth in telling meaningful stories about human conditions. It guides enquiries by focusing on certain aspects of this condition, suggesting questions to pursue, and ways to frame answers. A social theory is a tool for constructing a certain type of narrative about the human condition." (Farnsworth *et al.*, 2016, p.3). Like other social theories, CoPs have their defining characteristics: purpose, stance, and technical terms. In Farnsworth *et al.* Wenger (2016) explained that the purpose of CoPs is to provide an

account of learning as a socially constituted experience of meaning-making, and that the stance is to locate the experience of learning, not in the head or outside, but in the relationship between the person and the world, which, for human beings, is a social person in a social world. The technical terms of Wenger's CoP theory include negotiation of meaning, practice, community, identity, and competence (Farnsworth *et al.* 2016). In a CoP, learning is not separate from the becoming of the learner; that is, the shaping of a person's values and behaviour. Farnsworth *et al.* (2016) pointed out that if an important part of learning is the shaping of identity, one key implication of awareness and education is that one cannot give people knowledge without inviting them to an identity for which this knowledge represents a meaningful way of being.

The most widely cited simple definition of CoPs is “people who share a common concern or passion for something they do and learn how to do it better as they interact with each other regularly” (Wenger-Trayner, 2015; Wenger, 1998). This definition incorporates Wenger's three core elements for constituting and maintaining a CoP: Community, Domain and Practice. Wenger-Trayner (2015) explained ‘community’ in a CoP as the sharing of information, engagement in joint activities, and discussions of members pursuing an interest in their domains. This is a social space where meaning and identity are negotiated, and relationships are built that enable people to learn from each other and help each other because they care about each other. The ‘Domain’ represents the shared interest or common area in which a community claims to have legitimacy to define competence. While a team or committee usually focuses on task-driven partnerships, a CoP is a learning partnership structured around the domain of practice (Wenger-Trayner 2015). CoP members may engage in various tasks in various teams or jobs. However, they are still drawn together through the process of learning related to practice (Farnsworth *et al.*, 2016). ‘Practice’ signifies that a CoP is not merely a community of interest but rather that members of a CoP are practitioners who develop a shared repertoire of resources and artefacts: experiences, stories, tools, methods, and ways of addressing recurring problems. Shared practice requires time and sustained interaction in which a sense of belonging to a community comes from participating (Wenger-Trayner, 2015).

In Farnsworth *et al.* (2016), Wenger reiterates that a CoP is not a group of people by itself or themselves, such as a team or committee. Rather, a CoP is the social process of

negotiating competence in a domain over time. This process is said to end with structuring social relationships among people in various ways, which is a secondary phenomenon. Wenger argues that, while CoPs include a network aspect in that people need connections with each other to form a community, not all networks are CoPs. For instance, not all networks entail identification with mutually negotiated competencies in the domain of practice (Farnsworth *et al.*, 2016). For Wenger, the theory of CoPs attempts to place the negotiation of meaning at the core of human learning as opposed to merely the acquisition of information and skills. The process of identity formation in practice occurs at two levels: how a person negotiates their identity as a participant in a CoP, for instance, how they express their competence in that community, and how others recognise them as members. The other is how their participation in a community generally enters into the constitution of their identity as persons (Farnsworth *et al.*, 2016). Wenger suggested that the latter is how a person inherits identity characteristics that reflect the location (or situation) of their practice in the broader social landscape (Farnsworth *et al.*, 2016). The focus of CoPs, therefore, is not necessarily to define or create knowledge but rather to shape identities through an ongoing process of being accountable to a social history of learning. Over time, CoPs develop a regime of competence through the interplay between members' participation and the repertoire of concrete resources they develop to give meaning to their learning. This process of being accountable for the social history of learning shapes the trajectory and identity of individuals and the CoP as a whole (Wenger, 2009).

## **2.2 Four seminal works on communities of practice**

Although Wenger was credited with coining the term and developing the initial concept, other authors have played an important role in the evolution of CoP thinking, while simultaneously adding variations of their own, which is often confusing. To address the variances, Cox (2005) conducted a review of four seminal works on communities of practice (CoPs): Lave and Wenger (1991); Brown and Duguid (1991); Wenger (1998); and Wenger McDermott and Snyder (2002).

According to Cox (2005), one or all three earlier works were cited by almost every author (at the time) who had used the concept of CoPs, while the fourth work (Wenger,

McDermott, and Snyder, 2002) was representative of the burgeoning literature on CoPs as managerial tools to enhance organizational performance and knowledge management. Cox's (2005) aim was to clarify variations in usage and comment critically on the different conceptions of CoPs. Although a common epistemological viewpoint underpins the three earlier seminal works, Cox (2005) observed a significant divergence. For instance, although the works share important common ground in their view of meaning as locally and socially constructed and in placing identity as central to learning, the most distinctive concepts of each are often absent from the others. There are also significant divergences in the basic conceptualisation of *community, learning, power, change, formality, and diversity*. Cox (2005) noted that this is even though all four authors were associated with the IRL (Jordan, 1996) and built on a body of common influences in the ethnographic studies of work by Suchman and Lave (Davenport & Hall, 2002). The four works also differ in style and depth of analysis from theoretical essays (the first three works) to practical handbooks (the fourth) (Cox, 2005). Wenger, McDermott and Snyder (2002), for instance, was Wenger's latest publication at the time and marks a considerable shift in writing style and therefore also perspective on CoPs since his early work (Cox 2005) .

The dominant reading of Lave and Wenger (1991) and Wenger (1998), as reviewed by Cox (2005) and supported by other authors such as Hanks (1991), Pahl-Wostl et al. (2007), Koliba et al. (2009) and Farnsworth et al. (2016) found that the concept of CoPs challenges the traditional pedagogical ideas of learning by asking what learning is rather than what learning should be. A CoPs approach views learning as an informal or natural process of interaction situated in a specific social context. Learning that takes place through situated interaction is different from learning, which is a planned mechanical process in which the human brain transfers and absorbs ideas (Cox, 2005). Lave and Wenger (1991) described learning as a process that occurs within a framework of participation and not within an individual's mind. This means, among other things, that learning is negotiated and mediated by differences in perceptions and behaviour among CoP participants. Under this definition, Hanks (1991) and Koliba (2009) clarified that it is the community, or at least the individuals participating in the learning context, who learn from each other. An important part of learning as a social process that emerges in Wenger (1998) is the substantial weight of responsibility on individuals and the group to be aware of the context of their learning, and how this influences the way their thoughts are framed.

Building on Lave and Wenger (1991), Wenger (1998) advanced the idea of CoPs as an attempt to develop an account of the social nature of human learning inspired by anthropologists and social theorists such as Bourdieu (1977), Giddens, (1984), Foucault, (1980) and Vygostsky (1978). Wenger's (1998) social theory of learning places learning firmly in cultural, political, and historical contexts (Cox, 2005). For Wenger, learning occurs through a person's participation in multiple social practices that are formed by the pursuits of an enterprise (i.e., an activity that involves discovering what works or how to do it better) over time (Farnsworth et al., 2016; Wenger, 1998). This type of interaction achieves authentic and motivated learning, because it is embedded in the complexities of real practice (Cox, 2005). Through the work of Wenger (1998), CoPs have come to represent a social discipline of learning, in which learning is more than simply acquiring knowledge, but rather a deliberate process to interrogate patterns of thinking and hold oneself accountable for the learning process by testing it through lived experience (Farnsworth et al., 2016; Cox, 2005). Through this process, transformative changes at the level of values and behaviour can be achieved. Additionally, Farnsworth et al. (2016) noted that for learning to be situated or located in the relationship between a person and

the world, the interplay between participation and reification is critical. Reification refers to tangible products that emerge from a social construction of reality; in other words, the artefacts that we produce to objectify our experience and organise our world (Cox, 2005; Wenger, 1998; Bandura, 1976).

### **2.3 Social learning systems and communities of practice**

Although CoPs are not borne in the systems tradition, Wenger (2009) and others acknowledge that they align with systems thinking, transformative change, and sustainability. Writing about systems thinking in practice. Blackmore, *ed.* (2010) stated that the emergence of explanations under the rubric of CoPs has had a widespread appeal and interest in creating circumstances for purposeful actions in complex, messy, and uncertain situations. Blackmore *ed.* (2010) presented a range of perspectives on social learning systems, including those of Vickers (1980), Schön (1973), Bawden (2000), and Wenger. During the 1960s and the 1970s, pioneering systems scientist Geoffrey Vickers considered how to master systems thinking in practice, asking questions about how humanity responds to preserving the stability of the complex social and ecological systems that we depend on and creating a collective world in which everyone can live (Blackmore *et al.*, 2010). Philosopher, Donald Schön, who developed the concept of reflective practice (reflection-on-action) and contributed to the theory of organizational learning, argued that like nature humanity must invent and develop institutions that are ‘learning systems’, self-organising systems in society that can bring about their continuing transformation (Blackmore *et al.*, 2010).

CoPs are arguably the most well-known traditions of current thinking about social learning systems, offering a framework for social learning and systems thinking (Blackmore *et al.* 2010). Wenger (2009) contended that we may know what we need to know about how to deal with many of the world’s complex problems, but what we do not have as a system is the learning capability to deal with them. From a systems perspective, the value of CoPs lies in the opportunity to create a social system that cultivates and spreads innovation. According to Wenger (2020, 2009), making a difference and the spread of innovation are features of a social system that depend on its learning capability.

Wenger (2009) identified four fundamental components of his social discipline of learning that reflect the learning capabilities of complex social systems.

- (1) The social dynamics of learning spaces (social learning spaces)
- (2) The social ethics of participating in learning spaces (learning citizenship), and
- (3) The social art of enabling learning (social artists), and
- (4) The systemic challenge of maximizing learning capability (learning governance).

Wenger (2009) considers *social learning spaces* as places of genuine encounters among learners where they can engage in their experience of practice. These social containers are enclosures (in a sense they could be called safe spaces) that enable participants to bring their own experience and their experiences of others to the learning table. Although books, documents, websites, social media, and search engines play important roles in providing information, they are limited without authentic social interactions. Learning capability depends on people and the interplay of their interactions, interpretations, attitudes, and emotions regarding what works in practice. For Wenger, the learning space of a community is built through a history of learning together over time, where commitment is derived from identification with a shared domain of interest, and with others who share that identification with the domain. Social learning spaces provide the necessary continuity of mutual engagement to develop a shared repertoire of language, concepts, and communication tools that make practices discussable. The depth and profoundness of dialogue in a social learning space contribute to building relationships and trust, which are essential for enabling joint enquiry into practice (Wenger, 2020, 2009).

Social learning spaces are developed and sustained by their degree of robustness. Wenger (2020, 2009) calls this a rigour of enquiry that is essential for the relevance of CoPs as critical knowledge management spaces. Producing knowledge that is liveable in practice requires a different form of accountability from traditional research-based knowledge. Research-based knowledge remains important but can be complemented by the discipline of enquiry, which takes practice as the place of knowledge and the person as the vehicle for *knowledge*. Wenger emphasises that to become a social learning space, the dual focus on ‘practice’ and ‘identity’ must manifest in the accountability of learning to the experience of participants, and how the experience of participants is engaged in the learning process. Wenger (2009) argued that to achieve mutual accountability and the

ability to be expressive in social learning spaces, participants must develop a high level of self-awareness. Self-awareness enables them to recognise each other as equal learning partners through the experience they bring. Therefore, participants must recognise the practitioner or expert in each other. Whether participants have equal mastery of the topic or not, they should be able to negotiate the mutual relevance of their respective experiences. However, committing to the disciplines of openness, transparency, and authenticity in a social learning space is difficult. There is personal vulnerability at stake, and a lot of trust is required to be authentic (Wenger, 2009). Furthermore, traditional interactions that are fundamentally hierarchical or lack self-awareness often view being open and authentic as a sign of weakness (Roberts, 2006).

The behaviour required for constructive social learning spaces requires a substantial commitment from participants. However, behaviour cannot be imposed and assumes a willingness to participate and engage with the integrity of learning, which Wenger (2009) calls an ethics of learning or 'learning citizenship.' Wenger argued that learning occurs both in and across social spaces. As we engage in and move across the learning spaces, we carry and present who we are. Our journey forms a trajectory of identity that involves both participation and connection across specific spaces. People and social spaces have histories, but these histories are not parallel because they crisscross a social weave. For Wenger, social learning spaces and individual trajectories are two distinct dynamics of learning that interact with one another. Their dynamic complementarity (in which they both improve or emphasise each other's qualities) is key to the learning capability and innovation of a social system (Wenger 2009). As we participate in various social learning spaces, our actions affect our nature. They also affect people with whom we interact, who in turn belong to further social spaces. Thus, learning behaviour can affect the learning capability of the entire landscape of social learning spaces.

Wenger (2009) explains that the stance or mindset that we have towards learning citizenship not only affects the spaces we enter, create, connect, or leave, but also our learning. This holds true for all circumstances within a CoP, whether we have a choice in our participation or whether we are just an observer or in a position of leadership in the learning space. Wenger (2009) argued that the quality of our engagement, whether passive or agitating, could be modulated. Modulation and intonation have a significant impact on

learning in social spaces. Opportunities to participate in social learning spaces, bridge boundaries, or convene community collectives require that participants understand and act on their learning potential. Wenger explains that individuals can address their learning potential by investing in understanding the perspective, capability, legitimacy, and accountability that is derived from their life trajectory (i.e., where they have been, where they are going, and what it is that makes them unique). Learning citizenship involves recognising that our identity, as a dynamic location in the social landscape, is a unique learning resource. As learning citizens, we are investing in and developing resources for ourselves and the world. However, learning citizenship is fundamentally voluntary, sensitive to context, and can be easily thwarted or manipulated by an obtuse bureaucracy or conflicting demands and tensions. At the same time, learning citizenship is contagious when it thrives, leading, for example, to infection. Learning how to foster learning citizenship, recognise it, and make it count is an urgent challenge for increasing the learning capability of our social systems (Wenger, 2009).

Social learning spaces are highly sensitive to social dynamics such as power, trust and bias. Successful learning spaces often reflect the work of learning advocates and champions, who provide inspiration for citizenship and address the social dynamics of learning. Wenger (2009) refers to these champions as social artists with the energy and skills to facilitate subtle and complex situations and interpersonal dynamics. Like other artists who create paintings, dances, or songs, social artists create meaningful and exciting spaces for learning. When these spaces work well, they attract others and help them discover what matters and how to change their world experiences. Social artists invite participation that is comfortable, engaged, and motivated, generating social energy and dynamics that can produce a climate of high trust and aspirations. As advocates, they help people to experience themselves as learning citizens engaged in learning and discovering what is worth caring about. Social artists have an instinct to leverage complementarity between learning spaces and individual trajectories of identity. They help people experience participatory learning spaces as part of a journey through life so that collective and individual learning blends (Wenger 2009). Like most creative artists, social learning artists are unique, vary in style, and can successfully embrace many paradoxes. Wenger (2009) acknowledges that social artists are not necessarily the experts and specialists in social learning spaces. They also do not need to be. Experts still play key roles in social

learning spaces, but the role of social artists is growing in importance. Today's world is becoming so complex that any expertise worth caring for is too extensive for one party alone to deal with. By helping people come together and discover their own learning citizenship, social artists build the capabilities of their social systems (Wenger 2009).

Wenger (2009) emphasised that social learning spaces are part of broader social systems in which learning capability depends on all sorts of small and big decisions and choices that affect learning both locally and systemically. How these decision-making processes are configured and held accountable is what Wenger calls 'learning governance.' Governance oriented towards social learning capabilities should reflect two interacting and complementary processes. Wenger (2009) explains that the interaction between stewarding and the emergent processes of governance can operate at different levels and scales. Stewarding at the local level can lead to emergent governance at the system scale and vice versa. Both have strengths and weaknesses that affect their learning capabilities. Social learning spaces often function within the context of institutional accountability. Institutional structures tend to be based on what can be called *vertical* accountability. By contrast, accountability in social learning spaces is more *horizontal*, as it exists in mutual relationships among participants. To the extent that social learning spaces play a role in organisations, Wenger (2009) argues that it is important to recognise both types of accountabilities. The respective characteristics of vertical and horizontal accountability make the tension between them inherent in institutional and organisational contexts. The tension must be managed productively; the point is not to choose between vertical and horizontal accountability but to align the two to enable learning capabilities through both emergent and stewarding governance (Wenger, 2009).

Interest in the dynamics of social learning spaces, learning citizenship, learning governance and social artists, reflects a shift in how learning is understood as a process that is inherent in our participation in social systems (Wenger, 2009). A CoP can be viewed as a simple social system, and a complex social system can be viewed as constituted by inter-related CoPs or 'landscapes of practice' (Farnsworth *et al.*, 2016). A CoP is the simplest social unit, with the characteristics of a social learning system (Blackmore *et al.* 2010). The ideology that drives the development of social learning systems and CoPs calls for a new discipline of strategic world design that links

communities and learning. Blackmore *et al.* (2010) described this as a discipline that promotes the development of strategic social learning systems to steward civic practices at the local, national, and global levels. It connects the power and accessibility of local civic engagement with active stewardship at the national and international levels. Such a discipline must also embody shared language and understanding across constituencies, regarding the nature of cross-sector civic governance and effective participation (Blackmore *et al.* 2010). Churchman (1971) and others, such as Reed *et al.* (2010) and Pahl-Wostl *et al.* (2007), have all argued that to address complex global challenges in society, we must increase our global intelligence along several transdisciplinary dimensions: cognitive, behavioural, and moral. This means increasing our societal capacity for enquiry by orders of magnitude, and our ability to continuously create, adapt, and transfer solutions.

#### **2.4 Transforming water governance through communities of practice**

Writing about transforming governance in water resource management, Pahl-Wostl *et al.* (2007) suggested compelling arguments for a shift in emphasis from information generated from scientific research that merely informs policy and expert cycles to adaptive management approaches embedded in social learning processes and informal actor platforms. Pahl-Wostl *et al.* (2007) add that it is critical to better understand the role of bridging organisations and the interplay between formal and informal institutions. In support of the inclusive and participatory approach of CoPs, Pahl-Wostl *et al.* (2007) propose that CoPs have the potential to enable a more dynamic actor landscape in which integration is not achieved by centralised bureaucratic hierarchies but rather by processes of participatory governance. Social learning processes offer the potential to build the capacity among role players that makes stakeholder participation effective to achieve joint solutions. The uncertainty and complexity brought about by climate change, population growth, and rapid urbanisation, means that effective water governance must be adaptive as well as technical. Structural elements and processes in water governance regimes need to become more adaptive without compromising their stability. According to Pahl-Wostl *et al.* (2007), water governance approaches may change when new types of networks emerge and stakeholders participating in them gain new experiences and share them with their constituencies. Institutional change derives mainly from alternative practices, rather

than deliberate consideration and choice between alternative governance structures and the implementation of new formal rules (Pahl-Wostl *et al.*, 2007).

However, Pahl-Wostl *et al.* (2013) caution that, despite the enthusiasm for this new wave of transformative thinking and research, the challenges identified are not new. In particular, the integration of the natural and social sciences, shaping of the science-policy interface, and integration of levels seem to be persistent and recurrent. Koliba *et al.* (2009) argue that the characteristics of high and low-functioning CoPs should be made more visible and more CoPs operationalised. The greater the insight into the development of CoPs and their impacts, the better equipped public authorities, administrative leaders, network facilitators, front-line practitioners, and community leaders will be to harness the capacity for inter-personal, intra-organizational, and inter-organizational collaboration. For Koliba *et al.* (2009), CoP theory has emerged as a truly transdisciplinary framework that is increasingly being used as an analytical framework to describe the dynamics of interpersonal collaboration and as an intervention strategy to promote organizational and institutional change. CoPs are increasingly used by a variety of public, private, and civil society organisations as a key strategy for system change and professional development. CoPs offer a potentially powerful unit of analysis linking the individual and collective because they situate the role of learning, knowledge transfer, and participation among people as the central enterprises of collective action (Koliba *et al.*, 2009). CoPs play a pivotal role in describing and evaluating approaches to collaborative governance. There is considerable interest in ‘how’ governance is carried out through interpersonal dynamics within network, market, and hierarchical contexts, and as platforms through which governments engage with communities and other diverse stakeholders and develop greater levels of trust and transparency (Lukat *et al.*, 2022; Van Buuren *et al.*, 2019; Koliba *et al.*, 2009).

An essay titled *Sustainability, Social Learning, and the Democratic Imperative* (Woodhill, 2002) underlines the importance of social and political adaptations in water resource management that bring about fundamental changes in human values and behaviour. Woodhill (2002) argues that in today’s world of technical specialisation, particularly in areas such as natural resource management and engineering, philosophy is often seen as esoteric and academically irrelevant. Education systems at both the secondary and tertiary

levels, particularly in the sciences, have taught the methods, specialist knowledge, and techniques of disciplines with little regard to the critique of underlying assumptions and the place of specialist knowledge in a broader picture of society and social values (Woodhill, 2002). According to Woodhill (2002), this has resulted in an entire band of academics and professionals who are largely uninterested and intellectually ill-equipped to deal with the fundamental questions of human existence, knowledge, and action. Consequently, this philosophical ignorance becomes endemic within a wider society, a situation that is antithetical to the aspirations of original Enlightenment thinkers, for whom critical philosophy was the basic instrument of human enlightenment (Blackmore et al. 2010; Woodhill 2002).

## **2.5 Limitations of communities of practice**

The literature has tended to favour the positive outcomes of communities of practice and, as such, there are few detailed critiques on the limitations of CoPs. While some authors, including Wenger (2020), Blackmore et al. (2010) and Reed et al. (2010), have focused on clarifying or verifying the conceptual basis of social learning theory and CoPs, many others have focused on improving the application of CoPs to specific disciplines or practices. Kerno (2008), for instance, explored the potential challenges confronting CoPs so that organizations may better manage conditions crucial to their success. Here perspectives of the limitations around time constraints, organizational hierarchies, and regional culture are highlighted as propositions bearing consideration when implementing a CoP.

One recurring criticism of CoPs is that Wenger's theory is not sufficiently attentive to questions of power - and its relation to learning – both at the broader level of society, and beyond the learning context (Barton & Tusting, 2005). Roberts (2006), as previously highlighted, emphasizes that CoPs challenge traditional interactions that are fundamentally hierarchical or lack self-awareness and this requires participants in a CoP to overcome the view that being open and authentic is a sign of weakness. To achieve mutual accountability and the ability to be expressive in social learning spaces, Wenger (2009) argued that participants must recognise each other as equal learning partners through the experience they bring. A CoP is often erroneously used to describe an

aspirational state of harmonious collaboration, and Wenger acknowledges that constantly committing to the disciplines of openness, transparency, and authenticity in a social learning space is difficult. Smith et al. (2017) identified certain areas for consideration in future research that could help address the dynamics of power in CoPs. These include moving toward more sophisticated ways of gauging the progress of CoP formation and development, and ways of making visible the modes of thinking and acting that matter in certain social practices to help individuals learn how to participate meaningfully within those contexts. More attention is needed to highlight the specialized ways of knowing, thinking, and doing that people need to internalize in order to participate equally in a particular social practice (Smith *et al.*, 2017). Larreamendy-Joerns and Leinhardt (2006) wrote that participation in a social learning space entails understanding not only its substantive structure (i.e., facts, concepts, theories), but also its syntax – that is, the questions that guide inquiry, the tools that allow inferences and interconnections, and the actions and principles that validate knowledge. Healthy communities of practice are organized around professionals who perform similar activities and use their strong social bonds and high levels of intentionality to extend and improve their practices by focusing on building a base of shared knowledge or knowledge systems.

## 3 METHOD

### 3.1 Deductive thematic analysis

This study adopted a qualitative research approach using deductive thematic analysis to investigate how a CoP is initiated, developed, and sustained. Deductive thematic analysis is theory driven research that involves identifying and selecting important patterns or themes and indicators from theory and applying them to the dataset to interpret the research question (Maguire & Delahunt 2017). Data for analysis was extracted from the case study of the community-based organization, Friends of Liesbeek (FOL). An advantage of thematic analysis, particularly from the perspective of a learning enquiry, is that it is a flexible method rather than a prescriptive methodology that could lead to a forced outcome (Clarke & Braun, 2013). The flexibility was necessary because of the subjective nature of the deductive process that involved identifying elements within social learning and CoPs theory and applying it to FOL. It is acknowledged that both the interpretation of CoP theory and its application to FOL was an active process of reflexivity, whereby, my own personal experience, belief systems and assumptions influenced the research process.

The overall intention of this research was to explore how fostering CoPs can contribute to improving the effectiveness of participatory spaces across different scales and sectors in the water domain. From the outset, the intention was to identify elements or themes with corresponding critical indicators from the literature on Social Learning Systems and CoPs, and then apply these to the case study of FOL. An assumption was that the practice of FOL – a local community learning how to take responsibility for and maintain an urban river – was characteristic of a social learning space or CoP. In CoP theory, learning is viewed as both a *system* and a *process* that denotes change (Blackmore *et al.*, 2010). Thus, the conceptual elements underpinning CoPs and social learning systems are the basis for interpreting the work of FOL and a theory of change towards a more inclusive, relational, and value-based perspective on nature, biodiversity, and water governance. Viewed as a CoP, it was anticipated that the domain, community, and practice of FOL could be shown to weave a narrative of how values are shaped and shared and how the informality of

individuals can establish cooperation and interrelationships that direct attention towards a public interest or common cause.

The four core elements of Wenger's (2009) social theory of learning offered a logical framework to structure the collection of data on FOL, identify critical indicators within the dataset, and analyse the results. The four themes were:

- ***Social learning spaces*** are social containers that support learning.
- ***Learning citizenship*** is the ethics of learning or awareness of learning ethics that participants should have.
- ***Social artists*** are leaders, champions, inspiring facilitators, and networkers with the skill of coordinating and motivating others.
- ***Learning governance*** is the systemic challenge of maximising learning through horizontal and vertical integrations.

Wenger (2009) used these four elements to explain the theoretical nature of CoPs and to advance his ideas on change and learning as a social discipline (Farnsworth *et al.*, 2016). In later literature, Wenger-Trayner *et al.* (2020) focused specifically *social learning spaces* - as an overarching element - to provide a more precise conceptual foundation for his ideas on social learning and further support the development of CoPs. According to Wenger-Trayner *et al.* (2020) p.13, a social learning space was 'a particular experience of engagement that takes place among people in pursuit of learning to make a difference'. The word *social* refers to a container involving people and their relationships. It is not a physical or virtual space but rather the interactions and experiences of people - including any and all natural power dynamics - which are intent on forming relationships and partnerships. The *learning* in a 'social learning space' is the joint enquiry or mutual engagement in a practice that ends up structuring these relationships. *Space* refers to a specific enclosure or shared domain of interest that defines the engagement. This could include a physical location; however, it is more precisely the domain in which social relationships are defined.

### 3.2 Data collection and processing

The primary source for data collection in this research was a case study of the community-based organisation, Friends of Liesbeek (FOL). Eisenhardt (1989) maintained that case studies are ideal when a better understanding of the dynamics behind specific actions or practices are sought. The case study aimed to understand how the Friends of Liesbeek was initiated, developed, and sustained, and included researching information relating to:

- *A history of the Liesbeek (as reflected in Chapter 1, section 1.3),*
- *The establishment and development of FOL (including how the organization was formed, its participants/members, artefacts, practices, and achievements over the past 30 years), and*
- *Key milestones or achievements resulting from the practice of FOL.*

Data was collected through the following methods:

- *Interviews with human subject (individuals connected to FOL, including current members, past members, and some non-members),*
- *A focus group with the 2018 FOL executive (using a predetermined framework of questions),*
- *An examination of organizational records, reports, and materials (including a mixture of hard copy historical documents that had been randomly filed and stored - in various states – in boxes over the years), and*
- *Publications, newspaper articles and other public documents related to FOL and the Liesbeek River.*

Using the framework of Wenger's four key elements of social learning theory, the data collection process entailed identifying critical indicators that explained the 'why' and 'how' elements that formed an enabling environment within the Friends of Liesbeek. Information was obtained from records of the organisation itself and a population sample. This included examining FOL's vision, mission and goals, and networks of relationships with local residents, other civic entities, government officials, and academia. Importantly, data collection also focused on the practice of FOL, which included identifying specific projects or learning spaces the organisation has been involved with and responsible for

over the course of 30 years. The intention was to interpret the dynamic interplay between the people and practice of FOL as a social learning space.

Wenger's (2009) four themes were also used to frame a series of questions that guided individual interviews with 13 FOL members (past and present) and a focus group consisting of the members of the 2018 FOL executive committee. The population sample can be seen as limited or biased because it did not include interviews with subjects with little or no connection to the organisation. However, some of the individuals interviewed were no longer current members and their reasons for leaving were documented. It can be argued that interviewing only those with links to FOL provided a deeper understanding of the subjects' experiences, for example, their experiences of the processes of enabling participation within FOL. It is acknowledged that negative experiences of subjects related to involvement in FOL, although seemingly few (perhaps due to the volunteer nature of the organisation), were not sufficiently probed and could form the basis for future research.

Individual interviews comprised a standard set of three core and supplementary questions to probe participants' responses. Interviews were conducted with 13 people connected to FOL, either past or present. Appendix 7 provides a full list of interview subjects. The first core question (Why is FOL important to you?) aimed to probe the subject's concept of 'community'. In a CoP, community refers to a 'sense of belonging' linked to the experience of genuine connection with others, and being part of learning how to improve something. A participant's sense of belonging in a CoP should be more than just involvement or membership in a group, but rather reflect an inherent sense of achievement that comes from participating in shared practice. Participants in a CoP, regardless of their social position, skill level, or mastery, recognise the value that others bring to the group through their experiences. The second core question (What role does FOL play in society?) explored the subjects' understanding of praxis and how competence develops in a particular domain. In a CoP, the process of negotiating competence involves testing what works in practice, and building a repertoire of resources that give meaning to that work. Lastly, core question three (What and how did you learn through your participation in FOL?) investigated the meaning of governance processes. The aim was to interpret the dynamics or interplay between people and participation, such as how decisions are made,

trust is built, and values are shaped. The core and supplementary questions are listed below.

### **Core Question 1: Why is FOL important to you?**

Supplementary questions:

- *Why do you participate in FOL? What core values and purposes do you share with FOL? (shared values and purpose)*
- *Why do you belong to FOL?*
- *How has your participation contributed to changes in both your personal and professional lives?*
- *How has your participation changed since you first became a part of FOL?*
- *Describe any events or instances that capture and illustrate how these changes have occurred.*

### **Core Question 2: What role does FOL play in society?**

Supplementary questions:

- *What does FOL do well? What domains/areas (s) can FOL claim to be competent in?*
- *How has this competence been achieved? (What activities and artefacts does FOL produce?)*
- *By whom is this competence recognised? (E.g., Both formal and informal groups)*
- *Describe any events or instances that capture or illustrate the success stories and challenges of FOL work.*

### **Core Question 3: What and how did you learn from your participation in FOL?**

Supplementary questions:

- *What dynamics make FOL an enabling environment?*
- *What are the flows and processes of interactions that govern FOL?*
- *What glue holds FOL together?*
- *What types of people/personalities are instrumental to FOL?*
- *What roles and responsibilities are necessary for FOL?*
- *What levels of participation and interaction are important in FOL networks?*
- *What attracts people to join FOL and why do people leave FOL?*
- *Describe any event or instance that captures and illustrates how FOL is sustained.*

In addition, and to supplement the individual interviews, seven members of the 2018 FOL Executive Committee participated in a focus group discussion. The purpose of the focus group was to record and interpret the individual and collective perspectives of the FOL leadership. Framed by the themes of Wenger's social discipline of learning, four questions

relating to the ‘why?’ and ‘how?’ elements that form an enabling environment within the FOL were put to the group for discussion:

1. *How does FOL remain relevant?*
2. *How does FOL use its position of influence?*
3. *How does FOL help people discover what is worth caring for?*
4. *How does FOL remain accountable to the stakeholders?*

Recordings of the interviews and focus groups can be accessed on the Google Drive link below:

[https://drive.google.com/drive/folders/1YXUbInMs7erQVDF-AFzDzmV1u8hX5lmu?usp=share\\_link](https://drive.google.com/drive/folders/1YXUbInMs7erQVDF-AFzDzmV1u8hX5lmu?usp=share_link)

## 4 DISCUSSION & ANALYSIS

*It is not enough for people to come together in dialogue to gain knowledge of their social reality. They must act together upon their environment in order critically to reflect upon their reality and so transform it through further action and critical reflection.*

Paulo Freire (1970)

### 4.1 Overview

Although the concept of communities of practice (CoPs) is age old, there is considerable ongoing interest in how the processes of social learning and CoPs can influence the effective management of knowledge today. The literature suggests that much benefit can be derived from being more intentional and systematic about fostering the elements of social learning at higher levels of scale and complexity (Lukat *et al.*, 2023; Wenger-Trayner *et al.*, 2020). When CoPs work well, they are quintessentially examples of social learning spaces. (Wenger, 2009). Fostering social learning spaces offers individuals, groups, communities, organisations, cities, and whole nations an opportunity to address the uncertainties of changing or doing something differently (Wenger-Trayner *et al.*, 2020). Social learning spaces enable people with different views to engage with others and ask fundamental questions about the issues at hand, such as how do we see this, why is it important, what is worth changing, and how do we do it? Social learning spaces exist naturally around us in many forms, but more empirical studies are needed to illuminate and conceptualise the processes that enable them. For instance, when viewed through the lens of CoP, the success of the establishment and development of organisations such as FOL becomes tangible and offers insight for others on how community action combined with natural learning processes can contribute towards the management of public interests.

Over the past few decades urban development has compromised the Liesbeek River. While some individuals in government expressed concerned about the state of the river, the prevailing approaches and priorities in urban water management did little to promote the ecological, social, or amenity value of the river. However, we can learn much from how a group of ordinary citizens who saw value in the Liesbeek River, and worked together more or less informally, took up the responsibility to change the way the river

was managed. Momentum was initially slow, but the persistence of this initial group eventually and their ability to inspire others to join along the way ensured the organisation has remained relevant and true to its purpose. Today, with increased environmental awareness, there is significantly stronger support for the work of FOL from the wider community and government, with several examples of collaborative projects having been achieved over the years. From a governance perspective, there is much interest in understanding how this informal cooperation came about, and how the different actors could sustain participation and create shifts in the way the river is managed. One of the FOL executive committee members commented during the research Focus Group that FOL has remained relevant over 30 years because of activity that produces results:

*“We have a functioning project that’s on the river that’s growing, engaging with people... residents and river users recognise the work that we do. The proof is served in the pudding but at the same time there has to be a need. There must be a need that requires servicing.”*

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Other committee members asserted that FOLs relevancy is about multi-generational support, and involvement, over the years:

*“There is a need for what FOL has done well and successfully over time. We have become more relevant the longer we do what we do well. And, particularly in today’s world with rapid urbanisation where many people live in cities, and for people who can’t travel to far flung (natural) places, the kind of nature that we look after is the only kind of nature that they will ever see. The second part that keeps us relevant is our inclusivity... the fact that we are not a closed group, we have a membership base, but we encourage other channels to be involved and do not exclude other people. We encourage volunteers. People are not excluded from being involved in anything that we do.”*

Referring to the inclusivity of FOL and its ability to provide an ongoing space for engagement and learning, another Exco Member asserts:

*“People are also not excluded from being critical of FOL. Part of being relevant is listening to and working with other people’s ideas and opinions. The fact that whoever is involved or critiquing or supporting the work that we do is a constantly*

*changing number and group of people... and I think that that is how the organisation remains relevant, by being fluid... just as fluid as the river.”*

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#### **4.2 Interpreting FOL as a social learning space**

The analysis and discussion of FOL in this chapter aims to offer a deeper understanding of communities of practice (CoPs) as an application of social learning theory. CoPs work well in times of complexity and uncertainty because engagement in a CoP embraces the tension of caring about something and trying to find ways to address it by testing and evaluating what works in practice (Wenger-Trayner *et al.*, 2020). FOL is an organisation that “invites people to feel comfortable, and to find entry points into the type of work that is needed to restore an urban river” (Exco Focus Group). Social learning spaces are useful spaces for learning more about what is already known and for participants with greater knowledge or understanding to share their insights with others. An important principle of CoPs is that all participants view the CoP as an opportunity to honour mutual engagement (Wenger-Trayner *et al.*, 2020). For instance, this means that participants with greater knowledge of something must still learn to get along with those who are still learning.

Illuminating the practice of FOL through the case study is important for this research because social learning and CoPs are deep theoretical constructs, and more empirical examples are required to interpret them (Lukat *et al.*, 2023; Wenger-Trayner *et al.*, 2020; Pahl-Wostl *et al.*, 2007)). The data collected from FOL consisted of information gathered from interviews, focus groups, workshops, and records of activities or engagements. The datasets were structured and analysed using four main themes: social learning spaces, learning citizenship, social artists, and learning governance. Although all four themes contributed to addressing the research aims and objectives, *social learning spaces* was the overarching theme used to determine whether the indicators present in the data reflected the core elements of a CoP. The intention was to interpret the dynamics of FOL through the lens of social learning spaces to provide insights into how CoPs are initiated, developed, and sustained. CoPs are quintessential examples of social learning spaces (Wenger, 2009) and can play an important role in structuring and analysing authentic

social interactions between state and non-state representatives. These interactions are based on relationships that engage in learning through action and reflection. The assumption is that if fostered intentionally within institutional systems, CoPs can lead to more inclusive, relational, and value-based approaches to nature and biodiversity in water governance and management (Wenger-Trayner *et al.* 2022).

Throughout the past few thousand years, the catchment below the eastern slopes of Table Mountain has been a container for many social interactions. From early hunter-gatherers and Khoi-San pastoralists to pre-millennial settlers and modern-day families, generations of individuals and communities have engaged in the Liesbeek River context for various reasons. Whether it was a source of fresh water, a fertile floodplain for growing food and crops, or a risk to health and safety, the Liesbeek has been an enclosure for social interaction. According to social learning theory, all interactions involving the Liesbeek, whether in the conscious or unconscious minds of people, involve forms of social processes as the basis for information exchange and learning. This learning occurs both formally and informally, vertically and horizontally across different scales, from a few individuals to a family, community and nation. However, not all social interactions, whether past or present, are genuine social learning spaces. To be considered a *social learning space*, Wenger (2009) argued that there must be rigour of enquiry and accountability to participation that is expressed through a culture of learning. Social learning spaces are a commitment to peer-to-peer learning that focuses on practice among a self-organising group of practitioners. In a social learning space, participants produce tangible resources and tools that reflect evidence of learning practice over time.

From pre-industrial times until the early 20<sup>th</sup> century (before storage dams and piped water supply to homes), the availability of freshwater could be viewed as an important container and a common cause for many of the social interactions around the Liesbeek (e.g. obtaining drinking water, washing clothes, cleaning animal skins, etc.). However, this focus or interest began to change as culture and values shifted with the needs and aspirations of urban settlements, and new approaches to water management linked to advances in engineering. By the mid-20<sup>th</sup> century, the interest or value attached to the Liesbeek River (or should it rather be said, the interest or value ascribed to it by the municipality given the prevailing bureaucratic decision-making processes) was mainly

functional. The Liesbeek was mainly a convenient passage for discharging wastewater into the sea at Table Bay. By the late 1950s, many of the lower reaches of the Liesbeek were canalised, and the ecological services of the river were suffocated. As development continued to expand along the riverbank during the 1960s and the 1970s, many commercial and residential properties were designed and constructed to face away from the water's edge for the purposes of security and flood mitigation. The preference for hard landscaping and non-permeable surfaces further impacted the natural drainage of the catchment, and levels of pollution increased in the river. By the 1980s and the early 1990s, the rise of activism and public consciousness around environmental conservation, coupled with government-led sustainable development programs such as Agenda 21, precipitated a shift in thinking towards greener cities. Additionally, in South Africa, the uncertainty of what a new democratic government would bring after the apartheid rule also contributed to a heightened public awareness and community mobilisation to address common issues. The degraded state of the Liesbeek gained public attention and several groups began to emerge with an interest in improving conditions along the river.

The establishment of FOL can be traced to approximately 20 local residents who attended an inaugural meeting on 16 September 1991 hosted by the Wildlife Society of Southern Africa. The purpose of the meeting was to identify *active citizens* who would establish an "Individual Friends Group" (IFG) under the 'Friends of Nature Areas Trust' scheme. The Friends scheme was a national project of the Wildlife Society intended to provide an opportunity for all concerned individuals to become involved in actively caring for natural or semi-natural areas, particularly urban 'green lung' areas. As recorded in the minutes of the inaugural meeting, the election of a Friends of Liesbeek River (FLR) steering committee consisted of five professional people with specific interests in the Liesbeek including environmental education, urban beautification and public accessibility, local action for global sustainability, academic and scientific study, and the impact of urban development on natural systems. It is noteworthy that during the late 1980s and the early 1990s, there was limited language available to collectively articulate interest in green urban infrastructure projects, which today can be described using concepts such as Landscape Urbanism, Ecological Urbanism and Urban Ecology. All five inaugural members of FOL were professionals in a range of fields (doctors, engineers, and teachers), which points to the diversity of a group brought together by a common cause. The level

of professional skill in this initial group also indicates that not just anyone can form and sustain a CoP. It requires individuals with leadership ability, champions, or social artists, as Wenger calls them, who can facilitate and sustain mutual interaction around the learning and repertoire of resources required to engage in practice. Under the Constitution of the Friends of Nature Areas Trust, the FLR steering committee was responsible for recommending to the first general meeting of the FLR a draft mission statement and constitution, the geographical area with which the FLR would be concerned, the projects that could be undertaken, and the names of people who could be invited to serve on the first FLR Committee.

The minutes of the first meeting of the FLR steering committee on 30 September 1991 record the Wildlife Society (WLS) representative as reminding the committee:

*“Among other aims, WLS stands for conservation for the people, who should be able to raise their ideas and concerns for the natural environment with relevant authorities. The WLS believed that once IFGs became intimately involved with their areas, they could aid authorities in decision making and act as watchdogs to ensure that the environment is conserved and protected. The IFGs could raise funds for projects, thereby relieving the coffers of the local authorities.”*

(FLR steering committee, 30<sup>th</sup> September 1991)

This statement is important because it emphasises the founding mission of FOL to represent the community, be involved in decisions made by authorities, and provide support for the implementation and evaluation of public conservation projects. The specific objectives of the FOL, as recorded in the 1991 constitution, are as follows:

- *To promote the conservation of the Liesbeek River Nature Area by forming an active team of volunteers to conduct surveys, establish educational facilities, monitor the flora and fauna in such areas, and carry out related activities.*
- *To rehabilitate and encourage maintenance of the environment of the Liesbeek River Nature Area – insofar as it is practicable and appropriate – by enlisting and encouraging projects and support from communities, clubs, institutions (including schools), and societies and authorities.*

- *To plan and enhance the environment of the Liesbeek River Nature Area, primarily to cultivate suitable habitats for indigenous flora and fauna, and secondarily to foster educational, recreational, and leisure activities in conjunction with communities, clubs, institutions, societies, and authorities.*

(First general meeting of FLR, 28<sup>th</sup> November 1991)

Over the past few thousand years, many of the social and ecological contexts in the Liesbeek catchment have continued to have an impact on present-day activities. This will be alluded to in the discussion that follows, but the analysis is limited to dynamics between 1990 and 2023 that specifically relate to the Friends of Liesbeek (FOL). This period corresponds with the emergence of democracy in South Africa and the increasing awareness and education of governance outcomes that support sustainable development (e.g., the King IV codes of good corporate governance). Many sites in and around South African towns and cities are known to have cultural and environmental significance, particularly those linked to rivers and other water bodies. Apart from resource conservation, water is viewed by many as a cultural and spiritual element, and the Liesbeek, with its history of social interaction among indigenous people, is no different. Some of this history has been reflected in the tension between urban planning and environmental conservation. For example, major new developments along the Liesbeek are under considerable scrutiny, and what it means to fully consult with all relevant stakeholders is regularly subject to legal challenges. Examples include Protea Village, a land claims residential development in the upper Liesbeek, and the River Club commercial development in the lower reaches. Both developments are situated on ecologically sensitive land and can fundamentally alter the dynamics of the river with unintended impacts. The former is planned along what is arguably the last remaining pristine area of the Liesbeek, whereas the latter has been built on a designated wetland and culturally significant site at the confluence of the Liesbeek and Black River. Both developments have been the focus of media attention in South Africa, with FOL being involved in formal engagement and legal processes to resolve issues. In both examples mentioned above, the role of FOL has been to use its competence as a bridge to facilitate the best possible outcome for conserving the river among stakeholders. This competence, which comes from ongoing learning of the practice of conserving an urban river, has been a regular

feature of FOL over the years. However, FOL's competence in the domain takes time to build. Founding members of FOL have acknowledged during interviews for this research that the early days of FOL were a pioneering period where the members "didn't really know what (they) were doing" but remained committed and "learned by (their) bootstraps" (interview 7: Dave Wheeler). The respect and authority that FOL has today come about through the knowledge and experience it has accumulated and shared over the last 30 years. Importantly, the competence of FOL has been gained from building relationships in the community and with public officials and from documenting evidence and developing tangible resources to address these issues. FOL's relevance is acquired through its willingness to listen to and work with other people's ideas and opinions. The nature of the organisation is fluid, and while there has always been a core leadership group in the form of an executive committee, there is a consistent flow of state and non-state actors in and out of the organisation providing support and critiques of FOL's work.

Despite being a community-based organisation, FOL does not represent the views of everyone in the community all the time, and as a social learning space, it should not. During the EXCO Focus Group A recent chairperson of FOL stated:

*"FOL is not beholden to its funders, local authorities, or residents, but remains true to what it believes is best for the river: protecting biodiversity, maintaining infrastructure, identifying transgressions, and being quick to respond. Therefore, FOL's responses are based on what the organisation believes it can best influence through its internal capacity and wider networks, even if this takes time to achieve."*

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This is in line with Wenger's (2009) view on the interacting and complementary learning roles of stewarding and emergent governance in his theory of social learning. In the examples of the two property developments mentioned above, stewarding governance can be seen as the FOL's stance as the 'voice of the river' or champion of conservation accountable to its social history of learning, while emergent governance is where FOL acts to influence an acceptable outcome based on the cumulative effect of local decisions and its experience of practice. Social learning is inherently political and involves decisions about what matters, what counts as learning, and the right direction to move forward

(Wenger, 2009). If learning suggests doing something better or creating value, then the definition of ‘better’ or ‘value’ is contestable (Wenger-Trayner *et al.*, 2022). The stewarding and emergent governance role played by CoPs can be problematic and illustrated in FOL. First, it relies on having sufficient competence (which may take time) but also the availability of strong leadership and capacity to provide ongoing direction and fulfil objectives. Where leadership or capacity is limited within a CoP, resources must still be found. This is especially true for volunteer organisations or non-profit and public benefit organisations that are reliant on external funding or the time and energy of volunteers. However, the counterargument to this is that through learning and experimentation and members’ connections to other organisations and networks, resources can be mobilised. It is the nature of Cops to find ways or solutions, even when a few appear to exist. Blackmore (2009) and Pahl-Wostl *et al.* (2007) remind us that higher-functioning CoPs have a greater diversity of skills and perspectives to bridge the divide between formal and informal interaction and mobilise resources. Therefore, institutional systems that foster landscapes of higher-functioning CoPs should lead to greater knowledge and value creation.

### **4.3 Milestones and examples of FOL practice**

The main themes for analysis (social artists, learning citizenship, learning governance, and social learning spaces) are further illustrated by several milestone projects and events in FOL history that are documented in FOL practice records (e.g., the minutes of meetings, articles, reports, and academic research). The key milestones referenced here are:

- *The Liesbeek Maintenance Project (est. 2004),*
- *Discovery of Purple Loosetrife along the Liesbeek (2009) and subsequent partnership with SANBI,*
- *Liesbeek Life Plan (est. 2014),*
- *Awareness & education Program (2016)*
- *Vision & Values Workshops with Common Cause South Africa (2018)*

FOL’s documentation of its methods and learning over the years has been detailed. Wenger (2009, 1998) regards the quality of the repertoire of resources in a CoP as essential for creating and sustaining a successful CoP. The richness of FOL’s tangible resources

(records, methods, and tools) and intangible resources (trajectories, relationships, networks) since inception has helped the organisation and its individual participants remain accountable to the social history of learning. In the first 10 to 15 years of FOL (a period without the benefit of much electronic storage), information was physically organised by a teacher accustomed to the administration of filing records and developing learning materials. The development of resources and relationships in a CoP is important because it reflects the quality of accountability to learning through mutual engagement and the formation of both individual and collective identities.

#### **4.3.1 Liesbeek Maintenance Project: The river as a social learning space**

The formation of the Liesbeek Maintenance Project (LMP) in 2004 and its ongoing work today is a good example that describes the notion of practice as the place of knowledge in FOL. The LMP, which had humble beginnings, is described by current committee members as the flagship project of FOL today, and has won several national greening awards. The daily work of the LMP under the direction of a river manager and executive committee consists of litter and waste removal, alien invasive plant removal, and the planting of indigenous vegetation. The team also engages with residents and schools delivering educational programs and responding to reports (largely on social media) from community members of pollution spills and problems with the general state of the river. The LMP is the common cause practice of FOL made visible or as one committee member describes: It is what the river looks like at any given time; what the newspapers or people on social media see happening and report about life on the river.

Through the LMP, FOL is constantly learning and developing its competence in restoring an urban river through mutual engagement and feedback from community and government officials. Every day, the visibility of doing is a continuous process of forming momentum, building networks, and having conversations on and about the river. This is the essence of FOL today, but it did not start with that. During the first decade of FOL's existence (1991 to 2001), the organisation relied on volunteers to clean the river, but the work was overwhelming, and interest waned quickly. It made no sense to clean a river when conditions reverted within days. FOL was further hindered by its limited capacity and resources to implement projects, while also relying on its parent body (WESSA) to

authorise decision-making and source funding. During this time, the FOL executive committee's discussion centred on the amount of work required to maintain the Liesbeek and the need for a dedicated team to carry out this work. Beyond the work of FOL, there was no specific plan or program in place by the municipality for the upkeep of the river. However, the committee succeeded in engaging private businesses that agreed to donate to a pilot project that resulted in the launch of the Liesbeek Maintenance Project (LMP) on 1 September 2004 which continued to operate. The first LMP team consisted of two contracted employees working two days a week and was managed by a local preschool teacher as the river warden. The LMP precipitated the registration of FOL as a not-for-profit (NPO) company under Section 21 of the 1973 Companies Act in South Africa. It is interesting to note that, in October 2003, the WESSA recommended that FOL's application to become an NPO be scrapped. The FOL committee initially accepted this but later reversed their decision in a move that would reveal increasing independence from WESSA. Despite the autonomy gained, FOL has retained its association with WESSA and today is regarded as a leading group under the 'Friends' umbrella. The work of the LMP and its team (currently FOL employs a team of six to eight permanent LMP team members) is endorsed by the municipality, the City of Cape Town (CoCT). There is no formal memorandum of understanding written up, but the endorsement from CoCT exists through the relationships between FOL committee members and relevant officials, which is underpinned by the competence FOL has developed over time. The municipality provides no direct funding for FOL but contributes to operational materials and resources when available.

#### **4.3.2 Learning Governance: FOL's discovery of purple loosestrife**

The discovery of Purple Loosestrife in the Liesbeek River in 2009 by a member of the FOL is a significant indicator of the important role that community-based organisations can play in initiating projects in water management and conservation. Purple Loosestrife (*Lythrum salicaria*) has been described as a rapidly spreading plant species that invades natural and disturbed wetland areas by crowding out native vegetation. At the time of its discovery in the Liesbeek, the plant was little known locally and had not been identified in any other river systems in South Africa. Under the management of the LMP, FOL initiated the Purple Loosestrife Project in 2010 in collaboration with the South African

National Biodiversity Institute (SANBI) and the City of Cape Town to systematically remove the invasive plant through identification and mapping. Under the care and management of the LMP, the noxious weed has been identified, mapped, and systematically removed from the river and its banks. At the time, the LMP river manager reported that both FOL and SABI's Alien Vegetation Removal Unit had learned a considerable number of methods of control and removal of the plant, and significant damage to the Liesbeek catchment had been averted. The report elaborated that Purple Loosestrife is a perennial that grows up to 3m in dense stands, displacing indigenous vegetation, and has up to 50 shoots per rhizome. It can produce three million microscopic seeds per annum, germinating in mid-spring and early summer. When dropped in water, seeds sink to the bottom and float to the surface during germination. Purple Loosestrife can grow in shady conditions, is highly adaptive and spreads dramatically but can be eradicated by using a systemic water-friendly herbicide that is transported from the cut flower to the roots. The cut flowers were sun-dried in a municipal depot and then incinerated. This example of FOL initiating collaboration with the government reveals the potential of how social learning spaces are realised when they connect all players at various levels who can contribute to it. Blackmore (2010) and Wenger (2009) refer to this as a large-scale learning system that can operate at the local and global levels and increase society's collective intelligence. The suggestion is that effectively managing strategic capabilities primarily entails supporting self-organising groups of practitioners who have the required knowledge, use, and need it (Blackmore *et al.*, 2010). CoPs reflect the principle that practitioners who actively collaborate and participate with stakeholders are in the best position to steward knowledge assets related to their work. Like the discovery of Purple Loosestrife on the Liesbeek, spontaneity and innovation occur in social spaces where structures are less formal, and ideas can flow. Again, the changes pioneered by FOL come from experience and practice, which Wenger (2009) argued is different from traditional research-based knowledge. There is rigour in the discipline of enquiry that takes practice as the place of knowledge and the person as the vehicle for that knowledge (Wenger, 2009).

### **4.3.3 Learning Citizenship: FOL's commitment to participatory processes**

To give life to the Liesbeek Life Plan (LLP) and specifically increase engagement with the Liesbeek community, an awareness and education program was implemented by FOL over two years from 2016 to 2018. The programme, which was limited due to the availability of funding for the facilitator, began with a series of interactive events and experiential activities, including talks, walks, tours, and workshops hosted at places of interest, such as schools, hotels, and businesses along the river. Each of these implemented a water-sensitive design project or other broader sustainability initiatives. The education program was intended to connect a range of stakeholders in the Liesbeek catchment and establish an informal learning network that provided spaces for potential participants in a CoP to coalesce. The programme presented new opportunities for cross-sector learning about, among others, history, heritage, ecology, engineering, geography, land use changes, and society, as well as learning about the Liesbeek Life Plan itself, which included community involvement in water quality monitoring and stormwater management. In the second year of the program, emphasis shifted to the development of ideas and implementation projects for the LLP that either birthed or were nurtured in the interactions and relationships of the 2016 program. Events and activities were coordinated more intentionally to support the specific FOL projects outlined and discussed below.

In 2016, two public workshops were arranged to introduce the Common Cause methodology to interested Liesbeek stakeholders. A third workshop was held specifically for FOL committee members and academics from the University of Cape Town. The workshops were facilitated by Common Cause South Africa, which is a member of the Global Common Cause Foundation Network. Common Cause was invited because of the potential of the methodology to stimulate and sustain collaborative learning processes. Common Cause works at the value level to address some of the underlying structural causes of social, ecological, and economic injustices. The methodology draws on extensive collaboration with leading social psychologists from different countries who acknowledge that values are a driving force behind many human attitudes and behaviours. Values are expressed in most of what people say and do, and advertising, media, entertainment, business, and political practices are often criticised for reinforcing undesirable values. The Common Cause Handbook (2012) states that so-called intrinsic

or compassionate values underpin a deeper concern for social and environmental issues, particularly bigger societal or so-called wicked or complex systems problems. Common Cause reiterates that emphasising these values in various ways motivates people and organisations to become more engaged in these issues. Compassionate values are inherent in everyone, but society often reinforces selfish or extrinsic values, which can occur at the expense of individual well-being, societal justice and cohesion, and the environment. Giving voice to and strengthening compassionate values helps to widen and deepen responses to a broad range of social and environmental challenges (Common Cause Handbook, 2012). Feedback from the initial workshops was positive, with requests for FOL to go deeper into implementation. As a result, a series of four FOL strategy and implementation workshops were designed and facilitated over six months by Common Cause SA. The objective was to assist the FOL committee and relevant LLP stakeholders in developing a new vision for FOL based on deeper values, a set of organisational values and operational principles, and a high-level plan for strategic activities. Through these workshops, FOL emerged with an audacious goal for the Liesbeek community to become world-recognised as an inspiring example of how people and organisations can come together to create and maintain a water-sensitive, future-minded urban catchment.

These and other examples reflect how FOL has become the locus for apprenticeship or situated learning. Community organisations such as FOL play an important role in the informal education of both its members and the wider community. While every interaction on the river is an opportunity to educate and inform others, the sustained interaction and commitment to learning through participation that exists within the core of FOL enables a shift in thinking and lasting change. Lave and Wenger (1991) used the term situated learning to refer to a continuous social process of action learning in which practitioners from diverse sectors, disciplines, and organisations work together to share ideas and create new approaches. The age-old tradition of apprenticeship is captured in the theoretical concepts of situated learning and legitimate peripheral participation (Wenger, 1998), which Wenger used to develop learning citizenship in social learning spaces and CoPs. Wenger (2009) argued that the type of behaviour required for productive social learning spaces must show intentionality around the ethics of learning. Learning from a social perspective is a crisscross weave and the interplay of life journeys in and across different social spaces. One person's learning behaviour can affect the learning capability of others

across the entire landscape of social learning spaces. According to Wenger (2009), learning citizenship concerns the extent and quality of our engagements in different spaces and how this contributes to both the development of individual identity and that of society. Wenger (2009) acknowledges that like participation in FOL, learning citizenship is voluntary. Learning is also ethical in the sense that people act as learning citizens based on their own experiences of the meaning and value of doing so. Learning and the attendant need for unlearning are journeys of the self, with birth and death, resistance and unwillingness, doubts, and inspiration (Wenger, 2009).

Evidence of learning citizenship in FOL can be seen through the interplay between individuals and groups connected to FOL and how the interconnection of their trajectories shapes their identities. In other words, FOL has been a learning space through which a variety of people and groups have participated and expressed themselves as part of understanding their own identity and shaping the identity of others, for example, by influencing other learning spaces using what they have learned in FOL. A former LMP manager illustrated this by saying that (their) experience in FOL built a lot of confidence and ability to drive change; by feeling supported, they could get things done and see the changes they were making. Almost all LMP managers (as well as other members) have developed their skills and experience by working in the FOL. Some have gone on to take up senior positions in the government, academia, or private sector. Several former LMP managers also remained members of the FOL or were elected to the executive committee after their LMP contracts ended. Despite their 'day jobs', these and other members of FOL continue to see value in the organisation and contribute to the learning and direction of FOL. The degree of willingness of people to stay involved in FOL could be motivated by many factors, but for those who have stayed connected, it illustrates a commitment to informal learning where learning how to make a difference is shared and connected to other CoPs through feedback loops. Although commitment to learning in a CoP is affected by the dynamics of power, trust, and bias (Roberts, 2006), informal learning remains a central element in developing and sustaining CoPs. Wenger, McDermott, and Snyder (2002) proposed that distinguishing competencies in today's complex world depends on knowledge-based structures that are not restricted by formal affiliation and accountability. They argue that the most distinctive and valuable knowledge in an organisation or institution is difficult or impossible to classify and is closely associated with the

intersection of people's personal and professional identities. Developing and disseminating such knowledge depends much more on informal learning than on formal learning. Informal learning activities and personal relationships among colleagues are hallmarks of CoPs because they rely on trust and willingness to help, enabling conversation, storytelling, mentorships, and lessons learned through practical experience (Blackmore *et al.*, 2010).

Blackmore *ed.* (2010) noted that one way to assess the level of civic stewardship in any city is to analyse the prevalence, inclusiveness, and effectiveness of community CoPs such as FOL. As a civic organisation, FOL has learned three main lessons in its approach to catchment management. The first is to actively deal with the ongoing environmental degradation caused by pollution and general neglect through a structured maintenance program, such as the LMP. The second is to improve environmental awareness and education through guided walks and talks, and practical activities for public officials and business and school groups where they use tools to monitor the health of the water and engage in clean-ups along the river. Third, it is necessary to gradually shift societal values towards the emergence of heightened public interest in ecology, biodiversity, and ecosystem services by enabling strategic project interventions in the river corridor. The goal of FOL is to bring people as well as nature back to the river, through processes that advocate for the 'rights of the river' (Koons, 2009) and create amenities and improved aesthetics that foster interest in local ecosystems. The work of FOL is increasingly evident in its growing capacity to undertake new initiatives and promote dialogue among a variety of community groups that live and operate alongside the Liesbeek River. FOL can be seen as a strategic model for communities that are aligned from the bottom up, where citizens have taken greater responsibility for managing the commons and participating in CoPs. Given the complexity of sustainability challenges and the current failure of many municipalities in South Africa to provide adequate water management services, the transformation of water governance through forms of civic development underpinned by CoPs is compelling.

FOL, together with its broader network of community-based organisations, links to the University of Cape Town and influence among officials at the City of Cape Town, has the qualities of an emerging multi-stakeholder learning partnership and a high-level CoP.

However, it will still take time and effort to sustain the processes of such mutual participation because theory and policy are clean, but practice is messy, improvised, and always requires judgment (Wenger, 2009). Mistakes will be made, and these need to be openly expressed between parties without fear of reprisals. There should be the freedom to learn and unlearn, which is the value of practice-oriented trust (Wenger-Trayner *et al.* 2022). The fact that FOL has been sustained for almost thirty years suggests that there is a definite commitment from a range of stakeholders to support the work of FOL and that FOL as an organisation has remained relevant and accountable to its purpose and practice. The evidence is in the ongoing interest from the community and visitors in its projects and a stable (although aging) community membership base and volunteer executive committee with support from local authorities and corporate sponsors.

#### **4.3.4 Social Artists: Members that actively network and build relationships**

Reed *et al.*, (2010) and Blackmore *ed.*, (2010), however, caution that all collaborative processes, even CoPs, face considerable challenges navigating environments that are political, where the nature and value of existing systems and therefore the value of building resilience or enabling change are contested. Reed *et al.*, (2010) suggest that to counter these dynamics leaders within CoPs need to facilitate deliberate, strategic interventions that contribute to equitable, socially just outcomes. Blackmore *et al.*, (2010) and Pahl-Wostl *et al.*, (2008) emphasise that building and sustaining trust are essential parts of this process, but the nature of perseverance can teach and promote resilience. A member of the FOL executive committee illustrated these points by saying that when FOL works well, it is truly amazing to bring different people together. The same person added that through their participation in FOL, they learned how to inspire and motivate people to understand what it is that FOL is trying to achieve:

*“We have had some real charismatic personalities in the organisation, people who actively network themselves and are good at that level of interacting and networking. Push themselves into other groups. Having people who are good at ‘that level of networking’.*

It is an essential skill in a CoP to enable others within different levels of society to help and participate in the mission. Wenger (2009) argued that CoPs need leaders or social artists who have subtle energy and skills that invite participation. Social artists create a climate of high trust and aspirations, helping people to experience themselves as learning citizens by engaging with their passions and discovering what matters to them (Wenger, 2009). FOL was founded by several social artists and has attracted and shaped new ones. Through its social artists, FOL has helped citizens and public officials to discover why the Liesbeek is worth caring for. These charismatic personalities are people who actively network themselves and interact well with other groups. Such leaders start the conversation and bring critical awareness to others through the social reality of what those people value the most. As Freire (1970) suggests, when people become involved and participate in FOL, they begin to identify with aspects of the river until they feel themselves to be in the situation and are thus able to critically reflect upon its various aspects. This is how people gather understanding through praxis, like a photographer, bringing a picture into focus (Freire, 1970). FOL members recognise this:

*“I think there’s no doubt we have created interest around this space, and that interest is created because of increasing biodiversity, for one. If you look to nature... nature is an amazing connector. We underestimate the power of nature to reconnect people to urban spaces – we need to push this more, because that's the connector... there are otters in the stormwater biofiltration ponds, birds, mongooses, fish.”*

EXCO Focus group

## 5 CONCLUSION

Cities worldwide face the complex task of dealing with future growth while adapting to water stress, climate change impacts, and equitable access to essential services such as health care, water supply, and sanitation. These issues have forced professionals and practitioners to rethink how water-sensitive urban planning can be integrated into development scenarios. Communities of practice (CoPs) is principally a theory that confronts pedagogical processes that hinder learning. CoPs can help us think differently about how we learn as a society and create new understandings and behaviours in times of complexity and uncertainty. A CoPs approach advocates for value creation as the organising principle of learning, which means that we should not focus on creating objective knowledge but on designing learning contexts that promote the negotiation of values (Wenger-Trayner *et al.*, 2020). Such contexts can be viewed as *social containers* or social learning spaces that enable honest expression - whatever can be meant—and are beneficial, relevant, and meaningful to all stakeholders (Searle, 1969).

The aim of this research was to explore how a CoPs approach can contribute to improving the understanding of participatory spaces across different scales and sectors in the water domain. Through the work of community-based organisations, such as FOL, empirical evidence shows that participation between state and non-state actors is improved through the creation of social learning spaces where particular experiences of sustained engagement take place among individuals that are intentional about the pursuit of learning to make a difference. The work of FOL shows that sustained engagement in a practice over time leads to the establishment of networks of relationships and trust between different actors - local residents, other civic entities, government officials, and academia. The principal belief of a CoPs approach is that through multiple iterative cycles of deliberation and engagement among diverse participants or ‘learners’, sufficient social capital is developed that enables collaboration in a wide range of formal and informal relationships (Reed *et al.*, 2010). A CoPs approach offers the potential to overcome situations where state and non-state actors continue to work independently from each other and do not sufficiently share, adopt, and implement solutions that work in practice and can be replicated at scale. Integration and adaptation at different levels and scales should be possible if institutional structures and processes foster conditions that

accommodate diverse views, build a shared understanding of the different elements of a problem through praxis, and mobilise resources and capacity to deal with them. The crucial features of CoPs can be maintained regardless of how many participants join or leave as long as the basic configuration, organising principles, and opportunities for local engagement are the same (Farnsworth *et al.*, 2016; Blackmore *et al.*, 2009). It should come as no surprise to those interested in natural resource management and sustainability that the nested structure of a landscape of CoPs mimics infinitely complex patterns that are self-similar across different scales in nature.

In successful CoPs, participating individuals are constantly aware of the underlying assumptions and values that lead them to assume particular positions. Working collaboratively involves negotiation and conflict resolution, which requires individuals and groups to make assumptions explicit and seek common values (Woodhill, 2002). Many techniques and methodologies adopted by participatory approaches fail because they are applied without sufficient philosophical understanding of the reasons for involving people in the first place (Lukat *et al.*, 2022). The goal should be to incorporate intellectual reflections on social learning into public management workspaces as much as possible. Potential CoPs do not have to and, perhaps, should not have to include all potential stakeholders, but a critical mass of alignment or meaningful inclusivity is necessary to move the process forward and achieve the desired outcomes. Environments conducive to social learning and building CoPs are determined by the quality of interactive processes. High-quality engagements may decrease the overall time required to achieve desired outcomes. Resilience is more likely when water governance systems incorporate ways to understand diverse social and cultural values, and the role that citizens play in constructing a new environmental reality (Buurman *et al.*, 2018). Natural resource management professionals, community leaders, activists, and government officials should be taught to understand the necessity and responsibility for being conscious and critical of the assumptions that underpin their practices (Woodhill, 2002).

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## 7 APPENDICES

### 7.1 List of individuals interviewed.

	<b>Name</b>	<b>Date interviewed</b>	<b>Duration of interview</b>	<b>Relationship to LLP</b>	<b>Consent</b>
1.	Taringana Nyamunda	26 Sep 2018	50:06	Former student intern	Yes
2.	Phil McLean	02 Oct 2018	1:43:22	Current FOL chairperson, exco member and LMP manager	Yes
3.	Trevor Hughes	04 Oct 2018	1:13:50	Current FOL vice-chairperson and exco member	Yes
4.	Kyran Wright	11 Oct 2018	1:37:36	Current FOL exco member and former LMP manager	Yes
5.	Nick Fordyce	17 Oct 2018	1:29:47	Current FOL exco member and former LMP manager	Yes
6.	Grant Irlam	17 Oct 2018	1:21:56	Current FOL exco member and treasurer	Yes
7.	Dave Wheeler*	19 Oct 2018	1:13:44	Current FOL ordinary member and former founding member	Yes
8.	Liz Wheeler*	19 Oct 2018	1:13:44	Current FOL ordinary member	Yes
9.	Bernelle Verster	19 Oct 2018	1:00:10	Current ZPAAC exco member, and UCT academic	Yes
10.	Francine Dieckmann	23 Oct 2018	1:00:44	Former FOL exco member	Yes
11.	Jason Mingo	29 Oct 2018	1:00:00	Former LMP manager and current employee of WCPG	Yes
12.	Dianne Mellon	02 Nov 2018	1:11:02	Former FOL secretary and exco member	Yes
13.	Conor Eastment	Written submission	-	Current FOL exco member and former LMP manager	Yes

\* Interviews were conducted simultaneously.

## 7.2 Research ethics clearance



**UNIVERSITY OF CAPE TOWN**  
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

**Faculty of Science**

University of Cape Town  
Rondebosch  
South Africa 7701

Tel: +27 21 650 2866/7

E-mail: [Rachel.Wynberg@uct.ac.za](mailto:Rachel.Wynberg@uct.ac.za)

30 October 2018

Mr Andrew Bennett  
Department of Environmental and Geographical Science

**RE: *Enabling a community of practice: network dynamics in building a water sensitive catchment***

Dear Mr Andrew Bennett

I am pleased to inform you that the Faculty of Science Research Ethics Committee has approved the above-named application for research ethics clearance, subject to the conditions listed below.

- Implement the measures described in your application to ensure that the process of your research is ethically sound; and
- Uphold ethical principles throughout all stages of the research, responding appropriately to unanticipated issues: please contact me if you need advice on ethical issues that arise.

Your approval code is: **FSREC 81 - 2018**

I wish you success in your research.

Yours sincerely

**A/Prof Rachel Wynberg**

Chair: Faculty of Science Research Ethics Committee

Cc: **Dr Kevin Winter (Supervisor)**

## 7.3 Informed voluntary consent form template

### DEPARTMENT OF ENVIRONMENTAL & GEOGRAPHICAL SCIENCE

UNIVERSITY OF CAPE TOWN  
PRIVATE BAG X3  
RONDEBOSCH 7701  
SOUTH AFRICA

RESEARCHER: Andrew Bennett  
TELEPHONE: +27-82-703-3047  
E-MAIL: Andrew@fol.org.za



#### Informed Voluntary Consent to Participate in Research Study

**Project Title:** Enabling a community of practice: network dynamics in building a water sensitive catchment

**Invitation to participate, and benefits:** You are invited to participate in a qualitative research study conducted with natural / water resource management professionals and practitioners, and members of the general public with an interest in water sustainability. The broad aim of the study is to understand dynamics that form an enabling environment for water sensitive design. The aim will be addressed through three objectives that will be used to explain the 'why' and 'how' elements that form an enabling environment within the Friends of the Liesbeek (FOL). The objectives are to:

- *Understand the context of FOL*
- *Understand processes of change*
- *Interpret exchanges that shape a community of practice*

I believe that your experience would be a valuable source of information, and hope that by participating you may also gain useful knowledge.

**Procedures:** During this study you will be interviewed and asked three core questions relating to your experience of FOL. It is anticipated that your answers will lead into a more detailed conversation that addresses the research objectives above. Please note that the interview will be digitally recorded, unless you choose otherwise.

**Risks:** There are no potentially known harmful risks related to your participation in this study.

**Disclaimer/Withdrawal:** Your participation is completely voluntary; you may refuse to participate, and you may withdraw at any time without having to state a reason and without any prejudice or penalty against you. Should you choose to withdraw, the researcher commits not to use any of the information you have provided without your signed consent.

**Confidentiality:** All information collected in this study will be kept private in that you will not be identified by name or by role in an institution. Confidentiality and anonymity will be maintained as pseudonyms will be used.

**What signing this form means:** By signing this consent form, you agree to participate in this research study. The aim, procedures to be used, as well as the potential risks and benefits of your participation have been explained verbally to you in detail, using this form. Refusal to participate in or withdrawal from this study at any time will have no effect on you in any way. You are free to contact me, to ask questions or request further information, at any time during this research.

I agree to participate in this research (tick one box):  Yes  No \_\_\_\_\_ (Initials)

\_\_\_\_\_  
Name of Participant

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name of Researcher

\_\_\_\_\_  
Signature of Researcher

\_\_\_\_\_  
Date