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The Concept of Systems Thinking in Community Leadership: A Preliminary Insight

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Abstract: This study examines the implementation of systems thinking in community leadership through a thorough scoping review. The study seeks to assess the integration of systems-thinking ideas into leadership practices to improve decision-making, cooperation, and community outcomes. The Scopus and Google Scholar databases were used to systematically identify scholarly literature. Key search terms were "systems thinking," "thinking skills," "community leadership," and "leadership." The initial search yielded 19 pertinent studies that examined the convergence of systems thinking and community leadership. After applying inclusion criteria based on relevance and evidence, only nine papers were identified as offering significant empirical or theoretical support for the application of systems thinking in leadership contexts. The results show that community leaders can effectively use systems thinking in their work by focusing on a few key areas: continuous learning, dynamic and holistic thinking, understanding and changing mental models, recognising patterns in complex systems, and using system logic to solve problems and plan for the future. These elements, together, make community leadership more flexible, stronger, and forward-thinking. The study underscores the essential function of systems thinking as a transformative paradigm for tackling complex community issues and realising sustainable community development objectives.

Keywords: Systemic Thinking; Community Leadership; Thinking Skills; Organisational Development; Dynamic Thinking; Continuous Learning; Collective Adaptation; Reductionist Thinking.

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1. Introduction

Leaders worldwide still have to deal with unpredictable, complex situations that change quickly. These conditions have made it even more important for communities and organisations to have leaders who can think strategically, adapt to change, and bring people together to solve complex problems [2]. Leadership in the twenty-first century necessitates an augmented cognitive and behavioural toolbox adept at comprehending interconnected systems and dynamic feedback loops. Zahari and Kaliannan [13], Murugan et al. [1] note that today's leaders often work in situations that are unclear, unstable, and rife with systemic risk, which means they need more than linear problem-solving strategies. In the same way, Zaini et al. [16] argue that the problems

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of the current world are characterised by interconnection and complexity, which means we need frameworks that go beyond reductionist thinking. Systems thinking is one of the most promising new ways to view the world. It focuses on getting a complete picture, feedback loops, and how different aspects of a system are connected. Systems thinking is a way of solving problems that sees an organisation, community, or ecosystem as a whole, connected to other parts rather than as a group of separate parts [11].

It motivates people to examine the fundamental structures, patterns, and mental models that influence behaviour, rather than only the immediate causes and symptoms. Systems thinking encourages leaders to be more sustainable, robust, and adaptable by helping them understand how different parts of a system work together. This viewpoint enables community leaders to tackle social, economic, and environmental issues cohesively, rather than resorting to disjointed remedies. Zahari and Kaliannan [13] assert that leaders who utilise systems thinking are more adept at pinpointing leverage points, forecasting unintended consequences, and formulating initiatives that yield beneficial, enduring results. Systems thinking has typically received insufficient attention in leadership studies, despite its potential. Shaked and Schechter [7] noted that systems thinking has only recently become popular among researchers in leadership and organisational development. This increasing interest is mostly attributable to the acknowledgement that conventional leadership paradigms—frequently based on hierarchical, mechanical principles—are inadequate for the intricacies of contemporary social systems. Zaini et al. [16] contend that systems thinking signifies a crucial transition towards more dynamic, learning-focused interpretations of leadership.

In this framework, leaders are not merely decision-makers or overseers of organisational processes; they serve as enablers of learning, sensemaking, and collective adaptation. Systems thinking is becoming more important as globalisation, digital interconnectedness, and the interdependence of economic, social, and environmental systems grow. Murugan et al. [1] emphasise that systems thinking offers a robust paradigm for comprehending and negotiating global complexity. By getting leaders to see the world as a network of interconnected systems, it encourages a way of thinking that emphasises integration and synergy rather than isolation and competition. Amissah et al. [10] assert that communities and organisations can enhance their management of complexity by meticulously analysing and comprehending the interconnections that characterise their operational contexts. Leaders can develop solutions that work in the short term and endure over time because they can see patterns and connections across different aspects. Systems thinking came about in the middle of the 20th century from engineering, biology, and cybernetics. Ludwig von Bertalanffy and Peter Senge were among the first to propose that organisations are systems composed of interdependent parts [20].

These concepts have evolved to encompass human and social systems, acknowledging that communities and organisations function as complex adaptive systems influenced by interactions, feedback, and ongoing learning [21]. Systems thinking holds that a system's behaviour is determined by how its parts interact, and that changing any aspect of the system will always affect the others. In this regard, leadership entails understanding the intricate network of linkages that deliver results, rather than merely managing discrete variables. In terms of community leadership, systems thinking runs counter to common ideas about power and control [22]. It makes leaders see themselves as part of the system rather than outsiders forcing change. This kind of thinking encourages humility, teamwork, and openness, all of which are important for bringing people together to work toward sustainable development [23]. Under systems thinking, good community leadership means bringing people from different backgrounds together, getting everyone on the same page about goals and processes, and ensuring everyone understands them. It's not about telling people what to do; it's about helping them see how they depend on one another and work together to find solutions [24]. In communities marked by varied interests, conflicting objectives, and limited resources, this strategy is essential for cultivating trust, collaboration, and resilience. A scoping study of the literature identifies many fundamental elements for integrating systems thinking into community leadership practice [25].

These include learning continuously, thinking in new ways, understanding mental models, recognising patterns, and understanding system logic. Continuous learning means knowing that systems are always changing and that leaders need to change with them. Leaders need to create spaces that encourage questioning, thinking, and giving and receiving feedback so that communities can learn from what they do and change their plans. Dynamic thinking is the ability to see systems as processes that change over time rather than as fixed entities. It helps leaders predict how interventions might have delayed or nonlinear consequences, which keeps them from making decisions based on what happens right away. To change how people, act as a group, you need to be able to comprehend mental models, which are deeply held ideas and assumptions that impact how people see things. Leaders who can spot and question limiting mental models are better at driving real change. Another important part of systems thinking is pattern recognition, which is the ability to see patterns or relationships that happen over and over again that show how systems work. Lastly, system logic is knowing how cause-and-effect and feedback loops work. This helps leaders find places where they can make a difference.

Leadership grounded in systems thinking also emphasises the need for a shared vision and collective intelligence. Because community systems include many people with diverse beliefs and interests, effective leadership needs ways to bring these points of view together into clear plans. Systems thinking provides tools such as causal loop diagrams and system maps that

help us better understand complex problems. Community leaders may help people see the structure of their problems, identify the core causes, and work together to develop solutions through participatory processes. These kinds of activities not only help people solve problems, but they also bring people together and make them feel like they own their community. Studies show that systems thinking is a key factor in making community development more sustainable and resilient. It helps communities balance their social, economic, and environmental goals by encouraging a holistic view. This stops trade-offs that hurt long-term results. For example, in local economic development, systems thinking helps leaders see how policies for jobs, schools, infrastructure, and the environment work together as a system. This holistic view makes it easier to find solutions with multiple benefits. Systems thinking also makes communities more resilient by helping them develop adaptive capacity, which is the ability to expect, deal with, and recover from shocks. Communities get better at dealing with uncertainty and change when they receive input and learn from it regularly.

The scoping research, utilising academic databases including SCOPUS and Google Scholar, identified 19 publications examining the convergence of systems thinking and community leadership, of which 9 provided empirical evidence. The research found that all participants agreed that systems thinking can change how community leaders work by helping them better understand issues, make better decisions, and be more inclusive. They show that leaders who use systems thinking tend to think long term, work together to solve problems, and prioritise structural solutions over quick remedies. Also, they are better at spotting systemic problems that keep inequity or inefficiency going and can come up with ways to fix them. There are, however, some problems with using systems thinking in community leadership. One major problem is that reductionist thinking remains common in social and organisational systems. Many organisations still have departmental silos and decision-making processes based on hierarchy, making it hard for people to work together across boundaries. Because of this, leaders often don't have the tools or motivation to take a more comprehensive view. Another problem is that it is hard to put systems-thinking ideas into practice. The theory is persuasive, but implementing it necessitates tools, training, and cultural transformations that may require time to cultivate. Also, systems thinking requires leaders to be okay with not knowing everything, which can be hard for those used to being in charge.

To address these problems, leadership development programs need to clearly incorporate systems thinking principles. Leaders can learn how to use systems thinking in the real world by taking courses in system mapping, feedback analysis, and scenario planning. Creating networks of practice where leaders can share their experiences and ideas also helps everyone learn more. Institutional support is also very important. Policies and governance structures should make it easier for people from different fields and sectors to work together. To make systems thinking part of an organisation's culture, it must be consistently reinforced through communication, evaluation, and recognition of systems-based approaches. The literature also suggests that systems thinking is quite similar to transformational and participatory leadership styles. Both emphasise giving people power, working together, and sharing knowledge. Leaders who are systems-oriented don't make decisions for everyone; instead, they foster conversation, reflection, and shared learning. By encouraging inclusivity, they allow other points of view to contribute to problem-solving, which makes interventions more legitimate and effective. This is especially critical for community leaders, who rely on trust and social capital to succeed. People in a community are more willing to work towards common goals when they believe that their points of view are heard and taken into account. Systems thinking also enhances ethical leadership by prompting people to consider the bigger picture when making judgments.

Leaders who take a systemic view are more aware of how their choices affect not only the people and things they work with directly, but also the environment and future generations. This long-term focus helps with social responsibility and sustainable development. It also promotes openness, since leaders must be clear about the assumptions and linkages that underpin their plans. Systems thinking helps leaders take responsibility and maintain moral integrity in their work. The incorporation of systems thinking into community leadership signifies a transformative transition from linear, reactionary methodologies to comprehensive, adaptive, and educational frameworks. The literature review shows that systems thinking helps leaders address complexity, collaborate, and achieve long-term results. It gives them mental tools to see patterns, predict what will happen, and develop solutions that get to the heart of the problem rather than just treating the symptoms. There are still implementation issues, especially in institutions with strong cultures, but there are many benefits to taking a systemic view. The world is facing many interconnected problems, including climate change, inequality, health, and governance. Systems thinking is a powerful way to build strong, inclusive leadership. The results of this research emphasise the imperative of integrating systems thinking into leadership education and practice to enable communities to confront the problems of a more intricate environment.

2. Research Methodology

This article explores existing literature to comprehensively understand the theoretical foundations of systems thinking in community leadership. This review provides a clear overview of the conceptual basis for integrating systems thinking into leadership practices. In this investigation, SCOPUS and Google Scholar were used to identify scholarly literature. In this procedure, keywords such as “systems thinking” or “thinking skills” as well as “community leadership” or “leadership” were utilised. Nineteen articles examining the concepts of systems thinking in community leadership were identified through these

efforts. There are just nine studies left that provide evidence to support the present article. To determine the criteria, all of the study findings from the articles were organised into themes. The system thinking model, dynamic thinking, understanding mental models, system logic, continuous learning, and pattern recognition (Table 1).

Table 1: Selected articles

The articles	Authors	Findings
What is Systems Thinking? Expert Perspectives from the WPI Systems Thinking	Amissah et al. [10]	Leadership change requires emotional intelligence; the ability to engage people in uncovering the circles they are in.
Sustainability leadership in higher education institutions: An overview of challenges.	Filho et al. [19]	A sustainability leader should have "Interdisciplinary connectedness", a further ability, which helps to motivate others.
Why Systems Thinking Is Important for the Education Sector.	Ndaruhutse et al. [17]	What is needed is leadership that motivates people to take on the complexities and anxieties of difficult change.
Systems thinking in school organisations–perspectives from various leadership levels.	Norqvist and Ärlestig [9]	The systems are hierarchical, with each level taking responsibility for its subsystem to the extent that it neither uses nor learns from other levels.
Systemic thinking in educational leadership: to what extent do educational leaders demonstrate systemic thinking and transformational leadership behaviours?	Davis [8]	Leaders who have developed an understanding of and practice systemic thinking behaviours are more likely to engage in transformational leadership behaviours.
Systems thinking for principals of Learning-Focused Schools.	Shaked and Schechter [7]	A leader with advanced knowledge of systems thinking can maintain focus on the existing community system as a whole.
A comparative study of the application of systems thinking in achieving organisational effectiveness in Malaysian and Pakistani banks.	Shoaib et al. [4]	Understanding the interaction patterns that underlie, drive, and govern the community.
Systems thinking for systems leadership: promoting competency development for graduate students in sustainability studies.	Talley and Hull [5]	Reframing systems thinking through the lens of leadership offers an important innovation and a new focus for the theory of systems thinking.
Systems Thinking: A Review and Bibliometric Analysis.	Hossain et al. [12]	The effectiveness of systems thinking depends on effective communities.

3. Findings and Discussion

The findings show that the concept of systems thinking can be implemented into community leadership through continuous learning, dynamic thinking, understanding mental models, pattern recognition, and system logic.

3.1. The System Thinking Model

The modern world perceives systems thinking as highly systematic; as a result, it is very difficult to forecast its effectiveness or applicability in leadership. Different systematic processes associated with systems thinking occur in communities or organisations [6]. According to Amissah et al. [10], leaders can address community challenges by engaging with them, especially by interacting with and collaborating with various community-based organisations to enhance their capacity to overcome them. Shoaib et al. [4] conceptualised systems thinking into two major cohorts or perspectives: one in which a leader utilises all his cognitive skills to reflect on complex systems encountered, and another in which leaders think from systems to effectively analyse and solve problems confronting a particular system in the community. Palaima and Skarzauskiene [18] indicate that the future is not normally a straightforward extrapolation of the past; hence, different environmental, economic, market, and competitive conditions can change in unforeseen ways. Addressing such complexities requires leaders to utilise the different aspects of systems thinking, such as continuous learning, dynamic learning, pattern recognition, process orientation, and systems logic. The effectiveness of systems thinking is only possible through effective communities, the ability

to set highly strategic and achievable goals, the ability to act in a cohesive manner, and, consequently, a higher commitment to enhance productivity. The illustration of a systems thinking model is presented in Figure 1 below.

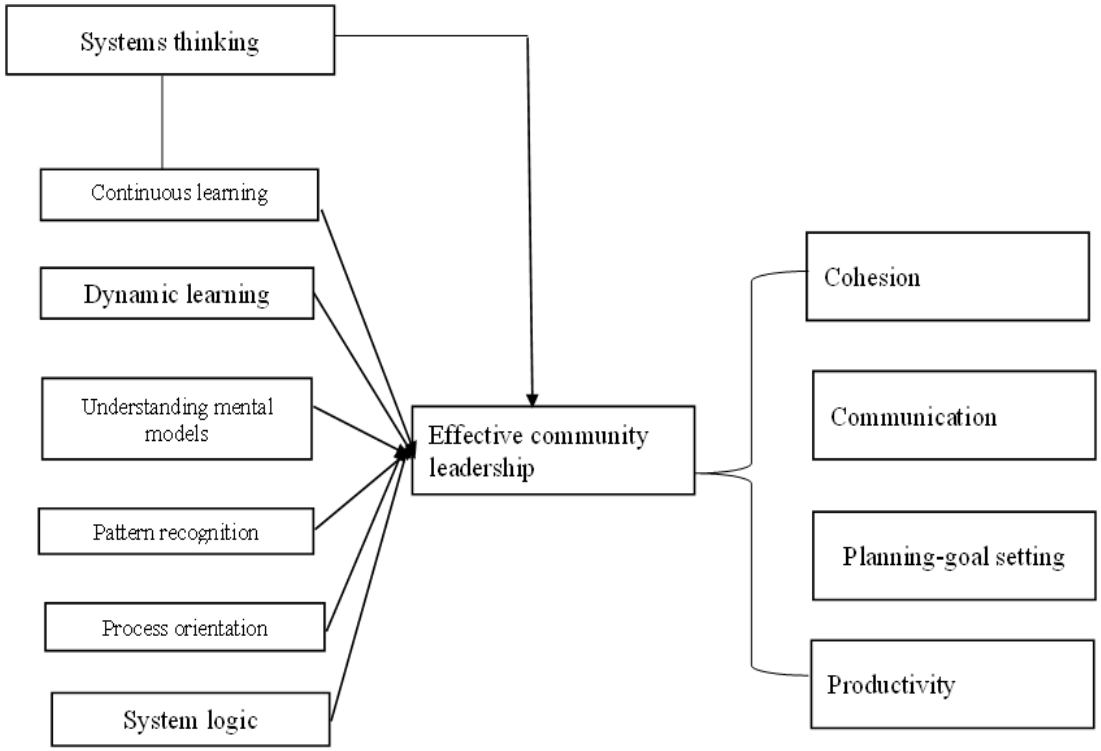

Figure 1: The systems thinking model [4]

Table 1 provides a brief overview of the systems thinking paradigm and its key components that help leaders in their communities. The paradigm combines system logic, continuous learning, and dynamic learning to help leaders develop their skills. It stresses the need to understand mental models, see patterns, and use process-oriented thinking. The main result of this interconnected parts effect is effective community leadership. In the end, the paradigm makes communities more cohesive, communicative, organised, and productive.

Table 1: Components of the systems thinking model and their contribution to effective community leadership

Main Component	Subcomponents / Outcomes	Role in the Model
Systems Thinking	Continuous learning	Forms the foundation for understanding complex community dynamics.
Dynamic Learning	Understanding mental models, pattern recognition, and process orientation	Enhances adaptability and supports informed leadership decisions.
System Logic	Logical, structured interpretation of processes	Supports clarity and consistent evaluation of community issues.
Effective Community Leadership	Central driver influenced by systems thinking elements	Leads to improved decision-making and collective direction.
Leadership Outcomes	Cohesion, communication, planning, goal-setting, productivity	Reflect the positive impact of systems-based leadership on communities.

3.2. Leadership and Systems Thinking

Leadership is a very important factor in bringing systems thinking into communities and may also foster the adoption of different systems ideas within the community [15]. Shoaib et al. [4] indicate that systems thinking is strongly associated with leaders taking time to understand the different forces and interrelationships that shape the general behaviour of systems in a community. Systems thinking in community leadership is deeply embedded across dynamic thinking, systems logic, understanding different mental models, pattern recognition, orientation processes, and continuous learning. The proper utilisation and interconnectivity of these dimensions enable leaders to successfully transform or manage communities. In

addition to utilising the different dimensions of systems thinking, effective community leadership is closely associated with effective communication, proper planning and goal setting, and being highly cohesive and productive across different community undertakings, as explained below.

3.2.1. Dynamic Thinking (Learning)

Regarding dynamic thinking, Shoaib et al. [4] indicate that this dimension helps leaders identify distinct patterns in challenging events. The ability to learn or think dynamically is very important for quickly solving community problems. Research indicates that systems thinking is strongly associated with dynamics that show how the different short- and long-term consequences of community management actions may vary, even in opposite directions [3].

3.2.2. Understanding Mental Models

According to Hossain et al. [12], systems thinking influences how leaders perceive and understand their communities or the world as a whole, and how they can best act to transform these communities. Mental models are normally deeply ingrained assumptions or generalisations that community leaders hold in their minds, and they significantly impact their ability to exercise effective community leadership. A leader should have "Interdisciplinary connectedness", a further ability, which helps to motivate others [19].

3.2.3. Systems Logic

Through the system's logic dimensions, leaders can clearly understand the interconnections between events and circumstances in the community. The ability to understand is normally associated with the leader's experience, systems-thinking knowledge, and age. A leader with advanced knowledge of systems thinking can maintain focus on the existing community system as a whole. Furthermore, leaders with greater experience in integrating diverse events into a community can effectively manage communities and, consequently, influence greater community development or transformation [7].

3.2.4. Continuous Learning

Systems thinking is also associated with continuous learning; hence, leaders can implement this dimension in community management by continually understanding the community's holistic, interrelated nature. The systems-thinking phenomenon holds that a leader's ability to foster or adopt a learning culture significantly impacts their success in managing the community. Palaima and Skarzauskiene [18] indicate that adopting a learning culture enables leaders to address various community challenges effectively. Reframing systems thinking through the lens of leadership offers an important innovation and focus to the culture of continuous learning [5]. Community leaders can cultivate a culture of continuous learning through education workshops, seminars, and training programs. Furthermore, community leaders can collaborate with educational institutions, nonprofit organisations, or local government agencies that offer leadership development programs.

3.2.5. Pattern Recognition

In pattern recognition, systems thinking enables leaders to effectively analyse challenging events within a community and, consequently, develop simple interventions to transform them [3]. Research indicates that systems thinking enables leaders to deliberately and systematically gain insights into challenging situations and complex domains by primarily understanding the interaction patterns that underlie, drive, and govern the community [4]. Palaima and Skarzauskiene [18] note that it is unproductive and insufficient for community leaders to act as good cogs in the machine. In this case, leaders ought to understand that efficiency in service provision is achieved only when they discern that a particular venerated system or process has outlived its usefulness and is no longer aligned with the organisation's overall purpose. What is essential is leadership that inspires individuals to confront the intricate challenges and uncertainties associated with demanding transformations [17]. Morgan [14] indicates that most leaders tend to forget that systems are always created by people, based on an idea about what should happen at a given point in time; hence, such systems should always be reviewed to keep them efficient. Leaders who have developed an understanding of and practice systemic thinking behaviours are more likely to engage in transformational leadership behaviours [2]. In this case, leaders can effectively manage or transform existing community systems to enhance community development.

4. Conclusion

Systems thinking is a very important factor in addressing the increasing uncertainties and challenges of the modern world. Most scholars in the field of systems thinking agree that leadership plays a key role in introducing more systems thinking into communities. However, properly implementing systems thinking in the community requires leaders to clearly understand the

interconnections among the dimensions of systems thinking, such as system logic, dynamic learning and thinking, pattern recognition, and mental model understanding. Generally, systemic thinking is highly integrative, helping leaders synthesise diverse viewpoints to understand the community as a whole. Systems thinking is crucial to community leadership, as it helps leaders understand the complexity of community problems and make informed decisions. By implementing systems thinking, leaders can identify and address the root causes of issues and encourage a holistic approach. In community leadership, collaboration among diverse stakeholders is vital. Systems thinking enhances collaboration by fostering a shared understanding of complex issues and encouraging collective problem-solving.

In essence, systems thinking equips community leaders with a comprehensive, flexible mindset that enables them to navigate the intricacies of community dynamics, make better decisions, and drive positive change more holistically and sustainably. Systems thinking encourages a holistic understanding of a community, recognising that it's a dynamic and interconnected system comprising social, economic, cultural, and environmental elements. This understanding helps researchers and leaders avoid isolated interventions that might have unintended consequences. Furthermore, systems thinkers create visual maps or diagrams to depict relationships and interactions within a community system. These maps can help identify key stakeholders, resources, and potential leverage points for change. In addition, systems thinking helps anticipate unintended consequences of interventions. By understanding the intricate relationships and dynamics within a community, a leader will be better equipped to design and implement interventions that create lasting, positive change.

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