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From Structured Dialogic Design to Dialectical Synthesis: Addressing Global Problematiques

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Abstract:	We propose a dialectical extension to Structured Dialogic Design (SDD) that enables a shift from consensus-making to synthesis-making in addressing complex problematiques. Using a virtual SDD experiment on climate change, we show that SDD reliably identifies core systemic drivers, but struggles to determine how these drivers should interact to produce coherent transformation. A formal dialectical layer fills this gap by mapping complementary relations, revealing destructive unifications, and identifying the minimal conditions for synthesis. The combined SDD–Dialectics approach clarifies why many climate interventions fail—hierarchical rule-driven systems suppress the complementarities required for systemic coherence—and demonstrates how moral, relational, and epistemic capacities form necessary preconditions for structural change. We illustrate these mechanisms through a dialectical wheel that identifies transformation pathways and systemic traps. The approach supports the emergence of the moral reasoning typically overshadowed by institutional and technical constraints.
Opposed Reviewers:	

From Structured Dialogic Design to Dialectical Synthesis: Addressing Global Problematiques

Highlights:

- Dialectics extends SDD from consensus-mapping to synthesis-making.
- SDD reveals system drivers; dialectics exposes deeper complementary tensions.
- Dialectical wheels illuminate hidden leverage among core drivers.
- Hierarchical governance traps systems; dialectical learning enables synthesis.
- Combined method supports long-term transformative pathways in problematiques.

Manuscript Title:

From Structured Dialogic Design to Dialectical Synthesis: Addressing Global Problematiques

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ABSTRACT

We propose a dialectical extension to Structured Dialogic Design (SDD) that enables a shift from consensus-making to synthesis-making in addressing complex problematiques. Using a virtual SDD experiment on climate change, we show that SDD reliably identifies core systemic drivers, but struggles to determine how these drivers should interact to produce coherent transformation. A formal dialectical layer fills this gap by mapping complementary relations, revealing destructive unifications, and identifying the minimal conditions for synthesis. The combined SDD–Dialectics approach clarifies why many climate interventions fail—hierarchical rule-driven systems suppress the complementarities required for systemic coherence—and demonstrates how moral, relational, and epistemic capacities form necessary preconditions for structural change. We illustrate these mechanisms through a dialectical wheel that identifies transformation pathways and systemic traps. The approach supports the emergence of the moral reasoning typically overshadowed by institutional and technical constraints.

Keywords: Structured Dialogic Design, Dialectical Analysis, Systemic Design, Problematiques, Complementarity, Governance Systems, Value-Based Sensemaking

INTRODUCTION

Wicked *problematiques* differ from ordinary problems not only in scale and interconnectedness, but in their demand for epistemic breadth, relational sensitivity, and methodological pluralism (Rittel & Webber, 1973; Ackoff, 1974). Climate change is one such problematique: a socio-ecological condition shaped as much by values, worldviews, and governance logics as by atmos-

pheric chemistry (O'Brien, 2018; Ison, 2016). Yet most systemic studies of climate change remain anchored in technocratic modelling or narrow policy framings that struggle to engage the deeper substrate of meaning, identity, and intersubjective sense-making that drives collective action (Hulme, 2009; Beck, 1992).

Structured Dialogic Design (SDD) was developed precisely to address such conditions, enabling diverse stakeholders to surface, clarify, and structure complex concerns through democratic and relational processes (Christakis & Bausch, 2006). However, SDD's outputs tend to remain descriptive: they reveal leverage points but do not explicitly articulate the *conditions of synthesis* needed for transformation. As scholars of systemic design and relational epistemology argue, systemic intervention requires more than mapping causality; it requires cultivating "nurturance spaces" where new value orientations and relational possibilities can emerge (N. Bateson, 2018; Jones, 2018).

In this paper we propose that adding an explicit **dialectical analysis layer** to SDD can fill this gap. Dialectics—when formalized and operationalized—provides a systematic way to identify the tensions, complementarities, and polarities that shape system behaviour (Bhaskar, 1975; Hegel, 1807/2018; Kelso & Engstrøm, 2006). It enables structured exploration of thesis–antithesis relationships, the positive and negative potentials within each, and the synthesis conditions required for desirable system evolution. Rather than debating oppositions, dialectical analysis reveals how they can co-generate new qualities—a process foundational to systemic design, panarchy, and relational epistemologies (Holling, 2001; Ingold, 2011).

To explore this integration, we conducted a virtual SDD process with geographically diverse participants who co-constructed two systemic representations of the climate problematique: a retrospective structure (1970–2020) and a retroductive structure (2020–2050). We then applied a structured dialectical method to the deepest drivers revealed in these maps. This two-layer approach surfaced blind spots, highlighted alternative leverage paths, and clarified the underlying value conflicts shaping the system.

The combined analysis suggests that many global problematiques arise less from the surface phenomena they appear to address—such as climate or economic disruptions—and more from the structural logics of hierarchical governance, administrative rationality, and worldview biases embedded in modern decision-making systems (Weber, 1947; Graeber, 2015; Ison, 2016).

These systems systematically privilege certain dimensions of problems while suppressing their dialectical counterparts, thereby generating the very blind spots and systemic failures they attempt to solve.

2. METHODOLOGY

2.1. Virtual Co-Construction Using Structured Dialogic Design

The study implemented a reduced, exploratory variant of Structured Dialogic Design (SDD) to co-construct systemic representations of the climate problematique. The process followed the virtual co-construction approach documented in *The Thread* (Christakis & Kakoulaki, 2024, Ch. 7), using the Logosofia platform for computing relational influence structures (Diedrich, Christakis, & Kakoulaki, 2024).

A pilot group of 11 participants from eight countries (Appendix A) met virtually over multiple 90-minute sessions. Instead of generating observations inductively, the group worked with a predefined subset of 23 Continuous Critical Problems (CCPs) originating from the Club of Rome's Problematique (Meadows et al., 1972). This reduction enabled participants to focus primarily on relational structuring rather than issue generation.

Two complementary systemic maps were produced:

- **Retrospective Problematique (1970–2020):** "Would past amelioration of CCP X have significantly influenced CCP Y?"
- **Retroductive Problematique (2020–2050):** "Should future amelioration of CCP X be prioritized to influence CCP Y?"

Using Logosofia's structured prompts, participants provided pairwise judgments, clarified meanings, and interpreted emerging clusters. For each map, the platform computed influence strengths, directionality, feedback loops, and a Situational Complexity Index (SCI) summarizing deliberation-driven complexity reduction (Laouris & Michaelides, 2018). These structures served as the analytical foundation for the subsequent dialectical expansion.

2.2. Structured Dialectical Analysis

Following the construction of both SDD maps, we applied a formal dialectical method to the deepest drivers identified in each structure. The method operationalizes classical dialectical principles (Hegel, 1807/2018) into a four-component analytical grammar (Fig. 1).

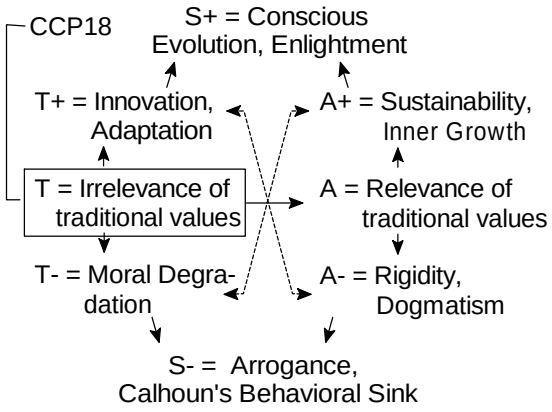

Figure 1. Illustration of the four-component dialectical model.

It resembles Barry Johnson's *Polarity Management* (Johnson, 1992), which maps the upsides and downsides of interdependent opposites. Each CCP is decomposed into constructive (+) and exaggerated and destructive (–) expressions of both thesis (T) and antithesis (A), such that upside of one is direct contradiction of the downside of another. This creates "diagonal entanglements" (shown by dashed arrows) helping to define the results of both positive synthesis (S^+) and negative synthesis (S^-). S+ defines emergence of new quality due to complementarity or T+ and A+, while S- defines emergency of new quantity due to dominance of T- on A- or *vice versa*. The analysis was performed using the Eye Opener application (Dialexity Ltd., https://dialexity.com), which identified all dialectical components in Fig. 1. It then arranged all T-A pairs into optimum circular causations leading to the multi-component synthesis of new potential reality (Petrauskas, 2025).

2.3. Positioning Within SDD Practice

To situate our methodological modifications, Table 1 contrasts the standard 10-phase Co-Lab/SDD process with the adapted version used here, clarifying where departures were intentional and where the dialectical layer extends the conventional practice.

Table 1. Positioning of the current study within the Co-Lab process framework

Step Description	**Our Impact**	**Comment**
1. Complex Situation: surfacing a problem context	Not Addressed	Premise inherited from Club of Rome

2. Boundaries and Scope with Focus on a Triggering Question	Touched	Retrospective/retroductive framing
3. Generation: Surfacing relevant factors or concerns	Partially	Relationships generated, not CCPs
4. Clarify Meaning: Ensuring common understanding	Supported	Via structured discussion
5. Classify Inductively	Not Addressed	No inductive grouping used
6. Develop Shared Language: Co-creating definitions	Not Addressed	Used existing CCP definitions
7. Prioritize: Selecting or voting on key elements based on relevance or impact	Addressed	Core part of SDD using Logosofia's structured voting mechanisms
8. Map Factors Abductively	Addressed	Core part — influence maps
9. Interpret Learning: Deriving insights from the structure of systemic relationships and participant reflection	Strongly Enhanced with Dialectic Analysis	Strongly enhanced through dialectical analysis to identify antithetical domains, synthesis pathways, hidden tensions and leverage mechanisms
10. Evaluate Cross-Impact: Exploring system-wide dynamics and identifying intervention strategies	Strongly Enhanced with Dialectic Analysis	SCI and systemic mapping Extended through dialectical synthesis, highlighting emergent leverage patterns and alternative causal cycles

3. RESULTS

3.1. Retrospective and Retroductive Structures

Figure 2 summarizes the deepest layers of the two systemic structures produced through the virtual SDD process: the Retrospective Problematique (1970–2020) and the Retroductive Problematique (2020–2050). The full influence maps are provided in Appendix B.

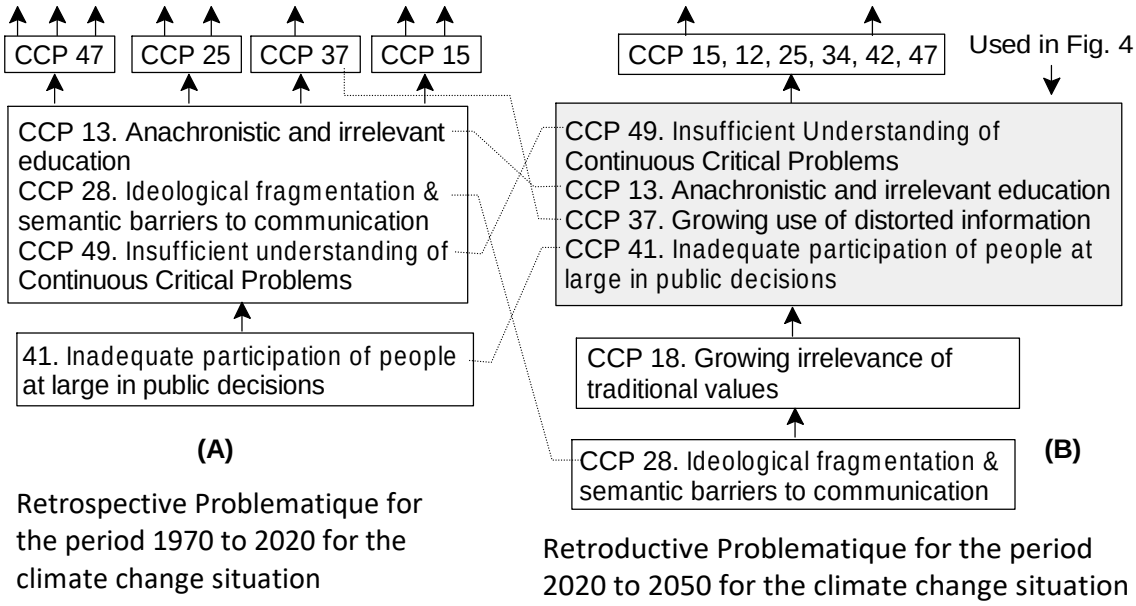

Figure 2. Deep Drivers in the Retrospective (A) and Retroductive (B) Problematiques

Retrospective reasoning produced denser connectivity pattern, reflecting what Weick (1995) terms "retrospective rationality", where past events appear more causally coherent than future possibilities. Retroductive reasoning generated a more extended chain, indicating greater uncertainty and more distributed leverage perceptions when imagining future interventions.

3.2. Root CCPs and Their Dialectical Expansions

Despite the different temporal framings, participants independently identified the same family of deep drivers with comparable influence levels and feedback positions. These core CCPs were then expanded dialectically, as shown in Table 2.

Table 2. Comparison of policy recommendation for the root source CCPs.

				Priorities	
CCP	**Description**	**Antithesis**	**Risks (T-, A-, S-)**	**By Dialectics (A+, S+)**	**By SDD + AI***
18	Irrelevance of traditional values	Family / ancestor relations	Moral erosion, Loss of identity, self-extermination	Value continuity through lived practices; inner growth & sustainabil	Stakeholder-driven value frameworks
28	Ideological Fragmenta-tion	Ideologi-cal Unity	Uniformism, conflicts, wars	Shared narratives & mythologies, panpsychism	Cross-sector dialogue
13	Anachro-nistic Education	Natural / experient. learning	Dogmatism, consumerism, conformity	Relational–ontological awareness	Systems-thinking curricula
49	Insufficient understandi ng of CCPs	Deep understand ing of CCPs	Rule-based rigidity, Superficiality, Orthodoxy	Multi-perspective sense-making beyond formal logic, systemic intuition	Knowledge-sharing platforms
37	Growing use of distorted information	Increasing use of verified informa-tion	Manipulation, exploitation, consumerism	Independent thinking, personal discernment, autonomy	Policy inter-ventions targeting mis-information
41	Inadequate public	Adequate public	Top-down Hierarchy,	Decentralized decisions, grass-	Participato-ry decision-making

	participa-tion	participation	Deep State, Big Brother	roots initiatives, self-governance	

*ChatGPT 5.0

The last two columns compare the priorities generated through the dialectical expansion with those generated through the SDD + AI process. Figure 3 maps these priorities along with risks in conceptual coordinates estimated by GPT.

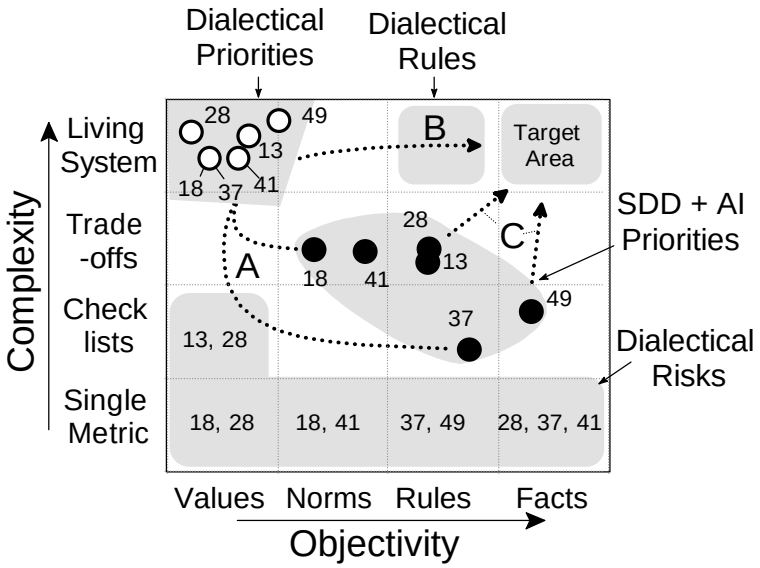

Figure 3. Mapping statements from Table 2 (by GPT 5.0)

White points cluster toward relational, value-driven orientations, while black points remain anchored in rule-based or technically framed interventions. Our task is to reach the Target Area in the upper-right quadrant which can be accessed by two pathways (A-B and C).

Path A moves from norms and rules toward inner values (upper left), then through Zone B—representing the Golden Rule, mutuality, and a "both–and" complementary mindset—before proceeding toward the Target Area. This trajectory aligns with established findings that systems evolve coherently only when moral, relational, and complementary capacities are cultivated (G. Bateson 1972; N. Bateson 2018; Kelso & Engstrom 2006, Ostrom 1990, 2005, Gunderson & Holling 2002).

Path C, in contrast, reflects hierarchical, rule-driven governance systems that attempt to leap directly from norms and rules to high-performance outcomes. Such systems rely on top-down enforcement, suppress uncertainty, and frame opposition as threat rather than information

(Holling & Meffe 1996; Scott 1998; Ison 2016; Graeber 2015). As a result, Path C reproduces the very problematiques it seeks to solve and prevents the emergence of the synthesis conditions (A^+/S^+). Avoiding Zone B also entails routine ethical violations—both in interpersonal contexts (e.g., regulator–regulated relations) and in humanity's relationship with the Earth, which is treated as an object to be controlled rather than a partner in mutual flourishing.

4. SYNTHESIS CONDITIONS

4..1. Dialectical Wheel Construction

How can synthesis be achieved in a multi-CCP situation via Path A–B rather than Path C? Figure 4 illustrates one possible extension of the analytical process, expanding the generative "root cycle" of the retroductive problematique (Fig. 2B) into a dialectical wheel.

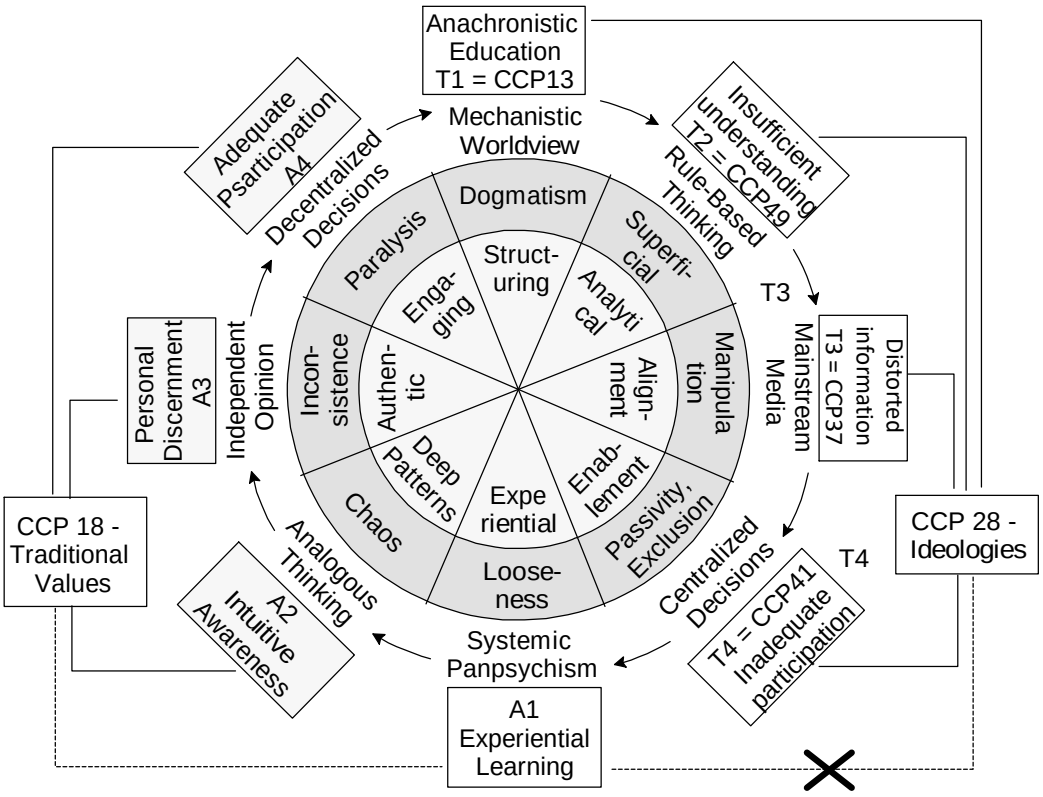

Fig. 4. Dialectical expansion of the grey area from Fig. 2 B

To construct this wheel, the four root CCPs (denoted as T1–T4) were paired with corresponding antitheses (A1–A4). Each T – A pair was positioned diagonally across the wheel to maximize the potential for constructive complementarity. The adjacent segments represent the closest

conceptual affinities, which allows feasible stepwise transitions around the wheel. Derivation of this wheel, along with alternative formulations, is provided in Appendices C and D. Below we outline how the wheel should be interpreted.

4.2. Transformative Strategies

Every synthesis begins at the periphery of the dialectical wheel because each CCP first appears as an exaggerated expression of one pole—either a rigid thesis (T–) or a distorted antithesis (A–). For example, CCP 13 ("Formal Education") often manifests as dogmatic adherence to pre-defined truths. In the dialectical mapping, this corresponds to T1– and is balanced by its diagonal antithesis A1 ("Natural/experiential learning").

Synthesis requires moving clockwise through the wheel, converting the negative form of each position into the positive form of the next adjacent segment (e.g., dogmatism T1– → analytical clarity T2+, superficiality T2– → alignment and coherence T3+, *etc.*). Step by step, the system transitions toward complementarities in the center of the wheel, *via* iterative circular causation.

A further feature of dialectical dynamics is that each thesis–antithesis pair is structurally coupled with its orthogonal counterpart. Coordination dynamics and symmetry constraints (Haken 1983; Kelso & Engstrøm 2006; Engeström 2015; Gunderson & Holling 2002) imply that a shift in any diagonal axis propagates into the perpendicular axis. In the present wheel, changes in T1–A1 (education ↔ experiential wisdom) directly influence T3–A3 (media alignment ↔ personal discernment), while adjustments in T2–A2 (formal logic ↔ intuitive awareness) shape T4–A4 (participation ↔ argumentation). Because these pairs co-evolve, deliberate transformation must proceed simultaneously across all steps. Such interventions should be supported by the SDD + AI priorities in Table 2.

4.3. Systemic Barriers

If these transformations do not occur, the system remains trapped along the wheel's periphery, where exaggerated concepts reinforce each other in a maladaptive loop. For example, anachronistic education (T1–) amplifies insufficient understanding (T2–), which enables manipulation (T3–), *etc*. This "edge-cycle" is conceptually parallel to the Path C in Fig. 3.

Such patterns are characteristic of hierarchical governance systems that resist precisely the forms of change required for synthesis (Holling & Meffe 1996; Gunderson & Holling 2002; Scott 1998; Ison 2016). Transformative work therefore requires decentralizing sense-making and cultivating a generation capable of evaluating institutional arrangements rather than deferring to them.

This capacity develops through sustained engagement with dialectical thinking—what Zone B represents—where individuals learn to distinguish constructive potentials from exaggerated distortions. Three meta-rules can help cultivate this faculty. First, institutional prescriptions should be advisory by default; only in exceptional cases may they become mandatory. Second, such exceptions cannot rest merely on appeals to global threats, which often legitimize fear-based or manipulative governance. Third, any rule that suppresses the positive potential of its own violation becomes dialectically maladaptive and must be overridden. This evaluative discernment is the core moral capacity underlying synthesis, and it cannot be delegated to technical optimization, quantification, or formal logics.

5. CONCLUSIONS

This study shows that integrating Structured Dialogic Design with a formal dialectical layer enables a shift from consensus-making to synthesis-making. SDD provides the participatory structure for revealing systemic drivers, while dialectical analysis clarifies the complementary relations required for transformation.

Structured dialectics is generative rather than deterministic, so analysts may differ in how they articulate outcomes for the same CCP. Yet the explicit consideration of tensions versus complementarities, and of qualitative versus quantitative potentials, reveals relational possibilities that conventional analyses routinely overlook. The results illustrate that all systemic drivers are inherently polar and that the choice between “either–or” and “both–and” orientations profoundly shapes system evolution. This universality suggests that dialectical analysis, applied iteratively, meaningfully strengthens SDD in addressing complex problematiques.

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to the members of the pilot group (see Appendix A), who participate in the co-construction of the two Global Problematiques presented

in the paper. Without their participation and valuable contributions, it would not have been possible to arrive at the conclusions and recommendations described in the paper.

DECLARATION OF THE USE OF GENERATIVE AI

During the preparation of this work, the authors used Claude Sonnet 3.7 (via the *Eye Opener* application, Dialexity Ltd.) to assist in identifying dialectical components and generating preliminary versions of Figures 1 and 4. The authors also used GPT-5.0 to generate preliminary coordinate estimations and axis suggestions for Figure 3. All AI-generated material was reviewed, verified for conceptual alignment, and revised by the authors, who take full responsibility for the final content of the article.

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Supplementary Material

To the Integrating Structured Dialogic Design and Dialectical Analysis for Climate Crisis Modeling

Appendix A: List of Participants & Observers

Participation in this experiment fluctuated and some sessions included observers. Some members did not participate in all the sessions of the experiment. Participation was floating, with members fluctuating throughout the experiment.

Heiner Benking Germany

Alda Roxana Cardenas Mexico

Alexander Christakis Greece

Kevin Dye United States

Tom Flanagan United States

Marcus Hallside United Kingdom

Peter Jones Canada

Yiannis Laouris Cyprus

Craig Lindell United States

Marios Michaelides Cyprus

Scott Staley United States

Reynaldo Trevino-Cisneros Mexico

Kirk Weigand Canada

Observers

Norma Romm South Africa

Appendix B: Influence Maps of CCPs

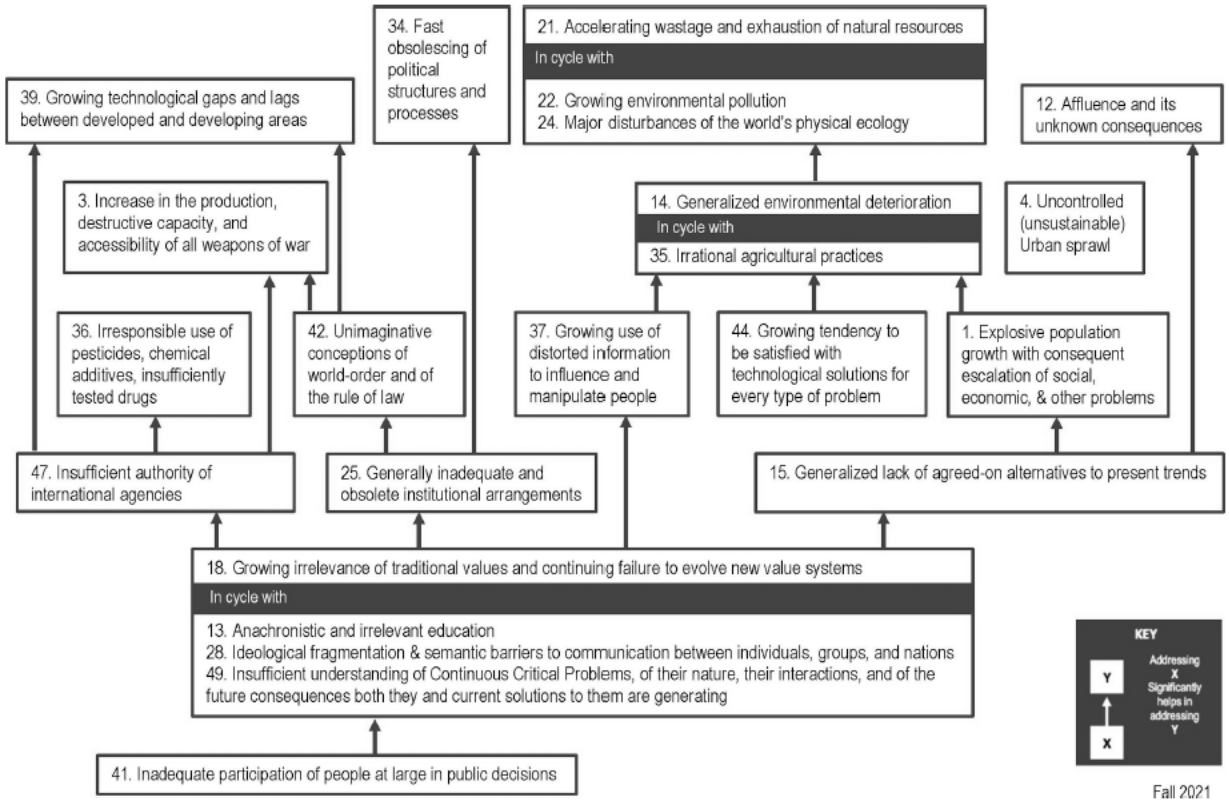

Fig. 1 (Appendix). Retrospective Problematique for the period 1970 to 2020 for the climate change situation

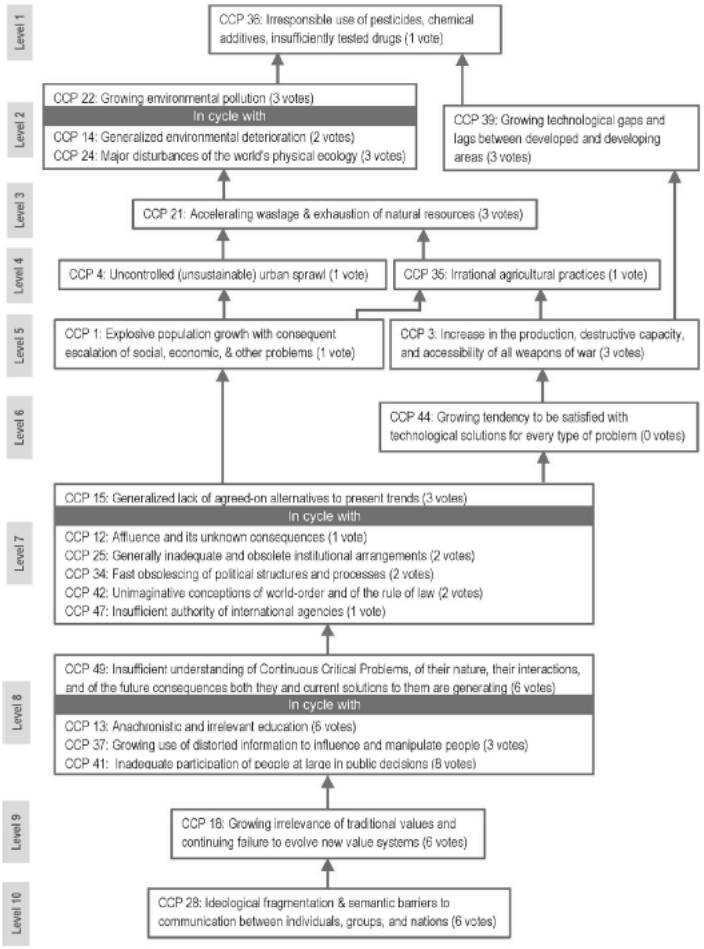

Fig. 2 (Appendix). Retroductive Problematique for the period 2020 to 2050 for the climate change situation

Appendix C: Dialectical Analysis of CCPs 13, 37, 41, 49

	Steps (T1, T2)	Blindspots (A1, A2)	Steps (T3, T4)	Blindspots (A3, A4)
	CCP13		CCP37	
Step	T1 = Formal education	A1 = Natural learning	T3 = Mainstream Information	A3 = Personal Discrenment
Goals	T1+ = Structured	A1+ = Experiential	T3+ = Alignment	A3+ = Authentic
Risks	T1- = Dogmatic	A1- = Loose	T3- = Manipulation	A3- = Inconsistent
Owner	Mechanistic view	Experiential view	Urbanism, Sociophile	Autonomous lifestyle
Quality	S+ = Mind-over-matter mentality, stewardship		S+ = Conscious Creators, Enlightened Sovereigns	
Quantity	S- = Mechanistic views, consumerism		S- = Exploitative Actors, Merchants and Consumers	
	CCP49		CCP41	
Step	T2 = Formal Logic	A2 = Intuitive systems awareness	T4 = Inadeq. partici-pation, delegation	A4 = Inclusive participation
Goals	T2+ = Analytical	A2+ = Deep Patterns	T4+ = Enablement	A4+ = Engaging
Risks	T2- = Superficial	A2- = Chaotic	T4- = Exclusion	A4- = Paralysis
Owner	Rule-Based Thinking, Determinism	Tradictional Values, Holism, Indeterminism	Centralized Decisions	Decentralized Decision
Quality	S+ = Integrative wisdom, panpsychism		S+ = Dynamic Governance, SDD, Omnicracy	
Quantity	S- = Methodological Orthodoxy, Narrow Specialization		S- = Corporate hierarchy, Deep State	

Appendix D: Finding Optimum Sequence with Balancing Factors

Analysis of causal sequences that satisfy both natural progression (T1-T2-T3-T4-) and diagonal relations (all oppositions are in diagonal positions), with probabilities from 0 to 1 (assigned by ChatGPT 4o):

T1 → T2 → T3 → T4 → A1 → A2 → A3 → A4 → ...: 0.7

T1 → T2 → T3 → A4 → A1 → A2 → A3 → T4 → ...: 0.5

T1 → T2 → A4 → T3 → A1 → A2 → T4 → A3 → ...: 0.4

T1 → T2 → A3 → A4 → A1 → A2 → T3 → T4 → ...: 0.3

T1 → A3 → T2 → A4 → A1 → T3 → A2 → T4 → ...: 0.3

T1 → A4 → T2 → T3 → A1 → T4 → A2 → A3 → ...: 0.2

T1 → A3 → A4 → T2 → A1 → T3 → T4 → A2 → ...: 0.2

T1 → A2 → A3 → A4 → A1 → T2 → T3 → T4 → ...: 0.1

Sequence 1: T1 → T2 → T3 → T4 → A1 → A2 → A3 → A4 → ...

Probability: 0.7

This sequence suggests a natural progression from problems (T1-T4) to their solutions (A1-A4). Anachronistic education leads to insufficient understanding, which enables manipulation, resulting in inadequate participation. Then solutions emerge: natural education develops intuitive awareness, fostering transparent communication and inclusive decision-making. This is highly realistic as it follows a problem-solution cycle.

Sequence 2: T1 → T2 → T3 → A4 → A1 → A2 → A3 → T4 → ...

Probability: 0.5

This suggests that after manipulation (T3), inclusive decision-making (A4) emerges as a direct response, followed by educational reform (A1). This is somewhat realistic but has an odd endpoint where inadequate participation (T4) follows transparent communication (A3), which seems counterintuitive.

Sequence 3: T1 → T2 → A4 → T3 → A1 → A2 → T4 → A3 → ...

Probability: 0.4

This sequence suggests inclusive decision-making (A4) emerges prematurely after insufficient understanding (T2), but then manipulation (T3) follows. The cycle ending with transparent communication (A3) followed by anachronistic education (T1) creates a logical disconnect.

Sequence 4: T1 → T2 → A3 → A4 → A1 → A2 → T3 → T4 → ...

Probability: 0.3

This sequence suggests solutions (A3, A4) emerge too early before problems have fully developed, then loops back to manipulation (T3) and inadequate participation (T4) after developing intuitive awareness (A2), which seems contradictory.

Sequence 5: T1 → A4 → T2 → T3 → A1 → T4 → A2 → A3 → ...

Probability: 0.2

This sequence has too many alternations between problems and solutions without clear causal connections. Inclusive decision-making (A4) directly following anachronistic education (T1) without intermediate steps seems implausible.

Sequence 6: T1 → A3 → T2 → A4 → A1 → T3 → A2 → T4 → ...

Probability: 0.3

This sequence alternates problems and solutions in a pattern that doesn't reflect clear causal relationships. Transparent communication (A3) arising directly from anachronistic education (T1) seems unlikely.

Sequence 7: T1 → A3 → A4 → T2 → A1 → T3 → T4 → A2 → ...

Probability: 0.2

This sequence has solutions (A3, A4) emerging too early before sufficient problem development, and the overall pattern lacks clear causal connections.

Sequence 8: T1 → A2 → A3 → A4 → A1 → T2 → T3 → T4 → ...

Probability: 0.1

This sequence suggests intuitive awareness (A2) directly follows anachronistic education (T1), followed by three more solutions, then all four problems. This grouping of all solutions and then all problems seems least realistic as organizational dynamics typically involve more interplay.

The most realistic sequence appears to be #1, as it presents a natural progression from problems to their solutions in a logical causal order, followed by sequence #2 which still maintains some logical flow despite a few counterintuitive transitions.

Author Biographies

Alanas Petrauskas is co-founder of Dialexity, a platform that integrates AI with structured dialectical reasoning. Trained as a chemical enzymologist (PhD, Moscow State University), he co-founded Advanced Chemistry Development (ACD/Labs) and helped develop cheminformatics methods such as ACD/LogP. His current work explores how mathematical symmetry and systemic tensions shape knowledge and ethics, expressed in Dialectical Wheels framework.

Jeff Diedrich is an international expert in Structured Democratic Dialogue (SDD), facilitating approximately 100 "co-laboratories" globally. After training with SDD co-creator Dr. Alexander Christakis, Jeff founded 7 Letters, LLC in 2015 to help organizations navigate complexity through authentic stakeholder engagement. He developed *Logosofia*, a cloud-based SDD platform utilizing Interpretive Structural Modeling algorithms. Jeff is piloting thoughtful AI integration into SDD while preserving authentic human participation. With an MA from Central Michigan University, he directs educational improvement initiatives, including a statewide project supporting students with disabilities.

Alexander N. Christakis

Alexander N. (“Aleco”) Christakis is a Greek-American social and systems scientist, renowned for pioneering Structured Dialogic Design and Co-Laboratories of Democracy. Trained in theoretical physics at Princeton (BA) and Yale (PhD), he shifted from nuclear physics to the design of inclusive social systems and democratic processes. He co-founded the Club of Rome, founded CWA Ltd., led the Center for Interactive Management at George Mason University, and has authored several books and over 100 articles on complexity and deliberative democracy.

Declaration of Interest

Alanas Petrauskas is a co-founder of Dialexity, a platform for AI-assisted structured dialectical reasoning.

Jeff Diedrich is the founder of 7 Letters, LLC, and developer of the Logosofia SDD platform.

Alexander N. Christakis is a long-standing co-creator and promoter of Structured Democratic Dialogue (SDD).

The authors declare that these roles did not influence the analysis, results, or conclusions presented in this paper, and they have no other competing financial or personal interests.