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Presentation title: PERCEIVED ECOSYSTEM SERVICE VALUE AS A MEDIATOR BETWEEN ENVIRONMENTAL WORLDVIEWS AND CITIZEN INTENTIONS TO PARTICIPATE IN ECOSYSTEM SERVICE CO-CREATION: EVIDENCE FROM URBAN PARKS IN ŠIAULIAI (LITHUANIA)

1. Introduction

Urban green spaces (UGS) play a fundamental role in supporting ecological resilience, enhancing human well-being, and contributing to climate adaptation and socio-ecological sustainability. Contemporary sustainability science increasingly recognises that socio-ecological systems (SES) must be understood as integrated systems of people and nature, where ecological and social components interact dynamically and reciprocally rather than through linear, unidirectional pathways. This understanding is widely supported in SES literature, which conceptualises SES as *linked systems* whose behaviour emerges from coupled feedbacks, mutual dependence, and socio-ecological embeddedness (Berkes and Folke, 1998; Quintas-Soriano et al., 2018).

However, while biophysical assessments of ecosystem services (ES) have matured rapidly, there remains a shortage of empirical research addressing how ES value emerges through co-creative socio-cognitive processes, particularly in urban nature-based solutions (NBS). Most ES frameworks treat ecosystems as providers and people as passive beneficiaries, thereby neglecting the fact that ES value is subjectively constructed, socially mediated, and behaviourally enacted (Larson et al., 2019).

At the same time, environmental psychology research consistently demonstrates that environmental worldviews, commonly measured using the New Ecological Paradigm (NEP), constitute a foundational belief system shaping environmental concern, attitudes, and behavioural intentions (Dunlap et al., 2000; Xiao et al., 2019). The NEP serves as a robust indicator of whether individuals view humans as separate from or embedded within ecological limits, playing a central role in predicting environmental concern and pro-environmental dispositions (Xiao et al., 2019). Nevertheless, the relationship between environmental worldviews and participatory environmental behaviour is rarely direct. Behavioural research increasingly suggests that associations between environmental attitudes and pro-environmental action are mediated by perceptions, cognitive evaluations, or affective relationships with nature, rather than emerging solely from ideological predispositions (Zhangrui et al., 2025). In the context of urban green spaces, this implies that the perceived value of ecosystem services may function as a key mechanism enabling environmental worldviews to translate into intentions for stewardship and co-creation.

This study focuses on the interrelationships among perceived ES value, environmental worldviews, and citizens' intentions to participate in ES co-creation.

2. Theoretical Framework

Complex Adaptive Systems (CAS) Perspective

SES frameworks conceptualise ecosystems and human behaviours as complex adaptive systems, characterised by feedback loops, multi-scale interactions, learning capacities, and emergent properties (Walker et al., 2004; Preiser et al., 2018). CAS theory highlights that behavioural outcomes—such as co-creation—emerge from dynamic interactions between worldviews, experiences, social norms, and ecological conditions.

This theoretical perspective provides the systemic foundation for conceptualising perceptual and behavioural co-creation as emergent, interdependent processes within urban park settings.

Environmental worldviews and SES behaviour

Environmental worldviews form coherent belief systems that influence how individuals interpret and engage with environmental issues. The NEP scale, developed by Dunlap et al. (2000), has been found to serve as the central component explaining the coherence of environmental concern (Xiao, Dunlap & Hong, 2019). Studies spanning multiple countries confirm that the NEP not only predicts environmental concern but mediates the effects of socio-demographic factors on environmental attitudes, underscoring its foundational role in environmental psychology.

Perceived Ecosystem Service Value

Perceived ES value represents a *cognitive interpretation* of ecological benefits grounded in personal experiences, meanings, and situational contexts. Growing research demonstrates that ES perception is shaped by socio-cultural factors and that perceptions significantly influence behavioural intentions associated with ES and environmental practices (Thiemann et al., 2022; Quintas-Soriano et al., 2018).

Perception is neither uniform nor ecologically determined; instead, it is modulated by cultural, emotional, and experiential relationships with nature (Huynh et al., 2022). Emerging evidence further suggests that perceptual cognition mediates the link between environmental value orientations and pro-environmental behaviour (Zhangrui et al., 2025).

Intentions to participate in ES value co-creation

In line with Service-Dominant logic, value is co-created when beneficiaries integrate their own resources—knowledge, skills, behaviours, or material contributions—into the enhancement, stewardship, or maintenance of ecosystem services (Vargo & Lusch, 2008). This relational view frames citizens not as passive recipients but as active participants in value creation within social-ecological systems.

3. Methods

Study Area

The study was conducted in five urban parks in Šiauliai (Lithuania), selected to represent ecological and spatial diversity in terms of vegetation structure, size, management regimes, and proximity to the city centre. These parks provide a rich socio-ecological environment for exploring variability in human–nature interactions and ES value perceptions.

Data Collection

A questionnaire survey was administered during June–July 2025, yielding 980 valid responses. Respondents rated their agreement with constructs on 5-point Likert scales.

Measurement of Constructs

- Perceived ES value captured three dimensions: Provisioning, Regulating, and Cultural ES, based on CICES V5.2.
- Intentions to participate in ES value co-creation comprised collective, individual micro-contributions, and physical participation forms.
- Environmental worldviews were assessed through the NEP scale (ecocentric and anthropocentric).

Analytical Approach

Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) validated the constructs. Structural Equation Modelling (SEM) tested direct and indirect effects, mediation, and model fit.

4. Results

Environmental worldviews influence perceived ES value.

Both ecocentric and anthropocentric orientations positively predicted perceived ES value, with ecocentric worldview showing significantly stronger influence. This highlights that individuals who recognise human–nature interdependence tend to attribute greater value to ES and perceive broader benefits from UGS.

Perceived ES value as the strongest predictor of participatory behaviour.

Perceived ES value emerged as the most influential predictor of participative co-creation intentions. This validates the hypothesis that perception is a prerequisite for action, aligning with models of environmental behaviour that emphasise cognitive appraisal as a precursor to stewardship activities.

Mediation Effects

Perceived ES value fully mediated the relationship between environmental worldviews and participative co-creation intentions. Environmental worldviews had no direct effect on behavioural intentions; instead, their influence was transmitted through perceived ES value.

5. Discussion and Contributions

The study provides several contributions:

1. It offers empirical evidence that perceived ecosystem service value is a core mechanism translating environmental worldviews into participatory intentions.
2. It advances a conceptual integration of SDL and CAS into SES research, demonstrating that ES value emerges through cognitive, affective, and behavioural feedback.

6. Policy and Planning Implications

For planners and policymakers, the findings suggest:

- Strengthening perceptual value formation may be more effective in fostering stewardship than targeting attitudes alone.
- UGS governance should integrate behavioural and cognitive dimensions alongside ecological indicators.
- Designing spaces that promote emotional and experiential engagement may enhance public support for co-creation activities.
- Participatory governance models should recognise the mediating role of perceived ES value in mobilizing citizen contributions.

7. Conclusion

The study demonstrates that perceived ecosystem service value is a pivotal mediator linking environmental worldviews with intentions to participate in the co-creation of ES. By integrating CAS theory with SDL, it offers a nuanced understanding of how value emerges, evolves, and motivates stewardship within urban parks. These insights support more socially attuned and cognitively informed approaches to urban green space governance, contributing to resilient and participatory socio-ecological systems.

8. References

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