Exploring Leadership Concepts in Sensory Science

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Abstract

Sensory science plays a critical role in product development, quality management, and consumer research; however, the role of leadership in shaping the practice and impact of sensory science remains largely unexplored in the academic literature. This conceptual review examines leadership concepts relevant to sensory science and considers how leadership influences the generation, interpretation, and organizational use of sensory knowledge. Drawing on foundational leadership theories and organizational scholarship, this review conceptualizes leadership as a social, epistemic, and strategic process that extends beyond formal authority. Anchored in adaptive leadership theory by Heifetz and transformational leadership theory by Burns, the review conceptualizes leadership as a critical influence on learning, interpretation, and value creation in sensory science. Leadership is framed as a meta-level function that structures epistemic norms, supports collective sensory expertise, and enables the translation of sensory evidence into meaningful and trustworthy organizational action. Illustrative leadership domains relevant to sensory practice include cross-functional relationships, panel culture, approaches to data interpretation, and the integration of sensory evidence into organizational decisions. By integrating leadership theory with sensory science practice, this review highlights leadership as a critical yet underrecognized driver of scientific quality, credibility, and strategic relevance. The review concludes by identifying implications for sensory scientists and proposing directions for future empirical research at the intersection of leadership and sensory science. The contribution is intended to encourage interdisciplinary research and elevate awareness of leadership capability as a potential core sensory competency.

Introduction

Sensory science is critical to product development, quality management, consumer insights. However, leadership's role in shaping sensory practice and impact is underexplored. The gap is that there is limited integration between leadership theory and sensory science practice.

Definitions: **Adaptive Leadership (Heifetz*)*** is a leadership approach that focuses on helping people and organizations adapt to difficult, changing circumstances, addressing complex problems**, Transformational Leadership (Burns)** is defined as a leadership process in which leaders and followers raise one another to higher levels of motivation and pursue a higher set of values to exceed expectations.

Objective: The objective is to conceptualize leadership in sensory science as a social epistemic and strategic process and to understand how leadership influences scientific quality, organizational relevance, and long-term value creation.

Theoretical Framework: Leadership Foundations: Adaptive leadership (Heifetz) navigating complexity and uncertainty. Transformational Leadership (Burns) inspired change and shared vision amongst group members.

Key Idea: Leadership extends beyond formal authority and acts as a meta-level function shaping how knowledge is created and used. Leadership can act as a power of influence through building trust, establishing credibility, and sharing knowledge

Leadership as a Meta Level Function

Leadership structures: Knowledge Generation (Methods, Rigo), Knowledge Interpretation (Data storytelling), Knowledge Translated into Decisions , Knowledge Communicated into teams.

- ❑ Applications include Cross Functional Partnership, Panel/team culture, Data interpretation practices, Decision Integration.
- ❑ Creating Vision and Purpose, Shaping Culture, Developing People, Managing Systems and Connections, Enable Learning and Adaptation.
- ❑ Management focuses on what people do. Leadership as a meta-level function focuses on the environment, culture, and systems that determine how well people can do it.

Example:

Individual Contributor	Manager Focus	Meta Level Leadership
"I need to complete tasks" "I need to analyze the data"	"Has the study been completed accurately and on time?" "Are the goals of the company being met?"	"How can we create a team that consistently generates insights, develops future sensory leaders, and strengths our organization consumer-centric culture?

Leadership Beyond Formal Authority

Building cross-functional relationships that create trust and encourage the use of sensory evidence across product development, quality, marketing, and consumer insights teams.

Cultivating panel culture through the reinforcement of shared standards, psychological safety, and continuous learning among panelists and sensory practitioners.

Guiding data interpretation by facilitating thoughtful discussion, managing uncertainty, and promoting evidence-based conclusions rather than personal preferences.

Advocating for sensory evidence in organizational decision making, ensuring that sensory insights are appropriately considered alongside technical, consumer, and commercial information.

Key Take Aways

1. Leadership is hidden driver of sensory impact, Leadership shapes both scientific quality and business value, and is essential of future relevance and sustainability of the field.
2. Leadership fosters impact on inspiring innovation and driving discovery.
3. Adaptive and Transformational Leadership are approaches to incorporate into practice in sensory practices.
4. Sensory professionals can continue to grow their leadership skills to impact companies, academia, organizations, and sensory communities.

Implications for practitioners

Build leadership capabilities within sensory teams: Strategic thinking, Communication, Story telling, Cross-functional Collaboration, Decision-Making, Coaching and Team Development, Project leadership, Influencing without Authority, Stakeholder management, Emotional Intelligence, Change Leadership, and Business Acumen

Foster Inclusive team cultures*:* Practice Active Listening, Data-Driven Cultures, Cross-Functional Understanding, Understand broader business objectives Encourage Curiosity and Continuous Learning, Value Diversity of Perceptions and Experiences, Create Feedback Loops, Celebrate wins and team impact, Establish Core Team Behaviors,

***Adaptive Leadership (Heifetz*)**: Understand self-leadership styles and strengths of leadership. Use different leadership styles to communicate to different levels: Descriptive panelists, Scientists, Management, Upper Management, Cross Functional Stakeholders, Students, Admins, Graduate Students, PI, etc.

Transformational Leadership (Burns): Idealized Influence (Lead by Example), Inspirational Motivation (Creating a shared vision) , Intellectual Stimulation (Encouraging Innovation), Individualized Consideration (Developing people) Empower others with the ability to change

Strong stakeholder relationships: Establish expertise, Build Trust, Influence without Authority, Deliver Consistent Work, Communicate Clearly

***Increase Visibility and communication of sensory insights*:** Clear Findings, Clear recommendations, Direct Impact, Direct Thoughts

Embed sensory science into strategic decision workflows*:* Understand where sensory impacts projects, other work, and fits into the world of research.

Strengthen the credibility and stewardship of sensory knowledge: Ensure sensory data are interpreted and communicated with transparency, scientific rigor, and appropriate context. Establish clear standards for evidence quality, manage uncertainty openly, align recommendations with business needs, and position sensory science as a trusted source of organizational knowledge

Future Research Direction

Empirical studies on the Measurement of Sensory Leadership Effectiveness.

- Leadership styles in sensory professionals within CPG, academic, organizations
- Impact of various leadership styles and structures on data quality and decision outcomes
- Measurement of: Sensory leadership effectiveness
- Exploration of Sensory science in sustainability leadership context

Conclusion

Leadership represents an important yet underrecognized dimension of sensory science that influences how sensory knowledge is generated, interpreted, and applied within organizations. By extending beyond formal authority, leadership shapes scientific rigor, fosters collaboration, and enhances the credibility and strategic impact of sensory insights. Recognizing leadership as a core sensory competency provides a foundation for future research and offers practical opportunities for sensory professionals to strengthen the value of sensory science across organizational contexts.

References

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