

Exploring the Spread, Use, and Impact of Buzzwords on Decision Making in

Conservation:

A Mixed Methods Approach

by

Kelly Claborn

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Graduate Supervisory Committee:

Caitlin Drummond Otten, Co-Chair

Marcus A. Janssen, Co-Chair

John M. Anderies

Kathleen M. Carley

ARIZONA STATE UNIVERSITY

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ABSTRACT

Words wield immense power. They help to shape realities, tell stories, and encompass deeper values and intentions on behalf of their users. Buzzwords are imprecise, trendy – and often-frustrating – words that are encountered in daily life. They frame problems, evoke emotional responses, and signal moral values. In this dissertation, I study buzzword use within the field of environmental conservation to better untangle the inherent tension they have long produced: do buzzwords help or hurt collective conservation efforts? Using a mixed methods approach, this dissertation provides descriptive and causal empirical evidence on many of the untested assumptions regarding the behavior, use, and impacts of buzzwords on conservation decision making. First, through a series of expert interviews with conservation professionals, I develop an empirically informed definition and understanding of buzzwords that builds upon the scholarly literature. It identifies eight defining characteristics, elaborates on the nuances of their use, life cycle, and context dependence, and sets forth a series of testable hypotheses on the relationship between buzzwords, trust, and perceptions. Second, I take this empirically informed understanding and employ a large-scale text analysis to interrogate the mainstream conservation discourse. I produce a list of buzzwords used across institutions (e.g., academia, NGOs) in the past five years and link them to predominant conservation frames, comparing the ways in which different institutions relate to and discuss conservation concepts. This analysis validates many long-held paradigms and ubiquitous buzzwords found in conservation such as sustainability and biodiversity, while identifying a more recently emerging framing of inclusive conservation. Third, I experimentally test a set of hypotheses on the effects that buzzwords have on decision making, as moderated through trust. This study finds evidence of a greenwashing effect, whereby buzzwords may produce marginal benefits to

less trustworthy organizations through increases in credibility and group identity alignment, but do not outweigh the benefits of being trustworthy in the first place. In the face of many current global challenges requiring cooperation and collective action – such as climate change and environmental degradation – it is imperative to better understand the ways in which communication and framing (including buzzwords) influence decision making.

DEDICATION

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INTRODUCTION

Many of the world's most urgent and challenging issues are collective action problems (Ostrom, 2010), such as climate change, environmental degradation, and global pandemics. Collective action requires cooperation and coordination across many actors to make judgements and tough decisions about how to allocate time and resources and what actions to take. These decisions are influenced by different types of knowledge, information, and communication across the individuals involved in the decision context. Language and communication play a critical role in these contexts, shaping realities and worldviews (e.g., Veland et al., 2018). Words help people construct mental models of the world, define problems and solutions, and outline the spectrum of potential actions. Imprecise words can muddy this process and potentially help or hinder efforts toward collective sense-making. This dissertation explores one specific type of imprecise word: buzzwords. It seeks to better understand how buzzwords shape mental models and worldviews – and ultimately influence decision making and outcomes – within the collective action context of environmental conservation. To answer these questions, I conduct a multi-study mixed methods approach, detailed in the sections that follow.

Communication is a Signaling Game

Discourse analysts assert that language can serve many functions because it allows one to “say things,” “do things,” and “be things” (Gee, 2011). The symbols that comprise written or spoken language signal one's social identity or intentions (Wardhaugh & Fuller, 2015) – or the “face” that one wishes to portray in social situations (Goffman, 1955). Bourdieu (1991) theorizes that all language is symbolic, in that it is embedded within a social context and used to a specific social end. From this perspective, there is an “economy of linguistic exchanges” that plays out through word choice, grammar, accent, and the like in any communication. Further, communicative

devices such as narratives and problem framing can predictably influence judgments and decisions by individuals (Fisher, 1984; Fischhoff, 1983; Benford & Snow, 2000). For instance, in a narrative revolving around “crisis,” urgency and vulnerability are embedded in all aspects of the problem situation (Grossman, 2019). Cognitive tools – such as strategic framing, narratives, storytelling, and metaphors – are often used in mission-driven and collective action contexts such as environmental conservation to achieve their goals (e.g., Leslie et al., 2013; Redford et al., 2012; Louder & Wyborn, 2020). They may be used to foster the development of shared meaning, increase engagement, convey urgency, and/or garner support. Thus, communication serves many more functions than a simple relaying of information about the state of the world. Certain words can be used to signal group membership, or evoke broader narratives that trigger various values, biases, or behaviors among individuals.

Imprecise Communication

There is often an implicit assumption of some level of accuracy in communication, but there are many ways in which it can be imprecise and lead to breakdowns between sender and receiver – and thus breakdowns in the transfer of one’s mental model or representation of the world to another. To illustrate this point, Denzau & North (1994) elaborate on a shared mental models framework. In this framework, shared mental models are defined as representations of cultural learning processes. They are ways in which people can share worldviews and ideas about outcome-action linkages. They are collections of ideologies – of histories, of values. Veland et al. (2018) suggest that, potentially by tapping into shared mental models, “narratives constitute reality *as we know it* by making sense of observations, leading us to new inferences, and providing models for a path forward” (p. 42; italics from original author). Narratives and other communicative devices have a world-building and sense-making influence on individual

perceptions and mental models, which thus shape one's perception of the problem, decision context, range of possibilities and actions, and estimated outcomes based on those actions (see the individual-level view of Ostrom's (2005) Institutional Analysis and Development Framework). Yet, there is an inherent challenge in conveying information (and thus one's mental model) with perfect fidelity through a communication channel using language (Denzau & North, 1994). Every sender and receiver of information has pre-existing neural pathways, patterns, and mental models of how the world works that shape how they package and receive new information in a given context. The specific type of language or communicative device used (e.g., a narrative, metaphor, buzzword) can either increase or decrease the level of accuracy in conveying the message the sender has hoped for. The more imprecise, broadly-defined, and/or value-laden the language is, the more easily it may signal different things to the receiver – or facilitate a breakdown in communication altogether – by upholding linguistic uncertainties (e.g., Cornwall, 2007; Regan et al., 2002).

Buzzwords as a Unique Communicative Device

Buzzwords are a unique type of communicative device that have typically been characterized by their high degree of imprecision / ambiguity, normative qualities, and widespread use (e.g., Cornwall, 2007; Schnable et al., 2021). Despite this broad characterization, there is no standard and comprehensive definition of a buzzword. Instead, scholars tend to ascribe varied characteristics and impacts to buzzwords in different contexts. Buzzwords have long been divisive regarding their hypothesized effects on individual perceptions, decisions, and strategic uses – specifically within the conservation sector. They have been hypothesized as having both positive and negative functions and impacts. For instance, many worry that the newest word or phrase will eventually become meaningless and “just another buzzword” (e.g., Apetrei et al., 2021;

Massarella et al., 2022), while some go so far as to warn about the more nefarious and purposeful uses of buzzwords as objects of power and ways to obfuscate or lead to confusion (e.g., Loughlin, 2002). Yet, others more optimistically see buzzwords as opportunities to build bridges or foster dialogue across stakeholders with varied or competing interests (e.g., Bensaude Vincent, 2014). Buzzwords have been described as “boundary terms,” linking science and policy toward a common agenda (Scoones, 2007). In either case, buzzwords inherently imply some level of consensus or agreement on the definition while allowing for varying interpretations, motives, and values (Cornwall, 2007). This ultimately leads to disagreement in how the word is operationalized or put into practice (e.g., *sustainability*). Their implication of consensus – and the division amongst scholars on their hypothesized effects (good versus bad) – thus begs the question: do buzzwords help or hurt collective conservation efforts?

Buzzwords in Conservation

The field of conservation is known to foster the development of many buzzwords to help express a plurality of dominant frames and fads. Words such as *biodiversity* (e.g., Toepfer, 2019), *sustainability* (e.g., Scoones, 2007), and *resilience* (e.g., Reid & Botterill, 2013) have had a long-term appeal and staying power as ways of representing some of the most dominant conservation frames (e.g., Mace, 2014). The world-building and sense-making influence of narratives and stories can – and has – produced various path dependencies in conservation, which can slow or inhibit progress toward the ultimate goals set forth by the community. For instance, certain research agendas may be prioritized over others because of funding patterns rather than on the predicted scale of impact or representation of geographies or species (e.g., Stroud et al., 2014). These funding patterns are – many times – informed by various trends, fads, and narratives (Redford et al., 2013). Deeper ideas and decisions about what to save, how to design

conservation interventions, and/or how to prioritize competing values are all subject to debate, inherent trade-offs, and path dependence once a series of actions is decided upon (Leader-Williams et al., 2011).

Thus, imprecise language – and buzzword use – within conservation may lead to breakdowns in communication or signal different things to different people, leading to different ideas about what is the best next course of action. There are major implications and warnings for how imprecise language shapes perceptions, and worldviews, spilling over into decisions about research and funding of various projects, what actions to take, and who to work with. Scholars and practitioners have repeatedly voiced their concerns about how conservation buzzwords may cause: different stakeholder groups to talk past each other (e.g., Vucetich & Nelson, 2010; Elliott, 2020), research and funding priorities to be driven by hollow fads (e.g., Morar et al., 2015), or terminology to be used incorrectly or diluted too much to be useful (e.g., Goldstein, 1999; Barua, 2011; Milner-Gulland, 2022). With a well-known proclivity for jumping onto rising fads and fashions – and the use of communicative tools to support their goals – conservation is an important context for exploring the use of buzzwords and their impacts on perceptions and decision making.

Research Goals & Approach

To begin answering the question of whether buzzwords help or hinder collective conservation efforts, this dissertation focuses on laying the theoretical and empirical groundwork in several ways. It has three goals motivating the research. They are interrelated, inform the other goals, and are all in the context of environmental conservation. As outlined in Table 1, the full dissertation agenda is centered around these three motivating goals, contributing to: (1) a cohesive and empirically informed definition of buzzwords, (2) a better understanding of how buzzwords shape mental

models and worldviews, and (3) a better understanding of how buzzwords may influence decision making. It employs a multi-study, mixed methods approach to describe and empirically test a set of hypotheses about buzzwords as related to conservation decision making; and it produces descriptive and causal evidence on many of the untested assumptions regarding the behavior, use, and impacts of buzzwords in this context.

Table 1 also details chapter-specific contributions to the three motivating goals related to this dissertation research, providing information on the broader research questions underpinning each contribution. Each chapter additionally asks more specific and targeted research questions (detailed in each respective chapter), in service of these broader contributions.

Table 1. Dissertation goals, chapter-specific contributions, and overarching research questions

Research Goal	Chapter	Contribution	Research Question
Develop a cohesive and empirically informed definition of buzzwords	1	Develop the definition	What are the defining characteristics of buzzwords, from both the literature and based on responses from a series of expert interviews of conservation professionals?
	2	Operationalize the definition	Can buzzwords be detected from written conservation texts? How are buzzwords being elicited and used across actors?
Develop empirical understanding of how buzzwords shape mental models and worldviews	1	Theoretical exploration	How are buzzwords hypothesized to be strategically used, and how do they shape perceptions? In what contexts?
	2	Linking to conservation frames and discourse	How are buzzwords used in written texts to elicit different mental models (i.e., frames) of how / why to do conservation?
	3	Causal empirical exploration	How does buzzword usage influence individual perceptions, such as credibility and level of skepticism?
Develop empirical understanding of how buzzwords may influence decision making	1	Theoretical exploration	How are buzzwords hypothesized to impact various conservation-related decisions?
	3	Causal empirical exploration	How does buzzword usage influence individual decisions related to resource allocation?

Dissertation Structure

In Chapter 1, I explore the deeper underlying definitions and understanding of buzzwords across the scholarly literature and amongst experts in the field of conservation. I use a mental models approach (e.g., Morgan et al., 2002) to develop a preliminary model of the characteristics, uses, mediating effects, and impacts of buzzwords based on the scholarly literature. Then, I conduct a series of interviews with conservation professionals to develop an empirically informed definition and

understanding of buzzwords that builds upon that preliminary model. I set forth a series of testable hypotheses on the relationship between buzzwords, trust, and perceptions.

Chapter 2 expands upon this empirically informed definition (developed in Chapter 1) to employ a large-scale text analysis interrogating the mainstream conservation discourse. I develop a novel operationalization of buzzwords and deploy it to produce a list of buzzwords used across institutions (i.e., academia, NGOs, media, and policy) in the past five years. I explore differences among institutions in how they use buzzwords – and the degree to which they overlap in their usage of buzzwords. Finally, I link the lists of buzzwords to predominant conservation frames, comparing the ways in which different institutions relate to and discuss conservation concepts across broader narrative frameworks.

Finally, in Chapter 3, I experimentally test a set of hypotheses (derived in Chapter 1) for the effects that buzzwords have on decision making, as moderated by trust. I systematically alter two conditions – the buzzword usage and trustworthiness – associated with a fictional organization that is proposing a project for securing access to water in a fictional community. Respondents provide feedback on how worthy they feel the project is for funding. I hypothesize that any buzzword and/or trust-related effects may be mediated through other factors such as changes in comprehension, perceived organizational credibility, alignment in group identity and shared values, and skepticism.

The conclusion chapter synthesizes the results of all three studies, linking the results to a broader discussion of the role of communication in shaping mental models and worldviews – and how that may influence decision making within collective action contexts. In the face of many current global challenges requiring cooperation and collective action – such as climate change and environmental degradation – it is

imperative to better understand the ways in which communication and framing influence decision making. This dissertation advances scientific understanding of the functions of imprecise language, framing, and communication in decision making, specifically focused on conservation buzzwords. The results presented in the chapters that follow open the door to explore several practical implications and future research directions in support of collective conservation efforts.

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CHAPTER 1

DEVELOPING AN EMPIRICALLY INFORMED CONCEPTUALIZATION OF BUZZWORDS: A CASE STUDY OF ENVIRONMENTAL CONSERVATION

Introduction

Words wield immense power. They shape our reality, help us construct mental models of the world, define problems and solutions, and outline the spectrum of potential actions. In the realm of communication, language serves functions beyond the mere relay of information about the state of the world. Language enables us to "say things," "do things," and "be things" (Gee, 2011). Certain words can signal group membership or evoke narratives that trigger various values, biases, or behaviors among individuals. Narratives and problem framing have been shown to predictably influence judgments and decisions (Fisher, 1984; Fischhoff, 1983; Benford & Snow, 2000). For instance, in a narrative revolving around a "crisis," urgency and vulnerability are embedded in all aspects of the problem situation (Grossman, 2019). Thus, amid increasingly complex problems requiring collective action – such as climate change, conservation, and global pandemics – communication and word choice play a critical role in fostering shared understandings and cooperative decision making (Moser, 2010; Eldridge et al., 2020; Anwar et al., 2020). Yet, the risks of imprecise language in such situations can be substantial, potentially leading to misinterpretations, conflicting or ill-suited actions, and/or misallocation of resources (e.g., Kim & Kreps, 2020; Shapiro et al., 2021).

Buzzwords, a specific type of imprecise word or phrase, present a unique linguistic challenge. These terms, while encapsulating current interest and hot topics in the field, carry inherent risks and benefits. Their ubiquity in our daily lives marks them as reflections of societal trends, but their imprecision can lead to varied interpretations

(e.g., Cornwall, 2007; Schnable et al., 2021) or breed cynicism when used inconsistently (e.g., Newton & Freyfogle, 2005). Despite the prevalence of buzzwords across many sectors and communication contexts, little empirical research has formalized a conceptualization of these ambiguous yet potentially influential features of our language. This study sets out to develop an empirically informed mental model of buzzwords, drawing on expert insights from the environmental conservation sector as a case example.

The remainder of this paper is structured as follows: the Background section introduces the prior literature. It elaborates on: (1) how buzzwords have been characterized, (2) why the conservation sector is a well-suited context to study buzzwords, and (3) this study's research questions and approach. The Methods section details the sampling design, interview procedure, and coding scheme and process. The Results section presents example buzzwords provided by participants, before going through each dimension of the full conceptualization of buzzwords from the interviews. The Discussion section synthesizes and contextualizes the findings. It presents the updated, empirically informed mental model and contextualizes it through several broader themes. The Conclusion section closes the chapter with overarching findings, implications, study limitations, and future directions.

Background

Characterizing Buzzwords in the Literature

The following section synthesizes the state of the literature on buzzwords. The use of buzzwords has long been noted in many sectors – e.g., business (Ettorre, 1997), healthcare (Penkler et al., 2020), tech (Forbes Technology Council, 2023). However, much of the literature with a focus on buzzwords as unique communicative symbols worthy of further study has been from within development and environmental

conservation. In particular, two papers from the development sector – Cornwall (2007) and Schnable et al. (2021) – detail their own frameworks for buzzwords. These two papers play a large role in shaping the structure and content of this study’s initial conceptualization of buzzwords, which is used as the preliminary model for further exploration (see Figure 1). All components of the preliminary model were derived from the various papers in scholarly literature, with Cornwall (2007) & Schnable et al. (2021) identifying most of the components.

Each of the following subsections break apart the broader conceptualization of buzzwords by: their defining characteristics, hypothesized strategic uses, mediating (or intermediate) effects, and impacts on decision making. It may be helpful to make the following arguments a bit more concrete through examples. Some buzzwords often explored within the conservation and/or development sectors are *sustainability* (e.g., Scoones, 2007), *biodiversity* (e.g., Toepfer, 2019), *participatory development* (e.g., Schnable et al., 2021), and *empowerment* (e.g., Cornwall & Brock, 2005).

Characteristics

Buzzwords have typically been characterized as a unique type of communicative symbol that is popular or highly frequent, imprecise, and normative (e.g., Cornwall, 2007). They are terms or phrases that spread through a decentralized diffusion process and tend to allow for differing interpretations for the sake of widespread adoption. They are shorthand for complex topics (Ettorre, 1997), condensing many ideas into a single word or phrase. Schnable et al. (2021) define buzzwords as popular topics that ebb and flow over time, characterizing issues in the field. Perhaps most importantly, buzzwords may imply and/or build consensus around an abstract idea while remaining vague enough to allow for competing interpretations (Cornwall, 2007; Schnable et al., 2021), similar in this way to “essentially contested concepts” (Gallie, 1956). Through the

example of the buzzword *intersectionality*, Davis (2008) argues that successful theories thrive on ambiguity and open-endedness. They appeal to fundamental concerns in a way “which is not only unexpected, but inherently hazy and mystifyingly open-ended” (p. 69). Simultaneously, buzzwords may evoke a normative sense of what is morally acceptable or desirable – or what is urgent and important enough for attention and resources (e.g., Rist, 2007; Cornwall, 2007). Bos et al.’s (2014) interpretation of “big words” as ideographs also further illustrates these characteristics, where big words (i.e., buzzwords in this case) are normative, big ideas that help to shape research practice. Everyone can agree on them in principle, while competing interpretations persist. Ultimately, scholars tend to agree that buzzwords are ephemeral and value laden. They ebb and flow, allow for competing interpretations through time, embed moral principles of fundamental concern, and are in widespread use at some point in their lifecycle. Thus, for this study’s preliminary model (Figure 1), buzzwords are characterized as popular / highly frequent, imprecise / ambiguous, implying consensus, and normative.

Strategic Uses

Many scholars have suggested that a key use of buzzwords is to signal or evoke a set of underlying values that many people may be able to subscribe to or resonate with (e.g., Cornwall, 2007; Bensaude Vincent, 2014). In this way, buzzwords may be used as symbolic gestures more so than as precise descriptors of a phenomena. Buzzwords have been described as “boundary terms,” linking science and policy toward a common agenda (Scoones, 2007). They may create opportunities for various stakeholders to have a dialogue about what society values within a given context and point of reference (Ramsey, 2015; Schnable et al., 2021). Using the example of *sustainability*, Paehlke (2005) highlights the integrating and bridging role of buzzwords – not just across actors but also across concepts and disciplines. Paehlke sees the value of the newer term

sustainability reconceptualizing the older ideas of economic efficiency and productivity in a way that resonates with new actors and advances research across more traditionally siloed disciplines such as ecology and economics. Schnable et al. (2021) also elaborate on the potential use of buzzwords as a way to repackage old ideas. Buzzwords may draw attention to common problems in “ways that appeal to those with power and resources” (p. 2). They give practitioners “a new vessel to reinvigorate interest in certain topics or practice” (p. 3).

Other scholars warn of the potential strategic uses of buzzwords that reinforce power structures which may be exploitative or manipulative. By employing vague language that has strong normative resonance, government officials or policymakers may water down debates, “flatten” the contestability of more complex issues, or limit meaningful public dialogue (Loughlin, 2002; Chandhoke, 2007; Littlefield, 2013). Further, buzzwords have been argued to be a way to escape accountability, as the flexible interpretation of terms can lead to different actions and an ultimate inability to tell if the goal has been achieved (Schnable et al., 2021). This is a particular governance challenge faced by those seeking to implement the Sustainable Development Goals, as the lack of specificity and measurability of many targets leads to an inability to hold actors to account in more traditional ways (Bowen et al., 2017). Thus, for this study’s preliminary model (Figure 1), some strategic uses of buzzwords are to escape accountability, repackage old ideas in new ways, water down debates, and create a shared set of values.

Mediating Effects

Because of their many potential uses, buzzwords have been hypothesized as having both positive and negative mediating effects on individual perceptions or behavior. Many scholars suggest that a key positive effect of buzzwords is that they increase the likelihood of cooperation by increasing trust or by inviting a wide range of

stakeholders to a single table. For instance, many scholars suggest that buzzwords are potential bridges, creating opportunities for dialogue across stakeholders with conflicting interests (e.g., Bensaude Vincent, 2014; Schnable et al., 2021). Given their potential to signal a shared set of values (regardless of whether those values are truly shared), buzzwords may influence decisions to cooperate in myriad ways. They may: (a) increase the perceived trustworthiness and legitimacy of the actor who has used the buzzword, (b) prompt underlying normative motivations based on an individual's values, or (c) cultivate a shared sense of purpose.

Yet, other scholars have expressed concern for the use of buzzwords, potentially leading to confusion and obfuscation (e.g., Loughlin, 2002; Newton & Freyfogle, 2005). Warnings abound regarding the potential misuse of technical terminology (Adams et al., 1997), the appropriation of buzzwords to serve those in power (Cornwall, 2007; Loughlin, 2002), or the embedding of underdeveloped scientific concepts into frameworks without applying an appropriate level of rigor (Cairns & Krzywoszynska, 2016). With such potential for “cheap talk” or fuzzy language to serve one's own agenda, buzzwords may decrease perceptions of the user's credibility. This hypothesis is also prevalent in the greenwashing literature, where scholars commonly suggest that the perceived integrity of many organizations who may be pursuing pro-environmental actions is at risk because of increased greenwashing and consumer skepticism (De Jong et al., 2018; Lyon & Montgomery, 2015). Buzzwords' vagueness and varied uses across actors may also lead to challenges in measurement or operationalization. Taking the example of *sustainability*, several scholars argue that it is an unmeasurable concept with no completely shared definition (e.g., Phillis & Andriantiatsaholiniaina, 2001; Ramsey, 2015). This lack of measurability and shared definitions – borne out of imprecision and ambiguity – invites room for “working understandings” (Schnable et al., 2021) and

varied interpretations of the end goal. Thus, buzzwords may: (a) increase confusion about what the term means or should be used for, (b) decrease perceptions of credibility, or (c) lead to a fundamental lack of measurability and shared definitions. For this study's preliminary model (Figure 1), some mediating effects of buzzwords are increased confusion, decreased perceptions of credibility, measurability / shared definition problems, increased trust / legitimacy, shared sense of purpose, and increased participation across groups.

Impacts & Decisions

In the context of development and environmental conservation, some suggest that buzzwords can influence where research and policy efforts are focused – and ultimately lead to differential funding patterns, prioritization of actions, and on-the-ground impacts (Cornwall & Brock, 2005; Cornwall, 2007; Loughlin, 2002; Schnable et al., 2021). For instance, in cases where buzzwords repackage old ideas in new ways to appeal to those in power, they could lead to an inefficient use of resources or the perpetuation of power dynamics that are detrimental to the broader community. Imprecise and “buzzy” language may hinder progress toward desired outcomes (Ostrom, 2005). Schnable et al. (2021) suggest that misunderstandings arising from buzzwords can produce different interpretations of the end goal, which may lead actors to flexibly interpret the terms to take actions that suit their own needs. Recent scholarship has also found that there is a clear incentive in using less specialized terminology in scientific publications to increase future citations (Martínez & Mammola, 2021), while others have warned of the increased incentives for hype, hyperbole, and novelty in scientific communication (West & Bergstrom, 2021; Smaldino & McElreath, 2016). These warnings suggest that the use of buzzwords may increase through time as publication

incentive structures are upheld across institutions such as academia, media, and others vying for attention and approval from stakeholders.

Ultimately, buzzwords have been speculated as encompassing a wide variety of characteristics, use cases, effects, and ultimate impacts – some positive and some negative. Still, they have historically received little attention from scholars, especially from an empirical perspective. Some scholarship has been undertaken to qualitatively study the history, discourse, and trajectory of single buzzwords (e.g., Mautner, 2005; Davis, 2008; Mensah, 2019), while others have more recently explored the large-scale emergence and dynamics of buzzwords through text mining and analysis (Schnable et al., 2021; Neuman et al., 2011). Only a few scholars – mostly from within the development sector – explicitly outline frameworks for conceptualizing buzzwords, their functions, and effects (e.g., Cornwall, 2007; Schnable et al., 2021). This study contributes to the prior literature by using a mental models approach to develop an empirically-informed, cohesive framework and conceptualization of buzzwords.

Conservation as a Case Study

Over the past several decades, the conservation sector has grown and become embedded in many other sectors, partially by adopting terms such as *sustainable development* to capture the attention of broader audiences (Palmer et al., 1997; Mensah, 2019). Amid this growth into the mainstream, Regan et al. (2002) illustrate the fundamental epistemic uncertainties present within the field of conservation and environmental sciences (e.g., measurement and systematic error, natural variation, inherent randomness) and how they can spill over into linguistic uncertainties (e.g., vagueness, ambiguity, disputed definitions). For instance, vagueness as a linguistic uncertainty arises because it allows for flexibility and border cases. In conservation, many concepts that have epistemic uncertainty associated with them – such as

endangered or even *species* – do not fit neatly into predefined categories, so the flexibility offered by vagueness is necessary. Broad terms like *biodiversity*, Regan et al. (2002) argue, are steeped in all types of linguistic uncertainty, given that the theory may still be under active development and research.

These linguistic uncertainties have raised alarm bells for many scholars over the years, as evidenced by Goldstein (1999) when he states that “[c]onservation biology's strength and reputation as a field of scientific endeavor are not served by the proliferation of empirically hollow buzzwords.” (p. 253). Yet others have embraced the many meanings, ambiguities, and normative qualities of some of the hottest buzzwords such as *sustainability* (e.g., Ramsey, 2015), making the case that this word has now shifted its purpose and function within the broader lexicon of conservation. Not all would agree with such a sentiment, and instead make calls for ceasing the use of such malleable and confusing terms (Newton & Freyfogle, 2005). In either case, conservation is prone to fads, which influence research, prioritization, and funding. New names are born to sell a "new" approach, even if it is just replacing or repackaging an old one (Redford et al., 2013). The conservation sector, given the prevalence and contestation of buzzwords, is ripe for inquiry into the dynamics and functions of imprecise language on decision-making, prioritization, and goal setting.

Research Questions and Approach

To develop a robust and empirically based conceptualization of buzzwords, this study adopts a mental models approach rooted in risk communications (Morgan et al., 2002; Bostrom et al., 1994; Bruine de Bruin & Bostrom, 2013). The mental models approach provides a structured method for eliciting individual mental models and beliefs about a concept or phenomena, to empirically validate and build upon current understanding from the literature. This study augments prior research in the field by

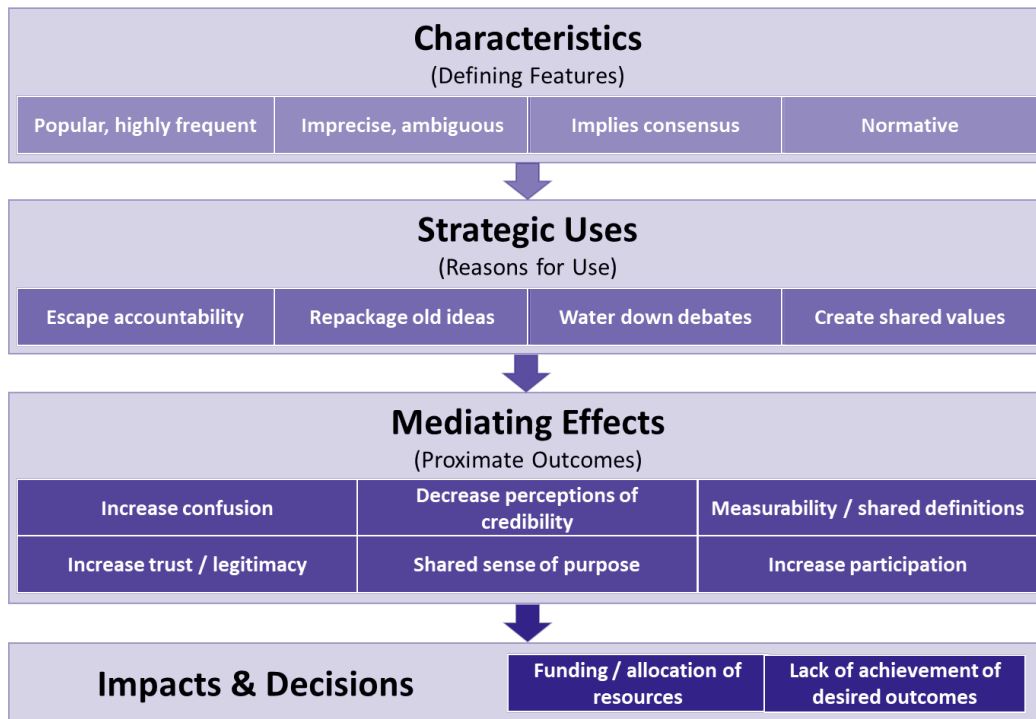
taking the broad conceptualization(s) of buzzwords identified by scholars, developing a preliminary mental model, and testing that conceptualization through a series of interviews. It focuses on interviewing experts in and tangential to the conservation sector, given their rich experiences within a particularly buzzword-prone linguistic context. The overarching goal is to create a cohesive and empirically informed definition and conceptualization of buzzwords and their use. This definition could then be referred to in future systematic studies on how buzzwords impact judgment and decision making. To achieve this goal, this study asks the following questions:

- R1.** What defines a buzzword?
- R2.** How are buzzwords used?
- R3.** What kinds of effects and impacts do buzzwords have on individual perceptions and decision making?

To answer these questions, this study asks interview participants to think about buzzwords in an open-ended context, and also probes specific elements of the preliminary mental model to test whether participants agree with each. In this way, the preliminary mental model can be updated with new additions, while simultaneously being empirically validated. In the development of the preliminary mental model, the literature review was largely centered on two buzzword-specific frameworks detailed by scholars in the field of development – Schnable et al. (2021) and Cornwall (2007). The review also included many case studies exploring specific buzzwords or sets of buzzwords, to further build out the preliminary model. These case studies provided valuable insights through their implicit assumptions or hypotheses about what constitutes a buzzword, how buzzwords function, or how they influence discourse, communication, and decision making. The preliminary mental model (Figure 1) consists of the four categories used for the conceptualization of buzzwords from the literature,

and follows the structure of this study’s primary research questions. It is organized into characteristics (R1), strategic uses (R2), mediating effects (R3), and impacts on decisions (R3). Ultimately, to keep the size of the preliminary model limited, many concepts were consolidated into broader dimensions that would fit under each category.

Figure 1. Preliminary mental model of buzzwords derived from the literature



Methods

The following sections detail the methods for conducting a series of semi-structured interviews to expand upon and validate the preliminary mental model of buzzwords derived from the literature. The full study design – including interview protocol – was pre-registered on the Open Science Framework (Claborn, 2023), and the associated codebook and coded, de-identified data are available through the publicly accessible repository associated with the project (Claborn, 2024).

Sample

Interview participants were selected using a combination of purposive and snowball sampling methods. The focal linguistic context for this study is that associated with environmental conservation. Thus, the sampling procedure aimed to capture the variation in conceptualizations of – and experiences with – buzzwords across professionals working in and tangential to the conservation sector. The researcher began by identifying potential participants through her extended professional network (i.e., purposive sampling), and then asked these individuals if they had suggestions of additional contacts who would be interested in participating (i.e., snowball sampling). To avoid bias in the sample, none of the interview participants had ever worked closely with the researcher, and the number of individuals to be interviewed from a single organization was limited to no more than two. The goal was to identify about 4-5 participants from four broad institutions engaged with conservation issues – academia, NGOs, government/policy, and media/communications. The final sample was composed of 17 individuals. Five participants worked within academia, 6 in NGOs, 3 in policy/government, and 3 in media/communications roles. Participants varied in their length of time working in (and tangential to) the conservation and environmental sector, ranging from 4 to 35 years (mean = 15.6). While some participants were very careful to only include years that they had spent formally working within conservation or environmental organizations, others included the years they spent attaining their post-secondary degrees as part of their full length of career. Not all participants self-identified as conservationists, but they all acknowledged that their work was tangential to the sector if not directly involved. Most participants crossed institutional boundaries in various ways – e.g., a university professor working on policy issues, or a communications expert within an NGO or government agency. The goal of sampling for mental models

interviews is to ensure enough variety that the mental model is fully explored and begins reaching a saturation point. A sample of 15-20 individuals is typically sufficient for a mental model interviewing exercise (Bruine de Bruin & Bostrom, 2013; Morgan et al., 2002). In this study's case, saturation was reached after the 13th interview, with no new additions to the mental model identified after that point. To avoid priming participants in advance of the interview, participants were only told that they would be discussing language use and decision-making within conservation.

Procedure

The interview protocol was approved by Arizona State University's Institutional Review Board (see Appendix D for the approval letter). Interviews were conducted virtually via Zoom during the spring of 2023, typically taking between 45-60 minutes. Interview prompts were separated into a two-part structure: (1) open-ended questions and (2) directed and specific probing of the preliminary mental model derived from the literature. For the open-ended questions, participants were asked to define and characterize buzzwords, list any examples and the context(s) in which they were used, and explore how their perceptions and decisions may have been influenced by the presence of buzzwords in these example contexts. As is standard in mental models interviews, participants were encouraged to elaborate on their responses through neutral and non-substantive prompts (Morgan et al., 2002; Bruine de Bruin et al., 2021). If a participant needed further prompting for the open-ended questions, the interviewer used a canned response stating that *sustainability* has been suggested as a potential buzzword, asking the participant to reflect on why this might be. Next, in the more directed second part of the interview, each category of the mental model (i.e., characteristics, strategic uses, mediating effects, and impacts/decisions) would be displayed on slides via a screen share, and participants were asked whether they agreed

or disagreed with each item in the list. As before, participants were invited to elaborate on any of the items (and their agreement or disagreement) as they wished. Participants were asked if there were any items missing from the list that should be added. This is a key element of mental models interviews, ensuring that any dimensions missed by the researchers are able to be discovered in the interview process (Morgan et al., 2002). The full interview script – with specific prompts and canned guidance – and pictures of the slides used for model probing are provided in the Supplemental Materials (Appendix A).

Coding

Interviews were recorded on Zoom and transcribed verbatim, aided by the automated transcription services of Otter.ai. Data analysis was conducted using a theoretically informed pre-written codebook which was updated inductively based on the data. All qualitative coding was done using MaxQDA 2022 software (VERBI Software, 2021). The codebook was developed following the structure of the preliminary mental model, incorporating new codes (i.e., dimensions) that emerged for each model category. For the first part of the interview (i.e., open-ended responses, where many new contributions to the model were uncovered), coding involved detecting the presence/absence of any code. The researcher also coded the presence/absence of new ideas that emerged in the second (model probing) part of the interview, adding them as “suggestions.” To answer the question of whether participants agreed with the preliminary mental model, the model probing questions from the second part of the interview were coded as agree/disagree. Any added nuance was coded if there was hesitation, or a caveat provided by the participant. Broader thematic codes were also included to capture commonly emerging ideas around whether buzzwords are used intentionally or not, the context-dependent nature of buzzwords, and the dynamics and feedback loops produced by buzzwords. The researcher recorded illustrative direct

quotes, to provide additional context and richness to each code. The full codebook is included in the Open Science Framework repository associated with this study (Claborn, 2024), including full descriptions, example key words and phrases for a given code, and illustrative quotes from interview participants.

Results

The following sections present the specific responses to the open-ended interview questions and mental model probing. General sentiments and example buzzwords provided by participants are presented first, to contribute tangible examples prior to digging into the full results. Next, results are presented for each category of the mental model.

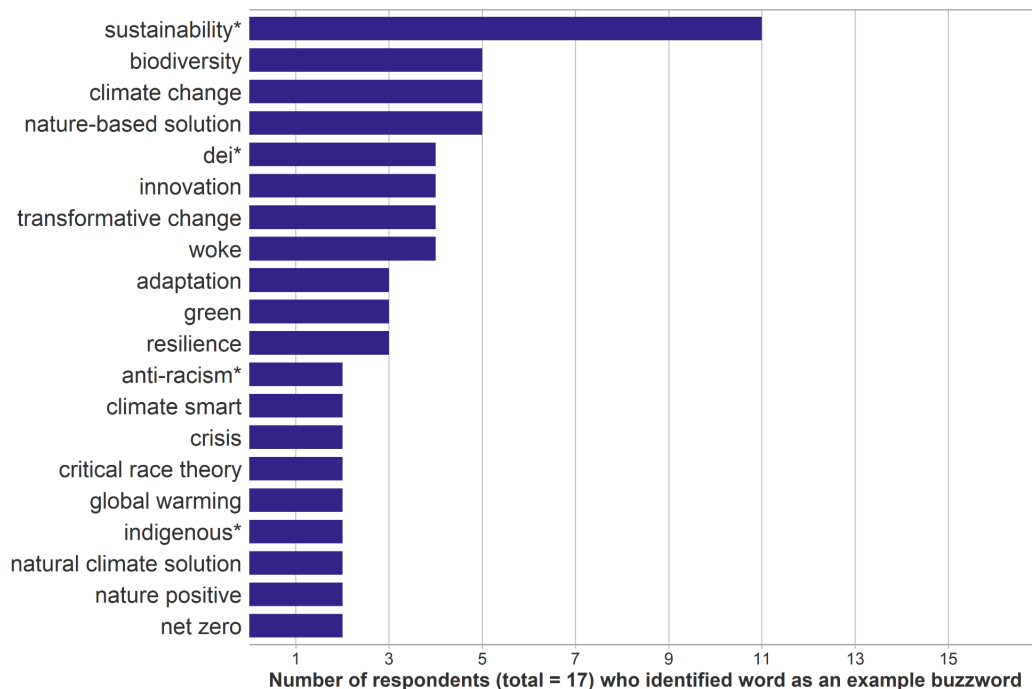
Conceptualizing Buzzwords

Participants came to the interview only knowing that they would be discussing language use and decision making in conservation, not buzzwords in particular. Yet, when prompted with the first question of the interview – “how do you define a buzzword?” – participants typically did not need clarification or much time to reflect to provide a response. This indicated a general awareness of and experience with buzzwords among participants that allowed them to access (or develop ad-hoc) their own mental model with some ease. In reflecting on buzzwords and their use, 88% (n=15) of participants expressed some type of negative or cynical sentiment about buzzwords, 47% (n=8) expressed a positive or idealistic sentiment, and 71% (n=12) expressed some kind of skepticism or a critical lens at some point in the discussion. Many individuals expressed multiple types of sentiment across the full interview, with 29% expressing all three at different times.

Typically, participants provided several example buzzwords when they were asked to consider a time when they noticed a person or organization using a buzzword.

These examples made their thought process or argument more tangible, and provided useful context for the varied situations in which buzzwords may arise. Figure 2 presents the list of example buzzwords provided by at least 2 different participants. These example words and phrases give a sense of what was most easily coming to mind for participants when considering the broader topic of what constitutes a buzzword, how it is used, and how it affects perceptions and decisions. Certainly, they do not represent all of the buzzwords in the field – or even necessarily the most important. However, they likely shaped the subsequent discussion and answers to the interview questions. *Sustainability* (and other versions or conjugations, such as *sustainable development*) was identified by 11 participants. *Biodiversity* and *climate change* were each identified by 5 participants. *DEI* (diversity, equity, and inclusion), *innovation*, *nature-based solutions*, *transformative change*, and *woke* were all identified by 4 participants.

Figure 2. Example buzzwords identified by interview participants



*Includes other versions or conjugations of the word (e.g., 'sustainable', 'diversity, equity, and inclusion', 'anti-racist', 'indigenous people')

In the sections that follow, tables are provided for each category of the mental model to indicate the percentage of participants who identified an item unprompted and the percentage of participants who fully agreed (without hesitation) with the items from the preliminary mental model when prompted. Very few participants ever wholly disagreed with the items included in the preliminary mental model, but some would hesitate or provide qualifiers or caveats. The full coding of agreement / disagreement for the model probing is included in the Supplemental Materials (Appendix A). Figure 3 (in the Discussion section below) illustrates the updated mental model based on the interview responses. Items in purple are part of the preliminary mental model and items in orange are new concepts added from the interviews.

Characteristics

Table 2 lists the characteristics of buzzwords identified by interview participants. Nine characteristics emerged unprompted, largely through the open-ended responses. Six of those characteristics were identified by over half of participants ($n > 8$). They were (in order of number identified): (1) popular / high frequency of use, (2) imprecise or ambiguous, (3) normative (signaling morals or values), (4) timely / trending, (5) lose or dilute in meaning over time, and (6) cultural relevance or “currency.” Two of the additional characteristics – implies consensus and simplifies complex ideas – were still identified by over a third of participants ($n > 5$). The final characteristic focused on the phonetic and syntactic characteristics of a buzzword, with two participants (11.8%) suggesting that buzzwords are short, snappy, or “roll off the tongue.”

Table 2. Buzzword characteristics identified by expert interviews

Characteristic <i>(in preliminary mental model)</i>	Identified unprompted n (%)	Fully agree when prompted* n (%)
<i>Popular / high frequency of use</i>	15 (88.2%) [†]	15 (88.2%)
<i>Imprecise, ambiguous</i>	12 (70.6%)	15 (88.2%)
<i>Normative</i>	12 (70.6%)	11 (64.7%)
<i>Imply consensus</i>	8 (47.1%)	12 (70.6%)
<i>Timely, trending</i>	11 (64.7%)	
<i>Lose or dilute meaning over time</i>	11 (64.7%)	
<i>Cultural relevance or “currency”</i>	10 (58.8%)	
<i>Simplify complex ideas</i>	6 (35.3%)	
<i>Phonetic or syntactic desirability</i>	2 (11.8%)	
* No hesitation or caveats when indicating agreement		
† 5 (29.4%) individuals suggested popularity to the point of overuse		

Many times, participants would express multiple of these characteristics within a single thought. For example, one participant covered the characteristics of cultural relevance, normative, timely / trending, lose or dilute meaning, and high frequency of use while hypothesizing about the lifecycle and sentiment associated with buzzwords:

I am thinking that a buzzword is kind of like a meme, right? A meme being a cultural packet of information [*cultural relevance*] that gets passed from person to person or organization to organization and which has sort of an immediate connotation for folks [*normative*]. So like all memes, they come and go, and their meanings get contested and negotiated. And it seems to me there's a sort of a cycle to them, where they come on, there's a lot of excitement or buzz around them [*timely / trending*], then there's sort of a saturation that happens [*lose or dilute meaning*], and then a cynicism about their meaning or overuse [*high frequency of use*].

– Interviewee 7
(italicized brackets added by researcher)

Strategic Uses

Table 3 lists the strategic uses of buzzwords identified by interview participants. Nine uses emerged unprompted, with a large portion of these emerging in the open-ended portion of the interview while considering example buzzwords and the contexts for their use. Four uses were identified by over half of participants ($n > 8$), with none being those identified in the preliminary mental model. In fact, one of the uses from the mental model – to escape accountability – was not identified unprompted by any participants. The four most identified uses of buzzwords were (in order of number): (1) to identify with a group or differentiate oneself (i.e., to “find your tribe” or “carve your niche”), (2) to build a certain appearance (i.e., that you’re relevant, novel, or have expertise; potential virtue signaling), (3) to evoke an emotional response (i.e., “trigger” or persuade through guilt), and (4) to co-opt meaning / weaponize the word to manipulate others (i.e., to purposely mislead).

Participants elaborated on the use of identifying with a group / differentiating oneself by stating:

It’s some sort of personal value identifier, or like puts you into a bit of a tribe.

– Interviewee 5

[They are] used more as, sort of, social currency, so that someone can signal that they are part of a particular group or that they hold certain views, even if they don’t fully, you know, understand what that term means.

– Interviewee 12
(brackets added by researcher)

They suggested that buzzwords are used to build appearances in myriad ways:

It’s a kind of looking good thing. I want to look good because I know the buzzwords, and I can use them.

– Interviewee 4

Yeah, I wonder about maybe being able to perform novelty? If that is a strategic use, that's not here [on the model probing list].

– Interviewee 7
(brackets added by researcher)

The co-opting of meaning or weaponizing of words was clearly laid out by a participant who shared:

I think sometimes buzzwords are used by opposing parties to discredit a concept... It's using a buzzword to point out a confusion and point out a perception of credibility or lack thereof. Thinking about the way, for example, Republicans would use *global warming* and then show temperature going down today... Or, youth activists using *intersectional environmentalism* to draw people in their sense of purpose and increase trust. But to have that buzzword weaponized by other groups, conservative groups, non environmental groups, to say, 'This is just a buzzword. What does it even mean? Who's measuring it? They don't even know what the definition is.

– Interviewee 16
(emphasis and quotation marks added by researcher)

Table 3. Strategic uses of buzzwords identified by expert interviews

Strategic Use <i>(in preliminary mental model)</i>	Identified unprompted n (%)	Fully agree when prompted* n (%)
<i>Develop shared values</i>	6 (35.3%)	16 (94.1%)
<i>Water down political or conceptual debates</i>	4 (23.5%)	14 (82.3%)
<i>Reframe / repackage old ideas in new ways</i>	3 (17.6%)	14 (82.3%)
<i>Escape accountability</i>	0 (0%)	16 (94.1%)
Identify with a group / differentiate oneself	14 (82.3%)	
Appearances (relevant, novel, virtue signal, or technically savvy) [†]	11 (64.7%)	
Evoke emotional response (persuasion, guilt, triggering)	9 (52.9%)	
Co-opt meaning, weaponize, manipulate	9 (52.9%)	
Succinctly give vague idea of topic	6 (35.3%)	
Define a new idea or direction	5 (29.4%)	
* No hesitation or caveats when indicating agreement		
[†] 11 (64.7%) of individuals mentioned something about building an appearance overall, with some suggesting multiple types. Specifically, they suggested uses to appear: relevant, 8 (47%); novel, 5 (29.4%); virtue signal, 4 (23.5%); technical/expert, 3 (17.6%)		

Additional uses identified by smaller numbers of participants were: (1) to succinctly give a vague idea of a topic, (2) to develop shared values, (3) to define a new idea or direction, (4) to water down political or conceptual debates, and (5) to reframe old ideas.

For instance, in thinking about new ideas or directions, one participant proposed:

I do think that there are genuinely new ways of looking at shared problems. And so maybe, we need to name those. And so I'm not against new concepts or buzzwords. And sometimes that can be enormously powerful to do. So... I think there could just be a new phenomenon that needs to be named.

– Interviewee 15

Participants overwhelmingly agreed with the suggested strategic uses included in the preliminary mental model, once they were prompted. Some provided caveats that not all of these uses would apply in all cases.

Mediating Effects

Table 4 lists the mediating effects (i.e., proximate outcomes) of buzzwords identified by interview participants. Ten effects emerged unprompted, though many participants did not consider effects explicitly until asked to think about them. No effects were identified by over half of participants, but six effects were identified by at least 20% of participants (n>3). These effects were (in order of number identified): (1) lack of measurability, (2) alienate or exclude people, (3) increase participation across diverse groups, (4) increase confusion, (5) increase (or decrease) trustworthiness and perceptions of legitimacy, and (6) demotivate action.

Thinking about problems with measurability – and especially a lack of shared definitions – one participant shared their experiences, suggesting that:

...if it's in a more deliberative setting, it's like, can we talk about what we mean by these terms? Because [it's] one of the things that I have found incredibly useful in having conversations with colleagues where we're using the same term, but we're like, why isn't this conversation going well? And then you realize, well, that's because, we're not... We're using the same term, but we're not talking about the same thing!

– Interviewee 13
(brackets added by researcher)

Another participant reflected on how buzzwords can lead to confusion amongst different groups:

But I feel like especially if people are using words interchangeably when they actually do mean different things – that just, I think, creates more confusion, especially for folks who are not subject matter experts.

– Interviewee 14

Participants overwhelmingly agreed with the suggested mediating effects included in the preliminary mental model, once they were prompted. Some provided caveats that not all these uses would apply in all cases, or that there may be bidirectionality in these effects. This was especially true for the “increasing trust / legitimacy” effect that was included in the preliminary mental model, where 3 participants explicitly mentioned that it could increase or decrease while another 5 suggested that it is very context dependent. All four participants who identified trust unprompted indicated a *decrease* in trust; but once prompted by the model probing questions, they acknowledged that there could be an increase in trust in different circumstances.

Two of the effects that emerged unprompted by at least 20% of participants were not identified in the preliminary model, and thus serve as valuable additions to the model. These were the ideas that buzzwords may alienate / exclude people and that they may demotivate action. For instance, one participant pondered:

I think it can also— it can let you off. You can kind of check a box. Really, it helps you identify as a certain type of person who does that, which can be good for movement building and political consensus; but it also, I think, can demotivate future actions.

– Interviewee 5

Table 4. Mediating effects of buzzwords identified by expert interviews

Mediating Effect <i>(in preliminary mental model)</i>	Identified unprompted n (%)	Fully agree when prompted* n (%)
<i>Problems with measurability</i>	6 (35.3%)	17 (100%) [†]
<i>Increase participation across diverse groups</i>	5 (29.4%)	15 (88.2%) [†]
<i>Increase confusion</i>	5 (29.4%)	17 (100%) [†]
<i>Increase trust / legitimacy</i>	4 (23.5%)~	15 (88.2%) [†]
<i>Decrease credibility</i>	3 (17.6%)	16 (94.1%) [†]
<i>Develop shared sense of purpose</i>	2 (11.8%)	17 (100%) [†]
Alienate or exclude people	6 (35.3%)	
Demotivate action, let off the hook	4 (23.5%)	
Polarization	2 (11.8%)	
Increase efficiency	2 (11.8%)	
* No hesitation or caveats when indicating agreement		
~ All 4 (23.5%) participants suggested increased <i>distrust</i> , rather than increased trust		
† Some indicated either bi-directionality or context dependence when agreeing to these mediating effects. 2 (11.8%) for measurability; 6 (35.3%) for participation; 4 (23.5%) for confusion; 8 (47%) for trust/legitimacy; 8 (47%) for credibility; 3 (17.6%) for shared purpose		

Decisions & Impacts

Table 5 lists the decisions related to the field of conservation that buzzwords may impact, as identified by interview participants. Eight decision types emerged unprompted. Only one decision type was identified by over half of participants, with that being funding and resource allocation decisions (n=9). Participants largely reflected on the potential for misalignment of resources or how language used is part of a larger signaling game with funders. For example, below are two comments from participants who have both held many different positions across conservation-related organizations over the past several decades – each mentioning the “game” of language for funding:

Sometimes, part of the game of writing funding proposals or getting grants from philanthropic foundations is to use the buzzwords. And to, read their literature and repeat back to them their buzzwords.

– Interviewee 4

I see it as a game that you have to play, to try to get money and as academics; and if you're a PhD student writing grants, you tailor what you're doing to the audience.

– Interviewee 15

Additionally, three decision types were identified by at least 40% of participants (n>6). These decisions were (in order of number identified): (1) strategic development / planning / communications, (2) collaborations / partnerships, and (3) political / policy/ voting behavior. Three more decision types were identified by at least 20% of participants (n>3). These decisions were (in order of number identified): (1) fostering social learning opportunities and shared understandings, (2) consumption behavior, and (3) hiring / HR / operational decisions.

The idea that buzzwords may impact opportunities to foster social learning was elaborated on in important ways by multiple participants:

You know, it also makes me think that there are opportunities for negotiating a lot of these values— so, you know about the work on boundary organizations, or boundary objects. It's almost like, buzzwords are boundary words.

– Interviewee 7

I think there's power in deliberating over buzzwords. Whether it is in an interdisciplinary setting, if it's in a collaborative stakeholder governance context. But as for buzzwords, they could be anchoring points for deliberations that could be positive, could be negative, depending on what the buzzword is.

– Interviewee 13

A large majority of participants agreed with the two suggested decision types included in the preliminary mental model, once they were prompted.

Table 5. Decisions impacted by buzzwords, identified by expert interviews

Decision Type <i>(in preliminary mental model)</i>	Identified unprompted n (%)	Fully agree when prompted* n (%)
<i>Funding / allocation of resources</i>	9 (52.9%)	14 (82.3%)
<i>Lack of achievement of desired goals</i>	1 (5.9%)	14 (82.3%)
Strategic development, planning, communications	8 (47%)	
Collaborations, partnerships	7 (41.2%)	
Political, policy, voting	7 (41.2%)	
Social learning, shared understandings (through deliberative processes)	5 (29.4%)	
Consumption behavior	4 (23.5%)	
Hiring, HR, operational	4 (23.5%)	
* No hesitation or caveats when indicating agreement		

Discussion

In the sections that follow, discussion is broken down into two main components: (1) synthesizing the results into an updated, empirically informed mental model of buzzwords, and (2) contextualizing the findings through several broader themes.

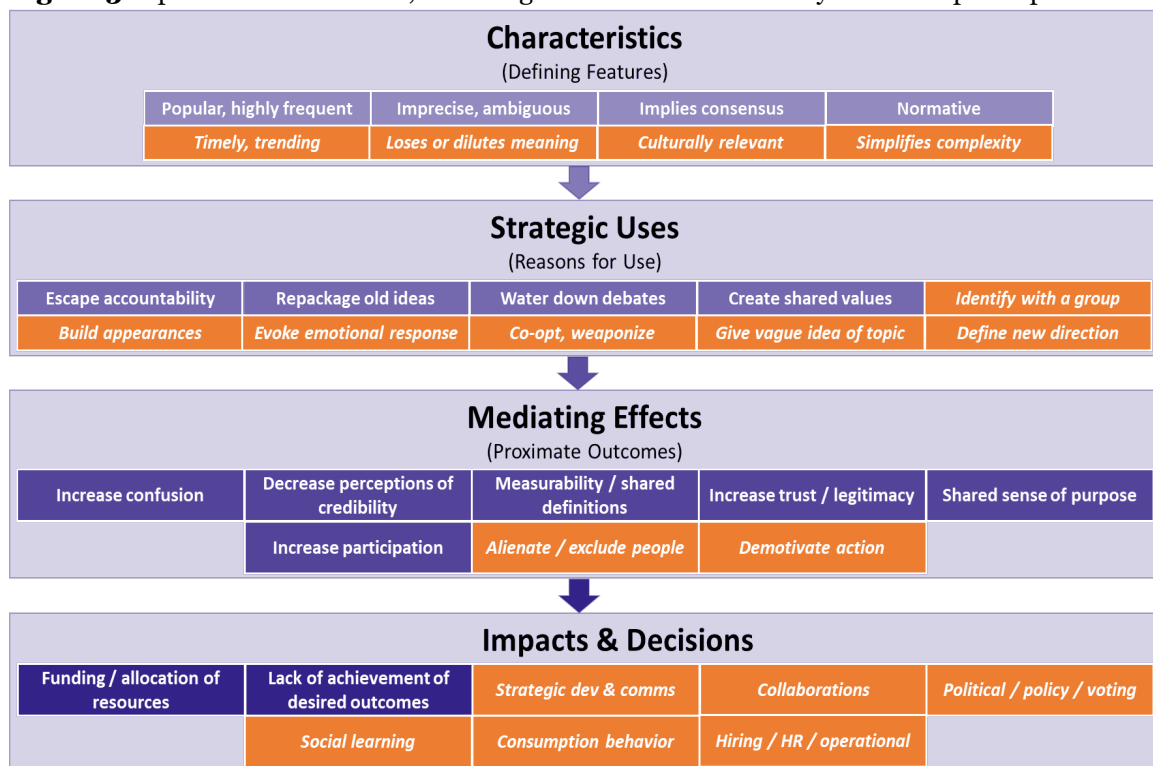
Updated Mental Model

The preliminary mental model was updated to include dimensions that were identified by at least 20% ($n > 3$) of participants. See Figure 3 for the updated model. Original model dimensions that were upheld are presented in purple, and new additions are in orange with the text in italics. All original dimensions of the model were upheld, as participants overwhelmingly agreed with each one. Though, sometimes they added a caveat that not every dimension would be relevant in every context. This analysis affirms that the ways that buzzwords have been defined by scholars captures much of the

definition that interview participants also had in mind. However, there are some key dimensions that were missing or not discussed consistently enough in the literature which warrant addition to the updated mental model.

This study’s more comprehensive definition of buzzwords (found in the “Characteristics” category of the model) includes eight dimensions total, with four dimensions from the preliminary mental model upheld and four new additions – helping to answer this study’s first research question (R1, how are buzzwords defined). Additionally, more nuanced understandings of the potential uses (R2), mediating effects (R3), and impacts on decisions (R3) were developed in the updated mental model. The updated model now includes ten dimensions for strategic uses (four upheld and six new additions), eight dimensions for mediating effects (six upheld and two new additions), and eight dimensions for impacts and decisions (two upheld and six new additions).

Figure 3. Updated mental model, including dimensions identified by interview participants



Note. Purple are from the original mental model and orange (written in italics) are new additions.

A Comprehensive Buzzword Definition

The interview participants overwhelmingly agreed with the assertion that buzzwords are a type of imprecise, ambiguous, and/or vague language (upheld). Though, buzzwords are much more than only imprecise. They are trendy (new addition), frequently used (upheld), and culturally relevant (new addition). Cultural relevance relates to their ability to signal something deeper within the cultural landscape rather than a simple functional representation of a phenomena or event. This symbolic signal may be that the user adheres to a specific set of values, is a member of a certain group, is an expert in the field, or something else entirely. Participants made clear that this cultural relevance or symbolic signaling characteristic of buzzwords can be used authentically or not – i.e., as a true representation of oneself, or a virtue signal. Closely related to this, buzzwords are frequently used in a normative sense (upheld) to indicate a moral or ethical judgment or to identify what should be considered most important or urgent in a given context.

A buzzword may be an umbrella term that captures a lot of complexity (new addition) within a single term or phrase, acting like a shorthand or way to get from point A to point B quickly without a lot of additional elaboration. The idea that a buzzword acts like a shorthand is present in the literature (e.g., Ettorre, 1997), but this had not been pulled out as a discrete characteristic in the preliminary mental model until participants overwhelmingly suggested that it is distinct from other characteristics such as imprecise or ambiguous. Participants also asserted that it is possible for a buzzword to lose or dilute in meaning over time (new addition), especially as it expands in use to new groups or users of the language. Many interview participants conflated “jargon” with “buzzwords” during the discussion; and when asked to clarify if there is a difference between the two types of words, participants typically suggested that jargon is more

technical and contained to a specific group of users. This observation by participants illustrates the importance of the loss or dilution of meaning characterizing buzzwords, when compared to other types of language such as jargon which are not as diluted. The implication of consensus (upheld) – or “working misunderstandings” (Schnable et al., 2021) – that buzzwords create can lead to challenges or surprises when an idea or concept is agreed upon in the abstract despite a lack of consistent or shared understanding in practice or in the details.

This more comprehensive definition of buzzwords captures critical concepts that interview participants agreed make buzzwords unique. While other types of communicative symbols may exhibit some of these characteristics (e.g., metaphors may capture a lot of complexity or signal normative values (Barua, 2011)), this full suite of characteristics may be unique to buzzwords. Having this empirically based definition provides a starting point to be able to identify and scrutinize buzzwords more systematically, even if they have gone undetected by experts or users of the language in question.

Putting Buzzwords into Context

Buzzwords do not exist in a vacuum. They are part of a broader linguistic, communication, social, political, and cultural context. Interview participants consistently contextualized buzzwords within this bigger picture, offering a more nuanced understanding that helps to augment the empirically based conceptualization of buzzwords and their uses. It adds depth to the mental model, capturing subtle variations in how individuals interpret and respond to buzzword-laden communication. The interview discussions shed light on this nuance through several larger themes related to: (1) symbolic over functional communication, (2) the dynamics and life cycle of buzzwords, and (3) the importance of context and audience in the uses and effects of

buzzwords. These themes help describe the potential *relationships* and *contexts* for how the different model dimensions and categories fit together, which were largely missing from the academic literature reviewed in the preliminary model development.

Throughout the following sections, several novel hypotheses (denoted as H1, H2, etc.) are derived by synthesizing observations by interview participants.

Symbolic over Functional Communication

Weaving together nearly all aspects of the mental model, a strong theme to emerge across participants was the distinction between words that are meant to be accurate and precise descriptions of the state of the world (functional) versus words that represent or signal less tangible social constructs (symbolic). Buzzwords were overwhelmingly classified by participants as falling into the latter category – tending to be used as symbolic signals above and beyond functional descriptors. This is most strongly evidenced by the suggestions by a large majority of participants that buzzwords are part of an underlying signaling process (e.g., group identity, novelty, relevance, expertise, or a virtue signal; 94% of participants) and that they have a cultural “currency” (65% of participants). One participant synthesized many of these symbolic aspects in a single thought:

What is it that makes [buzzwords] different? I think it's this social sort of currency that you get from using [them], which positions you within a particular group of people. And it shows that you're part of a particular community. And there's a normative aspect to that, right? You know, being important or urgent, I guess there's an element of that. But I think there's just also elements of, like, relationships between people. So I think buzzwords are ways of signaling to others that you are part of a given community.

– Interviewee 12
(brackets added by researcher)

Bourdieu (1991) theorizes that all language is symbolic – in that it is embedded within a social context and used to a specific social end. From this perspective, there is an “economy of linguistic exchanges” that plays out through word choice, grammar, accent, and the like in any communication. These choices and linguistic nuances shape and are shaped by one’s capital, with a special focus on social capital such as prestige or honor (Bourdieu, 1991). Building from this theory of language and symbolic power, the use of buzzwords in many linguistic exchanges may be seen as a way to augment various aspects of one’s social, political, or cultural capital. They signal norms and simplify complexity while remaining ambiguous and openly interpretable. Bensaude Vincent (2014) further details this point, stating that buzzwords “carry a soft power... operat[ing] through a mixture of the said and the unsaid” (p.249).

Buzzwords are social signals or markers (Nettle & Dunbar, 1997; Smaldino et al., 2017) that may affect one’s decision about whether to cooperate with another individual through identity or virtue signaling, and prompting in-group affinity and/or out-group aversion. One participant specifically referred to buzzwords as “boundary terms”, engaging people in dialogue across different communities. This is in line with Scoones’ (2007) assertion about the boundary work that *sustainability* does as a buzzword. Many interview participants raised these sentiments, indicating that the symbolic aspects of buzzwords may be used to trigger a set of shared societal values, foster a shared sense of purpose, evoke emotional responses, and/or get people to engage or cooperate. Overall, this aligns with the previous scholarship on buzzwords (e.g., Schnable et al., 2021; Cornwall, 2007), while more directly hypothesizing that buzzwords are primarily social signals or symbolic gestures – for group identification, building an appearance (of novelty, relevance, or expertise), or virtue signaling (H1).

The Buzzword Life Cycle

Buzzwords ebb and flow. They shape and are shaped by the broader systems within which they exist. Interview participants frequently mentioned how their use, popularity, and effectiveness as communication devices goes in and out of fashion over time and across groups.

So what do I think of... I think of old wine in new bottles, a lot of metaphor. Buzzwords come and go. And then they come back. And then some of them are very persistent, like sustainability, sustainable development. And then we often repackage things in policy, practice, and even academia.

– Interviewee 15

Some suggested that levels of cynicism or skepticism around the use of a certain buzzword likely increases as the word dilutes in meaning over time. This may influence the frequency of use, the particular group(s) using the word, or the underlying definitions and associations now ascribed to the word. New buzzwords or phrases may be coined (or rise in popularity or use) simply in an attempt to differentiate oneself or one's group from a now debunked or tainted word. Alternatively, others hold fast to the idea that the buzzword just needs to be more firmly defined as the meaning widens through time. These dynamics are evidenced by the many calls by scholars focused on *sustainability* and *sustainable development* – some call for a more cohesive definition (e.g., Palmer et al., 1997) while others suggest using a new term entirely (e.g., Newton & Freyfogle, 2005). One participant contemplated the implications of this dilution in meaning, cynicism, and fast cycling of buzzwords:

The other thing I would add is something about the deconstruction of shared meanings. I think [it's] one impact of this really fast or compressed issue attention cycle – the sort of taking a buzzword, and then putting it through the Twittersphere, and debunking it almost immediately. Or, reframing it or co-opting it such that we all end up cynical about what it was to begin with. Eventually, I think the potential for there to be shared meanings around some of those boundary words really goes down, right?

– Interviewee 7
(brackets added by researcher)

Conversely, prior to a broad recognition of the dilution of original meaning, users of the buzzword may not even be fully aware that they are using – or hearing – an imprecise term at all. One participant had a hard time even considering the use of a buzzword as strategic, stating that:

...they're almost used unconsciously...but because they're overused and mean so many things...the very notion of a buzzword almost implies stupid use.

– Interviewee 6

It is in this stage of a buzzword (i.e., prior to widespread cynicism and awareness of the lack of shared meaning) where it may be used in ways that benefit from its ability to imply a level of consensus. A buzzword that is still trendy but not yet fully diluted may be used (purposefully or not) for: (1) watering down conceptual or political debates, (2) hollowly value signaling (e.g., greenwashing); or (3) escaping accountability in strategic development, evaluation, or monitoring efforts. Some mediating effects – such as increased confusion, a lack of shared definitions, or problems with measurability – may thus go under the radar until later in the buzzword's life cycle. Synthesizing the interview discussions, this study derives a new hypothesis (H2) about these different stages of a buzzword's life cycle. Once buzzwords reach a certain level of dilution or overuse, there may be increased levels of skepticism and/or cynicism which impact individual

perceptions of the user of the word and their intentions. Participants largely suggested that they are critical or skeptical of buzzwords that are too widely used (or overused), and thus less likely to have their decisions and perceptions swayed by them.

Buzzwords were also discussed as playing a role in shaping – while being shaped by – the social and political systems within which they exist. For instance, one participant who works in the media reflected on how their organization looks for trendy buzzwords to hook to their stories, all while perpetuating (and sometimes diluting) those very buzzwords by releasing more stories using them! Other participants suggested that some NGOs will coin their own terms in a specific effort to differentiate themselves from peers in the field, creating their own brand. This may create more of a competitive linguistic economy across peers within a field, who are all seeking funding from similar sources. Meanwhile, another participant suggested that buzzwords may lead to a lack of engagement by the very people who the word or idea is seeking to benefit, if it seems like just another new fad or way of doing something. Contextualizing it with local communities in their region, the participant indicated that new researchers and agency personnel are coming in every few years with different ideas and different buzzwords for “whatever the collaborative style of the moment is.” It can become tiring and frustrating to feel like people are not necessarily taking into account what work had already been going on – especially in a place where they have been living for decades. This type of dynamic can create feedback loops, causing a slow decline in engagement or trust between groups, rather than fostering more trust and collaboration. Another participant mentioned a similar dynamic in the way that buzzwords can lead to increased polarization and miscommunication between groups, thus feeding back into which words get picked up and “catch the buzz” in the first place. Ultimately, a hypothesis (H3) to arise is that buzzwords can create or exacerbate positive feedback loops in various

contexts, with special focus on: (1) the use or active avoidance of certain buzzwords in the media or public communications, (2) engagement in a project or collaboration, and (3) miscommunication and polarization.

Context & Audience

Across all the potential use cases, interview participants repeatedly suggested that the context and audience matter – they influence perceptions of what type of outcome the user of the buzzword is seeking. For example, one participant suggested that if someone is using buzzword-laden language in promotional communications aimed at the public, this may be deemed as more permissible and simply an attempt for attention grabbing and group/value signaling among a specified target demographic. However, in the different context of a group of colleagues writing a grant for a new project, the use of imprecise language and buzzwords may be seen as reframing old ideas, building an appearance (whether true or not) that they are relevant and have expertise, or signaling group membership and alignment with the funder – i.e., “playing the game.” One participant suggested that this may be appropriate in some settings, but could be stretched too far and ultimately breed cynicism. And further, several participants mentioned the specific context of opposing groups strategically deploying language – such as is generally the case in the US political arena. The picking up and using of one group’s buzzword in a new or negative way within the other group would be seen as a means to evoke an emotional response and/or a co-opting or weaponization effort.

Each of these different example contexts encompass vastly different audiences, purposes, motives, and intentions. While they share the commonality of buzzwords, they do not share much else. Through these observations by the interview participants – and building on H2 – another hypothesis (H4) arises. There may be different categories or

types of buzzwords depending on the context, which cause discrete – and sometimes opposite – mediating effects on individual perceptions and engagement. For instance, some may strategically be used to build group alignment and engagement with only one select group, which may have the effect of alienating other non-group members.

Further, many participants highlighted the importance of the prior knowledge and trust (or lack of trust) they have in the user of the buzzword. This is hypothesized by participants to be a critical component in determining the directionality of effects on perceptions such as credibility, confusion, and trust / legitimacy – ultimately affecting the level of engagement and impacting decisions. One participant specifically elaborated on how they are more skeptical and distrustful of the words an organization uses if they already do not trust them:

I think it really depends on my prior knowledge of them, and whether I tend to trust them or not – if I know them or not, if I feel that they're credible, if they have a good reputation... So if you're looking at something like an oil company, and they're saying things like *sustainability*, they would use very intentional terms... They're not saying they're reducing production, they're talking about intensity. So it depends on the messenger... I don't trust oil companies to be doing good things in the world, so I don't trust the kinds of words they're using.

– Interviewee 10
(italics added by researcher)

This participant highlights an important hypothesis for buzzwords (H5). If the buzzword is used by a person or group who is typically not associated with the word – and they are not in the same group as the receiver of the word – then skepticism will be higher (e.g., *sustainability* from an oil company). Different groups will use different buzzwords, and people tend to trust the language of those whom they already trust and feel aligned.

Ultimately, interview participants provided rich and nuanced observations – and contributed many novel hypotheses – when detailing their understanding of and experiences with buzzwords. They see buzzwords primarily as a form of social or cultural currency – a symbolic signal – above and beyond any sort of functional descriptor. They explored the dynamics and life cycle of buzzwords as they dilute in meaning, create cynicism or skepticism, are used strategically or carelessly, and help to shape and/or perpetuate feedbacks in public communications, collaboration and engagement, and polarization processes. Participants provided different examples and contexts which illustrated just how context- and audience-dependent the effects and impacts of buzzwords are, with special attention to the importance of prior trust.

Conclusion

Historically, a cohesive and consistent empirical definition of buzzwords has been elusive both in scholarly literature and colloquial use. The ambiguity surrounding the term itself begs the question of whether *buzzword* may paradoxically be considered a buzzword. This study's approach sought to address this ambiguity by establishing a shared comprehensive understanding of buzzwords, building upon the current literature, and illustrating some of the nuance and complexity involved. In the process of updating the mental model, several themes began to emerge that paint a clearer picture of buzzwords and provide valuable insights and implications for policy and practice.

Ultimately, this study concludes by presenting an empirically informed conceptualization of buzzwords that includes eight defining dimensions. Buzzwords are: (1) popular / highly frequent; (2) imprecise / ambiguous; (3) normative / evoke a sense of what is morally right or desirable; (4) trendy / timely; (5) simplify complexity / condense multi-faceted ideas into a single word or phrase; (6) imply consensus on a concept in the abstract, despite disagreement of what that means in practice; (7)

culturally relevant / represent a type of cultural “currency”; and (8) lose meaning / dilute in meaning over time. Buzzwords may be symbolic symbols over functional descriptors. They may be prone to differing uses and effects depending on the stage of their life cycle, level of dilution, and the broader context, prior trust, and target audience. Buzzwords exist within complex linguistic, social, political, and cultural systems that shape – and are shaped – by their use.

Implications

Insights gained from the interviews provide useful implications for communicating more effectively in policy and practice. Understanding the nuances of buzzword usage allows organizations and individuals to navigate the fine line between trust building and alienation, and between group identity signaling and cynicism. Not every user of a language will have had the same experiences with a given word to even consider it a buzzword in the first place. This nuanced and context-dependent nature of buzzwords means that experts may still be necessary in some cases to identify where a buzzword is emerging in a way that warrants further attention. However, with a consistent operational definition of buzzwords, other tools such as text analysis may also be a useful way to detect words that are linguistically “behaving like a buzzword” even if going undetected by experts or users of the language.

There may be different categories of buzzwords, with certain characteristics and use cases more important or relevant for each. For instance, buzzwords could be separated out into groups – i.e., by those that are especially new and trendy (i.e., not yet diluted in meaning), those that consist of long held cultural ideas and paradigms while still maintaining a consistent definition and “the buzz,” and those that have lost all of their original meaning and ability to be a consistent signal of a phenomena. Each group

may carry with it different implications, such as level of cynicism, skepticism, or likelihood of loss of engagement or fatigue.

Limitations & Future Directions

Limitations

While this study contributes significantly to the understanding of buzzwords, it is essential to acknowledge certain limitations. First, the analysis focuses on buzzwords that are nouns or adjectives – ways of describing concepts, problems, solutions, and ways of categorizing the world. However, there are other parts of speech that could be considered buzzwords, such as verbs and adverbs. These types of words describe potential actions, processes, and “doings.” While this study cannot extend its empirically informed comprehensive definition of buzzwords in its entirety to these other types of speech, it is likely that much of the definition could be upheld. Further, this study focused on buzzwords from the lens and experiences of those in (and tangential to) the field of environmental conservation. Professionals and experts from other buzzword-laden fields – e.g., business (Ettorre, 1997), healthcare (Penkler et al., 2020), tech (Forbes Technology Council, 2023) – may have identified different examples, contexts, and trends worthy of further exploration. Future research could extend to other contexts and parts of speech, aiding in the development of a more generalizable mental model – especially related to use cases and decisions likely to be impacted by buzzwords.

Additionally, as with many qualitative studies, this analysis was derived from a relatively small sample of conservation-related professionals, found through a mix of purposive and snowball sampling techniques. A sample of this size – and acquired non-randomly – is not able to be representative of the field as a whole. Even with this limitation, this study sought to capture variation through identifying individuals from different mainstream conservation-related institutions (e.g., academia, NGOs, media,

policy) and length of tenure in the field. While saturation was reached prior to completing the interviews, there is always the chance that additional participants would have identified other worthy contributions and observations to be included in this analysis. Finally, in asking a series of agree/disagree questions for the mental model probing, there is a likelihood that those positive results reflect some inflation due to acquiescence bias (Schuman & Presser, 1996). Though, participants were so overwhelmingly in agreement that even a slight inflation is unlikely to change the directionality of results.

Future Directions

Despite these limitations, many testable hypotheses can be derived from this study. They can serve as unifying lenses to conceptualize and make sense of the interrelationships among specific components of the buzzword mental model. To frame a future buzzword research agenda, this study developed five hypotheses (H1-H5) based on a synthesis of the responses and observations of interview participants. These hypotheses especially rose to the surface as participants elaborated on some of the nuances and relational aspects of buzzwords in various contexts and social systems.

H1: Social signals and symbolic gestures. Buzzwords are primarily social signals or symbolic gestures – for group identification, building an appearance (of novelty, relevance, or expertise), or virtue signaling.

H2: The stage of life cycle influences perceptions. Once buzzwords reach a certain level of dilution or overuse, there may be increased levels of skepticism and/or cynicism which impact individual perceptions of the user of the word and their intentions.

H3: Feedback loops in the social and political system. Buzzwords can create or exacerbate positive feedback loops in various contexts, with special focus on: (1) the use or active avoidance of certain buzzwords in the media or public communications, (2) engagement in a project or collaboration, and (3) miscommunication and polarization.

H4: Different types of buzzwords. There may be different categories or types of buzzwords depending on the context and intended audience, which cause discrete – and sometimes opposite – mediating effects on individual perceptions and engagement. For instance, some may strategically be used to build group alignment and engagement with only one select group, which may have the effect of alienating other non-group members.

H5: Prior trust and group identity matters. Different groups will use different buzzwords, and people tend to trust the language of those whom they already trust and feel aligned. Skepticism and distrust will increase when a buzzword is used by someone who is not trusted.

Future research could explore these hypotheses using various methods such as computational text analyses, experimental design, surveys, or further qualitative methods such as interviews and focus groups. Different contexts (i.e., outside of conversation), parts of speech, sampling strategies, and targeted questions could further build upon this study in important ways. Chapter 2 of this dissertation seeks to take this study's empirically based conceptualization of buzzwords and operationalize it through a computational text analysis. Chapter 3 of this dissertation will take a series of the findings and hypotheses from this study and experimentally test them, specifically looking at their effect on decision making.

In conclusion, imprecise and “buzzwordy” language may carry substantial risks in individual decision making and the achievement of shared societal goals. This study provides practical insights – and future research avenues – for understanding, identifying, and navigating the complexities of buzzword usage in various contexts using an empirically-informed mental model of the characteristics, uses, mediating effects, and impacts of buzzwords on decision making.

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CHAPTER 2

CONSERVATION BUZZWORDS: EXPLORING THEIR USE, SPREAD, AND LINKAGE TO DOMINANT CONSERVATION FRAMES

Introduction

Environmental conservation is mission-driven and value-driven. It deals with fundamentally complex systems and requires engagement across diverse groups to achieve the goals it sets forth for the planet. To garner the buy-in, shared understandings, and collective action required to effect change, conservation has been known to adopt many different fads and fashions (Redford et al., 2013; Mace, 2014). Each fad brings with it different ways of expressing or conceptualizing the values, principles, and scientific frameworks underlying conservation. Cognitive devices such as narratives, metaphors, and storytelling are frequently used to convey different sets of ideas and frames for why (and how) to do conservation – e.g., ecocentric, crisis-driven, or techno-optimistic narratives, among others (Louder & Wyborn, 2020). With each framing comes a suite of different words, concepts, and language to deploy – all with the potential for misunderstandings, misalignment of research and resources, or siloed attempts to work within inherently complex social and ecological systems (e.g., Redford et al., 2012; Tallis & Lubchenco, 2014). Amid calls for conservation science to be a boundary science linking knowledge and action (Cook et al., 2013), the use of specific language and cognitive devices in conservation has far-reaching implications and impacts.

The field of conservation is known to foster the development of many buzzwords to help express the plurality of frames and fads – such as *biodiversity* (e.g., Toepfer, 2019), *sustainability* (e.g., Scoones, 2007), and *resilience* (e.g., Reid & Botterill, 2013). Many times, conservation buzzwords are considered to be boundary terms and concepts

meant to integrate many ideas and schools of thought (e.g., Ramsey, 2015; Olsson et al., 2015). They imply consensus and agreement at a more abstract level while also allowing for competing interpretations beneath the surface (Cornwall, 2007). Some suggest that the imprecision, normativity, and popularity associated with buzzwords can lead to confusion, signal different underlying values, and contribute to a lack of shared meaning or understanding over time (e.g., Newton & Freyfogle, 2005; Schnable et al., 2021). These characteristics and potential effects of buzzwords beg the question: do buzzwords help or hurt collective conservation efforts? Thus, it is important to further investigate what are the buzzwords in the mainstream conservation discourse – even if they are still newly emerging and largely undetected by experts in the field.

This study uses a large-scale computational text analysis to examine written conservation texts over a five-year period (2017-2021). I seek to better understand which buzzwords are being used in mainstream conservation discourse, interrogate how different institutions (e.g., academia, NGOs, media, and policy) vary in their use of buzzwords, validate this method for operationalizing and detecting buzzwords, and uncover where dominant conservation framings are (or are not) elucidated through the use of buzzwords.

The remainder of this paper is structured as follows: the Background section provides an overview of the current literature and introduces this study's research approach. It elaborates on: (1) the larger historical role of cognitive and communicative tools in conservation, (2) defines buzzwords theoretically and operationally, (3) introduces many of the dominant conservation frames and buzzwords within the conservation context, and (4) outlines my research approach and questions. The Methods section describes the full analytical process, walking through the analysis in a stepwise manner. It provides details for: (1) developing the corpus of texts, (2)

preprocessing the corpus, (3) creating networks of co-occurring words, (4) analyzing those networks to classify buzzwords, and (5) interpreting findings through subsequent descriptive and statistical analyses. The Results section presents findings for each set of research questions: (1) understanding the mainstream conservation discourse, (2) validating the novel buzzword operationalization, and (3) linking to conservation frames. The Discussion section closes the paper by synthesizing and contextualizing findings, exploring practical implications, elaborating on the study's limitations, and proposing future research directions and lessons learned.

Background

Language Matters: Narratives, Framing, and Storytelling in Conservation

The field of conservation is well-versed in the importance of strategic language use to achieve its goals. Conservation science – as with many other mission-driven scientific disciplines – frequently utilizes cognitive tools such as narratives, strategic framing, storytelling, and metaphors to communicate and share meaning (e.g., Louder & Wyborn, 2020; Veland et al., 2019; Barua, 2011; Leslie et al., 2013). These communication devices can help to simplify complexity and “create strong, vivid images that impart insight through analogy” (Johns & DellaSala, 2017; p. 174), increase comprehension, interest, and engagement for nonexperts (Dahlstrom, 2014), and “bring conservation science to life” (Leslie et al., 2013; p. 1126). While they can be effective in garnering support and conveying the urgency of the problem, scholars suggest that such tools can also influence mental models of how the world works – making them hard to change in the face of new evidence (e.g., Louder & Wyborn, 2020; Veland et al., 2018). Veland et al. (2018) suggest that “narratives constitute reality *as we know it* by making sense of observations, leading us to new inferences, and providing models for a path forward” (p. 42; italics from original author).

This world-building and sense-making influence of narratives and stories can – and has – produced various path dependencies in conservation, which can slow or inhibit progress toward the ultimate goals set forth by the community. For instance, certain research agendas may be prioritized over others because of funding patterns rather than on the predicted scale of impact or representation of geographies or species (e.g., Stroud et al., 2014). These funding patterns are – many times – informed by various trends, fads, and narratives (Redford et al., 2013). Deeper ideas and decisions about what to save, how to design conservation interventions, and/or how to prioritize competing values are all subject to debate, inherent trade-offs, and path dependence once a series of actions is decided upon (Leader-Williams et al., 2011). If conservation is to be an effective boundary discipline – linking knowledge and action, science and policy (e.g., Cook et al., 2013) – there are especially big implications for how cognitive devices such as framing and storytelling influence decision making across actors. Whose values are included in the decision process, based on what dominant narrative or story about the problem and desired future? Using multiple frames and narratives that communicate effectively to a variety of stakeholders and value systems can ensure that multiple voices are heard – and may be a necessary path forward for conservation (e.g., Elliott, 2020).

Yet, the use of value-laden terminology and framings across disparate groups with competing interests may lend itself to its own suite of challenges and considerations. Some worry that the use of communicative devices such as euphemisms or metaphors – which are deeply embedded in the way conservationists discuss certain concepts and issues – can undermine efforts to evoke care in others and impact the ability to achieve the broader conservation mission (Johns & DellaSala, 2017). Further, misrepresentations or imprecise use of terminology can impact public conservation literacy (Barua, 2011), or create ambiguity among scientists, students, and their research

findings (Adams et al., 1997). The importance of language use in conservation is paramount, with the study of particularly value-laden, imprecise, and popular terms – i.e., buzzwords – one such important pathway for further exploration.

Defining Buzzwords: Unique Communicative Symbols

Buzzwords have typically been characterized as unique communication devices (or communicative symbols) that are popular, imprecise, and normative. Scholars have argued that their imprecision and vagueness leaves room for differing – sometimes competing – interpretations of their underlying meaning, allowing for widespread adoption across groups and contexts (e.g., Toepfer, 2019; Cornwall, 2007). These competing interpretations nested under an umbrella word or phrase thus equip buzzwords with the ability to imply and/or build consensus around an abstract idea while still remaining vague and agreeable to a larger audience (Cornwall, 2007; Schnable et al., 2021), similar in this way to “essentially contested concepts” (Gallie, 1956). Many times, buzzwords are characterized as being shorthand for complex topics (Ettorre, 1997), condensing many ideas into a single word or phrase. They ebb and flow over time and represent issues in the field (Schnable et al., 2021). Simultaneously, buzzwords may evoke a normative sense of what is “good” or “right” (e.g., Rist, 2007; Cornwall, 2007) – what is morally acceptable, a desirable future, and/or an urgent and important problem. Thus, buzzwords are ephemeral. They are ever-changing, allow for competing interpretations through time, and are in widespread use at some point in their lifecycle. To provide tangible examples, some buzzwords frequently studied within the conservation and/or development sectors are *sustainability* (e.g., Scoones, 2007), *biodiversity* (e.g., Toepfer, 2019), *participatory development* (e.g., Schnable et al., 2021), or *empowerment* (e.g., Cornwall & Brock, 2005).

Chapter 1 of this dissertation built upon this definition from the literature by conducting a series of mental model interviews with conservation professionals, ultimately developing an empirically informed understanding of buzzwords that includes eight defining dimensions. For the remainder of this paper, buzzwords are defined using this empirically informed characterization. As outlined in Table 6, the eight defining dimensions of buzzwords are: (1) popular / highly frequent; (2) imprecise / ambiguous; (3) normative / evoke a sense of what is morally right or desirable; (4) trendy / timely; (5) simplify complexity / condense multi-faceted ideas into a single word or phrase; (6) imply consensus on a concept in the abstract, despite disagreement of what that means in practice; (7) culturally relevant / represent a type of cultural “currency”; and (8) lose meaning / dilute in meaning over time.

Table 6. Eight empirically informed defining dimensions of buzzwords and their semantic operationalization

#	Defining dimension	Description	Semantic operationalization	Used in this analysis
1	Popular	Highly frequent	Word frequency	Yes (secondary criteria)
2	Imprecise	Ambiguous, vague	Consensus	Yes (primary criteria*)
3	Normative	Evokes a sense of what is morally right or desirable	Conductivity (k-betweenness)	Yes (primary criteria*)
4	Trendy / timely	A symbol of the times, has caught “the buzz”	Percent growth in word frequency over time	Yes (secondary criteria)
5	Simplify complexity	Condenses multi-faceted ideas into a single word or phrase	Density (degree)	Yes (primary criteria*)
6	Imply consensus	Signal agreement on a concept in the abstract, potentially masking disagreement on what that means in practice	None	No (cannot be gleaned from this analysis)
7	Culturally relevant	Represents a type of cultural “currency” or way to easily resonate with users of the language	Spans institutions, spans time	Yes (secondary criteria)
8	Dilute in meaning	Meaning can be lost or dispersed and varied across different user groups over time	Word vectorization and semantic drift	No (beyond scope of this analysis)

Note. *Considered part of the criteria used to classify a buzzword from Carley & Kaufer (1993)

Looking at the work of semantic linguists, there is an alternative definition of buzzwords that is used for quantifying and identifying buzzwords from a specific lexicon. It stems from a broader framework for using semantic maps to classify different types of communicative symbols (Kaufer & Carley, 1993; Carley & Kaufer, 1993). A semantic map is a network of concepts linked together to form a representation of an individual’s cognitive mental model on a particular topic (Carley & Kaufer, 1993). Semantic networks can be derived from written texts as proxies for cognitive models, identifying the

connectivity between concepts and exploring how symbols and shared knowledge shape broader discourse. Within this framework, communicative symbols are classified across three metrics: density of meaning, consensus on the meaning, and conductivity to other communicative symbols. Density is a measure of how many other words are connected to the focal word and can serve as one way to understand how much underlying complexity and meaning is associated with the word. Thus, high density would indicate that there are a lot of concepts linked to the word, signifying that the word is simplifying or condensing complex ideas. Consensus is a measure of how many users in the specific lexicon or context agree that a certain word is linked with the focal word. Low consensus would indicate that there is much imprecision associated with the term, signifying the presence of competing interpretations. Conductivity is a measure of how much the word is acting like a gateway to other words in the semantic map, triggering many other ideas. High conductivity may indicate that the word is behaving like a bridge to connect various concepts and clusters of ideas. This behavior may illustrate the normative aspects of buzzwords, eliciting clusters of shared values or moral principles.

According to Carley & Kaufer's (1993) typology, a word is classified as a "buzzword" when it has low density, high conductivity, and low consensus. This definition – of a buzzword being low in density – is slightly at odds with my empirically informed definition identifying buzzwords as words that simplify complexity (e.g., Chapter 1 of this dissertation; Ettore, 1997). Low density would indicate that the word has few linkages to others in the semantic network, whereas a word that simplifies complexity would have many linkages to other concepts and thus be better represented as having high density. In this vein, Carley & Kaufer identify a "placeholder" as a word with *high* density, high conductivity, and low consensus. This better exemplifies the empirically informed definition, and thus I argue that "placeholders" – with their high

underlying density in meaning – are the more relevant classification for this study. For the remainder of this paper, I present words that meet the three primary criteria for being classified as “placeholders” (according to Carley & Kaufer’s (1993) typology) and refer to them as buzzwords. These criteria account for the imprecise, normative, and simplifying / condensing dimensions of buzzwords. Table 6 maps this study’s empirically-defined definition of buzzwords to the three primary criteria – and provides additional metrics for three secondary criteria which are used to develop more discerning lists of different *types* of buzzwords that meet certain thresholds and combinations of criteria.

Conservation Framing and Buzzwords

This theoretically and empirically informed definition of buzzwords enables the development of research examining how buzzwords may be used in different conservation frames. Framing is an important tool for conservation, and it plays an important role in shaping the overarching purpose, goals, measures of success, and actions to be taken (Mace, 2014). As the modern framing of conservation has shifted and changed in the developed world since the early 20th century (Mace, 2014), so have the accompanying fads and fashions which influence what gets prioritized for scientific research, funding, and practical application (Redford et al., 2013). These changes can be evidenced through the use of specific language and terminology that differentiate the underlying ideologies and concepts associated with specific frames. Table 7 details four predominant conservation frames and a collection of counter-narratives identified in the literature (e.g., Mace, 2014; Louder & Wyborn, 2020; Hutton et al., 2005). It provides a definition and series of keywords for each frame, which can be further investigated in this study as potential buzzwords associated with each frame.

The dominant frame for conservation before the 1960s focused on “nature for itself” (Mace, 2014), where protected area management, the preservation of wilderness and pristine nature, and so-called “fortress conservation” was the predominant method and goal (Hutton et al., 2005). This idealization of “wilderness” – dating back far before the 20th century – carried with it language associated with the sacred, the spiritual, and religious values (Cronon, 1996). Louder & Wyborn (2020) break this frame into two biodiversity narratives that are still dominant ideologies today, both within conservation and among a broader audience: the ecocentric and religious/ethics narratives. By the 1970s and 1980s, another frame emerged focused on the impacts of human activity on habitats. Mace (2014) calls this the “nature despite people” frame, and this most closely maps onto Louder & Wyborn’s (2020) crisis narrative. Discussion of overexploitation, extinction, and threats are front and center in this frame, with urgency and crisis as underlying motivators for action. Next, from the 1990s into the early 2000s, there was a rise of a “nature for people” frame (Mace, 2014), whereby the concepts of ecosystems, ecosystem services, and sustainable development became particularly pronounced. The Millenium Ecosystem Assessment helped to popularize this newest fad, language, and the underlying values (Mace, 2014; Millennium Ecosystem Assessment, 2005). Suddenly, this frame had broader appeal across economists and other actors outside of strictly conservation (Mace, 2014). This frame most closely maps to Louder & Wyborn’s (2020) characterization of the anthropocentric biodiversity narrative, recognizing that there is also a lot of overlap with a purely economics biodiversity narrative in which conservation should be more explicitly linked to business and the current economic powers that be. In more recent years, there has been a shift to a “people and nature” frame (Mace, 2014). This frame takes a more nuanced approach over the more traditionally utilitarian perspectives of managing nature to “maximize the overall value

of the human condition” (Mace, 2014; p. 1559), implying a “one-way relationship in which conservation of nature is justified on the ground that it provides important things” (Louder & Wyborn, 2020; p.254). The “people and nature” frame instead acknowledges the dynamic and two-way relationship between humans and the non-human environment. Concepts such as resilience, adaptation, social-ecological systems, and complexity play a more central role in this frame, accounting for interactions and feedbacks between systems.

Table 7. Dominant conservation frames and counter-narratives

Dominant frame	Definition / values / narrative	Keywords
<p>“Nature for itself” (Mace, 2014)</p> <p>Ecocentric / Faith, spirituality (Louder & Wyborn, 2020)</p> <p>Fortress conservation (Hutton et al., 2005)</p>	<p>Nature has an intrinsic right to exist. People have a moral responsibility to protect nature. Priority for wilderness and intact natural habitats generally without people (i.e., protected areas).</p>	<p>Wilderness / Wild Pristine Protected area / protection Intrinsic value Moral Species conservation</p>
<p>“Nature despite people” (Mace, 2014)</p> <p>Crisis / Anthropocene (Louder & Wyborn, 2020)</p>	<p>Humans are a threat to nature. They overexploit, destroy habitats, and cause species extinctions. This crisis / emergency will cause the destruction of the human species if we do not act.</p>	<p>Overexploitation Crisis Extinct / extinction Threat / threatened Urgent Emergency Tipping points</p>
<p>“Nature for people” (Mace, 2014)</p> <p>Anthropocentric / Economics (Louder & Wyborn, 2020)</p>	<p>Nature provides benefits to people, which can often be expressed within current economic paradigms. Nature’s contributions may extend beyond financial or economic realms, but it is ultimately still a one-way relationship from nature to people.</p>	<p>Ecosystem services Ecosystem approach Nature’s benefits Nature’s contributions Economics / economic value Win-win Green finance Sustainable development</p>
<p>“People and nature” (Mace, 2014)</p> <p>Community-based conservation (Hutton et al., 2005)</p>	<p>People and nature exist in a two-way dynamic relationship. Social-ecological systems are complex, and nature and people are deeply intertwined. Integrating social sciences, local communities, and conservation biology / ecology is necessary.</p>	<p>Community-based Resilience Adaptation Social-ecological systems Complexity Co-management Coexistence Local communities</p>
<p>Counter-narratives (Louder & Wyborn, 2020) (Tallis & Lubchenco, 2014)</p>	<p>Concerted efforts to reframe some of the dominant conservation frames (e.g., from crisis to optimism), or invite pluralism (of voices, values) to chart a path forward (e.g., inclusive conservation).</p>	<p>Conservation optimism Nature positive Nature-based solutions Natural climate solutions Inclusive Pluralism Underrepresented</p>

While these dominant frames all persist to this day, there has been a noted shift from the protection-based to community-based conservation approach in mainstream conservation efforts (Hutton et al., 2005). Following this trend, scholars and experts in the field have made a push for inclusive conservation (e.g., Tallis & Lubchenco, 2014),

inviting a diversity of voices, values, and groups to the table. Typically, this calls for the inclusion of those who have traditionally been excluded from or under-represented in conservation – from the scientific research through to the implementation of interventions – such as women, indigenous people, and local communities who are heavily reliant upon or culturally connected to the area of interest. Other targeted efforts have been made in the field to shift some of the dominant narratives away from negativity and crisis to one of optimism (e.g., *Earth Optimism*, 2020; from Louder & Wyborn, 2020), or from a techno-optimistic view of conservation or climate solutions to one focused on nature-based solutions or natural climate solutions (e.g., *Natural Climate Solutions*, 2019; from Louder & Wyborn, 2020).

The rise of so many different frames (and counter-narratives) in such a short period of time has led to a pluralism of motives, views, and values underlying why (and how) to do conservation (Mace, 2014). Accompanying this pluralism is a high prevalence of fundamental epistemic and linguistic uncertainties associated with the natural world – and thus with environmental conservation (Regan et al., 2002). The measurement and systematic error, natural variation, and inherent randomness that characterize much of the natural world can spill over into linguistic uncertainties (e.g., vagueness, ambiguity, disputed definitions). So much uncertainty can impact the ways in which problems, solutions, and ways of working together are conceptualized, communicated, and embedded in the ethos of conservation. Conservation’s history of narrative building and storytelling – paired with its fundamental uncertainties and plurality of values – make it ripe for the rise of fads and buzzwords (e.g., Redford et al., 2013). Scholars and practitioners have repeatedly voiced their concerns about how conservation buzzwords may cause: different stakeholder groups to talk past each other (e.g., Vucetich & Nelson, 2010; Elliott, 2020), research and funding priorities to be driven by hollow fads (e.g.,

Morar et al., 2015), or terminology to be used incorrectly or diluted too much to be useful (e.g., Goldstein, 1999; Barua, 2011; Milner-Gulland, 2022). Thus, it is imperative to understand if and how any of the dominant framings and narratives within conservation are or are not being elicited through the use of buzzwords.

Research Questions and Approach

This study seeks to identify and explore buzzwords in the mainstream conservation discourse, comparing their use and underlying meanings across institutions. To achieve this goal, I conduct a large-scale computational text analysis, utilizing corpus-based linguistic approaches such as co-occurrence analysis (Gries & Durrant, 2020), parts-of-speech tagging (Chiche & Yitagesu, 2022), and semantic mapping (Carley & Kaufer, 1993). The analysis includes a large series of written texts over the past five years from academia, NGOs, policy, and the news media (totalling 13,431 documents¹). These four institutions represent major actors within conservation science and communication, and thus make up a large portion of the mainstream discourse in the sector. Further, this study strives to uncover where dominant conservation framings are (or are not) elucidated through the use of buzzwords. To computationally address these questions, I utilize a co-occurrence analysis to develop semantic networks of concepts and linkages per corpus and year.

I operationalize a novel, empirically informed definition of buzzwords that was developed in Chapter 1 of this dissertation to detect buzzwords from these written texts. As detailed in Table 6, six of the eight defining definitions can be quantitatively operationalized to identify buzzwords in written texts: (1) popular / highly frequent; (2) imprecise / ambiguous; (3) normative; (4) trendy / timely; (5) simplify complexity; and

¹ A document in this corpus-based analysis is considered the smallest unit of analysis by which to identify co-occurrences. For some institutional texts, a “document” is a subsection of a longer report (e.g., NGO annual reports). See Methods section for more details on the unit of analysis for co-occurrence detection.

(6) culturally relevant. One of the other dimensions – implies consensus – would require more qualitative analyses or primary data collection to better understand *perceptions* of consensus. The final dimension – loses or dilutes in meaning over time – is one that could be detected through quantitative trend analysis using word embedding and semantic drift techniques (e.g., Hamilton et al., 2018), which is outside of the scope of this analysis due to data constraints.

With this method, I can also test additional hypotheses emerging from Chapter 1 regarding possible types or stages of buzzwords. The full list of buzzwords that meet the three primary criteria (from Table 6) can be pared down and grouped into sets of focal buzzwords – representing specific *life stages* or *types* of buzzwords – that prioritize different aspects of buzzwords. This can be achieved by using different combinations of the three secondary criteria for buzzwords, highlighting where some words adhere more strictly to some characteristics over others (see Methods section for the full specification of buzzword *types*). This exploration stems from two hypotheses derived from Chapter 1 (H2 and H4) that there may be different behaviors of buzzwords based on life stage and type.

This study is threefold in the types of research questions that it asks. First, it aims to better understand the buzzword landscape more generally across the past five years of mainstream conservation discourse – who is using what buzzwords, how much overlap is there among actors, and what are some of the most common buzzwords by type? Second, it asks a series of validation-related questions concerning the use of this novel method to operationalize and detect buzzwords – is the analysis identifying the example buzzwords provided by interview participants from Chapter 1? Finally, this study helps to contribute to the body of knowledge on conservation narratives, frames, and fads – is there

evidence for any of the dominant conservation frames being seen through the use of buzzwords, who is using which frame(s), and how are the trajectories of use changing?

More specifically, this study seeks to:

R1. Understand the mainstream conservation buzzword landscape

- R1.1 Which actors / institutions are using what buzzwords?
- R1.2 How much overlap is there between institutions?
- R1.3 What are the most common buzzwords by type?

R2. Validate a novel buzzword operationalization

- R2.1 Are the example buzzwords provided by interview participants in Chapter 1 being detected and identified as buzzwords?

R3. Link to conservation framing and fads

- R3.1 Is there evidence for any of the dominant conservation frames being elicited through the use of buzzwords?
- R3.2 Which actors / institutions are using which frame(s)?
- R3.3 How are the trajectories of use changing?

With this study's novel operationalization of buzzwords, I can start to quantitatively assess and answer questions that other researchers have asked – and have been able to answer in more qualitative ways – about the prevalence and use of buzzwords in the mainstream conservation discourse. This method allows for new insights to be derived from a large corpus of text, informing hypotheses about how different narratives and frames may be elicited through the use of buzzwords and ultimately impact the achievement of conservation goals across scales.

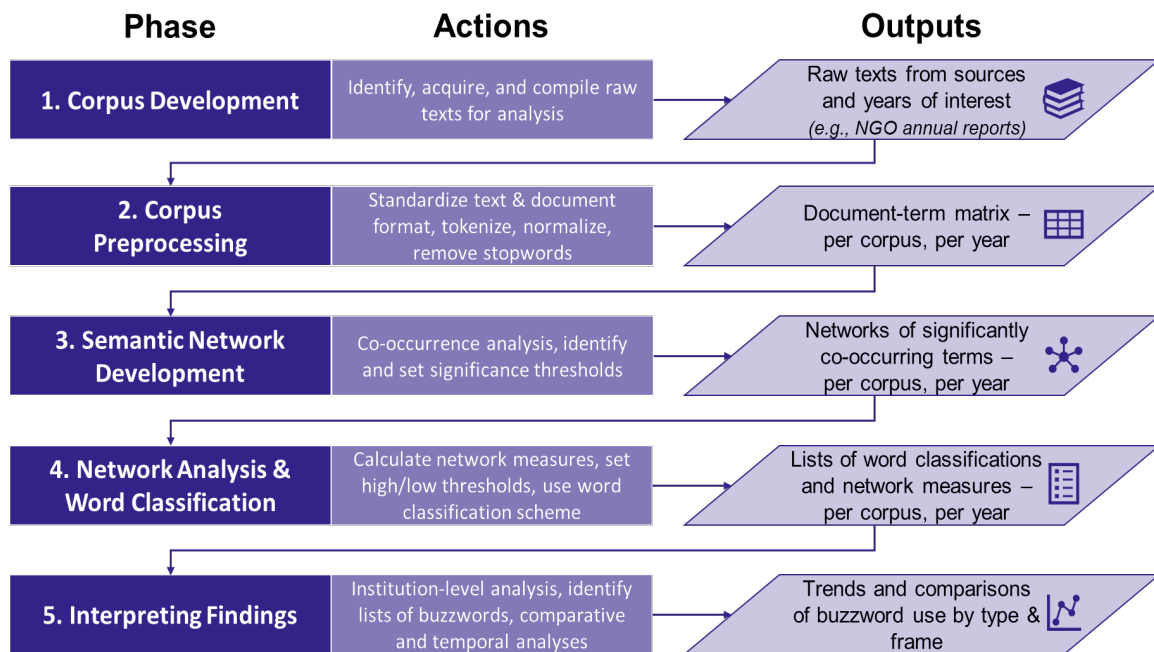
Methods

This study utilizes a multi-phase computational text analysis method. The following sections of this outline the five phases in the process: (1) developing a corpus of relevant documents, reports, and other written texts; (2) cleaning and preprocessing the documents; (3) developing semantic networks of terms and their associated linkages per corpus/year; (4) network analysis and classifying of words (e.g., buzzword, standard symbol, etc.); and (5) identifying buzzwords for comparative and temporal analysis. Each

phase's outputs are used as inputs in the next phase, as is illustrated in Figure 4. All analysis is performed using R (R Core Team, 2023) and RStudio (Posit team, 2023). The associated open-source documentation and data can be found at the Open Science Framework repository (Claborn, 2024b), and all code can be found at the publicly available "ConservationBuzz" GitHub repository (Claborn, 2024a).

The benefit of using this method for text analysis is twofold. First, many different types of inputs (i.e., written texts) can be used with minimal transaction cost. While each unique corpus of documents will require a set of decisions to be made about how to clean and process the texts, the general functions and algorithms presented here can apply. Second, the outputs from any of the phases can easily be utilized in many other applications to answer different decision-relevant or research-related questions. The example provided in this analysis explores the specific application of exploring buzzword use in written texts across the field of environmental conservation, linking their use to broader dominant frames within conservation.

Figure 4. Flowchart of the full research method



Step 1. Corpus Development

For this study, the goal is to capture a sample of texts that encompass the predominant and mainstream conservation discourse, focusing only within the English language. The sampling strategy utilized expert judgment based on knowledge of the conservation discourse. I focus on developing four corpora of written texts from four broad institutions that represent major actors within conservation science and communication – academia, NGOs, news media, and government / policy. The academic, NGO, and media corpora span from 2017 - 2021, to allow for temporal analysis and detections of shifts in usage. The policy corpus contains two reports, one from 2019 and the other from 2022. These allow for additional context and snapshots in time, though no temporal analyses are able to be conducted for the policy-related corpus. The final texts included in each corpus were selected to capture a representative list of many of the leaders and mainstream terminology within the conservation sector, but they are not fully exhaustive of all actors in each institution.

Developing a representative corpus of documents requires transparent and thoughtful decisions on inclusion criteria, search methods, and type of literature and information to be included (Adams et al., 2016). All decisions and justifications are included in the Corpus Development section of Appendix B, with the key ones summarized below. This study used different inclusion criteria for each corpus, given the different types of documents and actors involved in each institution. For instance, decisions for choosing which academic journals to include were inherently different from decisions for which NGOs to include. Overall, I focus mostly on international conservation, looking at widely read academic journals, internationally focused NGOs, and environmental conventions with an international presence. Given data collection constraints, I only gathered conservation-related news articles from the New York Times for this study – thus, there is a US bias to the media results.

In summary, I compiled: (1) 8,864 abstracts from 10 scientific journals focused on conservation, environment, and climate; (2) 50 annual reports from 12 international conservation NGOs, broken down into 777 distinct subsections as the units of analysis; (3) 3,646 news articles focused on conservation and climate issues from the New York Times; and (4) two policy-relevant reports affiliated with the UN Convention on Biological Diversity from the years 2019 and 2022, broken down into 144 distinct subsections as the units of analysis. For the remainder of this paper, each individual unit of analysis (e.g., an academic journal abstract, report subsection, or news article) is henceforth referred to as a document. More information on the corpus development process – and which organizations / journals / reports were included for each institution – can be found in the Corpus Development section of Appendix B.

Step 2. Corpus Preprocessing

Corpus preprocessing occurred in three steps: (1) organizing raw documents for data import, (2) tokenizing and normalizing words per document, and (3) developing document-term matrices per corpus and year. Overall, I used a standard procedure for cleaning and preprocessing corpus documents in R, as outlined by Welbers et al. (2017). I briefly describe each step below, and more specifics can be found in the Corpus Preprocessing section of Appendix B.

First, I organized the raw documents so that they were able to be put into a standard tabular format once imported into R. This involved extracting metadata, removing formatting (e.g., headers and footers), and cleaning out irrelevant bits of text (e.g., copyright information, photo credits or captions, etc.). Some of the documents were already more standardized and ready for data import (e.g., academic journal abstracts), while others required significantly more work during this stage (e.g., NGO annual report subsections).

Next, I tokenized and normalized the terms in each document. I: (1) tokenized all of the words (forming a list of terms per document), (2) removed words that are on a custom list of stopwords (which excludes all parts of speech outside of nouns and adjectives, using the *udpipe* package (Wijffels, 2023)), (3) normalized the remaining words (e.g., removing conjugations, pluralization, etc.) with a custom lemma list, (4) removed hyphens and other punctuation, (5) put all words into lower case, and (6) identified highly frequent bigrams that should be added as single units of analysis (e.g., phrases like “biological diversity”).

Finally, I created an asymmetrical binary document-term matrix (DTM) per institutional corpus per year. Each row corresponds to a document, each column corresponds to a word (or highly frequent bigram), and each cell is a boolean

representation of presence or absence from the associated document. I ended up with a series of DTMs for each institution, one for each year of data. For example, there are five DTMs for the NGO corpus, one containing all documents and terms from each year between 2017-2021. To eliminate obscure or very infrequent terms from the DTMs, I only retained terms that appeared in at least 1% of all documents from that year.

Step 3. Semantic Network Development

A semantic network is a network of concepts linked together to form a representation of an individual's cognitive mental model on a particular topic (Carley & Kaufer, 1993). Semantic networks can be derived from written texts as proxies for cognitive models, identifying the connectivity between concepts and exploring how symbols and shared knowledge shape broader discourse. To utilize this computational approach, I conducted a co-occurrence analysis to develop semantic networks of concepts and linkages per corpus and year. Co-occurrences are linkages between terms that co-exist within a pre-specified window of text (i.e., textual co-occurrences; Gries & Durrant, 2020) at a greater-than-chance likelihood. The nodes of the networks are the terms and the links are the co-occurrences, weighted by the frequency of co-occurrence across documents. This network can be derived from an asymmetrical word-document matrix that is then transformed into a symmetrical co-occurrence matrix (Leydesdorff & Welbers, 2011). For this analysis, the window for identifying co-occurrences was at the document level (e.g., journal abstract, report subsection, news article).

I kept only co-occurrences that existed at a greater-than-chance likelihood to filter out noise and detect meaningful associations between words. This required defining a significance level threshold that removes any co-occurrence lower than the threshold. To identify significance across the full corpus, it is necessary to find some type of threshold by which to say that any given co-occurrence is appearing across documents

more often than by chance alone. To do this, I started by identifying all co-occurrences to a central focal term for each corpus (across all years). In this study, the initial focal term was *conservation*, given its role as the main subject of study and a key inclusion criterion for each corpus document. I calculated the DICE coefficient (Dice, 1945) for each co-occurrence to *conservation* and plotted the distribution. I identified a number of standard deviations above the median coefficient that would be considered a “significant” coefficient, and set the DICE threshold accordingly. Thus, when examining other co-occurrences in the corpus documents, I considered them significant if their DICE coefficient was above this threshold.

To generate the full semantic networks for each corpus/year, I identified lists of significant co-occurrences for each word that significantly co-occurred with *conservation*, and then again identified lists of significant co-occurrences for each of *those* words. This ends up being a “three-tiered”, branching and iterative co-occurrence generation approach, all centered around the focal term of *conservation*. I ended up with semantic networks of significantly co-occurring terms per corpus per year – and typically by the third tier of co-occurrence analysis, the detection of new co-occurrences diminishes tremendously as the network “folded in” on itself. Thus, each semantic network contains central nodes, peripheral nodes, and edges. The central nodes are the terms which had all significant co-occurrences identified for them, the peripheral nodes are the terms which were only ever identified as a co-occurring word in the final “tier” and therefore did not have a full list of co-occurrences identified for them, and the edges represent significant co-occurrences (edges are undirected). I only classified the central nodes into the symbol typology outlined in the section below, as the peripheral nodes would not be accurate representations of the node’s true conductivity in a more open semantic system or network. See the Semantic Network Development section of

Appendix B and “Semantic Network Development” PDF in the associated Open Science Framework repository (Claborn, 2024b) for the full details, parameters, equations, and algorithm associated with this semantic network generation method.

Step 4. Network Analysis & Word Classification

Following Carley & Kaufer’s (1993) typology, I utilize three node-based network measures as the primary criteria for classifying words in the semantic networks: density, conductivity, and consensus. As outlined in the Background section when defining buzzwords, I am most interested in words that are classified as “placeholders” (according to Carley & Kaufer’s typology) as proxies for buzzwords. These are words that have a high density, high conductivity, and low consensus score. The full typology consists of nine symbol types, and the full classification scheme can be found in the Network Analysis & Classification section of Appendix B.

Density is measured by the degree centrality (i.e., number of links (or edges)) associated with the word. Thus, a word with higher density could be considered to have a greater breadth of meaning, or many concepts associated with it. Conductivity is measured by the k-betweenness of the word. K-betweenness is a type of centrality measure that quantifies the degree to which a single node contains the shortest network-wide paths to other nodes. In this way, a word with higher conductivity may be considered to have more control in the network, acting like a gateway to link many disparate concepts. Consensus is a measure of agreement regarding the linkages between words within the discursive context. As an example, many users of the English language may agree that the concepts of “color” and “green” are linked, and thus this linkage would exist frequently across contexts. This link would have a high consensus. However, only in certain linguistic contexts would the concepts of “green” and “envy” necessarily be linked, so this co-occurrence may be quite a bit less frequent. The wider the context of

the written texts, the less likely that any given link will reach consensus. Link-level consensus is calculated by setting a threshold and assigning a binary value to links that meet the threshold. For instance, if the threshold is set at 30%, then the co-occurrence must exist at least 30% of the time that the less frequent of the two words appears (within the given corpus/year). If “color” appears 100 times, and “green” appears 18 times, then they would need to appear together at least 6 times to reach a 30% consensus threshold. Node-level consensus is measured as the proportion of all its links that meet the defined threshold. Levels of consensus vary greatly among the different types of texts, because the discursive contexts within each institution were more or less varied (e.g., the academic journals spanned many more topics and specific disciplinary lexicons than the NGO annual reports). Thus, different consensus thresholds were used for the academic (30%), NGO (75%), media (50%), and policy (75%) corpora to achieve adequate variation in node-level consensus among words.

Finally, I identify high and low thresholds for each measure and categorize each word based on Carley & Kaufer’s (1993) typology. As with consensus, different numeric thresholds were set for each corpus and each measure, based on the distribution of the measure within the network. For density, the “high” value would be anything above the mean degree of a random network with the same number of nodes and edges. For conductivity and consensus, a “high” value would be anything over the 50th percentile (i.e., median) for the distribution of scores across the individual network. See the Network Analysis & Classification section of Appendix B for more information and justification on how I defined high and low thresholds for each measure in this study.

Step 5. Interpreting Findings

Once each word is identified (either as a buzzword or not), it is important to remain mindful of how to interpret that word. Ultimately, a buzzword that has been

classified using the primary criteria (i.e., high density, high conductivity, and low consensus) is a word that may be used in many contexts for many different purposes within that given corpus and year, creating many links in the semantic network but not necessarily representing much consistency across the full set of links. Additionally, the word is located in a place within the network where it has higher amounts of information that can pass through it more quickly (i.e., shorter distances to travel to all of the nodes across the network). Thus, with this semantic operationalization alone, it is possible to classify more generic or vague words as buzzwords – even if they do not inherently have as much meaning or historical significance within the lexicon. For instance, an adjective like *long* may be able to meet the criteria for being a buzzword if it is used frequently enough and in quite varied contexts. This illustration highlights one of the central challenges associated with this analysis which must be overcome: there can be a lot of noise in the data.

One can interpret the findings from the word classification in myriad ways. For the remainder of the paper, I illustrate several ways to contextualize and interpret the buzzword classification analysis, with other suggested methods outlined in future research directions. In this analysis, I: (1) compare descriptive statistics for the semantic networks (and “buzzwordiness”) across institutions, (2) identify top buzzwords per institution and institution-spanning buzzwords, (3) develop truncated lists of buzzword by specific *type* (i.e., those that meet a more stringent set of secondary criteria for buzzwords), (4) validate the findings with a list of example buzzwords provided by conservation professionals in a series of interviews, and (5) explore if and how conservation buzzwords are being used to elicit various dominant conservation frames across institutions and over time. Below, I provide more details on developing lists of

buzzwords across institutions, classifying specific buzzword types by various criteria, validating the method, and linking to conservation frames and fads.

Understand the mainstream conservation buzzword landscape

I examine institution-level differences in the corpora (i.e., average number of words per document), semantic network structure (i.e., average number of nodes and links per year), and buzzwords identified (i.e., proportion of buzzwords, proportion of overlapping buzzwords with other institutions, average length of buzzwords). This gives a better understanding of inherent differences among the different types of institutional texts, and how that translates into differences in buzzword profiles. Additionally, I share general observations regarding overarching trends in buzzwords across all of the institutions, such as total number of buzzwords, percent of words classified as buzzwords, and percent of buzzwords that are institution specific.

Next, I compare lists of buzzwords from the most recent year of data for each institution. To examine differences between the two policy-related organizations, I separate the two reports into two separate institutions – IPBES Global Assessment report (2019) and UNCBD Global Biodiversity Framework (2022). Then, I identify the topmost frequent buzzwords per institution and which buzzwords spanned multiple institutions. This analysis of overlap gives a sense of which institutions may be speaking more or less similarly to one another. Additionally, I provide a qualitative interpretation of the words themselves, to better understand what kinds of words tend to be elicited as buzzwords across institutions.

Classify buzzword type

To further incorporate the additional dimensions of buzzwords from the empirically informed definition (i.e., see Table 6), I develop truncated lists of buzzwords that meet more stringent secondary criteria and represent different *types* of buzzwords.

Each type highlights different dimensions of buzzwords, exploring the hypotheses that buzzwords can be particularly culturally relevant or resonant, bridges across groups and ideas, or exceptionally trendy and “with the times.” I call these three types of buzzwords ubiquitous, bridging, and trending.

Ubiquitous buzzwords. I define ubiquitous buzzwords as those that: (1) had at least a three-year consecutive span of being identified as a buzzword in at least one institution, (2) are identified at some point in at least two different institutions during the five-year time period, and (3) are in the 95th percentile for relative document frequency. These are buzzwords that are well-established across the field, used frequently, and have some staying power within the institution(s) in which they are found. They may represent the long-held paradigms across the conservation sector as a whole, while retaining some level of “buzz”.

Bridging buzzwords. I define bridging buzzwords as those that: (1) are identified at some point in at least three different institutions during the five-year time period, and (2) are in the 95th percentile for conductivity for at least one corpus/year. Buzzwords with especially high conductivity play an important role in a semantic network. They act as a central node for information flow and a bridge or “knowledge broker” between clusters or communities of concepts with otherwise weaker ties (e.g., Granovetter, 1973). Furthermore, buzzwords that span across institutions may be serving as bridges across different communities and actors within the conservation field, sharing a more consistent vocabulary and set of underlying values that the vocabulary represents.

Trending buzzwords. I define trending buzzwords as those that: (1) were identified in the most recent year of data (2021 for academic, NGO, media texts),

and (2) experienced at least a 50% increase in relative document frequency between 2020-2021, regardless of buzzword or classification status. These are buzzwords that are currently “catching the buzz”, expanding in frequency at a higher rate than other words. They may represent trending and emergent ideas and discourse in the field of conservation. Note that this definition of trending buzzword inherently excludes the policy documents (IPBES and UNCBD) from exploration, since there were no repeated years across similar reports to make comparisons of percent growth in frequency.

Validate a novel buzzword operationalization

I compare the long list of buzzwords to a shorter list of example buzzwords that were identified through a series of interviews with 17 conservation professionals about the characteristics, uses, and effects of buzzwords in their work. I limit the short list of example buzzwords to those that were independently identified by at least two respondents, removing a selection of words that were only referenced in a non-conservation and US-centric context (e.g., “critical race theory”). Thus, I am left with 19 example buzzwords to validate that this study’s method is able to detect buzzwords that are identified by subject matter experts. I identify if any of the 19 example buzzwords can be detected across any of my corpora (i.e., institutions) in their most recent year of data. Further, I identify if any of the example buzzwords can be detected in the more discerning truncated lists of specific *types* of buzzwords.

Link to conservation framing and fads

This study takes the exploratory buzzword classification analyses from above and seeks to provide further context by linking the results to many of the conservation frames that dominate the sector. These frames – outlined in Table 7 in the Background section – span from an ecocentric view of nature (“nature for itself”) to crisis driven (“nature

despite people”) to anthropocentric (“nature for people”) to a social-ecological systems perspective (“people and nature”). Additionally, several counter-narratives have arisen in recent years that seek to alter these more deeply embedded frames, from seeing the range of conservation solutions differently to altering the way(s) we work together and include more voices and perspectives into a pluralistic frame. I identify keywords for each of these frames (and counter-narratives) from a selection of scholarly articles outlining current biodiversity narratives (e.g., Louder & Wyborn, 2020; Mace, 2014; Hutton et al., 2005). Then, I track the usage of these keywords across institutions and through time, looking to see if they are appearing in the texts – and if they are considered buzzwords across any of the various institutions.

Results

Given the exploratory nature of this research, the following results illustrate some of the many potential analyses that can be conducted once buzzwords are identified from written texts of many prominent actors in the mainstream conservation discourse. This study mixes a robust quantitative computational methodology with a qualitative assessment to uncover patterns and trends in language use within conservation in recent years, linking findings to broader frames and narratives when possible.

Understand the Mainstream Conservation Buzzword Landscape

To better understand the mainstream conservation buzzword landscape, I start by identifying how many words are being classified as buzzwords across the different institutions of interest: academic, NGO, media, IPBES, and UNCBD documents. The initial classification of buzzwords follows the semantic linguistic definition (i.e., that of a “placeholder” from Carley & Kaufer’s (1993) typology), looking at the three primary criteria of density in meaning, conductivity, and consensus. Density is a proxy for simplifying complexity, conductivity a proxy for normative, and consensus a proxy for

imprecise (see Table 6). Table 8 provides an overview for each institution's most recent year of data, detailing the number of words classified, number and percent of those words classified as buzzwords, and the percent of those buzzwords which are only classified as a buzzword in that specific institution (i.e., "institution-specific buzzwords").

The results indicate that the IPBES Global Assessment contained (by far) the highest percentage of buzzwords, with over three quarters of the words classified being classified as a buzzword. This indicates that words were used in many different contexts for different purposes, leading to imprecision yet a high degree of meaning underlying any individual word. Following behind IPBES in percentage of buzzwords is the NGO annual reports (57.2%), then the academic article abstracts (44.6%), media news stories (41.9%), and finally the UNCBD's Kunming-Montreal Global Biodiversity Framework (27%)². In addition to the percentage of buzzwords, the table also highlights how many of those buzzwords were only classified as such in that institution. For instance, 53.9% of the buzzwords found in the most recent year of media articles were not classified as buzzwords in any of the other institutions. This high percent of institution-specific buzzwords indicates that the media are the most unique in their word choice in news stories tagged as being related to environmental conservation. In contrast, only 23.2% of the buzzwords classified from the most recent year of academic article abstracts were specific to the academic texts – with 76.8% being classified as buzzwords in at least one of the other institutions (see Figure F in Appendix B for pairwise overlap in buzzwords across institutions).

² These percentages are of all *classified* words, which already excluded those on the stopwords list (i.e., anything not a noun or adjective) and those not identified as focal words in the three-tiered co-occurrence network development process.

Table 8. Words and buzzwords classified per institution in the most recent year

Institution	Year	Words Classified #	Buzzwords Identified # (% words)	Institution-Specific Buzzwords* # (% buzzwords)
Academic	2021	184	82 (44.6%)	19 (23.2%)
NGO	2021	339	194 (57.2%)	61 (31.4%)
Media	2021	487	204 (41.9%)	110 (53.9%)
IPBES	2019	275	219 (79.6%)	104 (47.5%)
UNCBD	2022	141	38 (27.0%)	17 (44.7%)

Note. *Institution-specific buzzwords would be classified as such if they were not identified as a *buzzword* in any other institution from its most recent year of data (i.e., the word may have appeared in the other institution but was not classified as a buzzword in that context).

This provides context for how these different bodies of text vary from one another. For instance, the academic article abstracts span many different types of peer-reviewed journals, each with their own scope and way of talking about conservation-related issues. Thus, it is much more challenging to reach consensus on what the underlying meaning of a single word is if it is used across such a varied linguistic context. This was evidenced through the low consensus values in the academic corpora, and why I set a lower threshold for consensus among the academic abstracts compared to the more cohesive IPBES Global Assessment or NGO annual reports. This varied linguistic context also explains why the overall frequency of any given word was much lower in the academic abstracts. Lower word frequencies led to fewer significant co-occurrences and thus fewer words classified in the semantic networks. All of these factors contributed to removing a fair bit of the specialized and technical academic language, leaving behind (buzz)words that are more likely to span other institutions as well. Compare this to the media articles. They were derived from only one source – The New York Times – which has a much smaller group of authors and editors. These authors are more likely to use similar language or framings across news stories, as their work is repeatedly included in the corpus across different articles. Thus, there is a higher likelihood of terms being used frequently and reaching consensus. This creates an environment that may more readily foster the development and spread of buzzwords (specifically institution-specific

buzzwords), even with network-wide higher levels of consensus compared to the academic abstracts.

R1.1. Which actors / institutions are using what buzzwords?

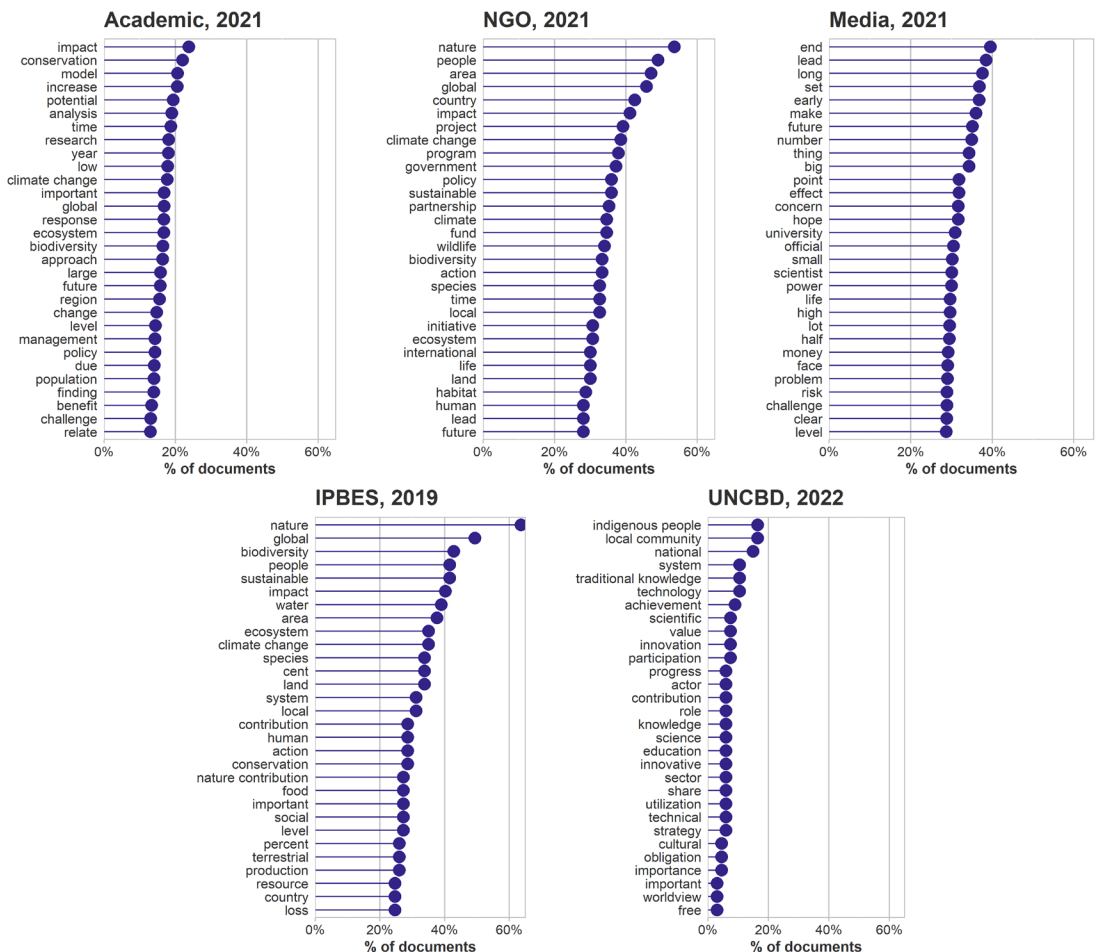
Next, Figure 5 provides lists of the top 30 buzzwords (by relative document frequency) classified for each institution in its most recent year of data. Even from these truncated lists of buzzwords, there are differences in the ways that these institutional texts refer to and frame conservation problems, stories, and solutions. The top buzzwords (in frequency) in the academic journal abstracts related to *impact*, *conservation*, *model*, *increase*, and *potential*. These largely describe research findings related to conservation. Meanwhile, the top buzzwords in the NGO annual reports related to *nature*, *people*, *area*, *global*, and *country*. Here, the buzzwords are very broad and sweeping, describing the high-level concepts that underpin conservation. The media's top buzzwords were much broader (and emptier of meaning in their own right), including *end*, *lead*, *long*, *set*, and *early*. This highlights one of the challenges with this analysis – that very nondescript adjectives and modifiers can still be classified as buzzwords if they are used in many different contexts and ways, linking disparate concepts across a semantic network. IPBES had similar top buzzwords to the NGO annual reports, including *nature*, *global*, *biodiversity*, *people*, and *sustainable*. As with the NGO buzzwords, these are describing high-level concepts that underpin conservation – some of which are frequently brought up by experts as buzzwords (e.g., *sustainable* (Palmer et al., 1997; Scoones, 2007; interviewees from Chapter 1 of this dissertation)). Finally, the UNCBD's top buzzwords were more thematically related to different groups of people and governance levels, including *indigenous people*, *local community*, *national*, *system*, and *traditional knowledge*.

The UNCBD had the lowest frequency of use across their buzzwords compared to other institutions, followed by relatively low frequencies in the academic abstract buzzwords. This indicates that, even though there were words behaving like buzzwords in those institutional texts, they were not as ubiquitous as what was seen in the other institutions. For instance, over 60% of the documents (i.e., subsections) of the IPBES Global Assessment mentioned *nature*, and it was used in many different contexts and ways to elicit many different other concepts. Compare this to just over 20% of academic abstracts referring to *conservation*. Thus, there are some significant underlying differences in how these collections of institutional texts behave, with some more repeatedly using similar vocabulary and others having a much wider – but less densely distributed – lexicon.

Figure 5. Top 30 buzzwords per institution, in their most recent year of data

Top 30 Buzzwords

Most recent & frequent per institution



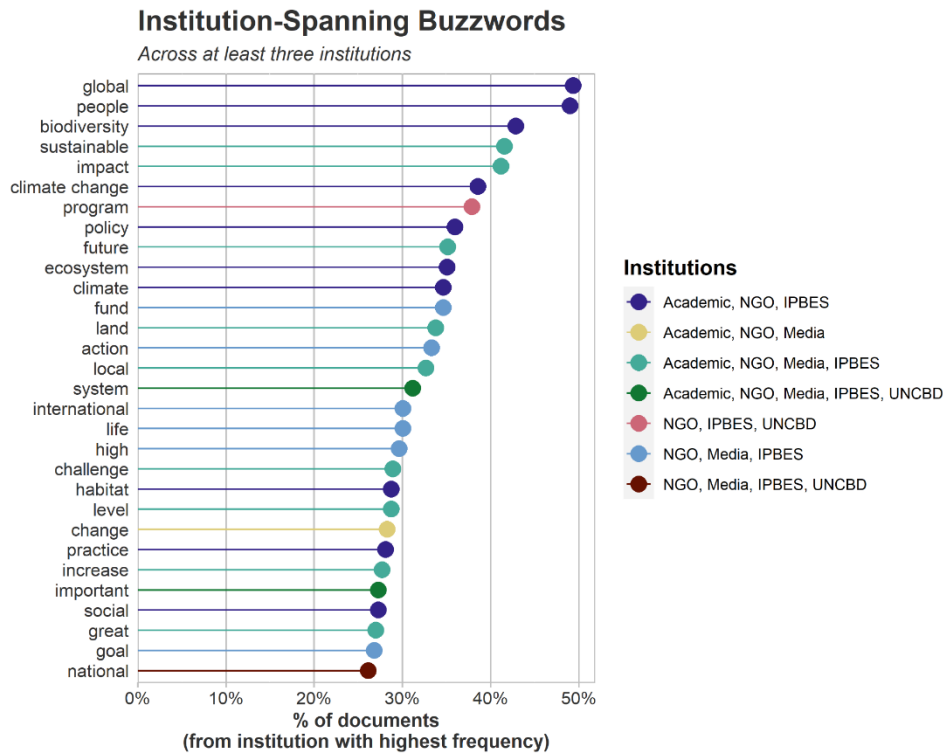
R1.2. How much overlap is there between institutions?

Despite the large number of institution-specific buzzwords (see Figure G in Appendix B for lists per institution), there are several buzzwords that span multiple institutions. Figure 6 displays the top 30 buzzwords (by relative document frequency) that spanned at least three institutions in their most recent year of data – though, there were ultimately 70 buzzwords to span at least three institutions. The most common group to share buzzwords was academia, NGOs, and IPBES, with 19 common buzzwords. Close behind was the NGO, media, and IPBES group with 15 shared buzzwords – and

academia, NGO, media, and IPBES with 14 shared buzzwords. These groupings may indicate that there is more shared trendy and buzzy language between NGOs (in their annual reports) and IPBES (in their global assessment). However, both of these institutions also had very high percentages of buzzwords identified across their full suite of classified words (as illustrated in Table 8). Thus, it may simply be more likely that these two institutions would experience more overlap in buzzy terminology compared to the other institutions.

Still, the buzzwords that span institutions tend to be those that are very broad and far-reaching, with many also identified as buzzwords by interview participants from Chapter 1. Examples include *biodiversity*, *sustainable* (i.e., sustainability), and *climate change*. Additional buzzwords to span many institutions were *global*, *people*, *impact*, *program*, *policy*, *future*, and *ecosystem*. This analysis would suggest that, despite these being quite common and widespread terms, they are also being used in many different contexts across these conservation texts and are embedded with a lot of underlying meaning. Thus, the consensus for what the associated terms and meanings are for each of these buzzwords is low, given their many uses in each unique linguistic context. Yet, these terms can trigger many new ideas and act as gateways to other concepts, values, and ideas across the semantic network with their high conductivity.

Figure 6. Top 30 buzzwords that span at least three institutions in their most recent year of data



R1.3. What are some of the most common buzzwords by type?

The semantic definition I use to classify buzzwords (i.e., the three primary criteria outlined in Table 6) only takes into account three of the eight dimensions of buzzwords included in the empirically informed definition of buzzwords from Chapter 1 – simplify complexity, normative, imprecise. To add and elevate other key defining dimensions of buzzwords, I derive lists of buzzwords by *type* (using secondary criteria as outlined in Table 6 and the Methods section). Each type is more discerning than the full list of buzzwords meeting only the primary criteria, elevating one or two dimensions of buzzwords above others. Ubiquitous buzzwords elevate the highly frequent and culturally relevant dimensions of buzzwords, bridging buzzwords elevate the normative dimension (i.e., through boundary spanning and increasing resonance), and trending buzzwords elevate the trendy / timely dimension. Each type may provide more information about how different buzzwords behave in mainstream conservation

discourse. Figure 7 provides full lists of each of the three types of buzzwords identified using these criteria.

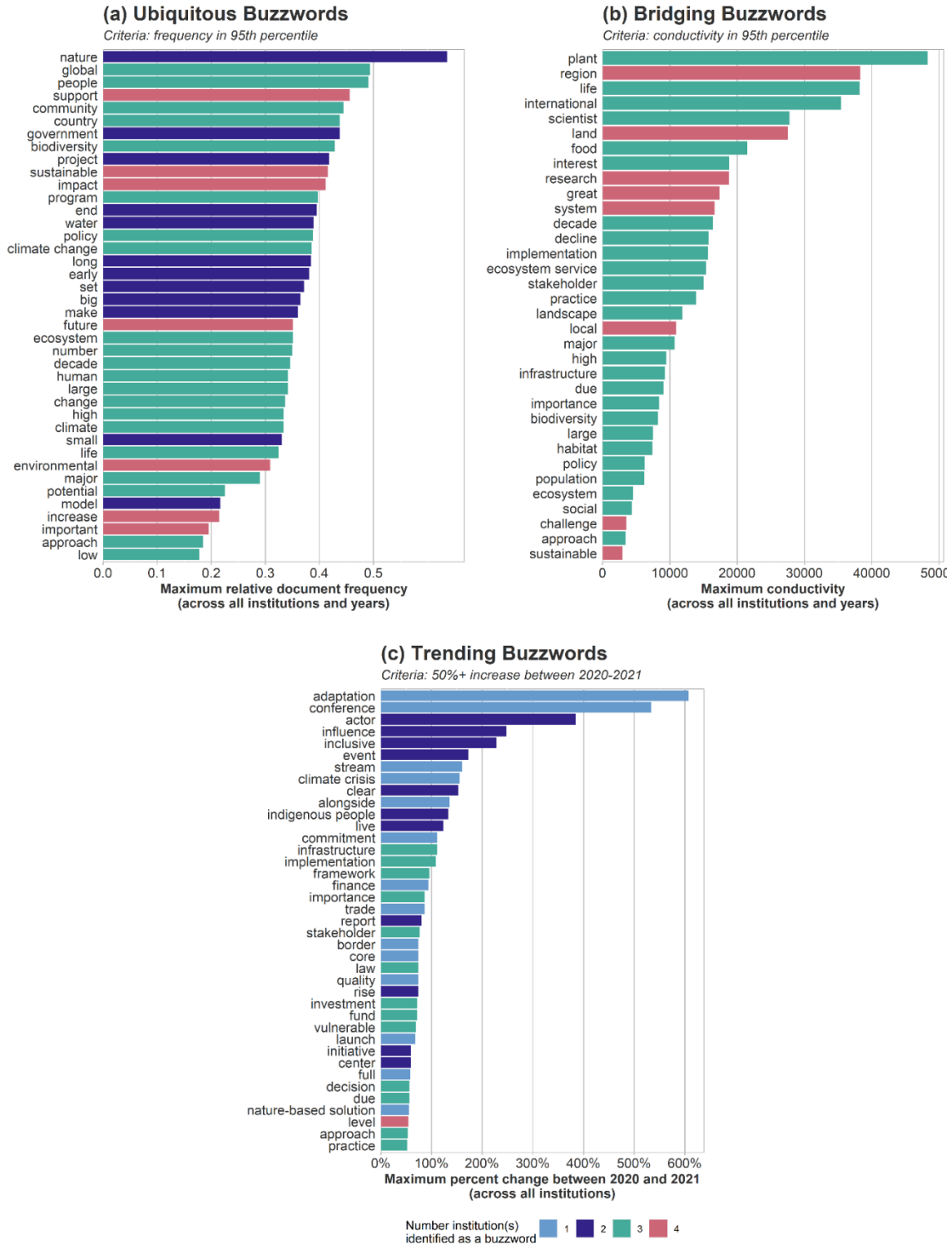
First, I identify a list of 40 ubiquitous buzzwords across the full sample of conservation documents – (a) in Figure 7. These are words that are the most highly frequent (i.e., 95th percentile in frequency within a single institution across all buzzwords), span at least two institutions (i.e., culturally relevant/embedded), and were identified as a buzzword for at least three consecutive years (i.e., culturally relevant/embedded). Ubiquitous buzzwords tend to represent long-held paradigms that shape the conservation discourse across multiple actors, while remaining buzzy and in vogue. As with the institution-spanning buzzwords listed in Figure 6, the words captured here are very broad and far-reaching – with examples being *nature*, *global*, *people*, *community*, *biodiversity*, *sustainable*, *climate change*, and *ecosystem*. These are well-established ways to characterize the broader social-environmental systems and problems with which conservation engages (e.g., *nature*, *biodiversity*, *climate change*) – or allude to potential types of solutions or ways of working to achieve desired goals (e.g., *sustainable*, *community*, *people*).

Next, I identify a list of 34 bridging buzzwords across the full sample of conservation documents – (b) in Figure 7. These are words that are highly conductive (i.e., 95th percentile in conductivity within a single institution across all buzzwords), and span at least three institutions. They bridge boundaries both in terms of who is using the term as well as how much the term can link disparate concepts and ideas – acting like a gateway to different clusters of concepts across the semantic network. In this way, bridging buzzwords may be more normative than some of the other types of buzzwords, evoking full sets of values and ideas more quickly than less conductive words. There are some words that only appear on the bridging list which may evoke various sets of

normative values, such as *local* and *stakeholder*. These terms typically relate to ways of working together or incorporating people into conservation work. Additionally, *ecosystem services* and *landscape* both appear on the bridging buzzwords list – and are more specific ways of framing and characterizing the world and conservation interventions that appear to resonate with different actors, given their bridging function. *Biodiversity*, *ecosystem*, and *sustainable* appear both on the ubiquitous buzzword list as well as bridging buzzword list, further emphasizing their deeply held roots as long-term and wide-reaching conservation buzzwords.

Finally, I identify a list of 39 trending buzzwords across the full sample of conservation documents – (c) in Figure 7. These are words that are particularly trendy (i.e., have seen at least a 50% increase in frequency between 2020-2021), and are the most current (i.e., were classified as a buzzword in 2021). They are seeing rapid growth and represent the latest or emerging trends or fads within conservation discourse. This list looks quite different from the other two, typically showcasing emerging buzzwords that are only currently present in one or two institutions. Terms such as *climate crisis*, *adaptation*, and *indigenous people* may represent newer ways of talking about conservation problems and ways of working together – both from a crisis-driven framing as well as a people and nature-driven framing. Additionally, terms such as *inclusive*, *nature-based solution*, and *vulnerable* may represent counter-narratives that have been arising as alternatives to many of the dominant conservation narratives and paradigms (e.g., Louder & Wyborn, 2020; Tallis & Lubchenco, 2014).

Figure 7. Buzzwords by type: (a) ubiquitous, (b) bridging, and (c) trending



Validate a Novel Buzzword Operationalization

First and foremost, it is necessary to get a sense of whether this novel operationalization of buzzwords can detect many of the buzzwords identified by experts in the field. Thus, I compile the full list of unique buzzwords (i.e., those words that were classified at least once across any institution in its most recent year of data, using the most basic criteria for what constitutes a buzzword) to compare to a list of 19 example buzzwords. The examples were derived from a series of interviews with conservation professionals from Chapter 1. Examples were included if they were identified by at least two different participants³. The list of example buzzwords and the validation results are displayed in Figure 8.

R2.1. Are the example buzzwords provided by interview participants in Chapter 1 being detected and identified as buzzwords?

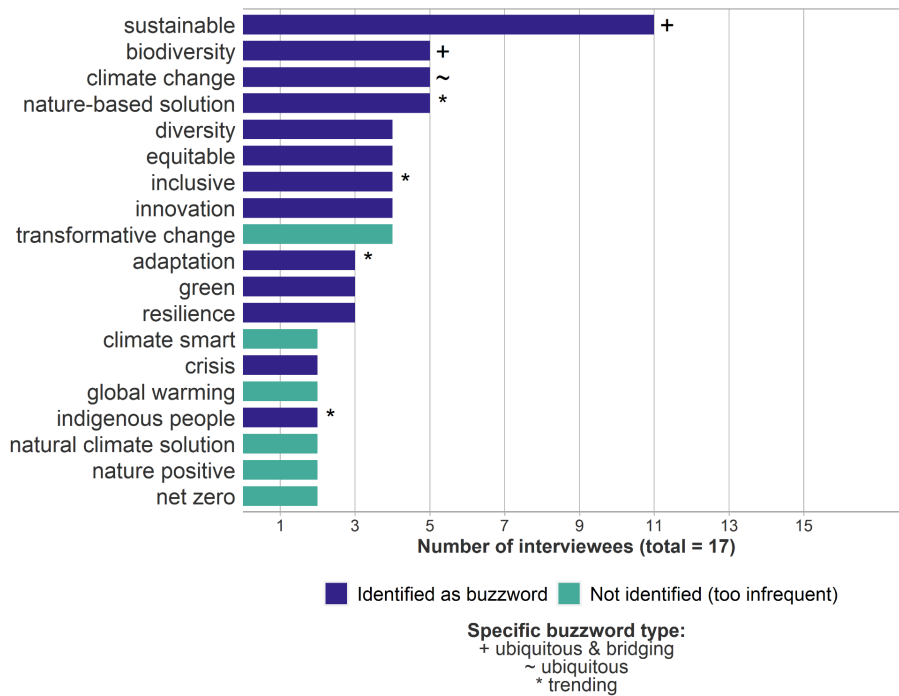
Comparing the list of example buzzwords to all words / phrases from the written texts⁴, four of the example buzzword phrases – *climate smart*, *global warming*, *nature positive*, *net zero* – did not show up at all. Two additional phrases – *transformative change* and *natural climate solutions* – appeared so infrequently that they were not classified as any type of symbol. These words are displayed with green bars in Figure 8. Meanwhile, illustrated by the purple bars, all the remaining 13 example buzzwords were detected in the list of 477 unique buzzwords (i.e., buzzwords that were identified in at least one institution in its most recent year). However, this basic comparison may be suffering from a “false positive” Type I error. There are so many words to choose from in the full list of unique buzzwords across each institution that it is far more likely to detect

³ Note that this list of 19 example buzzwords splits apart *dei* (diversity, equity, and inclusion) into three separate words, despite many participants saying them as a unit. Additionally, this list excludes three words/phrases that were mentioned by interview participants, but were not conservation-related: *woke*, *anti-racist*, and *critical race theory*.

⁴ All words that appeared in at least 1% of documents for a given corpus/year.

many of the words by chance alone. To reduce Type I error, I also validate the method by using the criteria for identifying different types of buzzwords. I compare how many of the example buzzwords can be identified as a specific type of buzzword – either ubiquitous, trending, or bridging.

Figure 8. Validating the buzzword operationalization with examples identified by interview participants



As shown in Figure 8, only 7 of the 13 example buzzwords which were classified in this analysis are detected on one of the more discerning lists of buzzword types. *Sustainable*, *biodiversity*, and *climate change* were classified as ubiquitous buzzwords – with *sustainable* and *biodiversity* also being classified as bridging buzzwords. Otherwise, the additional 4 identified example buzzwords were categorized as trending: *inclusive*, *indigenous people*, *nature-based solution*, and *adaptation*. This more restrictive validation exercise now excludes the following buzzwords that did not meet the criteria of a specific buzzword type: *diversity*, *equitable*, *innovation*, *green*, *resilience*, and *crisis*. Though, it is worth noting that *climate crisis* was classified as a trending

buzzword, even though the word *crisis* (in isolation) was not (see Figure 7). Upon using the more truncated list of buzzwords identified in this study, I can accurately classify 54% of the example buzzwords provided by experts. This percentage indicates a greater than chance rate of detection, given that there were 1000s of words included in the analysis, 8 different classification categories, and several more stringent requirements (i.e., secondary criteria) put onto those words identified as a buzzword when developing the truncated lists of buzzwords by *type*.

Link to Conservation Framing and Fads

To put the above exploratory analyses into context, I identified keywords for each of the dominant conservation frames (and counter-narratives) from a selection of scholarly articles outlining current biodiversity narratives (e.g., Louder & Wyborn, 2020; Mace, 2014; Hutton et al., 2005). I track how many of the different institutions mention any of these terms in their collection of documents from the most recent year (2021 for academic, NGO, and media; 2019 for IPBES; 2022 for UNCBD). Additionally, helping to answer the question of whether any of these frames may be elicited through the use of buzzwords (research question R3.1), I note if any of the keywords were classified as buzzwords across any of the various institutions in the most recent year. Next, I track trends in usage of any of the keywords from the conservation frames across the three institutions which have multiple years of data (from 2017-2021) – academic, NGO, and media. Thus, in support of research questions R3.2 and R3.3, I can explore which actors / institutions are using which frames and how the trajectories of use may be changing over the five-year period. Finally, I look for evidence of the rise of any of the counter-narratives identified in Table 7 in the Background section.

R3.1. Is there evidence for any of the dominant conservation frames being elicited through the use of buzzwords?

Figure 9 lists the number of institutions to mention (even if very infrequently) any of the keywords identified for the four dominant conservation frames in their collection of documents from the most recent year. Keywords were shortened to the conjugated or short form of the word that the documents in the text analysis were cleaned to (e.g., *tip point* instead of *tipping point*). The striped bars indicate the number of institutions whereby the keyword was classified as a buzzword in that most recent year. Looking across the four frames, keywords associated with both the crisis, and people and nature, frames appeared across more institutions compared to the ecocentric and anthropocentric frames. Nine of the 10 (90%) crisis-related keywords appeared in at least one institution in the most recent year, with 4 of the 10 (40%) appearing in all five institutions. Similarly, 8 of the 9 (89%) people and nature-related keywords appeared in at least one institution in the most recent year, with 4 of the 9 (44%) in all five institutions. Compare this with 7 of the 9 (78%) ecocentric-related keywords appearing in at least one institution in the most recent year, with only 2 of the 9 (22%) appearing in all five institutions. The anthropocentric-related keywords saw the lowest frequencies, with 4 of the 8 (50%) keywords appearing in at least one institution, and only 1 of the 8 (12%) appearing across all five institutions.

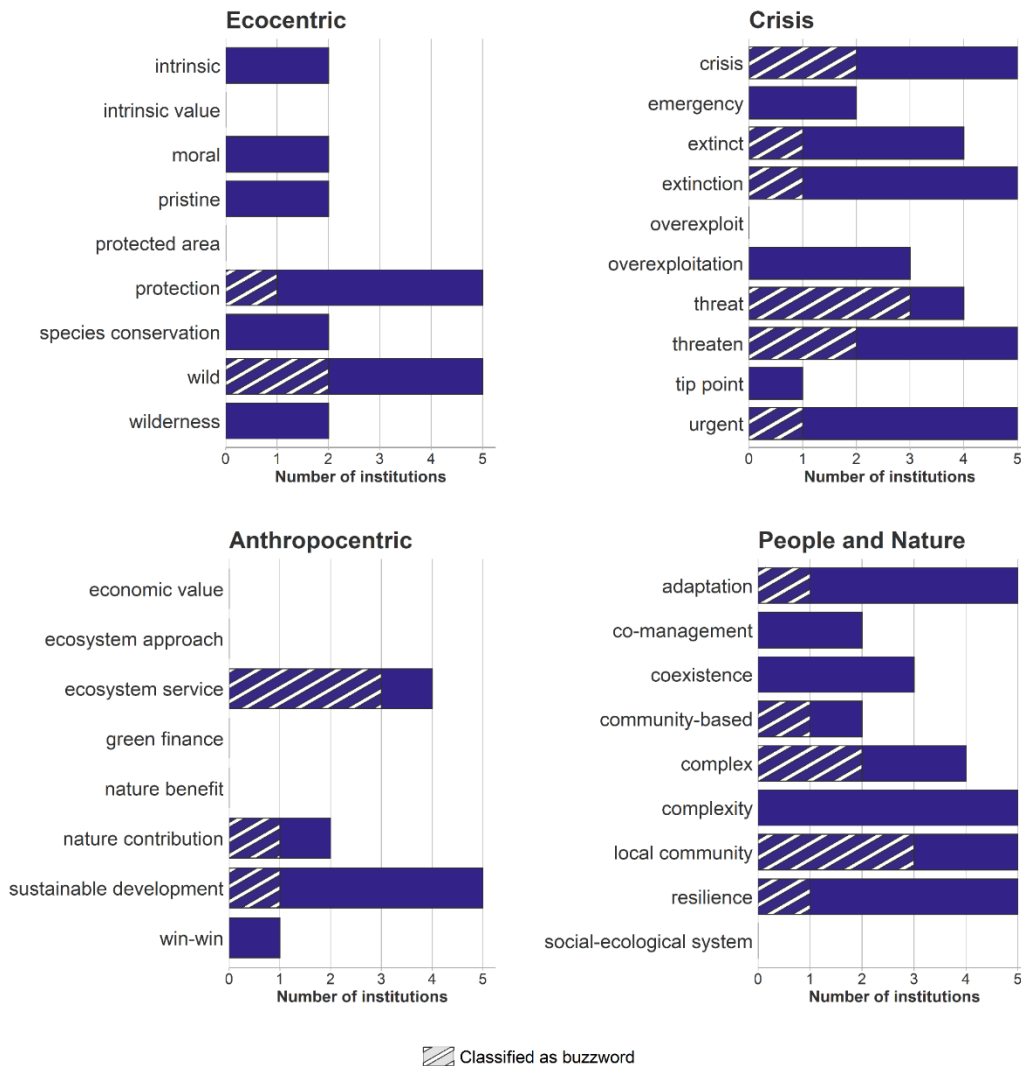
It is worth noting that some of the keywords included in the anthropocentric frame are typically not used in tandem, as they are slightly different ways to refer to similar concepts – e.g., *ecosystem services* and *nature's contributions* represent a very similar idea, with slightly different underlying connotations. Additionally, all three of the other frames – ecocentric, crisis, and people and nature – contain keywords that account for different conjugations of the same base word. For instance, the ecocentric frame has

both *wild/wilderness*, crisis has both *extinct/extinction*, and people and nature has both *complex/complexity*. This may slightly inflate the percentage of keywords found, given that it is likely to find both conjugations if you find one. One exception to this would be the inclusion of both *threat* and *threaten* in the crisis frame, as *threaten* in this instance typically is a shortened form of *threatened* which refers to species/habitats rather than specific *threats* – both of which represent important components of the crisis frame.

Figure 9. Keywords from dominant conservation frames found in most recent year from each institution

Dominant Conservation Frames

Keywords detected in most recent year, across institutions



Note. Most recent year of data: 2021 for academic, NGO, and media texts; 2019 for IPBES; 2022 for UNCBD

A selection of keywords from each frame also were classified as buzzwords in at least one institution in its most recent year. *Protection* and *wild* were classified as ecocentric-related buzzwords. *Crisis*, *extinct*, *extinction*, *threat*, *threaten*, and *urgent* were classified as crisis-related buzzwords. *Ecosystem services*, *nature contribution*, and *sustainable development* were classified as anthropocentric-related buzzwords. *Adaptation*, *community-based*, *complex*, *local community*, and *resilience* were classified

as people and nature-related buzzwords. Three buzzwords were classified in at least three institutions – *threat*, *ecosystem services*, and *local community* – and they span three different frames. Thus, there is some evidence that all frames were elicited in some way through the use of buzzwords, with the most buzzwords arising in the crisis-related and people and nature-related frames. To get a better sense of which institutions were eliciting which buzzwords for which frames, I present results of a comparative trend analysis across the academic, NGO, and media institutions in the section below.

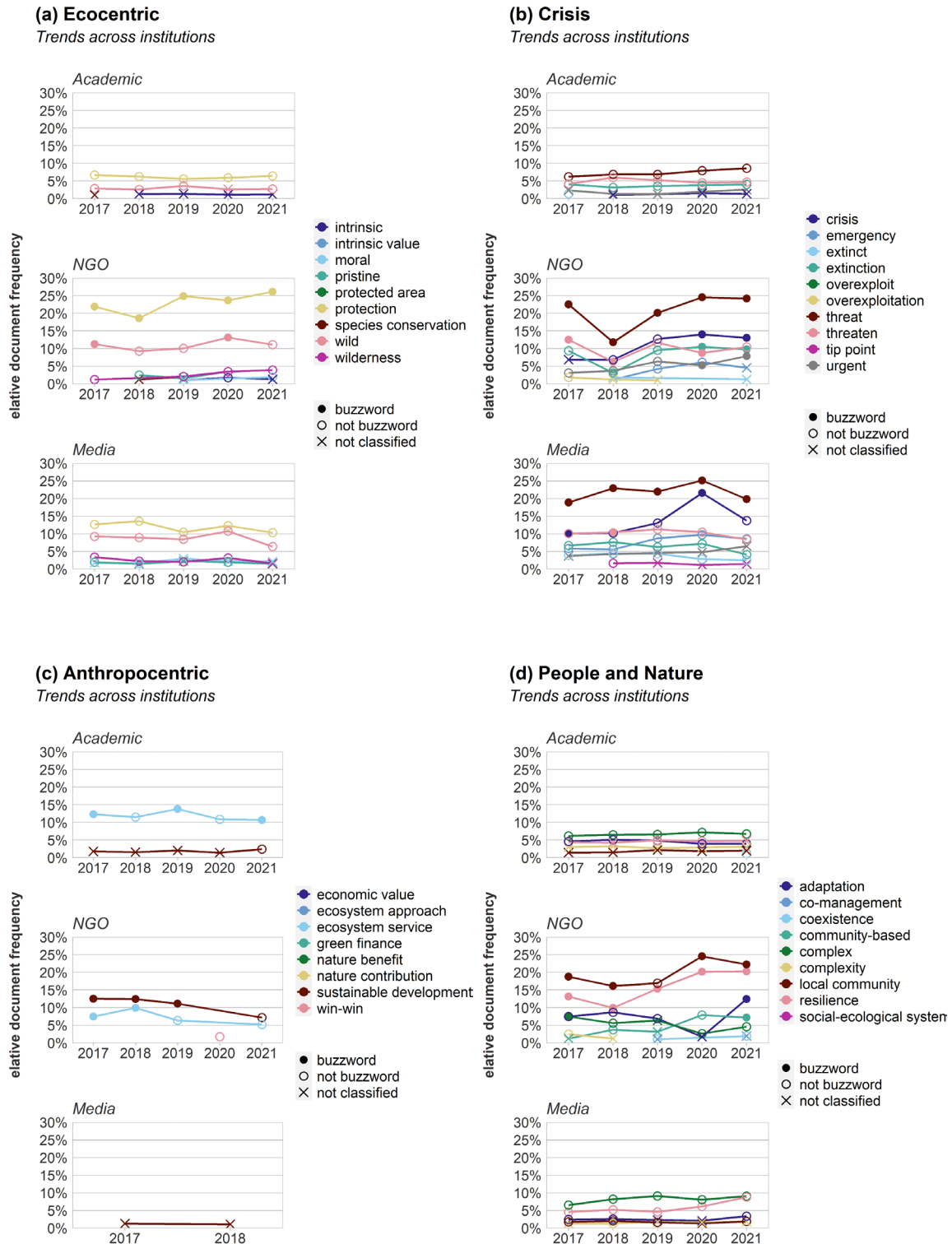
R3.2. Which actors / institutions are using which frame(s)?

For the three institutions in which there is longitudinal data (from 2017-2021), I calculate the trends in usage of the different keywords associated with each dominant conservation frame (see Figure 10). A filled in circle on the trend lines indicate that the word was classified as a buzzword in that given year, an open circle indicates that the word was classified as some type of communicative symbol other than a buzzword for that given year, and an “X” indicates that the word appeared in the texts but too infrequently to be included in the semantic network for word classification. Where there is no dot, or even trend line, that is an indication that the word did not appear in the text at all.

Looking first at the ecocentric frame, NGOs are incorporating those keywords – such as *protection* and *wild* – at much higher rates than in the academic or media documents. There doesn’t appear to be much of an increasing trend in usage through time across any of the institutions, except for a bit more usage of *protection* in NGO annual reports over the five-year span. The only time any of the keywords were classified as a buzzword across these three institutions was within the NGO annual reports, where *protection* and *wild* both were considered “buzzy” at some point in the five-year period.

Next, in the crisis frame, the frequency of use in NGOs was still quite high, but the media documents also used the crisis-related keywords with much more frequency than other frames. For both NGOs and media, *threat* was the most frequently used term, followed by *crisis*. The use of *crisis* grew tremendously in 2020 within the media, which may be a result of the COVID-19 pandemic. In the academic and NGO documents, there may be indication of a slightly increasing trend in the use of some crisis-related terms such as *threat*, *urgent*, and *extinction*. The usage of the terms *threat*, *crisis*, *extinction*, *extinct*, and *urgent* all were classified as being “buzzy” across either the NGO or media documents at some point during the five-year period – with *threat* consistently classified in each year.

Figure 10. Trends in conservation frame-related keyword use across academic, NGO, and media



Keywords related to the anthropocentric frame were not as present in the documents, but *ecosystem services* was the most highly frequent of any frame-related keywords for the academic documents. While *ecosystem services* and *sustainable development* were classified as buzzwords in the NGO documents between 2017-2018 and 2017-2019, respectively, *ecosystem services* was again classified as a buzzword in 2021 within the academic documents. It appears to be trending downward, especially in the NGO documents. The only anthropocentric-related keyword to appear in the media (at such low frequency as to not even been classified) was *sustainable development*.

The people and nature frame is being referenced through its various keywords at a much higher frequency in the NGOs compared to the academic or media documents. Terms such as *local community*, *resilience*, and *adaptation* are on upward rises in use, and are all classified as buzzwords in the most recent year. *Resilience* was classified as a buzzword in the NGO documents during every year, while it may be on a slight rise in frequency in the media documents (though, not yet as a buzzword). Additionally, the term *complexity* appears at a higher frequency than any of the other people and nature-related keywords in both academia and media, despite not being classified as a buzzword.

Comparing the institutional use of these frame-specific keywords, NGOs used them at a higher rate than academic or media documents across the ecocentric, crisis, and people and nature frames. The media used the crisis frame the most often, and academics used the anthropocentric frame the most often. This difference in framing between academic and media texts may represent a breakdown in communication between the scientific literature and what gets published for a more general audience in media stories related to conservation. Given the different target audiences, goals, and incentives for these two distinct types of communications, it is not surprising that

different frames (and associated buzzwords) are being elicited. Meanwhile, the NGO annual reports touched upon many different frames, exemplifying Mace's (2014) and Louder & Wyborn's (2020) assertion that there is a pluralism of dominant conservation frames being deployed and used in conservation practice to this day.

R3.3. How are the trajectories of use changing?

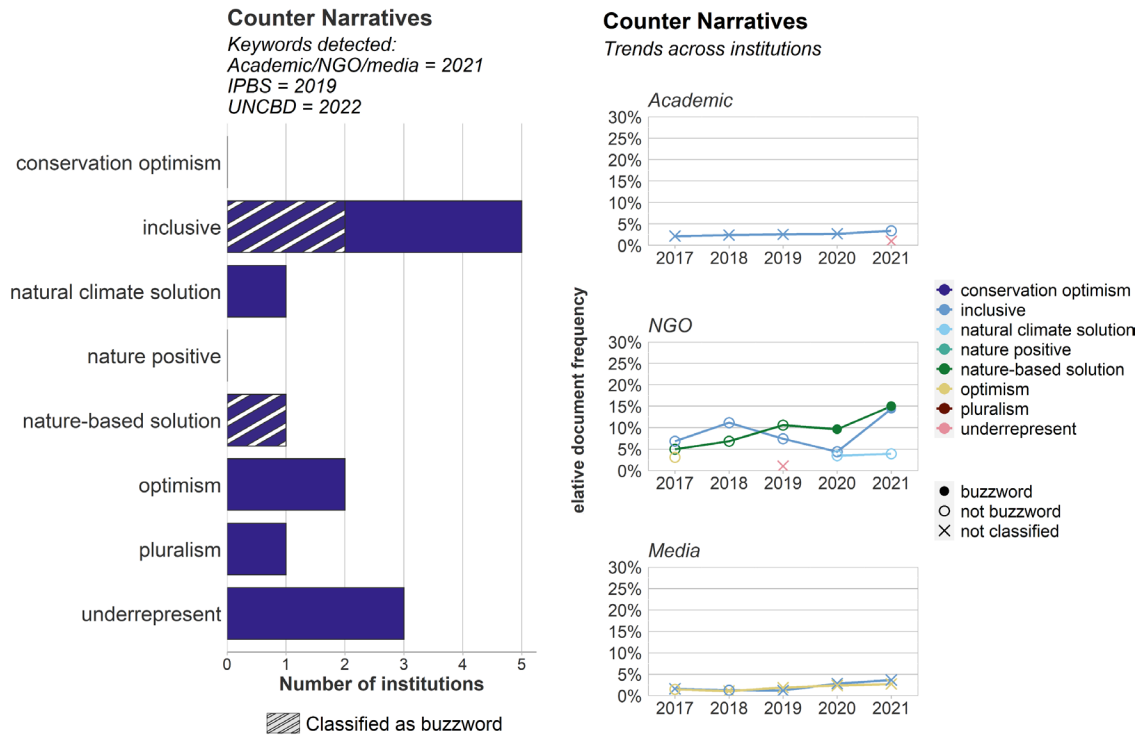
As Figure 10 above illustrates, some frame-related keywords are on the rise. In particular *resilience*, *adaptation*, and *local community* are on the rise – and commonly being elicited as buzzwords amongst NGOs. Additionally, *threat* and *crisis* are on the rise and commonly being elicited as buzzwords amongst NGOs and the media. *Protection* is on the rise in NGOs, also being elicited as a buzzword. Thus, there may be evidence that: (1) NGOs are increasing their use of a plurality of frames to appeal to more audiences and underlying sets of values, or (2) different NGOs are increasing their use of different frames and representing a broader fracture in the mainstream conservation discourse amongst these non-governmental actors. Further research is warranted on this subject to tease apart the sub-group trends in buzzword and frame elicitation within the collection of NGO documents.

Furthermore, the anthropocentric frame appears to be mostly on the decline, though the concept of *ecosystem services* continues to serve as a highly frequent buzzword that resonates in the academic literature. This discontinuity between the academic and the NGO / media documents may represent a breakdown in bringing science into conservation practice and/or the public narrative. Alternatively, it may be an outcome of much slower issue attention cycles within peer-reviewed academic journals compared to that of NGOs and the news media. Thus, research related to the concept of *ecosystem services* is being published later than would have been most useful to those in practice.

In addition to the changes seen in the current dominant conservation frames, there may be some evidence of the emergence or growth of some of the counter-narratives identified by Louder & Wyborn (2020) and Tallis & Lubchenco (2014).

Figure 11 highlights where some of the counter-narrative-related keywords appeared across this study's institutional documents. In particular, the use of the term *inclusive* is on the rise. It is more frequent and more rapidly growing within the NGO documents (where it is also now classified as a buzzword), but it is now starting to appear with more regularity and frequency in academia and media as well. Thus, the call for more inclusive conservation outlined by Tallis & Lubchenco (2014) is catching on in the mainstream conservation discourse – though, it is not yet clear if it is being implemented or merely being discussed. Furthermore, the more recent counter-narrative and idea of a *nature-based solution* is increasing in frequency and “buzz” – but this is currently exclusively in the NGO documents. Louder & Wyborn (2020) identify *nature-based solutions* as a counter to the more techno-optimist narratives around how to achieve conservation (and especially climate) goals. It appears that this counter-narrative has risen into the mainstream discourse for conservation practitioners (e.g., NGOs), if not yet for the news media or academic researchers. The rise of this narrative could be a strategic attempt to link ongoing conservation work to broader and more mainstream international goals related to climate. However, further research would need to provide more evidence to substantiate this claim.

Figure 11. Counter-narrative keyword use and trends across institutions



Discussion

Language use can shape many aspects of conservation. It can shape worldviews and mental models (e.g., Veland et al., 2019), embed various sets of values into a problem or solution (e.g., Elliott, 2020), and point research priorities, funding, and/or attention in various directions (Leader-Williams et al., 2011). To better understand the mainstream conservation discourse, this study introduces a novel operationalization of buzzwords to both quantitatively and qualitatively detect and assess buzzwords that are being elicited across actors in the conservation sector in recent years. Using an empirically informed definition of buzzwords, this analysis asks questions about which institutions are using what buzzwords and how various dominant conservation frames are being elicited through these unique communicative symbols. Scholars have previously studied the myriad uses and impacts of various communicative devices – such as framing, narratives, storytelling, metaphors, and buzzwords – on conservation science

and decision making through various methods (e.g., Mace, 2014; Louder & Wyborn, 2020; Redford et al., 2012; Scoones, 2007). Yet, no large-scale analysis to detect buzzwords and frames from written conservation texts has been employed to complement this previous body of scholarship. This study seeks to fill that gap and augment the understanding of the scale, scope, and direction of conservation discourse from a buzzword perspective.

Long-Held Conservation Paradigms

Overall, this study finds evidence that many of the most commonly cited, ambiguous, and value-laden conservation buzzwords (*biodiversity*, e.g., Toepfer, 2019; *sustainability*, e.g., Ramsey, 2015) are still very present across multiple institutions and over many years. *Biodiversity*, *sustainability*, and *climate change* were all identified as ubiquitous buzzwords, with each being classified as a buzzword for at least three consecutive years and spanning at least three institutions. These words represent long-term paradigms in the conservation discourse and narrative, shaping the way that people view and comprehend the world, hold different groups or actors accountable, and engage based on perceived shared values (Veland et al., 2019). Despite decades-long debate on the meanings and roles of these words – from being crucial boundary terms and bridges (e.g., Scoones, 2007; Toepfer, 2019) to being confusing and subject to misinterpretation (e.g., Newton & Freyfogle, 2005) – they persist.

Different Buzzwords and Frames across Institutions

Additionally, this study finds different patterns of buzzword usage and elicitation of conservation frames across institutions. The academic texts had the lowest percentage of institution-specific buzzwords, and also typically had the lowest frequency of eliciting any of the dominant conservation frames when compared to the NGO and media documents. One exception to this was the high frequency with which academic

documents referred to *ecosystem services* when compared to the other institutions. In this way, the academic institution appeared to be eliciting the anthropocentric frame to a greater extent than NGOs or the media. This linking of conservation science to more instrumental / “nature for people” frames (Mace, 2014) from within the academic literature may not be representative of the most trendy and buzzword laden narratives outside of academia. However, *ecosystem services* did get classified as a bridging buzzword in the analysis, identified as a buzzword across at least three institutions and among one of the most conducive buzzwords in at least one institution. Thus, this concept, even if falling out of favor among some institutions, does appear to resonate and appeal to a certain set of values that persist across groups. Still, there may be a potential breakdown in communication between academics and practitioners – or academics and the popular media – which has implications for whether conservation is serving as a boundary science the way that some scholars have called for (e.g., Cook et al., 2013). It is important to note that this study cannot specifically determine whether the academic institution is simply not keeping up with current narratives across the sector, or if the incentive structure and time lags involved in the peer-review publication process create an appearance of disjointedness. News media articles can focus on entirely different matters (using different terminology) daily, and NGO annual reports can at least change course on an annual basis. Alternatively, the pathway for academic research to reach publication takes several years, and authors are required to cite previous work which inherently brings up old terminology even if only to negate it. The severity and implications of a slow peer review process for producing actionable science in the field of conservation is well-studied (e.g., Nguyen et al., 2015; Christie et al., 2021), and this study may further provide evidence of this phenomenon.

The media documents had the highest percentage of institution-specific buzzwords, and they generally used different terminology related to conservation issues compared to the NGO, academic, or policy documents. The terminology, as seen in the top buzzwords list for media, was typically more vague and included words that were nondescript adjectives and modifiers such as *early* and *long*. This outcome highlights one of the central analytical challenges that I discuss in the limitations section below – the results derived from using this method can be noisy and messy. Even with the different institution-specific buzzwords used by the media, there was still a fair bit of overlap between media buzzwords and other institutions – especially when eliciting a crisis-driven framing in particular. News articles were mentioning *threat* and *crisis* at high rates alongside NGOs, with these words classified as buzzwords across multiple years. Scholars who have published research on negativity biases would argue that stories with a crisis frame may be more potent and contagious than more positively framed narratives (Rozin & Royzman, 2001). This study provides some evidence for this, given that a more optimism-centric counter-narrative (Louder & Wyborn, 2020) was not found at a similar frequency or “buzzwordiness” within the media.

The NGO documents elicited many frames (through the use of buzzwords) simultaneously. They used keywords from the ecocentric, crisis, and people and nature frames all at high rates – with these words classified as buzzwords in many cases. The buzzwords *protection*, *threat*, *local community*, and *resilience* appeared in nearly 25% of the NGO documents, with many others from these three frames appearing in over 10%. This apparent plurality of frames may be a response from calls to incorporate more values and frames into conservation communications to reach more diverse audiences (e.g., Elliott, 2020), thus resulting in individual NGOs using many frames simultaneously. Alternatively, it may be that individual NGOs are more often eliciting

single frames, and that each NGO finds their own group who they are seeking to appeal to. This analysis is unable to disentangle which of these two patterns is most likely, and this warrants future study to better understand how the conservation sector is incorporating different value systems and frames into their discourse. Tallis & Lubchenco (2014) warn of in-fighting amongst ecocentric and anthropocentric value systems, stating that it can hinder progress toward shared goals.

The Newest Frame

There is evidence of an emerging counter-narrative or framing for how conservation work should be done – inclusive conservation. Tallis & Lubchenco (2014) argued for inclusive conservation as a way to bring together under-represented voices to chart a path forward in conservation science and framing, allowing for multiple framings and value systems to exist together to achieve common goals. This analysis found that the term *inclusive* is on the rise across institutions, especially within NGOs. It was classified as a trending (i.e., emerging) buzzword in the most recent year, with big growth in use observed between 2020 and 2021. Additionally, as evidenced by the IUCN’s article (Tzec & Walker Painemilla, 2023) celebrating the Inclusive Conservation Initiative’s first year in 2022, it is clear that *inclusion* is taking off as a new model for how to do conservation – and that it needs to involve indigenous people and local communities. Both of these phrases – *indigenous people* and *local communities* – appeared in buzzword lists in this analysis as well. *Indigenous people* was categorized as a trending buzzword and *local communities* was classified as a buzzword (based on the primary criteria) across three institutions (NGOs, IPBES, and the UNCBD). Overall, I find two trends worth further exploration. First, inclusive conservation and its underlying concepts may be catching on in the mainstream conservation discourse, representing a concerted paradigm shift in the sector (e.g., Tzec & Walker Painemilla,

2023). Second, and importantly, the terms underlying the broader concept of inclusive conservation appear to be getting elicited as buzzwords in written conservation texts – i.e., being used in many contexts for many reasons and in a potentially inconsistent manner. As has been the case with many emerging conservation buzzwords over the years (e.g., *sustainability*), it may be worth starting a dialogue across the sector about what inclusive conservation truly means and how to avoid any dilution and potential cynicism around the term that may follow. The pathway from dilution in meaning to cynicism is one that was hypothesized in Chapter 1 – and is evident in articles by scholars who seek to stop the dilution of terms before they become meaningless (e.g., Milner-Gulland, 2022; Massarella et al., 2022).

Practical Implications

This study’s findings highlight an important practical implication for using this type of method for buzzword detection to investigate the mainstream discourse of a particularly value-laden sector such as conservation. This method can help to quantitatively identify emerging framings, narratives, and fads that may be starting to “catch the buzz” – and thus are subject to the increased usage of buzzwords to describe important and necessary steps forward for the field. While the use of buzzwords is not inherently a bad thing, Chapter 1 found that the use of diluted buzzwords is hypothesized to lead to increased cynicism, lack of engagement amongst stakeholders, or a misalignment of actions across a diverse group of actors (see also Milner-Gulland, 2022). However, Chapter 1 also found that many believe buzzwords to be tools that allow for dialogue across diverse stakeholder groups – to intentionally develop shared meaning and understandings, to navigate different sets of values and interests, to collectively chart a path forward (see also Bensaude Vincent, 2014). Thus, by uncovering some of conservation’s trending (i.e., emerging) buzzwords and how they map onto various

counter-narratives (e.g., Louder & Wyborn, 2020; Tallis & Lubchenco, 2014), this analysis reveals an opportunity for collective sense-making before cynicism or overuse sets in on the current discourse. *Inclusive* conservation – paired with *indigenous people* and *local communities* – is in need of this intentional conversation across the full sector. *Nature-based solutions* may also be ripe for such a conversation.

Limitations

While this study offers a novel methodology for operationalizing buzzwords in large-scale written texts, it is not without its limitations. Conceptually, buzzwords are hard to nail down into a formal operational definition that can be derived from snapshots of written text, even with an empirically informed definition from the literature and expert interviews. As elucidated in Chapter 1, buzzwords may require a lot of prior knowledge, context, and experience to be able to detect. As with many types of speech, it may be more likely that someone will “know one when they see one.” For instance, automated sarcasm detection within sentiment analysis suffers from a similar problem, where additional context is typically necessary in order to make a proper prediction (e.g., Joshi et al., 2017). Furthermore, the comparative dimension of this study required careful interpretation to uncover or claim any differences in buzzword use across institutions as a whole, given that the types of documents included were very different. Some of the document types were meant for a general audience (e.g., news media articles), while others were meant for a more specialized group (e.g., academic abstracts). They varied in length, publication frequency, and underlying incentive structure and audience. None of the collections of documents could fully represent each institution, as they only included one portion of the many different types of communication that occurs – and never covered more informal channels, which may better represent emerging and shared lexicons across individuals. Thus, this type of

quantitative corpus-based method is likely to still need qualitative assessment and expertise to make sense of otherwise noisy and complex results. It may serve as a great complementary tool, but it is unlikely to be a full replacement for making important decisions about strategic communication efforts across different platforms or audiences.

Methodologically, there are additional considerations to be addressed – and potentially taken up in future research on quantitative buzzword detection and analysis. Inherent to any corpus-based approach, many decisions must be made about what documents to include and why, how to select cutoff points and thresholds for various parameters, and what measures to report when the results are otherwise so noisy. Transparency is key to reproducibility in this case, and I have made as many efforts as possible to outline the decision rules and procedures that led to my choices of which institutions, document types, metrics, and thresholds to use. Still, each decision carries with it myriad nuances in interpretation that must be met with care in writing up and disseminating to a broader audience. For instance, I have typically referred here to a “top buzzword” as one that is most frequent in terms of relative document frequency, but there are several other measures that could be equally valid. My analysis of different *types* of buzzwords sought to remedy this by elevating other dimensions of buzzwords that were identified as important by interview participants in Chapter 1 – e.g., cultural relevance and trendiness. In my interpretation of results, then, it is critical to retain this transparency in definitions. Similarly, this analysis only provided results for words that did get classified as buzzwords, and did not provide lists of other words. There is the possibility of a confirmation bias in this approach, which the validation exercises sought to address in a limited way.

Future Directions & Lessons Learned

Despite the limitations and challenges in this study, there are still some exciting future directions and key lessons learned. One such direction may be to incorporate analyses to explore an additional dimension of buzzwords frequently brought up by interview participants in Chapter 1 and in the scholarly literature – a buzzword’s tendency to dilute in meaning over time (e.g., Milner-Gulland, 2022; Massarella et al., 2022). This could be explored in certain large-scale data sets by using word embedding models and semantic drift analysis (e.g., Hamilton et al., 2016; Kutuzov et al., 2018). This type of analysis was not possible for this study’s data, given the limited sample sizes within single corpus/year combinations and the ongoing debate of how to compare word embedding models through time (e.g., Kim et al., 2014; Yao et al., 2018). Still, with the right data sample, this method could marry a semantic drift method to validate whether the buzzwords being detected are exhibiting evidence of dilution across actors or over time.

An important lesson from this study is that there is an inherent trade-off in developing, deploying, and using such a computationally intensive tool. On one hand, it allows for large amounts of information to be processed and condensed, uncovering different insights and patterns than other more qualitative methods. It does not require the time-consuming task of collecting primary data – though, it could be a complement to analyzing certain text-heavy types of primary data. Yet, on the other hand, the data processing and analysis process requires a lot of preparation, nuanced understanding, time, and resources. For example, one must make many decisions about inclusion and exclusion criteria for what documents to include (typically based on availability and access), acquire the necessary texts, format them appropriately, and make nuanced text processing decisions around what words to exclude and what parameters to use in

various calculations. All decisions, assumptions, and subsequent interpretation implications must be transparently communicated when disseminating results from such a tool, in order to mitigate risks associated with misinterpretation or making more conclusive claims than the results allow. Many times, the results are still difficult to make sense of, with a lot of noise and uncertainty. Claims cannot be as conclusive as with some other methods, and thus the findings from such a tool may not be as decision relevant as originally intended.

Decision support tools using deep learning, natural language processing, and artificial intelligence have proliferated in recent years (e.g., Kim et al., 2020). Many organizations and public sector actors now rely on more automated procedures for decision-making, which may alter – among other factors – the: (1) relationships among decision-makers, tools themselves, and the public; (2) competencies needed in various roles; and (3) types of questions that even get asked in various decision contexts (e.g., Wihlborg et al., 2016; Roehl, 2022). Yet, these procedures and tools may be fraught with some of the same challenges faced in this analysis – i.e., myriad decisions on cutoffs and thresholds and inclusion criteria, imperfect data, and a lot of nuance. It is important to remain transparent about how these tools work, what assumptions they are making, what data they are trained on and using, and what are the limits to which they can provide meaningful answers or decisions in the face of complex systems. They may be useful complements to other tools and methods to provide more nuance in a given decision-making context.

Buzzwords are a communicative tool. Detecting them – especially if they are still in their earliest stages – may help us to understand where trends are going in the field, whose voices and values are being heard and recognized, and what concepts and worldviews are likely to be misunderstood or lead to misalignment of resources. Still, the

detection and analysis process is cumbersome and warrants future efforts to get right – and it will likely only ever be a complement to many other ways of recognizing problems, solutions, framing, and narratives.

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CHAPTER 3

TESTING FOR AN EFFECT: BUZZWORDS AND RESOURCE ALLOCATION DECISION

MAKING IN CONSERVATION

Introduction

Many of the world's most urgent and challenging issues are collective action problems (Ostrom, 2010), such as climate change, environmental degradation, and global pandemics. Collective action requires cooperation and coordination to make judgments and tough decisions about how to allocate time and resources and what actions to take. These decisions are influenced by different types of knowledge, information, and communication. Each actor's knowledge of the problem and context, perceptions about the other actors involved, and individual biases, heuristics, and values dictate how they encode and decode information to share with others – thus impacting individual decision-making algorithms in specific contexts (Ostrom, 2005; Denzau & North, 1994). Extensive research has uncovered the many heuristics and biases that individuals may use when developing mental representations of the world and making decisions under uncertainty – and how they may cause systematic errors in evaluating the likelihood of various outcomes (Kahneman et al., 1982).

A considerable body of evidence has established a causal link between communication and cooperative outcomes (Sally, 1995; Balliet, 2010; Ostrom et al., 1994; Anderies et al., 2011). Communication and message framing can alter an individual's assessment of the situation by: (a) introducing new information about the system and range of possible actions, (b) generating norms to build trust that the other actors will make cooperative decisions, or (c) enhancing group identity. These alterations may impact an individual's understanding of the rules of the game or judgments about the likelihood of various outcomes, thus impacting their actions. Experimental and

observational research has found that the way messages are framed can influence perceptions of trust, credibility, and beliefs that motivate cooperative behavior in myriad ways (Peters et al., 1997; Cookson, 2000; Dufwenberg et al., 2011). Narratives and problem framing can predictably influence judgments and decisions by individuals (Fisher, 1984; Fischhoff, 1983; Benford & Snow, 2000). Further, the fields of risk perception and science communications examine decision-making and communication by leveraging research on behavioral principles for judgment and decision-making (Fischhoff, 2013), eliciting mental models of decision-relevant beliefs (Bruine de Bruin & Bostrom, 2013), and exploring how various audiences interact with scientific information and uncertainty across different mediums (Nisbet & Scheufele, 2009; Budescu et al., 2012). From this wealth of knowledge, this study builds on prior research in communication and decision making to examine the role of a specific type of imprecise language – buzzwords – on decision making in conservation.

Defining Buzzwords

This research explores the role that imprecise language may play in influencing individual decisions, looking at one specific type of imprecise language: buzzwords. Buzzwords have typically been characterized as a unique type of communicative symbol that is popular, imprecise, and normative. They are shorthand for complex topics (Ettorre, 1997), condensing many ideas into a single word or phrase. Schnable et al. (2021) define buzzwords as popular topics that ebb and flow over time, characterizing issues in the field. Perhaps most importantly, buzzwords may imply and/or build consensus around an abstract idea while remaining vague enough to allow for competing interpretations (Cornwall, 2007; Schnable et al., 2021). Examples of common buzzwords from within the development and/or conservation sectors are *sustainability* (e.g., Scoones, 2007), *participatory development* (e.g., Schnable et al., 2021), or

empowerment (e.g., Cornwall & Brock, 2005). These terms all leave much room for interpretation and contestation while signifying common goals or values within their respective sectors. Buzzwords have been hypothesized as having both positive and negative functions and impacts. Many suggest that buzzwords may influence where research and policy efforts are focused – and ultimately lead to differential funding patterns, prioritization of actions, and on-the-ground impacts (Cornwall & Brock, 2005; Cornwall, 2007; Loughlin, 2002; Schnable et al., 2021).

Moderating & Mediating Effects of Buzzwords

Much research in the collective action and risk communication literature has identified the important moderating role of trust in communication. Through a series of public goods experiments (e.g., Ostrom, 1998) and a variety of cases such as communicable disease transmission and environmental hazards (e.g., Renn & Levine, 1991; Twyman et al., 2008; Cairns et al., 2013), research has found that if the sender is not well trusted, information will be received and processed differently. A series of expert interviews from Chapter 1 of this dissertation builds upon this finding by suggesting that prior trust may also have a moderating role on the effects of buzzwords on perceptions and decision making. A well-trusted source who is using buzzwords may augment feelings of credibility and trust, while a poorly trusted source who is using buzzwords may only serve to exacerbate skepticisms.

Additionally, prior theory suggests that buzzword-related impacts on funding and prioritization may be mediated through other more intermediate effects that alter individual assessments of the user(s) of the buzzword or the context of the problem. For instance, scholars have argued that a key positive impact of buzzwords may be that they increase the likelihood of cooperation by increasing perceptions of credibility or by inviting a wide range of stakeholders to a single table through shared values. Several

scholars describe buzzwords as potential bridges, opening opportunities for dialogue across stakeholders with different backgrounds or conflicting interests (e.g., Bensaude Vincent, 2014; Paehlke, 2005). Scoones (2007) argues that buzzwords are “boundary terms,” linking science and policy toward a common agenda; while Ramsey (2015) describes their role in creating a space for dialogue about what society values within a given context and point of reference. In addition, the use of certain buzzwords may be thought of as social signals or markers (Nettle & Dunbar, 1997; Smaldino et al., 2017) that affect one’s decision about whether to cooperate with another individual through identity signaling, prompting in-group affinity and/or out-group aversion. Thus, buzzwords may influence decisions by: (a) altering the perceived trustworthiness or expertise (i.e., credibility) of the actor who has used the buzzword, (b) prompting underlying normative motivations based on an individual’s values, or (c) signaling an identity that triggers certain in-group affinities or out-group aversions.

Yet, other scholars have expressed concern for the use of buzzwords, potentially leading to confusion and obfuscation (e.g., Loughlin, 2002; Newton & Freyfogle, 2005) and hindering progress toward desired outcomes (Ostrom, 2005). Warnings abound regarding the potential misuse of technical terminology (Adams et al., 1997), the appropriation of buzzwords to serve those in power (Cornwall, 2007; Loughlin, 2002), or the embedding of underdeveloped scientific ideas into frameworks without applying an appropriate level of rigor (Cairns & Krzywoszynska, 2016). Concerns on greenwashing – especially relating to purposeful or strategic vagueness – closely mirror some of those on buzzwords, where “cheap talk” and empty claims regarding pro-environmental priorities and behavior can ultimately lead to skepticism and cynicism (e.g., Lyon & Montgomery, 2015; Delmas & Burbano, 2011). Thus, buzzwords may also influence decisions by: (a) leading to confusion and a lack of comprehension (i.e., an unclear communicative

signal), or (b) increasing skepticism surrounding the user of the buzzword if they are perceived to be using the term in a non-genuine or rigorous way.

Research Approach & Hypotheses

This study uses an experimental survey to empirically test a series of hypotheses about the potential impacts of buzzwords on decision making, based on findings derived from a series of expert interviews with conservation professionals from Chapter 1 of this dissertation. In particular, Chapter 1 produced hypotheses suggesting that the use of buzzwords can impact decision making by altering perceptions of comprehension / clarity, credibility, group identity / shared values, and skepticism. Moreover, these effects may be moderated by prior trust, influencing the directionality of such mediating effects – i.e., where high trust tends to promote more positive outcomes (e.g., increased credibility) and low trust exacerbates negative outcomes (e.g., increased skepticism). This study's explicit inclusion of trust as a moderator for buzzword effects is a novel hypothesis, given a current lack of theoretical justification in the buzzword literature.

To formally test a set of hypotheses (outlined below), I look for an effect of organizational trustworthiness and/or buzzword usage on perceptions of a project's worthiness of funding (H1) – as well as indirect mediating effects through changes in comprehension (MedH1), credibility (MedH2-MedH3), group identity / shared values (MedH4-MedH5), and skepticism (MedH6). While worthiness of funding does not directly translate to actual donation or funding behavior, it does test for an effect on behavioral intentions which are known to play some role in behavioral outcomes (Ajzen, 1991). In this way, I use the worthiness of funding as an initial step in developing an evidence base exploring whether there is a buzzword effect (moderated by trust) on resource allocation decision making.

H1: (a) High trust organizations are seen as more worthy of funding than low trust organizations, and there is an interaction between trust and buzzword usage such that (b) the use of buzzwords from a high trust organization *increases* perceptions of a project's worthiness of funding and (c) the use of buzzwords from a low trust organization *decreases* perceptions of a project's worthiness of funding.

Mediating Hypotheses: The effects of trust and buzzwords on perceptions of a project's worthiness of funding are hypothesized to be mediated by changes in comprehension, perceived credibility, alignment of group identity and values, and level of skepticism. While many of these mediators are abstractly theorized about in the prior literature (e.g., Bensaude Vincent, 2014; Lyons & Montgomery, 2015), no specific predictions are made. Thus, these hypotheses are exploratory and based on findings from Chapter 1.

MedH1: The use of buzzwords in a low trust organization (compared to a high trust organization not using buzzwords) decreases comprehension, negatively influencing perceptions of worthiness of funding.

MedH2: A low trust organization not using buzzwords has lower credibility compared to a high trust organization not using buzzwords, negatively influencing perceptions of worthiness of funding.

MedH3: Buzzword usage will (a) aid the credibility of a high trust organization but (b) harm the credibility of a low trust organization, both when compared to a high trust organization not using buzzwords. This positively or negatively influences perceptions of worthiness of funding, respectively.

MedH4: A low trust organization not using buzzwords produces less alignment of group identity / shared values compared to a high trust organization not using buzzwords, negatively influencing perceptions of worthiness of funding.

MedH5: Buzzword usage will (a) aid the alignment of group identity / shared values for a high trust organization but (b) harm alignment for a low trust organization, both when compared to a high trust organization not using buzzwords. This positively or negatively influences perceptions of worthiness of funding, respectively.

MedH6: The use of buzzwords in a low trust organization (compared to a high trust organization not using buzzwords) increases skepticism, negatively influencing perceptions of worthiness of funding.

A full table of the hypotheses – with the associated path of causality and directionality, and a schematic linking them to the full conceptual model – can be found in the Hypotheses section of Appendix C.

The remainder of this paper is structured as follows. The Methods section outlines the experimental design, measured variables, pilot survey methods and results, participants and protocol, and the conceptual model and associated statistical tests. The Results section presents findings for the manipulation check, total effects, and mediating effects. The Discussion section restates and contextualizes the findings and explores implications, limitations, and future directions. The Conclusion closes with a brief overview and synthesis.

Methods

I conducted an experiment with a 2 x 2 design manipulating buzzword usage (yes/no) in a project pitch and trustworthiness of the organization pitching the project (high/low) to test how buzzword usage and trustworthiness interacted to influence support for the project. Further, I test whether the effects of the experimental condition were mediated by comprehension, perceived credibility, group identity / shared values, and skepticism. Given the nature of this experiment, the study design was partially inspired by previous experiments on how language and messaging can influence charitable giving decisions. (e.g., Septianto et al., 2020; Chang & Lee, 2010) and how framing can influence public goods games (e.g., Cartwright & Ramalingam, 2019). The full methods are detailed in the sections below.

Experimental Design

In all treatments, survey respondents were provided with two pieces of information: (1) an organizational profile about a fictional organization named AquaHope; and (2) AquaHope's report on a pilot project focused on improving water access in a community. The treatments varied on two dimensions, resulting in a 2 x 2 design: (1) the trustworthiness of the organization as presented in the organizational profile (high/low), and (2) whether the project report used a series of widely used buzzwords within the field of environmental conservation and sustainability (yes/no). All experimental stimuli can be found in the Survey Protocol section of Appendix C.

Trustworthiness

The trustworthiness manipulation focused on constructs known to impact levels of trust in an organization, such as competence, openness, level of concern, and reliability (Mishra, 1996). These constructs were operationalized by having the organizational profiles address the organization's efficiency with resources, transparency

and learning, relationship building, and history of successes or failures in prior projects. The low trustworthiness organizational profile acknowledged but defended the organization's actions in unspecified controversies and criticisms regarding past project failures, while the high trustworthiness profile identified the organization's long standing trusted reputation and history of success.

Buzzwords

The buzzword manipulation involved the inclusion of eight buzzwords into the project report, with additional short phrases added as needed to make the sentence flow. If possible, the buzzwords would simply be added as an additional adjective or descriptor to an already-existing sentence. The non-buzzword and buzzword project reports contained nearly identical language, despite these additions of words and sometimes explanatory phrases. The buzzwords included in the project report were selected from a list of buzzwords identified in a series of expert interviews with conservation professionals (Chapter 1 of this dissertation). They were: sustainable/sustainability, resilient/resilience, equitable/equity, transformative change, inclusive/inclusion, innovative/innovation, vulnerable, and evidence-based.

Measured Variables

The experimental survey explores if there are systematic differences in individual judgments on the worthiness of the pilot project to be funded, based on the trustworthiness of the organization and the use of buzzwords in the project reporting. Additionally, several mediating variables are hypothesized to play a role in the effects on worthiness of funding (see Introduction or the Hypotheses section of Appendix C for all associated hypotheses tested in this study). Upon reading the organizational profile and project report, respondents were asked a series of questions focused on the project's worthiness of being funded, their perceptions of the organization and the project, and a

short panel of demographic questions. All measured variables are composite indices calculated by finding the mean across a series of questions related to the broader construct. The questions were designed to probe the construct of interest from several angles – and guard against outlier responses or non-response. Each index was validated by calculating Cronbach’s alpha to ensure that the subcomponents are internally consistent (by reaching a threshold of at least .7). All questions were asked on an 11-point scale from 0-100 (by 10), with responses presented as percentages ranging from 0% (not at all) to 100% (completely).

Worthiness of funding

Worthiness of funding is a composite index calculated by finding the mean across three questions which prompt the respondent to imagine themselves as a potential funder of the project. Respondents indicated how likely they would be to recommend the project be funded, how worthy the project is of being funded, and what priority level the project should be ranked. Cronbach's alpha was .91 across the three questions.

Mediator variables

Four variables are hypothesized to be causal pathways or mediators for a trustworthiness and/or buzzword effect on worthiness of funding: (1) changes in perceived clarity and comprehension of the project report, (2) perceived credibility of the organization, (3) amount of alignment with the group identity and values portrayed by the organization, and (4) level of skepticism about the organization and project. Higher values for the mediators indicate more of that construct (e.g., more comprehension, credibility, value alignment, or skepticism). Higher values are typically seen as positive, except in the case of skepticism. See below for descriptions of the questions making up each variable index.

Comprehension. Comprehension consists of two questions. It asks: (1) how clear the project report was, and (2) how easy to understand the project report was. Cronbach's alpha was .90 across the two questions.

Credibility. Credibility has 10 statements asking the respondent to indicate their level of agreement. Based largely on Newell & Goldsmith's (2001) two-dimensional corporate credibility scale (i.e., trustworthiness and expertise) and Peters et al.'s (1997) determinants of trust and credibility, they largely address perceptions of expertise, trust, honesty, and concern from a variety of dimensions. The statements assert that the organization: (1) is honest and ethical, (2) has a positive reputation, (3) is an expert in their field, (4) has a good track record in achieving their goals, (5) understands the needs of communities, (6) builds meaningful and lasting relationships with communities, (7) is up to date and relevant, (8) has novel methods and solutions, (9) is genuine in their messaging and statements, and (10) upholds their values in their work. Cronbach's alpha was .97 across the 10 questions.

Group identity / shared values. Group identity consists of four questions. It asks: (1) how closely the respondent identifies with the values outlined by the organization, (2) how closely the respondent identifies with the goals of the project, (3) how much the respondent feels a part of a large community when supporting the organization, and (4) if the respondent feels they would share common values and interests with other supporters of the organization. Cronbach's alpha was .93 across the four questions.

Skepticism. Skepticism has three questions. It asks respondents to identify: (1) how skeptical they are that the organization can deliver its goals for the project,

(2) if they have any reservations or doubts about the intentions of the organization, and (3) if they have any reservations or doubts about the capabilities of the organization. Cronbach's alpha was .93 across the three questions.

Demographic Covariates

This study controls for several demographic covariates which may influence an individual's responses to how worthy the project is to be funded and their exposure to buzzwords. It includes age, education level, a proxy for purchasing power (based on household income divided by household size), and frequency of social media use. Please see the Survey Protocol section of Appendix C for the full specifications of the demographic covariates.

Manipulation Check Variables

Assessments of the manipulated variables – trustworthiness and buzzwordiness – were included as single-item indicators to run independent sample *t*-tests in a manipulation check. For both questions, respondents were asked to report on an 11-point scale from 0-100 (by 10). Trustworthiness was the response to the question of how much they trusted AquaHope as an organization, and buzzwordiness was the response to the questions of whether they would describe the project report as “buzzwordy.”

Pilot Surveys

Prior to conducting the full online survey, I ran two pilot surveys to test for systematic variation produced across the trustworthiness (high/low) and buzzword (yes/no) conditions. Both pilot surveys were hosted on QuestionPro, and participants were recruited and received financial compensation through Prolific (www.prolific.com). In the original OSF pre-registration of the survey (see Claborn, 2023), the buzzword

condition was presented as a project pitch, asking respondents for donations for a new and exciting project. This was the buzzword manipulation used in the first pilot survey.

The first pilot survey had 41 respondents (with 32 complete responses able to be analyzed). After being presented with the (high/low trust) organizational profile and the (buzzword/non-buzzword) project pitch, participants were asked to rate how much they trusted the AquaHope organization, and how “buzzwordy” they found the project pitch to be. “Buzzwordiness” was not defined any further for participants, but they were also provided with an open-ended question asking for any further elaboration on why the pitch seemed buzzwordy or not. From this first pilot, independent sample t-tests revealed that the trustworthiness manipulation was quite strong. However, there was no systematic difference in assessment of the project pitch’s buzzwordiness between the two buzzword conditions. Further investigation into the open-ended responses revealed a wide range of respondent definitions for what constitutes buzzwordiness, and many suggested that the type of writing in a project pitch asking for charitable donations is prone to buzzwords. Thus, the rate of perceived buzzwordiness may have been inflated due to the communication style.

Upon reconfiguring the context for the buzzword manipulation, from a pitch asking for charitable donations into a pilot project report, I amended the study’s online pre-registration accordingly and conducted a shorter second pilot survey asking participants to read a (buzzword/non-buzzword) project report and rate its buzzwordiness. This second pilot survey had 43 respondents (with 41 complete responses able to be analyzed), and independent sample t-tests revealed that perceived buzzwordiness was systematically different across the two buzzword conditions.

Participants & Protocol

A total of 435 respondents located in the United States completed the online survey. The researcher used Prolific (www.prolific.com) to recruit participants and provide financial incentives upon completion. Prolific ensured a nationally representative sample based on age, gender, and ethnicity. The experiment was approved by Arizona State University's Institutional Review Board (see Appendix D for approval letter) and the full study design and analysis plan was pre-registered on the Open Science Framework prior to data collection (Claborn, 2023). More information on the survey protocol development and pre-testing associated with the experimental manipulations can also be found in the Open Science Framework pre-registration.

Ultimately, nine responses were removed from regression analyses due to incompleteness, for a total of 426 responses (50.7% identified as women; $M_{age} = 45.7$, $SD_{age} = 15.8$; see the Participant Demographics section of Appendix C for full demographic profile). The online survey was hosted on QuestionPro. All analyses were completed using R statistical software (R Core Team, 2023; Posit team, 2023), using the tidyverse package for data wrangling and visualization (Wickham et al., 2019). Regression analyses were completed using Hayes' (2017) PROCESS macro for R.

Conceptual Model

The conceptual model for this study is detailed in Figure 12. First and foremost, this study hypothesizes that trustworthiness and buzzword usage have an effect on worthiness of funding. I look at the 2 x 2 interaction of trustworthiness and buzzword usage on worthiness of funding, where the interaction term tests whether the influence of buzzword usage on the outcome depends on the trustworthiness of the organization. I use a multiple linear regression model with an interaction term (Model 1) to report the main effects and interaction effects on worthiness of funding. I include four measured

demographic covariates in this model as controls. If I observe an interaction effect between buzzword usage and trustworthiness of the organization, I will test for differences across the four conditions with a post-hoc Tukey's Honest Significant Difference (HSD) test.

$$\text{Worthiness of funding} = Y_F = d + c'_T X_T + c'_B X_B + c'_I X_T X_B + \text{covariates} + \epsilon \quad (1)$$

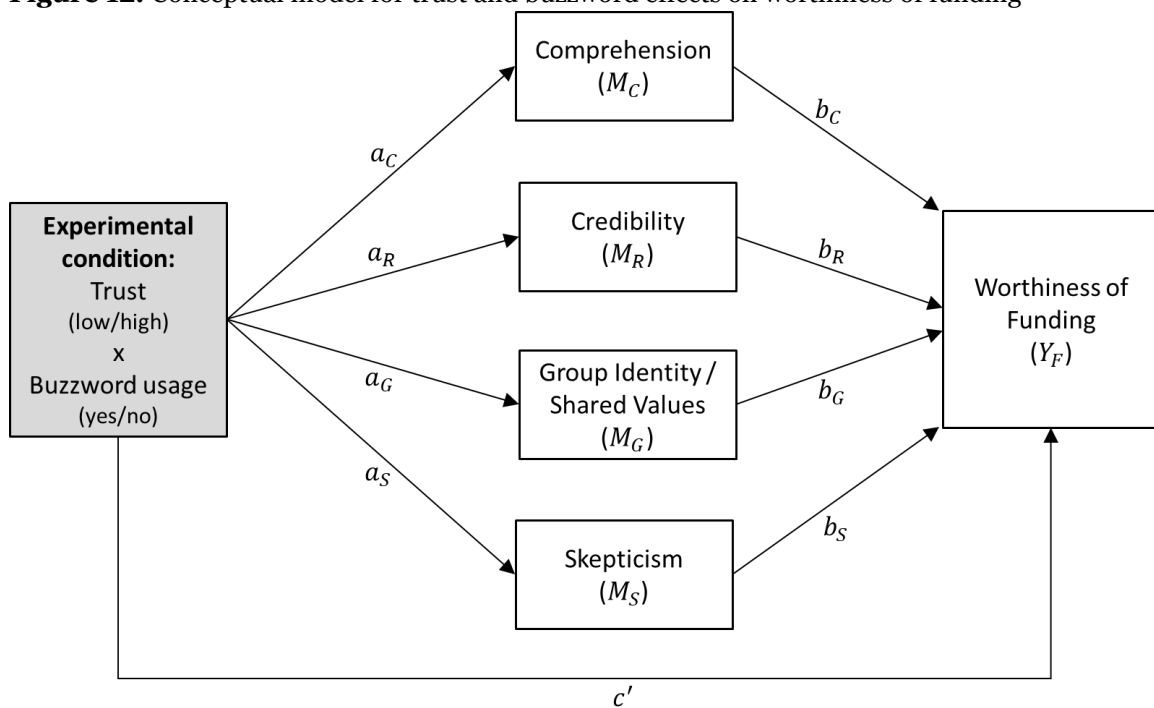
Where,

X_T = trust condition

X_B = buzzword condition

$X_T X_B$ = trust:buzzword interaction

Figure 12. Conceptual model for trust and buzzword effects on worthiness of funding



Additionally, this study hypothesizes that there are several potential causal pathways for effects, for which a mediation analysis can help to test. If I find any effect of trustworthiness of the organization and/or buzzword usage on worthiness of funding, I will add four mediating variables into the model. Using multiple linear regression and

the PROCESS model approach (Hayes, 2017), I calculate the total, direct, and indirect effects of trust and/or buzzwords on worthiness of funding⁵ – through the four mediating variables. To properly run the analyses using PROCESS, the treatment conditions are coded as a four-category variable instead of two binary variables with an interaction effect. Thus, all the results compare the effects of trust and buzzwords to the reference level of high trust and no buzzwords. The full set of total, direct, and indirect effects model specifications – and the associated conceptual model for the mediation analysis – are detailed in the Model Specifications and Full Conceptual Model sections of Appendix C, respectively.

When reporting results of statistical analyses, this study makes inferences about the existence and/or strength of evidence – and use a significance symbol scheme (e.g., ***) – associated with different *p*-value ranges, as outlined in the Inferences & Symbols section of Appendix C.

Results

Manipulation Checks & Measured Variables

Independent sample *t*-tests on the levels of perceived trustworthiness of the organization revealed that those assigned to one of the high trust conditions (buzzword or non-buzzword) perceived significantly higher levels of trustworthiness ($p < .001$) compared to those assigned to one of the low trust conditions. However, independent sample *t*-tests on the levels of perceived “buzzwordiness” of each project report revealed that those assigned to one of the buzzword conditions (high or low trust) did not

⁵ In the original experiment – and included in this study’s pre-registration (Claborn, 2023) – I also tested for effects on a second dependent variable, willingness to donate. Worthiness of funding had higher internal consistency across the component questions making up the index (Cronbach’s alpha = 0.911 for worthiness of funding; Cronbach’s alpha = 0.74 for willingness to donate), yet results across the two dependent variables were quite similar. I only present results for worthiness of funding in the main text, but results associated with willingness to donate can be found in the Additional Dependent Variable section of Appendix C.

systematically rate the reports as more buzzwordy than those assigned to one of the non-buzzword conditions ($p = .486$). There was a significant difference in perceived buzzwordiness in the second pilot survey testing the buzzword condition, but participants were not presented with the organizational profiles in this second pilot. Thus, it is possible that there is an interaction between trust and buzzword usage such that presented with a high or low trustworthiness profile for the organization may influence perceptions of buzzwordiness.⁶

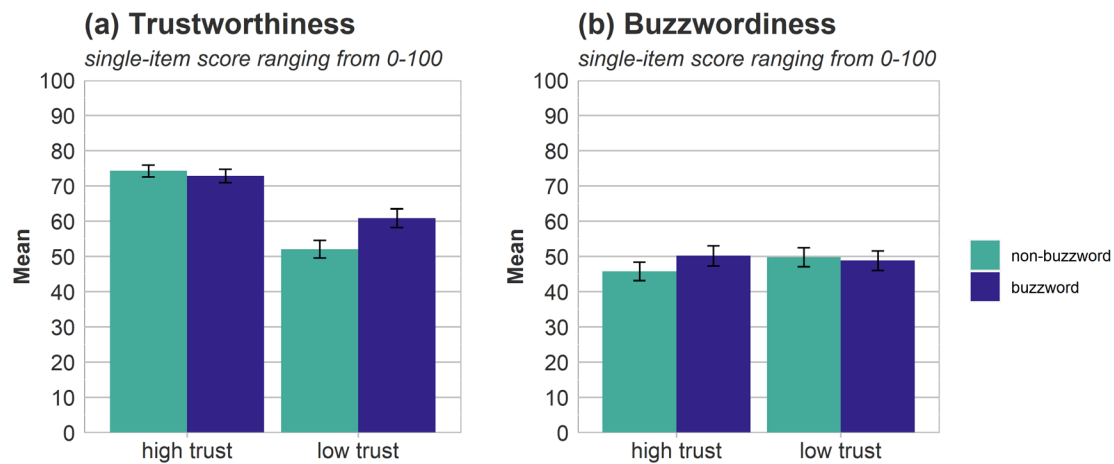
I conducted an additional exploratory test for systematic variation in perceived buzzwordiness across the experimental manipulations to investigate the potential influence of being presented with a trustworthiness condition on perceived buzzwordiness of the subsequent project report. I looked for any main effects from the trust condition and the buzzword condition, as well as any interaction effects between trustworthiness and buzzword usage, on perceived buzzwordiness. I expected to find no difference in perceived buzzwordiness between the two high trust contexts (i.e., the buzzword condition). This fits with the hypothesis that buzzwords can augment the positive mediating effects of alignment of group identity within high trust contexts (MedH5a), where buzzwords begin to function more as shorthand for a common in-group language – and thus may not be as readily identified as buzzwords. Additionally, I expected to find that perceived buzzwordiness may be higher in low trust contexts where buzzwords are used, compared to low trust contexts where buzzwords are not used (i.e., the interaction effect). This follows from the hypotheses that buzzword usage in low trust contexts would exacerbate negative mediating effects such as skepticism (MedH1, MedH3a, MedH5a, MedH6) – and thus receivers of communication may be more

⁶ Additionally, in the pilot survey, open-ended responses to why the project pitch / report seemed buzzwordy or not revealed that common definitions and criteria for what would be considered “buzzwordy” varied tremendously. Thus, the question of “buzzwordiness” is itself a bit vague and leads to varying answers.

discerning of the presence of buzzwords. I did not find any significant effects for any condition (buzzword: $Coeff = 4.40, t = 1.16, p = .247$; trust: $Coeff = 4.02, t = 1.04, p = .300$; interaction: $Coeff = -5.35, t = -0.97, p = .332$). These results fit with my expectation for the buzzword condition, indicating that the perceived buzzwordiness in a high trust context may not be influenced by the presence of buzzwords. However, I did expect to find an interaction effect, and there was no evidence of one. The magnitude and direction of the nonsignificant effects on perceived buzzwordiness are illustrated in Figure 13.

Additionally, I conducted a similar exploratory test on systematic variation in perceived trustworthiness across the experimental manipulations. I looked for any main effects from the trust condition and the buzzword condition, as well as any interaction effects between trustworthiness and buzzword usage, on perceived organizational trustworthiness. Given that the independent sample t -tests indicated a significant difference between the high trust and low trust conditions, I expected to find similar results in this exploratory test, with a significant trust and interaction effect. I found significant effects for both the trust condition and the interaction (buzzword: $Coeff = -1.45, t = -0.485, p = .628$; trust: $Coeff = -22.22, t = -7.27, p < .001$; interaction: $Coeff = 10.24, t = 2.35, p = .019$). The magnitude and direction of the significant effects on perceived trustworthiness is illustrated in Figure 13.

Figure 13. Mean perceived (a) trustworthiness of organization and (b) buzzwordiness of project report, by buzzword and trust conditions



Note. Error bars ± 1 s.e.m.

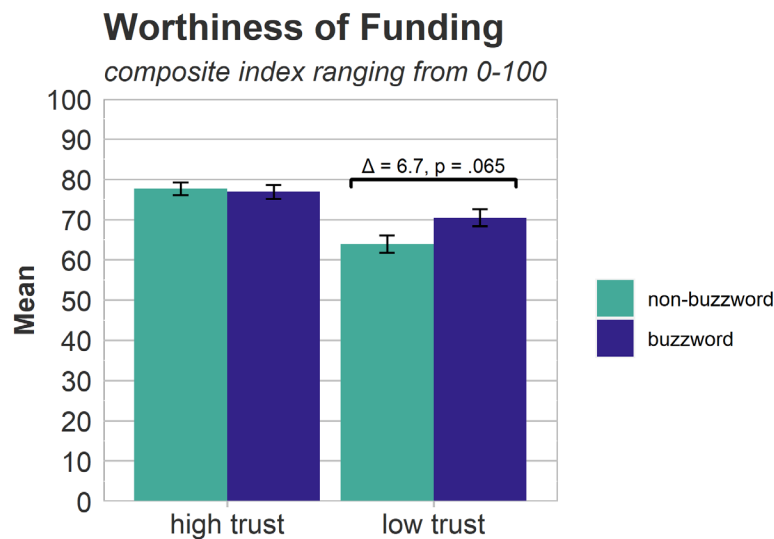
Worthiness of Funding

To explore Hypothesis 1 (H1a-c), I conducted a multiple linear regression (Model 1) to identify any main effects from the trustworthiness condition and interaction effects between trustworthiness and buzzword usage. There was a main effect of trustworthiness ($Coef = -14.88, t = 2.67, p < .001$) such that across buzzword conditions, the pitch from the high trust organization was perceived as more worthy of funding. This supports Hypothesis H1a.

Additionally, I observed a significant interaction between trustworthiness and buzzword usage ($Coef = 7.89, t = 2.08, p = .038$). Post hoc comparisons from Tukey's HSD test revealed that using buzzwords in the low trustworthiness condition marginally increased perceived worthiness of funding ($M = 70.5 (se = 2.1)$ vs. $M = 64.0 (se = 2.2)$, $p = .065$). Thus, there is weak evidence for a buffering effect produced by using buzzwords in a low trust organization (compared to low trust organizations *not* using buzzwords). In other words, some of the loss in perceived worthiness seen in an untrustworthy organization may be prevented by using buzzwords. This significant interaction supports Hypothesis H1c, but not in the direction that was expected. Figure

14 illustrates the direction and magnitude of the effects. Rather than exacerbating negative effects on worthiness of funding in the low trust condition, buzzwords provided a buffer. However, buzzwords in the high trustworthiness condition did not affect perceived worthiness of funding ($M = 77.0$ ($se = 1.7$) vs. $M = 77.7$ ($se = 1.55$), $p = .997$). Thus, there is no evidence that buzzword usage in a high trust organization produces higher perceptions of worthiness of funding, compared to high trust organizations that do not use buzzwords. This fails to find support for Hypothesis H1b.

Figure 14. Mean worthiness of funding, by buzzword and trust conditions



Note. Error bars ± 1 s.e.m.

Table 9 presents findings from the total effects model, where each of the four trust / buzzword conditions were coded as separate categories (see Model S1 in the Model Specifications section of Appendix C). These findings are similar to those of the interaction model (Model 1) but are all in reference to the high trust / non-buzzword condition. These findings further support Hypotheses 1a (negative low trust / non-buzzword effect) and 1c (negative low trust / buzzword effect). They fail to find evidence to support Hypothesis 1b (positive high trust / buzzword effect). It is worth noting that directionality of the effect (i.e., the buffering effect) found in the low trust / buzzword

condition is also unexpected. Rather, expectations would have been upheld if the study had found that the magnitude of this effect was larger than that of the low trust / non-buzzword condition (i.e., that the use of buzzwords in a low trust context would *exacerbate* or reinforce negative effects). See Results section of Appendix C for full regression results.

Table 9. Hypothesis testing for total effects of trust/buzzword conditions

H	Ind Var	Causal Path	Total Effect	SE	t	p	Result
H1a	X_T	$X_T \rightarrow -Y_F$	-14.88	2.67	-5.57	<.001***	Very Strong Evidence
H1b	X_B	$X_B \rightarrow +Y_F$	-0.55	2.60	-0.21	.832	No Evidence
H1c	X_I	$X_I \rightarrow -Y_F$	-7.53	2.65	-2.84	.005**	Strong Evidence

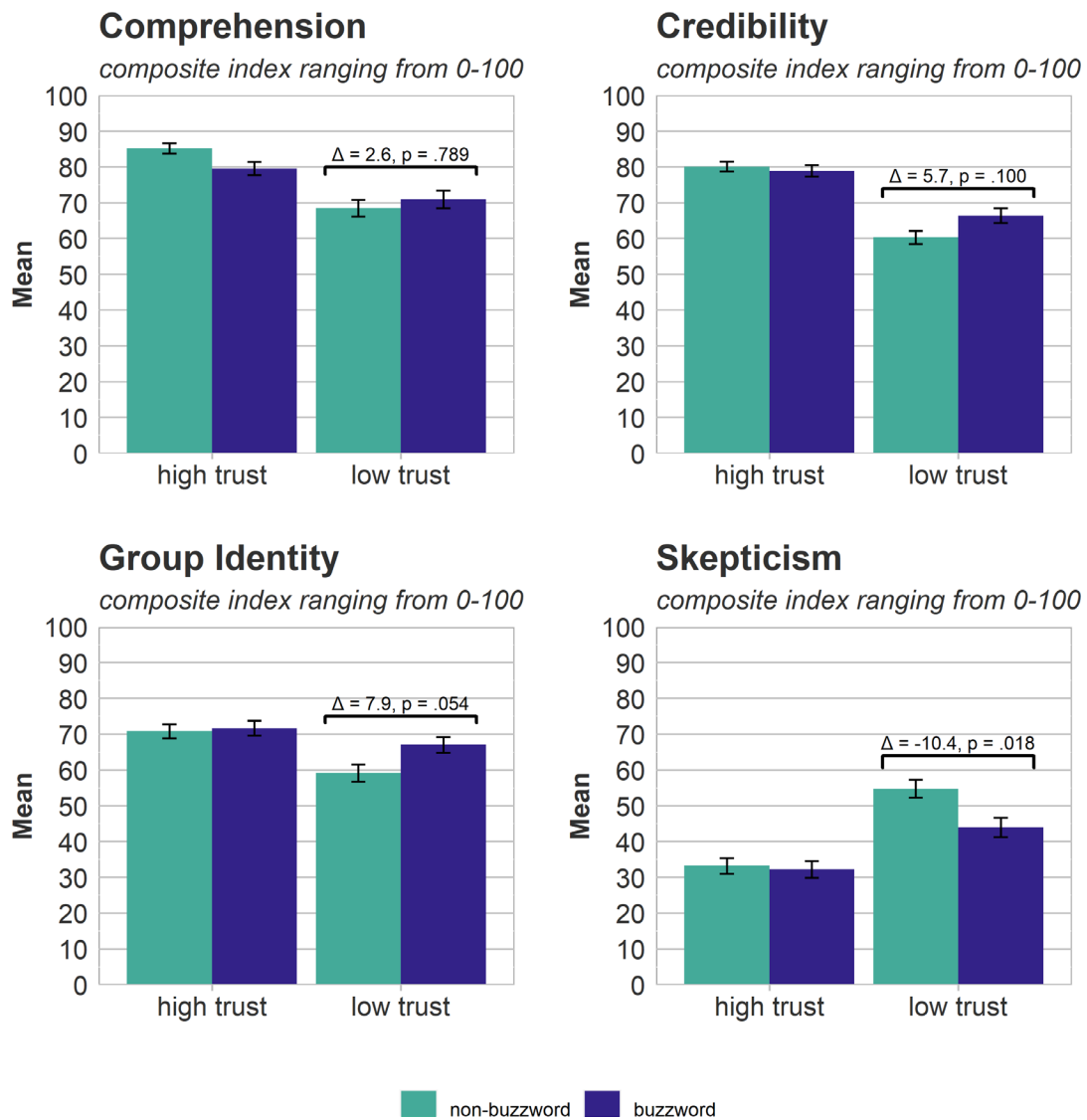
Note: reference case = high trust / non-buzzword; X_T = low trust / non-buzzword; X_B = high trust / buzzword; X_I = low trust / buzzword

Mediation Analysis

As stated in the Mediating Hypotheses, this study predicts that the level of comprehension, perceived credibility of the organization, alignment of shared group identity or values, and level of skepticism all mediate trustworthiness and/or buzzword effects on perceptions of worthiness of funding in some way. Based on the full conceptual model used for the mediation analysis (Figure L in Appendix C), these hypotheses were tested using the PROCESS model approach (Hayes, 2017) with 5,000 bootstrap resamples to develop 95th percentile confidence intervals for indirect effects. Consistent with the total effects results, Figure 15 indicates that the two low trust conditions lead to more negative values for the mediators (with the exception of skepticism, leading to higher skepticism), with the low trust / buzzword condition acting as a buffer. As with

the previous results, this buffering effect of buzzword use in low trust contexts is unexpected. A post hoc Tukey's Honest Significant Difference (HSD) test indicates that the difference between means in the two low trust conditions is significant for credibility ($p = .100$), group identity ($p = .054$), and skepticism ($p = .018$). Thus, there is weak evidence that buzzwords buffer declines in perceived credibility and group identity in low trust contexts, and there is moderate evidence that buzzwords buffer further increases in skepticism mediator produced in low trust contexts.

Figure 15. Mediator means, by buzzword and trust conditions



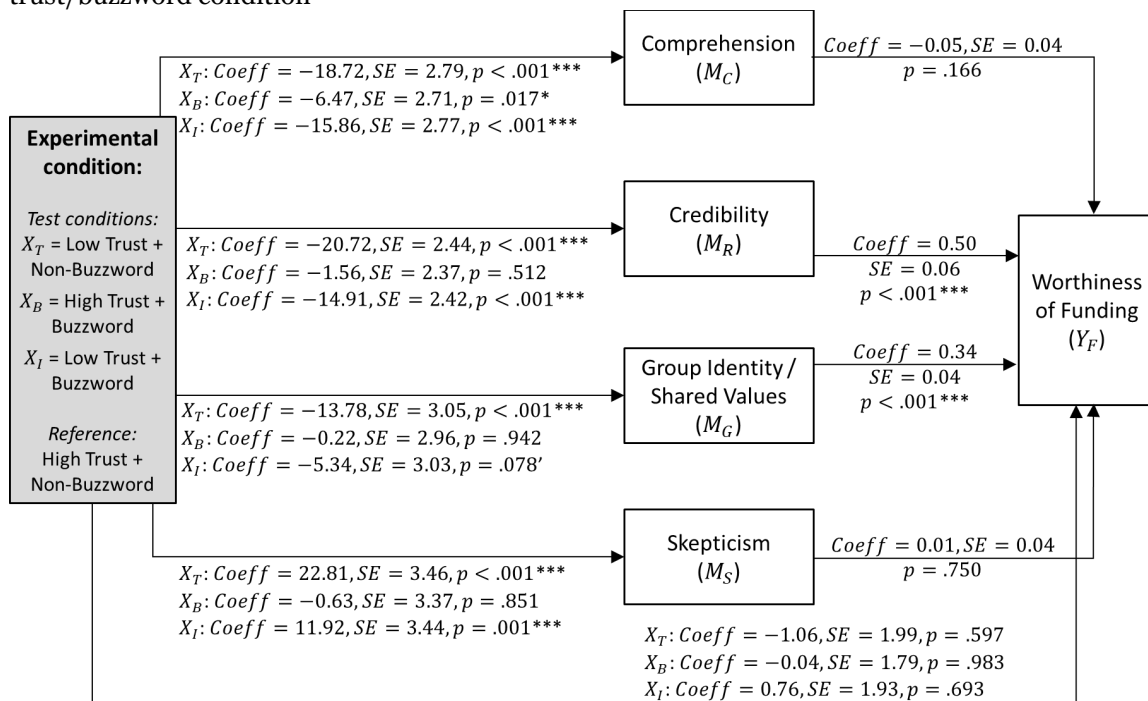
Note. Error bars ± 1 s.e.m.

Figure 16 provides the linear regression results for the four mediator models (Models S2-S5 in the Model Specifications section of Appendix C) and the dependent variable model (Model S6 in the Model Specifications section of Appendix C), illustrating the effect sizes and standard errors for paths *a*, *b*, and *c'* for each of the trust/buzzword conditions (with the high trust / non-buzzword condition as the reference). The results from the mediator models give information on path *a* of each hypothesized indirect effect (i.e., effects of trust / buzzwords on each mediator). The dependent variable model gives information on path *b* of each hypothesized indirect effect (i.e., effects of each mediator on worthiness of funding) as well as direct effects of each trust/buzzword condition (on worthiness of funding).

The results indicate that, relative to respondents in the high trust / non-buzzword condition, respondents in the low trust / non-buzzword condition reported significantly lower comprehension of the pitch, perceived less credibility of the organization, perceived less alignment of group identity with the organization, and reported greater skepticism of the organization's capabilities ($p < .001$ for each). Additionally, relative to respondents in the high trust / non-buzzword condition, respondents in the the low trust / buzzword condition reported significantly lower comprehension of the pitch ($p < .001$), perceived less credibility of the organization ($p < .001$), perceived less alignment of group identity with the organization ($p = .078$), and reported greater skepticism of the organization's capabilities ($p < .001$). Finally, relative to the high trust / non-buzzword condition, respondents in the high trust / buzzword condition only reported significantly lower comprehension ($p = .017$), with the other three mediators not significantly different. In fact, all three treatment conditions (high trust / buzzword, and both low trust conditions) saw significant declines in reported comprehension, indicating that comprehension was influenced by both trust and buzzword usage.

Increases in perceived credibility and perceived alignment of group identity were both significantly associated with increases in worthiness of funding ($p < .001$), while comprehension and skepticism did not have significant effects on worthiness of funding. Additionally, there is no evidence of direct effects for any of the trust/buzzword conditions on worthiness of funding. Thus, the total effects seen in Table 9 are entirely indirect – either through the tested mediators of credibility and group identity, or through others not included in this study. Full regression results (including covariates and model fit statistics) can be found in the Results section of Appendix C.

Figure 16. Linear regression results for mediator models and dependent variable model, by trust/buzzword condition



As Table 10 shows, the findings either fully or partially support the hypotheses associated with credibility and group identity (MedH2-MedH5). However, the tests fail to find evidence to support the hypotheses associated with comprehension (MedH1) and skepticism (MedH6). This indicates that there are significant indirect effects of trustworthiness and buzzwords on worthiness of funding, mediated through changes in

perceived credibility and alignment of group identity / shared values. This study only finds evidence of significant indirect effects for the low trust conditions (either with or without buzzwords), relative to the high trust / non-buzzword condition. Once again there appears to be a buffering effect associated with the use of buzzwords in a low trust context (i.e., leading to *less negative* effects than are seen in the low trust / non-buzzword condition). The results provide no evidence that buzzword use in high trust contexts leads to changes in worthiness of funding – mediated through magnified perceptions of credibility or alignment of group identity / shared values – as hypothesized in MedH3a and MedH5a.

Table 10. Hypothesis testing for mediation analysis

Med H	Ind Var	Causal Path	Path a	Path b	Ind. Effect	Bootstrapping			p	Result
						SE	LLCI (95%)	ULCI (95%)		
MedH1	X_I	$X_I \rightarrow -M_C \rightarrow -Y_F$	-15.86	-0.05	0.85	0.79	-0.61	2.51	.858	No Evidence
MedH2	X_T	$X_T \rightarrow -M_R \rightarrow -Y_F$	-20.72	0.50	-10.34	2.05	-14.81	-6.60	<.001***	Very Strong Evidence
MedH3										
a	X_B	$X_B \rightarrow +M_R \rightarrow +Y_F$	-1.56	0.50	-0.78	1.10	-2.99	1.31	.240	No Evidence (X_B)
b	X_I	$X_I \rightarrow -M_R \rightarrow -Y_F$	-14.91	0.50	-7.44	1.65	-10.91	-4.42	<.001***	Very Strong Evidence (X_I)
MedH4	X_T	$X_T \rightarrow -M_G \rightarrow -Y_F$	-13.78	0.34	-4.74	1.43	-7.90	-2.24	.005***	Very Strong Evidence
MedH5										
a	X_B	$X_B \rightarrow +M_G \rightarrow +Y_F$	-0.22	0.34	-0.07	0.99	-2.05	1.95	.470	No Evidence (X_B)
b	X_I	$X_I \rightarrow -M_G \rightarrow -Y_F$	-5.34	0.34	-1.84	1.10	-4.18	0.14	.048*	Moderate Evidence (X_I)
MedH6	X_I	$X_I \rightarrow +M_S \rightarrow -Y_F$	11.92	0.01	0.14	0.48	-0.76	1.20	0.612	No Evidence

Note. reference case = high trust / non-buzzword; X_T = low trust / non-buzzword; X_B = high trust / buzzword; X_I = low trust / buzzword

Discussion

This study explores if buzzwords influence the decision-making process regarding allocation of resources. It contributes to a broader body of research exploring how communication and framing shapes judgment, decision making, cooperation, and

collective action (e.g., Balliet, 2010; Fischhoff, 1983; Cookson, 2000). In this pre-registered online experiment, I tested whether buzzword usage in a hypothetical project pitch had an influence on the perceived worthiness of funding for the project, moderated by the trustworthiness of the organization. I find evidence for the predicted moderation, but in an unexpected direction. Buzzword usage did not increase perceptions of worthiness of funding in the high trust condition, but it did lessen the magnitude of decreased perceptions of worthiness of funding found in the low trust condition. Thus, this study offers evidence that there is a buffering effect of buzzwords in low trust contexts. Some (but not all) of the loss in perceived worthiness of funding seen in an untrustworthy organization may be prevented by using buzzwords.

Further, this study seeks to identify what mediating variables may be contributing to observed trust and buzzword effects. It finds that, relative to high trust organizations not using buzzwords, low trust organizations (using buzzwords or not) produce decreases in reported comprehension, perceived organizational credibility, and perceived alignment of group identity and shared values. Low trust organizations (using buzzwords or not) also produce increases in reported skepticism compared to high trust organizations not using buzzwords. However, I only find evidence that credibility and group identity lead to significant (negative) indirect effects on the resource allocation variable, worthiness of funding. Importantly, this study offers evidence that the use of buzzwords in low trust organizations buffers the negative effects on credibility and alignment of group identity that would otherwise be experienced in low trust organizations *not* using buzzwords, relative to high trust organizations not using buzzwords. Additionally, there is evidence that the use of buzzwords in low trust organizations constrains the large increase in skepticism experienced in low trust

organizations *not* using buzzwords, again relative to high trust organizations not using buzzwords.

While the buffering effect of buzzwords in low trust organizations was unexpected for this study's hypotheses, the findings are consistent with many anecdotal and common assumptions about buzzwords. They may be a mechanism to "cheaply" gain the favor of one's audience, especially if there is not a lot of prior trust (e.g., Chapter 1 of this dissertation; Loughlin, 2002; Cornwall, 2007). Thus, an untrustworthy organization may be able to use buzzwords to signal that they are still credible and share important group values, seeking to minimize the negative effects that their lack of trustworthiness has had on their reputation. In this way, this study provides evidence similar to that of the greenwashing effect, where an organization misleads consumers on their environmental practices (Delmas & Burbano, 2011). This study's findings would be most closely aligned to the so-called "sin of vagueness" (TerraChoice, 2010; Delmas & Burbano, 2011) that has been suggested as a sign of greenwashing, where imprecise or vague language is strategically employed to cheaply signal pro-environmental values. Other experimental research exploring how greenwashing can influence judgments has shown similar results, in that non-expert consumers do not necessarily become more skeptical or distrusting in the face of "executional greenwashing" through advertising (Parguel et al., 2015) – but rather may be swayed and misled by the marketing. Thus, incentives may exist for an untrustworthy organization or individual to use more imprecise, normative, and popular or trendy language to appeal to their audience and influence their perceptions.

Still, it is important to note that this study does not provide any insight into the intentionality behind using imprecise or buzzwordy language in different contexts. It does not assume deliberate misleading or dishonesty – such as with greenwashing

(Laufer, 2003) or Cohn et al.'s (2014) examination of the banking industry. Rather, incentives to use buzzwords in low trust contexts may (unconsciously) encourage actors to include them in their language and communication. Smaldino & McElreath (2016) find this phenomenon in their exploration of the selection processes underlying bad science, where certain practices persist despite being problematic. Similarly, the use of buzzwords may simply be advantageous in certain contexts, leading to their persistence (conscious or not) despite concerns that a lack of clarity or manipulation of one's audience may undermine more legitimate attempts to cooperatively achieve broader societal goals.

Finally, this study does not find evidence of effects in high trust contexts, where an organization that is highly trustworthy can use buzzwords to further build credibility or align people under a common set of values. This hypothesized effect – of which I do not find evidence – is largely captured by scholars who argue that buzzwords like *sustainability* (e.g., Ramsey, 2015) and *public engagement in science* (e.g., Bensaude Vincent, 2014) can be bridge builders and dialogue starters. However, the lack of evidence in this study does not mean buzzwords are not used (even if only in contradictory or careless ways) in those circumstances. I simply do not find evidence of a link in this specific context.

Practical Implications & Contribution

This study provides practical implications both for the sender and receiver in communication. For the sender – in this case, an organization – this study provides evidence that incentives may exist to use buzzwords to easily or cheaply appeal to one's audience if you are not well trusted. This phenomenon may help to explain the persistence of corporate messaging activities such as greenwashing. However, there is simultaneous (and much stronger) evidence that trustworthiness plays a larger role in

influencing perceptions than buzzwords. This finding aligns with and builds upon the larger bodies of evidence in collective action experiments (e.g., Ostrom, 1998) and risk communication literature (e.g., Renn & Levine, 1991) that trust is a critical component of effective communication, cooperation, and coordination. Thus, buzzwords may provide marginal benefits for an organization that knows they are not well trusted, but these will not outweigh the effects of making meaningful effort in regaining trust.

For the receiver – in this case, the reader of an organization’s communications – this study’s findings suggest that one should critically analyze the framing and source of the information they are consuming. Research has well established that the way messages are framed can influence perceptions of trust, credibility, and beliefs that motivate behavior in myriad ways (Peters et al., 1997; Cookson, 2000; Dufwenberg et al., 2011). This study offers additional support for this phenomenon, specifically within contexts where there is little prior trust. The use of buzzwords in this experiment’s untrustworthy organizational context altered individual perceptions of credibility, alignment in group identity and values, and skepticism. This study also offers a new insight: the specific type (i.e., popular, imprecise, normative) of words used in message framing may impact the receiver. Information consumers must be aware of the potential impacts of buzzwords on their perceptions if they are already lacking trust in the organization or source of information. The many calls for increased media literacy skills (e.g., Aufderheide, 2018; Potter, 2018) may be served well to include more attention to imprecise, popular, and normative terms such as buzzwords; as one’s analysis and evaluation of information can be shaped in some way by them. Just as a bias toward novelty has been shown to contribute to the faster spread of false information online (Vosoughi et al., 2018), a bias toward new, trendy, and popular buzzwords may influence

individual assessments of an otherwise untrustworthy organization or project which may warrant further scrutiny.

Limitations & Future Research Directions

This study tests a series of novel hypotheses within the context of buzzword use, but it is not without its limitations. First, it focuses solely on assessing perceptions and attitudes – particularly the perceived worthiness of funding – without measuring fully realized decisions or behaviors. While worthiness of funding does not directly translate to actual donation behavior, it does test for an effect on behavioral intentions which are known to play some role in behavioral outcomes (Ajzen, 1991). Second, while the experimental manipulation check for the buzzword condition successfully passed the pre-test, it did not hold up in the full study. Once the full survey materials were presented to respondents, perceived “buzzwordiness” no longer systematically varied between the buzzword and non-buzzword conditions. I tested to see if this lack of variation was due to an interaction effect between buzzword usage and trustworthiness on perceived buzzwordiness, but there was no evidence of one. The lack of difference in perceived buzzwordiness between the two high trust contexts (i.e., the buzzword condition) did meet my expectation that buzzwords may not be as readily discernible when used in high trust contexts – with buzzwords behaving more as shorthand for common language that can speed up the rate of communication amongst the in-group, rather than sources of skepticism or confusion. However, the wording of the manipulation check question could have also played a role. Open-ended responses to the question of why the project report seemed “buzzwordy” indicated that there were very diverse interpretations of buzzwordiness. In fact, this diverse interpretation of what constitutes a buzzword is inherent to the value of this study, since buzzwords and imprecise language may go undetected by readers or listeners even if their perceptions

are being shaped by them. Indeed, the complex nature of buzzwords makes this study's finding of a statistically significant buffering effect by buzzwords in low trust contexts even that much more remarkable. Third, introducing buzzwords into the text inherently increased the complexity and reading level of the project report, possibly contributing to variations in comprehension – and other unmeasured confounders – across the different conditions. However, despite these complexities, there was no indirect effect of buzzwords through the comprehension mediator, which alleviates some concerns about it being a potential confounder.

A final limitation to consider is the potential lack of generalizability of this study's findings to certain other contexts. Specifically, this study focused on a relatively benign issue compared to the more polarizing issues (within the U.S. context) of climate change, environmental protection, or gun policy (Pew Research Center, 2020). Additionally, the fictional organization from the experiment is a non-profit and in an industry that is perceived as seeking to benefit society. These are both factors with evidence of higher public trust compared to other types of institutions and industries (Edelman, 2023; Pirson et al., 2019). This raises questions about how the results might differ if applied to more polarizing topics, or less trusted industries or institutions. For example, previous research suggests that skepticism plays an important role in mediating perceptions of genuineness in a communicated motive, as demonstrated by de Vries et al. (2015) in the context of oil and gas companies reporting on pro-environmental strategies.

Looking ahead, future research avenues could involve exploring different dependent variables, such as resource allocation behaviors, strategic planning decisions, and consumption patterns. Other mediators or causal pathways could be introduced and explored as well. While credibility and group identity emerged as influential factors in mediating changes to perceived worthiness of funding, there may be other mechanisms

at play. Additionally, varying the types of buzzwords used – considering different contexts, content, and parts of speech – could offer valuable insights into their effects on perceptions and behaviors. Finally, there could be group-level demographic effects that were not detected in this particular study, such as differences based on education level, expertise with the subject, political affiliation, or ethnicity. For instance, prior research has shown that political affiliation can influence how pro-environmental and climate change attitudes may shift when presented with different moral frames (Wolsko et al., 2016), and message framing can produce varying health-related behaviors based on ethnicity (Schneider et al., 2001).

Conclusion

As the need for collective action increases in the face of global challenges – such as climate change, environmental degradation, and pandemics – it is imperative to better understand the myriad ways in which information is processed by different individuals that impacts their perceptions, decisions, and behaviors. This study builds on prior research in communication and decision making to examine the role of a specific type of imprecise language – buzzwords – on decision making in conservation. It finds evidence for a buffering effect through buzzword usage in low trust organizations, whereby the decreases in perceptions of credibility, declines in alignment of group identity and values, increases in skepticism, and losses in perceived worthiness of project funding that are produced by a lack of trust are partially shielded by the use of buzzwords. This phenomenon may help to explain the persistence of some corporate messaging activities such as greenwashing, yet it also provides further evidence that trust plays a large role in shaping perceptions and is a critical component of effective communication, cooperation, and coordination. Thus, buzzwords may persist due to this buffering incentive, producing marginal benefits for an organization that knows they are

not well trusted. However, these benefits will not outweigh the effects of instead making meaningful effort in regaining trust. Additionally, this study's findings suggest that a receiver of organizational communications should critically analyze the framing and source of the information they are consuming. Individuals may be well served to give further scrutiny to their assessment of communications from otherwise untrustworthy organizations or projects, in an effort to increase media literacy in an age of information overload. Future research can expand upon this study's findings by incorporating different decision-making and organizational contexts, as well as considering varying group-level and demographic effects.

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CONCLUSION

Words wield immense power. They are used to frame problems, develop narratives, and convey complex ideas. In these ways (and more), they play a critical role in world-building, sense-making, and communication (e.g., Kahneman et al., 1982; Veland et al., 2018). Imprecise language such as buzzwords has been hypothesized as potentially having outsized impacts – good and bad – on individual and collective perceptions and decisions (e.g., Cornwall, 2007; Schnable et al., 2021). This is especially the case in contexts such as conservation where there is a known tendency for the adoption of various framings, fads, and other storytelling devices in support of the mission (e.g., Redford et al., 2013; Mace, 2014). To begin answering the question of whether buzzwords help or hinder collective conservation efforts, this dissertation has focused on laying the theoretical and empirical groundwork in several ways. It employed a multi-study, mixed methods approach to describe and empirically test a set of hypotheses about buzzwords as related to conservation decision making; and it produced descriptive and causal evidence on many of the untested assumptions regarding the behavior, use, and impacts of buzzwords in this context.

Chapter-by-Chapter Summary

In Chapter 1, I presented a study which adopted a mental models approach (e.g., Morgan et al., 2002) to develop a robust and empirically informed conceptualization of buzzwords. It built upon prior research in the field by: (1) taking the broad conceptualization(s) of buzzwords identified by scholars, (2) developing a preliminary mental model of their characteristics, strategic uses, mediating effects, and impacts, and (3) testing that conceptualization through a series of interviews. I focused on interviewing experts in and tangential to the conservation sector, given their rich experiences within a particularly buzzword-prone linguistic context. The study asked:

what defines a buzzword, how are buzzwords used, and what kinds of effects and impacts do buzzwords have on individual perceptions and decision making? In the process of updating the mental model, several themes began to emerge that paint a clearer picture of buzzwords and provide valuable insights and implications for policy and practice. Ultimately, this study concluded by presenting an empirically informed conceptualization of buzzwords that includes eight defining dimensions. Buzzwords are: (1) popular / highly frequent; (2) imprecise / ambiguous; (3) normative / evoke a sense of what is morally right or desirable; (4) trendy / timely; (5) simplify complexity / condense multi-faceted ideas into a single word or phrase; (6) imply consensus on a concept in the abstract, despite disagreement of what that means in practice; (7) culturally relevant / represent a type of cultural “currency”; and (8) lose meaning / dilute in meaning over time. Buzzwords may be symbolic symbols over functional descriptors. They may be prone to differing uses and effects depending on the stage of their life cycle, level of dilution, and the broader context, prior trust, and target audience. Buzzwords exist within complex linguistic, social, political, and cultural systems that shape – and are shaped – by their use. From these findings, a series of testable hypotheses were raised on the relationship between buzzwords, trust, and perceptions – some of which were able to be explored in the subsequent studies of this dissertation.

In Chapter 2, I shared findings from a study that sought to identify and explore buzzwords in the mainstream conservation discourse, comparing their use and linkage to dominant conservation frames across institutions and through time. I conducted a large-scale computational text analysis, utilizing corpus-based linguistic approaches such as co-occurrence analysis (Gries & Durrant, 2020), parts-of-speech tagging (Chiche & Yitagesu, 2022), and semantic mapping (Carley & Kaufer, 1993). The analysis included a large series of written texts over the past five years from academia, NGOs, policy, and the

news media. I operationalized the novel, empirically informed definition of buzzwords from Chapter 1 to detect buzzwords from these written texts. This study was threefold in the types of research questions that it asked: (1) aiming to better understand the buzzword landscape more generally, (2) asking a series of validation-related questions concerning the use of this novel method to operationalize and detect buzzwords, and (3) contributing to the body of knowledge on conservation narratives, frames, and fads. I found evidence of some of the long-held conservation paradigms such as *sustainability* and *biodiversity*, identified differences in the elicitation of various conservation frames across academia, the media, and NGOs accompanied by different buzzword use, and found evidence of one of the more newly emerging conservation framings around *inclusive* conservation.

In Chapter 3, I presented the results of an experimental survey that empirically tested a series of hypotheses (largely derived from Chapter 1) about the potential impacts of buzzwords on decision making, through altering perceptions of comprehension, credibility, group identity, and skepticism. These effects were hypothesized to be moderated by prior trust. Thus, I tested whether buzzword usage in a hypothetical project pitch had an influence on the perceived worthiness of funding for the project, moderated by the trustworthiness of the organization. I found evidence for a buffering effect of buzzwords in low trust contexts. Some (but not all) of the loss in perceived worthiness of funding seen in an untrustworthy organization may be prevented by using buzzwords. Additionally, this study offered evidence that the use of buzzwords in low trust organizations buffers the negative effects on credibility and alignment of group identity – and constrains the large increases in skepticism – that would otherwise be experienced in low trust organizations *not* using buzzwords, relative to high trust organizations not using buzzwords. While the buffering effect of buzzwords in low trust

organizations was unexpected for this study's hypotheses, the findings are consistent with many anecdotal and common assumptions about buzzwords. They may be a mechanism to "cheaply" gain the favor of one's audience, especially if there is not a lot of prior trust (e.g., Chapter 1 of this dissertation; Loughlin, 2002; Cornwall, 2007). In this way, this study provides evidence similar to that of the greenwashing effect, where an organization misleads consumers on their environmental practices in an effort to gain their favor or appear to be engaged in more pro-environmental behavior than they really are (Delmas & Burbano, 2011).

Synthesizing Findings

Across three complementary studies – each using a different empirical method – this dissertation explored the spread, use, and impact of buzzwords through the lens of conservation. Its three main goals were to develop: (1) a comprehensive and empirically informed definition of buzzwords, (2) a better understanding of how buzzwords can shape mental models, and (3) a better understanding of how buzzwords influence decision making. The sections below synthesize the main findings for each of these goals.

A Comprehensive Buzzword Definition

Historically, a cohesive and consistent definition of buzzwords has been elusive both in scholarly literature and colloquial use. The ambiguity surrounding the term itself begs the question of whether *buzzword* may paradoxically be considered a buzzword. This dissertation sought to address this ambiguity by establishing a shared comprehensive understanding of buzzwords and seeking to operationalize it. Building upon the scholarly literature, and integrating findings from expert interviews, I developed a definition of buzzwords comprising eight characteristics. Not only are buzzwords popular / highly frequent, imprecise, normative, and imply some level of consensus in the abstract, but they are also characterized by their trendiness /

timeliness, cultural relevance, dilution in meaning over time, and simplification of complexity. This more comprehensive definition of buzzwords captures critical concepts that interview participants agreed make buzzwords unique. While other types of communicative symbols may exhibit some of these characteristics (e.g., metaphors may capture a lot of complexity or signal normative values (Barua, 2011)), this full suite of characteristics may be unique to buzzwords.

Having this empirically based definition provides a starting point to be able to identify and scrutinize buzzwords more systematically, even if they have gone undetected by experts or users of the language in question. I found that it was possible to operationally implement some (but not all) of the eight defining characteristics using secondary data and corpus-based text analysis tools. As a form of validation, I was able to detect many buzzwords in written conservation texts that were mentioned as examples by interview participants (e.g., *biodiversity*); but there were myriad challenges to overcome with this type of analysis as well. The buzzword detection process was noisy, time-consuming, and required many judgment calls about where to set various thresholds and parameter values. These challenges ultimately required me to do more of a qualitative assessment of the findings over purely automated / quantitative. This qualitative assessment did allow me to uncover additional nuances and linkages to broader conservation narratives and frames than I otherwise would have.

Overall, it became clear that some buzzwords may be more pronounced in certain characteristics and less so in others – largely linked to their stage within the buzzword life cycle. For instance, a buzzword that is just emerging may be especially trendy and with the times, but not yet as conducive or highly frequent as a buzzword that has been “buzzing” for several years or more. Consequently, I found that I needed to separate out buzzwords by *type* – e.g., ubiquitous (long-standing and widespread), bridging (highly

resonant and conductive), and trending (recent and rapidly growing in use) – to elevate certain characteristics over others. Through this exercise, I detected many long-held conservation paradigms and frames such as those associated with the buzzwords of *biodiversity* (Toepfer, 2019) and *sustainability* (Scoones, 2007), while also identifying more emergent trends in framings around *inclusive* conservation and a *climate crisis*. Still, buzzwords may require a lot of prior knowledge, context, and experience to be able to detect. As with many types of speech, it may be more likely that someone will “know one when they see one.”

Buzzwords Shape Mental Models

Buzzwords are symbolic signals first and foremost. They package social information in a way that will evoke a set of emotions, values, or perceptions on the part of the receiver of the communication. Depending on their stage of life cycle – i.e., how diluted, overly used, culturally relevant – buzzwords may have different effects on mental models and underlying perceptions about the sender of the communication. Buzzwords were found to causally influence perceptions of credibility, group identity, and levels of skepticism, moderated by trust. Untrustworthy senders of information received marginal benefits in perceived credibility, group identity, and skepticism when using buzzwords.

These findings can be integrated into and conveyed through Denzau & North’s (1994) shared mental models (SMM) framework and Ostrom’s individual-level view of the Institutional Analysis & Development (IAD) framework (2005). As Denzau & North (1994) illustrate, there can be a breakdown in getting an idea from the sender to the receiver for multiple reasons, both from the encoding and decoding side. The sender may use a buzzword (intentionally or not) to encode their thought process of how they have arrived at a decision, behavior, or idea about the phenomenon at hand – or to

symbolically signal their values, group identity, or social status in a broader framing of their message. The encoding process is messy, and the sender will not ever be able to perfectly encode their rich inner thoughts, decision processes, and mental models of the situation – buzzwords or not. However, the receiver also has pre-existing neural pathways, patterns, and mental models that shape their perception of the message, so the idea will never be conveyed with perfect fidelity on the decoding side of the channel either.

Buzzwords may be a way to make it *appear* as though the encoding and decoding process has some level of fidelity (because they imply consensus in the abstract; e.g., Cornwall, 2007). However, the further apart the sender and receiver are in their original mental model for the given phenomena, the less likely they are to be interpreting the same thing. Denzau & North (1994) note that “[t]o the extent that the speaker and a listener have common features in their mental models for the concepts identified in the SMM [shared mental model], they are more likely to be able to encode and decode their internal ideas into a shared language, and more likely be able to effectively communicate using single terms to stand for substantial pieces of implicit analysis embodied in the SMM” (p. 20, brackets added for clarity). Thus, as found in this dissertation, the later it is in a buzzword’s life cycle – and as more and varied groups (with different underlying mental models of the world) begin to use the word – the more diluted in meaning it may become. This may make it harder to communicate the original idea effectively. While this dissertation found that increased dilution may lead to increased cynicism, it may also be in this later phase in the buzzword’s life where it is most used as a symbolic signal of other socially and culturally important values and goals, acting as a bridge across these varied groups.

This dissertation found that buzzwords may best be characterized as packets of information that represent culturally salient ideas amongst certain groups. In this way, they become shorthand “memes” for various aspects of a culture and can create feedback loops where they help to shape cultural norms and values in myriad ways, influencing the ways that individuals process information through communication. Ostrom (2005) incorporates salience and vividness into the individual-level view of the IAD framework as two major influences on individual information processing of communication. A buzzword may influence salience by reframing information to trigger certain emotions, values, or perceptions of likeness/difference (e.g., group identity) with the person conveying the information. A buzzword may influence the vividness of the information by being “catchy”, easy to remember, or consistently used to trigger a whole suite of ideas or concepts for the receiver of the information. In an especially overcrowded information environment, consistent shorthand and trendy terms may be more successful at creating vivid representations – or an easier recall – of one’s mental model of the world for a given decision context. Given the imprecise nature of buzzwords, a potential challenge is that the representation evoked for different individuals – even if equally vivid – may vary dramatically.

Various dominant conservation frames were found to be elicited through the use of buzzwords across different institutions. Each of these frames and its associated narratives is known to shape broader perceptions about what the problem is, who was responsible for creating the problem, whose job it is to fix it, what actions should be taken, and generally what is the desired future state of the world (e.g., Veland et al., 2018; Louder & Wyborn, 2020). Narratives identify the heroes, villains, and spatial and temporal scale of the problem (Veland et al., 2018). A newer frame is emerging around *inclusive* conservation, potentially in response to recent calls for more plurality of views

and worldviews in shaping conservation research and practice (e.g., Tallis & Lubchenco, 2014; Tzec & Walker Painemilla, 2023). Embedded in this frame is the idea that there may be a “narrative gap” (Veland et al., 2018) in the collective imagination between the now and visions for the future, where meaningful deliberation and engagement across people with different worldviews and lived experiences is necessary to chart a path forward. This newest frame invites a plurality of worldviews while simultaneously (and potentially paradoxically) seeking to shape a shared future understanding that there need not be a single way to view the world or create reality. The use of buzzwords to elicit this inclusion-oriented framing – e.g., *inclusive*, *local community*, *indigenous people* – must be watched closely, to ensure that they are not leading to cynicism or “hollow” value signaling, as warned against in Chapter 1.

Buzzwords Influence Decisions

The influence that buzzwords have on shaping individual and collective mental models can spill over and affect the decisions that people make and how they behave in various contexts, as has been found in broader research on problem framing (e.g., Kahneman et al., 1982; Cookson, 2000). This dissertation found evidence that buzzwords indirectly influenced individuals’ perceptions of the worthiness of different organizational projects to be funded – an indication of individual resource allocation intentions. This effect was mediated by shifts in individual mental models regarding the perceived credibility and alignment of group identity to each organization, moderated by their trustworthiness. Additionally, this dissertation found overwhelming agreement across interview participants that buzzwords are used in various funding-related contexts, potentially shaping resource allocation decisions. Using specific buzzword-laden language to signal shared values, group identity, or relevance was characterized as “the game” that needs to be played in many funding contexts. Yet, beyond only funding

and resource allocation decisions, this dissertation found that buzzwords may shape decisions about what to work on, who to work with, and what is worthy of study and attention. Buzzwords were hypothesized as influencing strategic development and prioritization within conservation research and practice, collaboration and partnerships, consumption and purchasing decisions, and broader policy and political agendas.

Further, this study found a buffering effect of buzzwords on the negative impacts otherwise seen in untrustworthy organizations on worthiness of funding. This effect is of a quite similar nature to a greenwashing effect, which research has found to impact purchasing intentions and other types of decisions through increased skepticism, for instance (Lyon & Montgomery, 2015). More optimistically, this dissertation also found that buzzwords may lead to explicit decisions to share knowledge, develop common understandings, and open the door to more ways of knowing. Specifically *because* of their imprecision and ability to lead to confusion, buzzwords can open the door for a collective pause and reassessment of definitions, priorities, and values. The rise of a newer frame for conservation (i.e., *inclusive* conservation) – and the “buzzy” way in which the frame is being elicited – creates an opportunity for collective sense-making before cynicism or overuse sets in on the current discourse. This emerging framing – paired with *indigenous people* and *local communities* – is in need of this intentional conversation across the full sector.

Future Research Directions

The empirical findings from this dissertation research present many opportunities for exciting future research in the field. Considering the novel comprehensive definition and operationalization of buzzwords, future research could further develop tools to aid individuals in detecting buzzwords (and interpreting the findings). Extra effort could be given to incorporating the rest of the eight defining

characteristics into the tool(s), such as finding a practical way to detect dilution in meaning. Given that context matters so much in the detection and hypothesized effects of buzzwords, researchers could systematically investigate the effects of prior knowledge on buzzword detection. Subject matter experts or certain groups (i.e., of different political affiliation, demographic characteristics, profession, etc.) may identify different buzzwords that serve different purposes or cause distinct sub-group impacts. Additionally, it may be worth further exploration to systematically investigate whether buzzwords impact the salience and vividness of information in the development of mental models. If buzzwords quickly evoke vivid representations of the world, these representations may vary dramatically based on the level of dilution in meaning in the buzzword. Finally, future research may seek to replicate this dissertation's experimental findings and/or explore additional decision contexts where buzzwords were hypothesized to have an influence – e.g., strategic development and prioritization, collaboration and partnerships, consumption and purchasing decisions, and broader policy and political agendas. The outsized impact of buzzwords on decision making may be bigger than we yet know – or buzzwords may simply influence our perceptions without meaningfully altering our intentions, behaviors, and actions. While this dissertation contributed many theoretical and methodological findings, there is still much to explore!

Final Conclusions

Building upon a rich scholarly literature on the role of communication in collective action situations (e.g., Ostrom, 2005; Cookson, 2000; Louder & Wyborn, 2020; Veland et al., 2018), this dissertation looked specifically at imprecise and normative language use in these contexts. In the face of many current global challenges requiring cooperation and collective action – such as climate change and environmental

degradation – it is imperative to better understand the ways in which all types of communication and framing influence decision making. I used a theoretical and empirical lens to investigate and uncover the many ways in which perceptions and decisions can be influenced by buzzword use, identifying implications for how this type of communicative symbol may shape individual representations of the world. Understanding the nuances of buzzword usage allows organizations and individuals to navigate the fine line between trust building and alienation, and between group identity signaling and cynicism. Incentives may exist to use buzzwords to easily or cheaply appeal to one’s audience if you are not well trusted. Further, buzzwords may be used to elicit broader frames and narratives about a particular problem or issue, such as is the case in environmental conservation. Language is symbolic (e.g., Bourdieu, 1991), relaying far more information than a simple functional account of a specific event or phenomenon. It is socially embedded and deeply tied to underlying mental representations of the world, shaping both the sender and receiver of communication.

A better scientific understanding of the usage and impacts of buzzwords may be a useful entry point for people to navigate how they may influence their own judgments and decisions. As information consumers, it is important for people to understand the potential impacts of buzzwords on perceptions, especially if they are already lacking trust in the organization or source of information. Just as a bias toward novelty has been shown to contribute to the faster spread of false information online (Vosoughi et al., 2018), a bias toward new, trendy, and popular buzzwords may influence individual assessments of an individual, organization, or situation which may warrant further scrutiny. Practicing awareness and ways to spot and interrogate buzzwords can help to prompt individuals to consider the context, history, incentives, and group membership of the user(s) of the language and how they may be influencing their judgments and

decision making – even if it is ultimately infeasible to reduce that bias altogether.

Buzzwords are a communicative tool and a symbolic signal. Understanding their spread, use, and impacts helps us to better understand how we may be influenced by them; but also practically speaking, a better understanding of buzzwords in conservation may help us to understand where trends are going in the field, whose voices and values are being heard and recognized, and what concepts and worldviews are likely to be misunderstood or lead to misalignment of resources.

Returning to the fundamental question of whether buzzwords help or hinder collective conservation efforts, the findings from this dissertation do not provide a definitive answer in either direction. Rather, this research suggests that buzzwords are not inherently “good” or “bad” as much as they are tools that can be used for various purposes. They can produce different effects in different contexts, and they dynamically shift attention and resources through their colorful elicitation of various frames, realities, and ways of engaging in the world. This dissertation research has contributed to advancing scientific understanding of buzzwords both theoretically and methodologically, within the context of environmental conservation, and with a focus on informing policy and practice.

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APPENDIX A

CHAPTER 1 SUPPLEMENTAL MATERIALS

Interview Protocol

Interview Script

Figure A. Interview script – introduction, informed consent, and participant introduction

(1) Introduction

Hello! Thank you for joining me today! I am Kelly Claborn, and I'm a PhD candidate in the School of Human Evolution and Social Change at Arizona State University. As mentioned in our email exchange, I am leading a study on the role of language and communication in decision making, looking specifically within the environmental conservation sector. Before we get started today, I'd like to give just a *brief* bit of background about myself, to provide some context.

Prior to beginning my PhD research, I worked for the World Wildlife Fund on the Global Science team. There, I was involved in multiple projects concerned with evidence in conservation – helping to build the evidence base using impact evaluations, engaging in discussions about what should or should not count as evidence in the first place, compiling evidence for an internal decision support tool, and exploring how to use evidence to develop goals and targets at the global level. These experiences – and the conversations they sparked – prompted me to pause and reflect on how language and communication can impact decision-making at many levels across the sector.

(2) Study Introduction & Informed Consent Process

For today's discussion, the questions that I ask will be used to get a better understanding of how *you* conceptualize different types of language. I want to emphasize that there are no right or wrong answers, and I'm not trying to steer you in any specific direction!

I ask that you answer these questions as an individual – based on your own understandings and mental model of the world – and not as a representative of your organization. I do encourage you to draw upon your own personal and professional experiences in your responses, but please know that all organizational and personal names will be removed from any interview transcripts.

Your participation in all parts of this interview is voluntary, and you can feel free to skip any questions that you do not wish to answer. Please make sure that you are in a location that you feel comfortable for the next 60-90 minutes and is adequately private for anything you'd like to share. I do hope that it will be a fun conversation for both of us! Do you have any questions about the study or the interview today?

Before we get started, I shared a link to a digital consent form in the calendar invitation that I hope you were able to read through. I'll share the link here in the Zoom chat as well.

Could you please read and fill out this digital consent form before we begin?

Now I will start the recording. Are you ready?

(3) Participant Introduction

To get started, I'd like to ask you to briefly introduce yourself and your experience within the conservation sector. Specifically:

- How long have you worked in conservation?
- What is your role where you work?
- What is your educational background?

Figure B. Interview script – open-ended questions

(4) Broad Mental Models Prompt

Thank you so much for your introduction! It's great to get a better sense of your background and experiences! Now, I'd like to start off by asking some more open-ended questions before moving into specifics. Let's start by talking about one type of language today – that being: buzzwords.

- First and foremost, how would you define a buzzword? What is the first thing that comes to mind when you hear the term “buzzword?” *[Characteristics]*
 - *[If needing an example]* I can give you an example of a buzzword that many scholars have identified within conservation: sustainability. What is it about the word sustainability that might lead to it being defined as a buzzword?

- Can you give an example of a time that you noticed a person or organization using a buzzword – either in a conversation or while reading something? *[Use]*
 - What made you think that it was a buzzword? *[Characteristics]*
 - What was the context in which the buzzword was used? *[Use]*

- How did this experience of spotting this buzzword affect your perception of the person or organization who used the buzzword? *[Functions]*
 - *[If having trouble coming up with response]* For instance, some scholars suggest that buzzword use could impact levels of trust, collaboration, or perceived credibility. Did your level of trust in the person – or your perception of their credibility – increase or decrease?

- Thinking about the experience(s) you've just shared, did the use of buzzwords in that context influence any decisions that you made? *[Impacts]*
 - *[If having trouble coming up with response]* For instance, did you decide to use (or stop using) the paper or report you were reading in your own work? Or did you ask the person who used the buzzword for any clarification?

- Thinking at the organizational level, what kinds of decisions might be influenced by the prevalence of buzzwords? For instance, within the literature, scholars sometimes suggest that funding decisions could be influenced by them – what other types of decisions might also be influenced by buzzword use?

Figure C. Interview script – questions for specific probing of preliminary mental model (part 1)

(5) Specific Probing/Follow-up Questions for Mental Model

Thank you for sharing some of your experiences with buzzwords! Now I'd like to move into some more specific dimensions of buzzwords, some of which we may have already discussed. I want to make sure that we touch on all of the dimensions that I have identified from a literature review, so please bear with me if some of this is a bit repetitive! I'm also eager for you to share any new ideas that may not be covered in the following questions.

Let's start with the characteristics of buzzwords.

- From the literature, buzzwords are characterized in various ways by different scholars (some even suggest that "buzzword" is a buzzword itself!). Overall, there seems to be agreement that buzzwords are: (1) popular, (2) imprecise and ambiguous, (3) implying consensus on a topic – meaning, they are generally agreed upon in the abstract despite disagreement on what the word means in practice, and (4) normative – meaning, evoking a sense of what is right or wrong, or what is important or urgent. (I'll share my screen with the list of these characteristics so that you do not need to commit them to memory.)
 - Do each of these characteristics line up with your experiences and understanding of buzzwords? Why or why not?
 - Are there other characteristics that are missing that help to define buzzwords?

Great! Next, let's think about the users and use of buzzwords.

- To start, I'd like to ask: who uses buzzwords, and under what circumstances? I'll ask for you to consider the following dimensions of users and share your thoughts. *[click to next slide]*
- Are buzzwords more commonly used:
 - In or across certain types of organizations? (non-exhaustive list below)
 - NGO
 - University
 - Government
 - News media
 - Business
 - Other
 - In specific contexts? (non-exhaustive list below)
 - When seeking funding or resources
 - In negotiations (e.g., target setting)
 - Marketing or branding
- Next, let's think more about the potential strategic uses of buzzwords, which may vary by context. Some scholars suggest that buzzwords may be used strategically *to [click to next slide]*: (1) escape accountability, (2) reframe old ideas in new ways to gain new attention, (3) water down political or conceptual debates into a thin consensus around ambiguous or "hurrah" words, and (4) develop a shared identity or set of values.
 - Drawing on your knowledge and experience, do you agree with these suggestions? Why or why not?
 - Are there other potential strategic uses of buzzwords that are missing?

Figure D. Interview script – questions for specific probing of preliminary mental model (part 2)

Finally, let's explore the effects and impacts of buzzwords.

- For each item in the following list, please draw on your knowledge and experience to assess whether you agree or disagree, and why or why not. If you feel something is missing from this list, please share! *[click to next slide]*
 - Potential mediating effects of buzzwords:
 - Increased confusion
 - Decreased perceptions of credibility
 - Problems with measurability and shared definitions
 - Shared sense of purpose or values
 - Increased trust / legitimacy
 - Increased participation or collaboration across different groups of people (who may have competing interests)
 - Potential impacts of buzzwords:
 - Influence on funding decisions
 - Lack of achievement of desired goals or outcomes (likely due to some of the mediating effects)

Model Probing Slides

Figure E. Model probing slides

<h3>Characteristics</h3> <hr/> <ul style="list-style-type: none">• Popular• Imprecise and ambiguous• Imply consensus (generally agreed upon in the abstract, despite lack of agreement in practice)• Normative (what is right or wrong; what is important or urgent)	<h3>Are Buzzwords More Commonly Used...</h3> <hr/> <p>In or across certain types of organizations? (non-exhaustive list)</p> <ul style="list-style-type: none">• NGO• University• Government• News media• Business• Other <p>In specific contexts? (non-exhaustive list)</p> <ul style="list-style-type: none">• When seeking funding or resources• In negotiations (e.g., target setting)• Marketing or branding <p>3</p>
<h3>Strategic Uses</h3> <hr/> <ul style="list-style-type: none">• Escape accountability• Reframe old ideas in new ways to gain new attention• Water-down political or conceptual debates• Develop shared identity or set of values <p>4</p>	<h3>Mediating Effects</h3> <hr/> <ul style="list-style-type: none">• Increased confusion• Decreased perceptions of credibility• Problems of measurability and shared definitions• Shared sense of purpose• Increase in trust / legitimacy• Increase in participation across different groups of people <p>5</p>
<h3>Impacts</h3> <hr/> <ul style="list-style-type: none">• Funding / allocation of resources• Lack of achievement of desired goals or outcomes <p>6</p>	

Results

Table A presents the full coding results indicating any nuance in participant response when asked whether they agreed or disagreed with each component of the preliminary mental model (i.e., in the second part of the interview with directed and specific model probing).

Table A. Full coding results of mental model probing, indicating agreement/disagreement

	When prompted...				
	Fully agree	Somewhat agree	Agree with hesitation	Disagree	No response
Characteristics					
Popular / high frequency of use	15 (88.2%)	2 (11.8%)			
Imprecise, ambiguous	15 (88.2%)		1 (5.9%)		1 (5.9%)
Normative	11 (64.7%)	1 (5.9%)	3 (17.6%)		2 (11.8%)
Imply consensus	12 (70.6%)	2 (11.8%)	2 (11.8%)		1 (5.9%)
Uses					
Develop shared values	16 (94.1%)			1 (5.9%)	
Water down political or conceptual debates	14 (82.3%)	1 (5.9%)	1 (5.9%)	1 (5.9%)	
Reframe / repackage old ideas in new ways	14 (82.3%)	2 (11.8%)	1 (5.9%)		
Escape accountability~	16 (94.1%)	1 (5.9%)			
Mediating Effects					
Problems with measurability	17 (100%) [†]				
Increase participation across diverse groups	15 (88.2%) [†]		2 (11.8%)		
Increase confusion	17 (100%) [†]				
Increase trust / legitimacy	15 (88.2%) [†]	1 (5.9%)	1 (5.9%)		
Decrease credibility	16 (94.1%) [†]			1 (5.9%)	
Develop shared sense of purpose	17 (100%) [†]				
Decisions					
Funding / allocation of resources	14 (82.3%)		1 (5.9%)		2 (11.8%)
Lack of achievement of goals	14 (82.3%)	1 (5.9%)	1 (5.9%)		1 (5.9%)
[†] Some indicated either bi-directionality or context dependence when agreeing to these mediating effects. 4 (23.5%) for confusion; 8 (47%) for credibility; 2 (11.8%) for measurability; 8 (47%) for trust/legitimacy; 3 (17.6%) for shared purpose; 6 (35.3%) for participation ~ 2 (11.8%) suggested that they could also be used to <i>build</i> accountability					

APPENDIX B

CHAPTER 2 SUPPLEMENTAL MATERIALS

Methods

Corpus Development

A brief overview of the four corpora is provided in Table B, detailing the document type, example sources, and years included. A full listing of documents included in each corpus is provided in Table C. Specific inclusion criteria for each corpus (i.e., institution) and data collection procedures can be found in subsections below and in the Study Design documents on this study's [Open Science Framework repository](#).

Table B. Document type, example sources, and years included per corpus

Corpus	Document Type	Example Sources	Years
Academic	Journal abstracts	<i>Conservation Biology,</i> <i>Global Environmental Change</i>	2017 - 2021
NGO	Annual reports	Conservation International, IUCN	2017 - 2021
Media	News articles	<i>New York Times</i>	2017 - 2021
Policy	Reports	UN Convention on Biological Diversity Kunming-Montreal Global Biodiversity Framework	2019, 2022

Table C. Full list of sources included for each institution's corpus

Corpus	Organization / Journal	Years	Frequency
Academic	<i>Biological Conservation</i>	2017-2021	Monthly
	<i>Conservation Biology</i>	2017-2021	Bi-monthly
	<i>Conservation Letters</i>	2017-2021	Bi-monthly
	<i>Ecosystem Services</i>	2017-2021	Bi-monthly; quarterly prior to 2015
	<i>Global Change Biology</i>	2017-2021	Monthly; bi-weekly in 2021
	<i>Global Environmental Change</i>	2017-2021	Bi-monthly; quarterly prior to 2013
	<i>Journal of the Association of Environmental and Resource Economists</i>	2017-2021	Bi-monthly; quarterly prior to 2015
	<i>Landscape and Urban Planning</i>	2017-2021	Monthly; bi-weekly prior to 2013
	<i>Nature Sustainability</i>	2018-2021	Monthly
	<i>Sustainability Science</i>	2017-2021	Bi-monthly; quarterly between 2013-2015; semi-annually prior to 2013
	<i>WIREs Climate Change</i>	2017-2021	Bi-monthly
Non-governmental organization (NGO)	BirdLife International	2017, 2019-2021	Annually
	Center for Large Landscape Conservation	2019-2021	Annually
	Conservation International	2017-2021	Annually
	David Shepherd Wildlife Foundation	2017-2019, 2021	Annually
	EcoHealth Alliance	2017, 2018, 2020	Annually
	International Institute for Environment and Development (IIED)	2017-2019, 2021	Annually
	IUCN	2017-2019, 2021	Annually
	RARE	2018-2021	Annually
	The Nature Conservancy	2017-2021	Annually
	Wetlands International	2017-2021	Annually
	Wildlife Conservation Society	2017, 2019-2021	Annually
	World Wildlife Fund	2017-2021	Annually
Media	<i>New York Times</i>	2017-2021	Sporadic, whenever there is a news story (as frequently as daily)

Policy	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment - Summary for Policymakers	2019	Once
	United Nations Convention on Biological Diversity (UN CBD) Kunming-Montreal Global Biodiversity Framework	2022	Once

Academic

To identify academic journals for inclusion into the corpus, I created lists of top-ranking journals using the Scopus CiteScore, Scientific Journal Rankings (SJR), and Source-normalized Impact per Paper (SNIP)⁷. For each of these measures, I pulled the top 20 journals for the tag “nature and landscape conservation,” and I pulled the top twenty journals for the tag “nature and landscape conservation AND global and planetary change.” This created six lists of twenty journals each, with the first three lists more focused on only nature and landscape conservation and the second three lists also including broader climate and planetary change dimensions.

Journals included in the corpus were those that met at least one of the following three criteria:

1. Appeared on all six lists
2. Appeared in the top ten of the three lists with the tags "nature and landscape conservation AND global and planetary change"
3. Appeared on five of the six lists AND explicitly mentions some social dimension in the aims and scope of the journal

⁷ Some of the methodologies use a rolling time window (e.g., 2018-2021) to identify the most citations or highest impact. These lists were compiled in February of 2022. See [here](#) for more information on these metrics.

The final list of journals that met at least one of the above criteria is provided in Table C. Note that one journal (*Nature Sustainability*) was not in existence for the entirety of the sample period from 2017-2021. This discrepancy in years of available data across academic journals is acceptable, as it represents the changing nature of the conservation field within the academic literature over this period. All article abstracts for the selected academic journals between 01/01/2017 and 12/31/2021 were retrieved from [Scopus](#). Specific article types were removed from the analysis, such as retracted articles, articles without an abstract available, etc.

NGO

To compile a potential list of conservation NGOs to include in the corpus, I decided to first look at NGOs that contributed to the UN Convention on Biological Diversity's (UN CBD) open call for inputs to a post-2020 framework. This inclusion criteria helped to ensure that I would acquire a list of conservation organizations that are involved in, representative of, and have a stake in international conservation goal setting and coordination, given that the UN CBD is a large guiding force in the sector. Additionally, since the UN CBD is one of the included international conventions in the policy corpus, this inclusion criteria provides some security that this study is capturing actors who may interact and engage with the same sorts of challenges. I compiled a list of all non-Party observer submissions to the UN CBD's post-2020 framework for notifications [2019-008](#) and [2019-075](#). These notifications were focused more on big picture vision, structure, and framework before digging into implementation mechanisms, regional concerns and workshops, and other logistics. From the list of observer submissions, I excluded any group or organization that did not meet all three of the following criteria:

1. Must be a non-governmental organization

- a. Not a coalition of organizations, not an intergovernmental organization, etc.
2. Topic area must be conservation or research related to conservation
 - a. Some organizations may focus on conservation in one domain, such as wetlands; others may extend a bit beyond only environmental conservation to also include health, etc.
3. Must have an international focus
 - a. Spanning beyond only one country or geographic region

These inclusion criteria left me with a list of 14 NGOs, 12 of which had viable annual reports for download (list provided in Table C). I acknowledge that this list is not exhaustive. It is merely meant to be a representative sample from the sector. I acquired annual reports or similar types of organization communication materials (e.g., “impact reports”) from each NGO dating back to 2017. This involved contacting many of the NGOs for historical archives of their reports. Annual reports are a high-level description of an organization’s work, strategy, and accomplishments from a given year, typically aimed at reaching their donors and peers in the field. Thus, this high-level communication should be a good document type to capture mainstream terminology and language being used by conservation practitioners and organizations.

Media

News sources were selected to capture a wide readership in the English language, while also being pragmatic about what sources would be available for download from a subscription-based news aggregator database such as NexisUni or ProQuest. The *New York Times* is an ideal candidate from this perspective. To capture international (i.e., non-US-based) news more fully, it would be preferable to also include BBC News, given its high readership and headquarters in Britain. However, no news aggregator database

provides BBC News articles, and the archives website for BBC News does not appear to be comprehensive or readily searchable using common queries. *Associated Press* could also be pursued as a more international and unbiased news source. However, there are some logistical challenges with downloading the quantity of *Associated Press* articles that meet the relevant search criteria; as ProQuest does not contain *Associated Press* articles and NexisUni requires downloads of 100 articles at a time. There are well over 60,000 *Associated Press* articles that meet the search criteria between the years of 2000-2021, and thus likely well over 10,000 from 2017-2021. This was deemed too time intensive of an exercise for this dissertation.

Thus, for this analysis, only *New York Times* was included. I queried ProQuest on a consistent series of subjects used in their categorization scheme. In addition, I filtered results to only include “News,” “Feature”, or “Article.” This removed other types of articles such as book reviews, editorials, or opinion pieces. The specific search query for *New York Times* is provided in Table D below.

Table D. ProQuest query for media articles

News Source	Query
<i>New York Times</i>	pub.Exact("New York Times") AND su.Exact("Conservation biology" OR "Wildlife conservation" OR "Climate change" OR "Sustainability" OR "Environmental protection" OR "Global warming" OR "Endangered & extinct species" OR "Natural resources" OR "Conservation") AND at.Exact("News" OR "Feature" OR "Article") AND pd(20170101-20211231)

Policy

The policy documents that were originally included in the sampling design were a series of formal Decisions and Resolutions from the Conference of Parties (CoP) a variety of international environmental conventions, including the UN Convention on Biological Diversity and the Ramsar Convention (among others). However, these documents did not accurately represent the types of communication that the study originally intended –

instead, the language of the formal CoP Decisions and Resolutions was very rigid, prescribed, and repetitive. Many of the Decisions also concerned matters that were outside of the scope of conservation per se and instead more focused on meeting logistics, budgetary considerations, or editorial updates of previous Decisions. Alternatively, many of the other Decisions were entirely too granular and specific to accurately represent the broader policy conversations in the sector (e.g., decisions on whether to add a specific species to a protected list).

Thus, to adjust course, this study instead chose to analyze “snapshots” of two highly influential policy documents rather than full temporal trends of CoP Decisions. The policy corpus is now comprised of only two documents – though, both are quite lengthy and highly influential in the field. One is the IPBES Global Assessment that was published in 2019, and the second is the finalized CBD Kunming-Montreal Global Biodiversity Framework that was signed into agreement in December of 2022. These two documents were analyzed in the same way.

Corpus Preprocessing

Raw Document Organization

Raw NGO annual reports, policy reports, and media articles all required specific preprocessing steps before they were ready to be tokenized. In general, they all needed to be put into a data table format, with each row associated with a single “document” or set of text and the associated metadata (e.g., institution, year). The additional preprocessing steps for these three document types are detailed below.

NGO & Policy Reports. NGO annual reports and policy reports were too long to be included as standalone documents that would be comparable in length to academic article abstracts and media stories. Additionally, a single report typically contained many different types of content – from an introduction from a CEO to a spotlight story of a conservation success to a series of upcoming activities. Thus, each section (or subsection, if the section was longer than 4 pages) of an NGO annual report and the two policy reports were split apart into single “documents” from the same organization and year. Sections and subsections were determined by the presence of separate headers – and there was some expert judgment employed to determine if the type of content across the subsections was varied enough to constitute separation. This created a series of “documents” as the units of analysis all derived from a single report. For the NGO annual reports in particular, there were several additional decision rules to make about what would be included. Each report was in PDF format, with many infographics, lists, maps, and visually appealing layouts. Additionally, information on financials, budgets, partners, and other types of sponsors or supporters was typically included in the back matter of the report. Consequently, a manual copy/paste procedure was implemented to

get the text into a machine-readable format.⁸ Under the general principle of trying to retain as much of the original text as possible, certain contents were systematically *not* included in the copy/paste procedure: (1) financial statements, (2) listings of partners / member organizations / organizational charts, (3) listings of publications, and (4) images or figure captions. As an exception to (4), if there were full sentences or significant amounts of text within an infographic, that text would be pasted into its own section / “document.” Section titles and all text from “call-out boxes” would be included in the appropriate section of the report for which they were associated. Additional characters such as line breaks and bullet points were scrubbed during the tokenization process. A standard delimiter was included between the separated sections / “documents” during the manual copy/paste process, to ensure easier manipulation of the text documents into standalone rows of tabular data upon being read into R.

Media Duplicates. One additional preprocessing step involved in collecting news media articles was in identifying duplicates. Many news aggregator websites retain both the pre-print and final editions of articles, which contain typically 95%+ of the same text, with only minor editorial adjustments (typically in the article title). Thus, to identify duplicates, I ran a Levenshtein distance algorithm on the full text of every article against every article from the same news source. I retained final editions from duplicate pairs of articles and discarded pre-prints. Sometimes, the same article will be re-run years apart; and I retained both articles in these cases, as they may represent continuity in the broader conversation about the environment and conservation. This is a very computationally heavy process, requiring special computing power if it is to be completed in a timely manner. I implemented the duplicate finding algorithm using

⁸ I experimented with implementing Optical Character Recognition (OCR) algorithms – such as Google’s Tesseract-OCR Engine – in Python to semi-automate this process, but the degree of visual design and infographics included in each annual report rendered this method unreliable.

Python (code in the [study's GitHub repository](#)) and Arizona State University's supercomputing environment. Once duplicates were removed, the rest of the media articles (in text document format) were able to be imported into R and transformed into a tabular data format.

Tokenization & Normalization

Custom Stopwords List. For the stopwords list, I start with the SMART (System for the Mechanical Analysis and Retrieval of Text) Information Retrieval System stopwords list from the *stopwords* R package (Benoit et al., 2021) and add on to it with a custom list.

I find that some word types add a lot of noise to the analysis without providing additional clarity about concepts and their underlying meanings and associations. Thus, I use parts-of-speech tagging to certain word types onto the stopwords list for removal from analysis. The general principle applied to this analysis is to remove verbs, adverbs, and cardinal numbers from the corpora. The semantic networks should be mostly nouns / concepts, with the potential addition of some adjectives / descriptors. Verbs, adverbs, and numerals add a lot of noise but not a lot of information to the co-occurrence networks, given that our research focuses on the linkages between concepts and the definitions of terms. The specifics for the parts-of-speech tagging procedure are detailed below:

- I use the “english-ewt” model to tag parts of speech, which has been trained on the [English Web Treebank](#).
- I do not filter out conjunctions, prepositions, pronouns, or (pre)determiners, because these categories are included in the standard stopwords lists (and thus are already going to be removed from the final analysis). They introduce

opportunities for misclassifications from the tagging procedure. Thus, I focus exclusively on filtering out all types of verbs, adverbs, and numerals.

- A random sample of 200 documents from the academic corpus and a random sample of 200 documents from the media corpus were tagged, to establish a robust list of verbs, adverbs, and cardinal numbers to add to the stopwords list.
 - These two corpora are the most “well-behaved” regarding sentence structure, and should generally capture the range of vocabulary that will span the documents. The NGO annual reports and policy documents have more challenging structures, with more list items (rather than full sentences), among other structural challenges that would confuse the tagging model.
- Some words still get tagged incorrectly, or sometimes are used as a verb when typically considered a noun (e.g., “aims”). To remedy this as much as possible, I look at all the tags a single word received; and *if at least one tag was a noun or adjective, I do not add it to the stopwords list.*

Custom Lemma List. For the lemma list, I start with the list provided by the *lexicon* R package (Rinker, 2018), which is based on Mechura’s (2016) English lemmatization list. I add the plural or conjugated forms of unique sector-specific terms that appear in the texts as well as words that have multiple types of spellings (e.g., changing British English into American English).

Semantic Network Development

The full process of co-occurrence analysis and semantic network development – with associated parameters, equations, and algorithm – is outlined in the “Semantic Network Development” PDF in this study’s [Open Science Framework repository](#).

Summary statistics of each semantic network are detailed in Table E below.

Table E. Semantic network summary statistics, per institution per year

Institution / Corpus	Year	# Docs	SD Threshold*	Words / Doc avg (sd)	Nodes non-edge (all)*	Links	Clustering Coefficient
Academic	2017	1735	3	41 (9.7)	170 (380)	1979	0.399
	2018	1855	3	42 (10.0)	171 (381)	1915	0.407
	2019	1625	3	42 (10.1)	196 (421)	2196	0.396
	2020	1762	3	42 (9.8)	172 (386)	2012	0.421
	2021	1887	3	43 (10.0)	184 (407)	2085	0.394
NGO	2017	160	3	110 (88.8)	392 (1526)	11220	0.363
	2018	161	3	96 (80.1)	338 (1407)	9314	0.288
	2019	189	3	107 (80.2)	309 (1106)	6494	0.391
	2020	114	3	110 (90.9)	533 (1807)	25248	0.263
	2021	153	3	113 (84.8)	339 (1368)	9799	0.328
Media	2017	614	4	178 (81.5)	810 (2350)	37085	0.525
	2018	537	4	200 (78.2)	913 (2947)	45691	0.512
	2019	734	4	205 (69.5)	657 (1753)	34548	0.557
	2020	668	4	224 (86.7)	797 (2443)	48484	0.545
	2021	1093	4	213 (80.5)	487 (1328)	37381	0.592
Policy (IPBES)	2019	77	3	66 (26.4)	275 (1155)	7040	0.179
Policy (UNCBD)	2022	67	3	24 (17.6)	141 (397)	3788	0.583

Note.

* SD Threshold refers to the number of standard deviations above the mean DICE coefficient for the focal term “conservation” when determining if the co-occurrence meets the significance threshold.

* Non-edge nodes are listed first (i.e., nodes that had all significant co-occurrences identified for them, and thus are included in the word classification), and all nodes in the network listed in parentheses (i.e., inclusive of words that were identified as a significant co-occurrence to some focal node, but did not then have all associated co-occurrences identified for them)

Network Analysis & Classification

As defined by Carley & Kaufer (1993), the classification scheme detailed in Table F is used to classify words based on whether they receive a “high” or “low” value across the three primary criteria.

Table F. Word classification typology based on the three primary criteria (adapted from Carley & Kaufer, 1993)

Classification	Consensus	Density (degree)	Conductivity (k-betweenness)
Ordinary word	low	low	low
Allusion	low	high	low
Buzzword*	low	low	high
Placeholder*	low	high	high
Factoid	high	low	low
Emblem	high	low	high
Stereotype	high	high	low
Standard symbol	high	high	high

Note. * I look at words categorized as placeholders for this analysis, considering them as more in line with some colloquial definitions of buzzwords (i.e., high density, lots of concepts underlying the broader and simpler term, lending itself to differences in interpretation). Ultimately, this means that I *do not* report on words classified as “buzzwords” according to this typology laid out by Carley & Kaufer (1993).

Defining High/Low Thresholds

Below, I identify some of the exploration and decisions made regarding setting high vs. low thresholds for the three network measures making up the primary word classification criteria:

Consensus. Explore various percentiles of the semantic network for what should constitute a high vs. low value for consensus. Ultimately, the 50th percentile (i.e., median) is the most liberal cut-off for what would constitute a high or low value, and is used in the analysis across all corpora. Anything much below the 35th percentile (for a low value) or above 65th (for a high value) becomes too restrictive.

- It is challenging (and not entirely worthwhile) to use random networks to establish a random distribution of consensus measures for a similarly sized network, given that it requires the development of hundreds (if not thousands) of random networks comprised of a random selection of nodes from a central network (sized as the total number of nodes in the corpus). Then, lists of co-occurrences of these nodes would need to be created, and ultimately form the main central network links, weighted by number of co-occurrences.
- While this is not impossible to develop, it risks a few things: (1) over-specifying a random network, based on the number of nodes and documents per corpus per year; thus (2) ignoring the true variation in consensus that may exist between corpora; and (3) artificially classifying more or less of the nodes as low/high consensus based on an external benchmark.

Conductivity. Explore various percentiles of the semantic network for what should constitute a high vs. low value for conductivity (i.e., k-betweenness). Ultimately, the 50th percentile (i.e., median) is the most liberal cut-off for what would constitute a high or low value, and is used in the analysis across all corpora. Anything much below 35th percentile (for a low value) or above 65th (for a high value) becomes too restrictive.

- This is a preferred method to that of identifying conductivity (i.e., k-betweenness) of a random network. The point of a random network is to randomly distribute links, thus leading to a distributed and low network-level measure of betweenness. No single node transmits much more information / acts more or less like a gateway than any other node, just by

nature of the structure of a random network. Therefore, using this method artificially classifies more (if not all) of the nodes of a sample network as “high” conductivity, rather than in relation to other nodes in the same network.

Degree. Develop a random network of the same number of nodes and links, and set anything greater than the mean degree of the random network as a high value and anything lower as a low value.

- This method works well because it helps me to compare what would be a random distribution of links to any clustering / sparseness that our sample network exhibits. Thus, anything higher than the mean degree would constitute a degree higher than by chance, and vice versa.

Averages for Network Measures

Table G. Averages for network measures for primary criteria, per institution

Institution	Years	Density (degree centrality)	Conductivity (k-betweenness)	Consensus (% links reaching consensus threshold)	Consensus Threshold*
Academic	2017-2021	10.3	486	0.376	0.3
NGO	2017-2021	16.4	1668	0.365	0.75
Media	2017-2021	39.6	2961	0.238	0.5
Policy (IPBES)	2019	12.2	1388	0.569	0.75
Policy (UN CBD)	2022	19.1	397	0.730	0.75

Note. * Consensus threshold refers to the proportion of co-occurrence between two nodes, with the denominator set by the less frequent of the two nodes. Different consensus thresholds were used for each corpus, given unique network-level characteristics. Some corpora had much higher average consensus scores; and the threshold needed to be set at a value that would allow for discernible variation within the network, to aid in word classification based on high vs. low values of this measure.

Results

Understanding the Buzzword Landscape

Figure F. Pairwise overlap of buzzwords across institutions

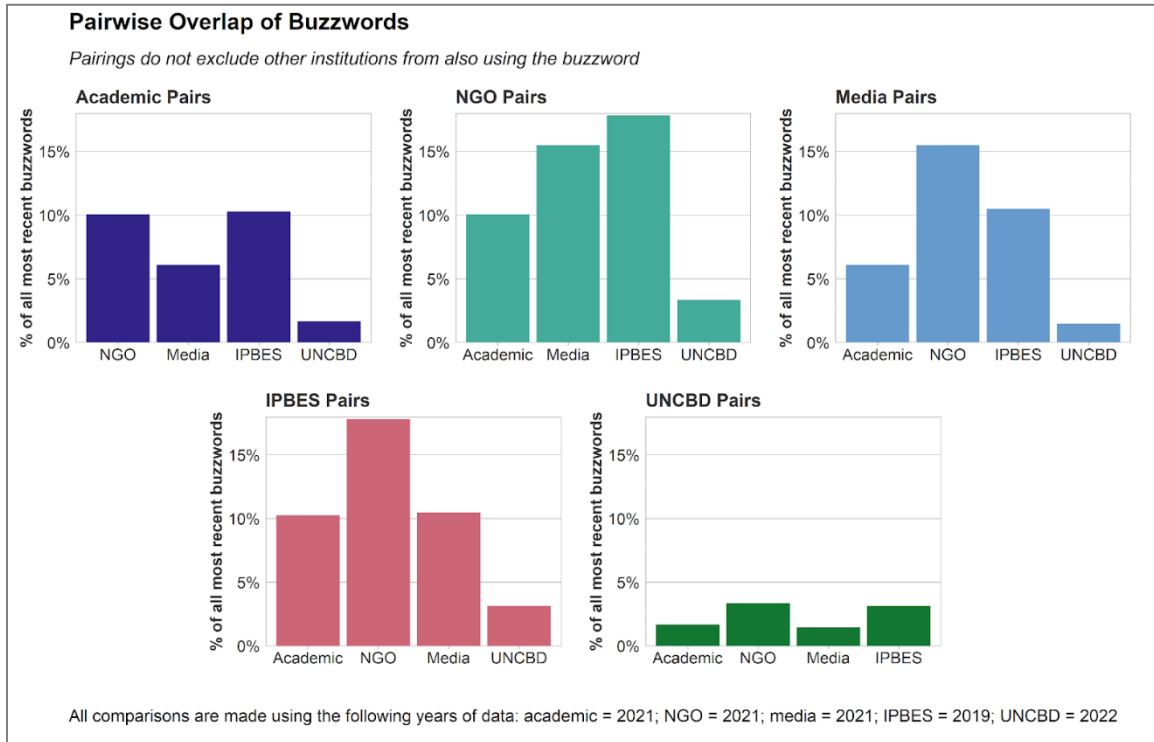
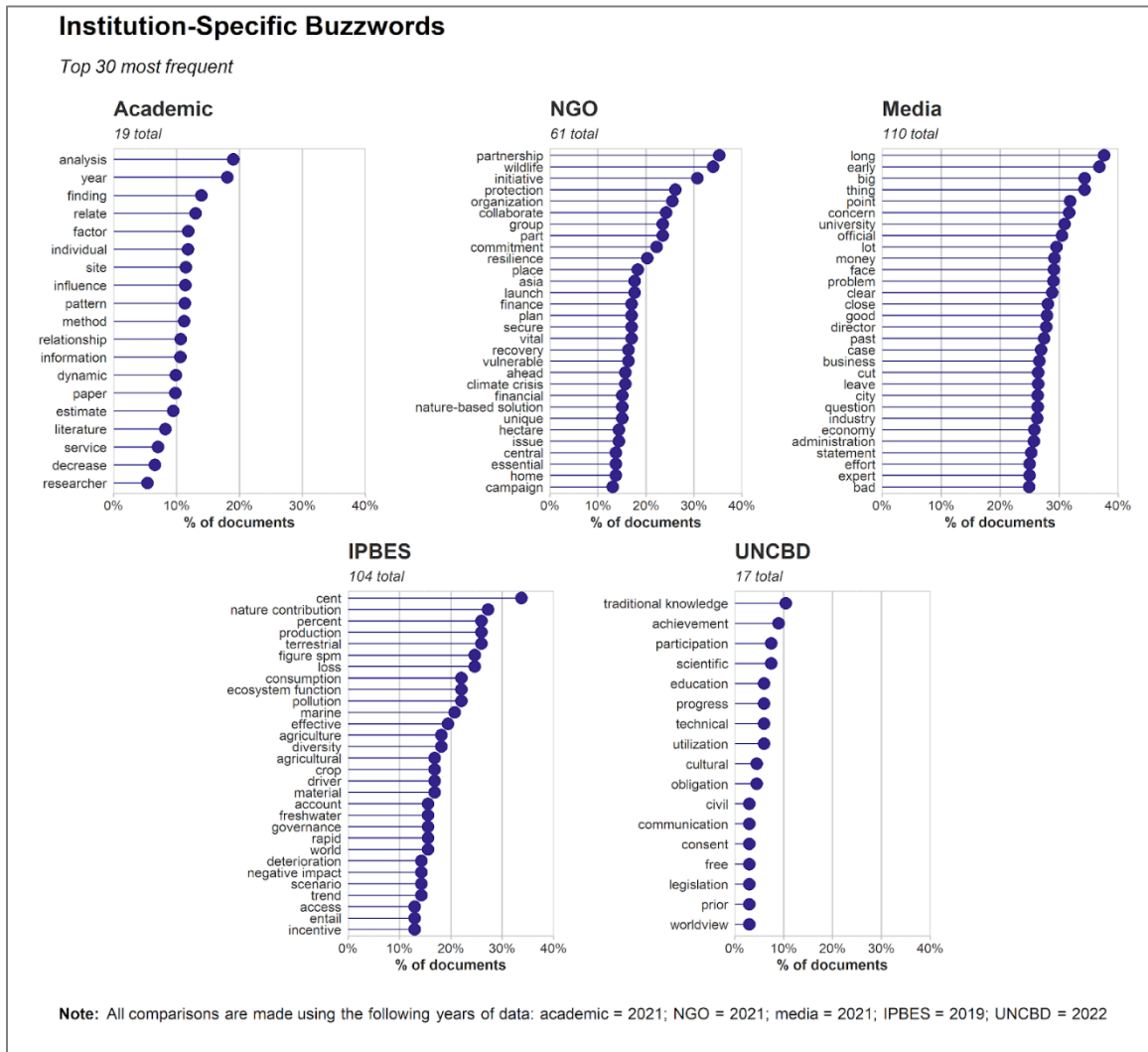


Figure G. Top 30 most frequent institution-specific buzzwords, per institution



APPENDIX C

CHAPTER 3 SUPPLEMENTAL MATERIALS

Methods

Survey Protocol

Trustworthiness Manipulation

As part of the experiment, survey respondents were presented with either a “high trust” or “low trust” organizational profile that introduced the fictional organization (AquaHope). Both high and low trust contexts introduce AquaHope as an organization with a mission to provide clean drinking water using community-based approaches.

The high trust profile presents AquaHope as a well-regarded organization with clearly defined past successes in implementing water projects. They are trusted by communities and identify others in the sector who see them as reliable and trustworthy. They specifically identify their stance on being transparent and efficient with their resources (i.e., low overhead, most funds going to their projects on the ground). They involve communities in their decision-making processes and have lasting relationships.

The low trust profile has AquaHope spending most of their time acknowledging but then defending their actions in unspecified controversies and criticisms regarding their water projects. Regarding their inefficient use of resources, AquaHope says that it is complex and that they need to make last-minute decisions sometimes. In response to claims of lack of transparency, AquaHope focuses more on “providing results” than being sure to document every step of the way. They state that the controversies have been blown out of proportion, their approach has been tested for years, and they will continue doing the same actions they were doing.

Figure H. Organizational profile - high trust condition

Organization Name: AquaHope

Mission: To provide access to clean drinking water using community-based approaches.

AquaHope is a trusted organization dedicated to ensuring access to clean drinking water through community-based initiatives. Our approach focuses on achieving tangible results and building long-lasting relationships with the communities we serve.

Past Successes:

AquaHope has a proven track record of successfully implementing water projects. Over the years, we have brought clean water to numerous communities. We have positively impacted the lives of thousands of individuals. Our accomplishments include:

1. Installation of Water Filtration Systems. AquaHope has implemented water filtration systems in several communities, effectively removing harmful contaminants and providing safe drinking water.

2. Infrastructure Development. Through our expertise and partnerships, AquaHope has enabled the construction of reliable water infrastructure. Examples include wells, boreholes, and water storage facilities, which ensure a dependable supply of clean water to communities.

3. Community Engagement and Education. AquaHope actively engages with local residents, conducting educational programs on water hygiene, sanitation practices, and water source protection. We have seen significant improvements in overall health and hygiene practices in the communities we work with.

Efficiency and Transparency:

AquaHope prides itself on its efficiency and transparency. We are committed to maximizing the impact of every resource entrusted to us. We constantly seek out new technologies, efficient project management techniques, and rigorous monitoring and evaluation processes. This helps us guarantee that resources are effectively used – going to the projects and communities themselves.

The trust placed in AquaHope by the communities we serve is invaluable. This trust is built on our consistent delivery of clean drinking water solutions and our commitment to long-term engagement. AquaHope fosters open lines of communication. We actively involve community members in the decision-making process and tailor solutions to their unique needs. This approach builds community ownership and the long-term success of our projects.

Reputation:

AquaHope's ethical and results-oriented approach has earned us a solid reputation in the sector. We are recognized as a reliable partner by governments, international organizations, and local communities alike.

In conclusion, AquaHope is an organization that delivers access to clean drinking water through community-based approaches. Our past successes, efficiency, and the trust placed in us by communities demonstrate our commitment to making a tangible difference. We will continue to expand our reach, bring clean drinking water to more communities, and create a lasting positive impact on people's lives.

Figure I. Organizational profile – low trust condition

Organization Name: AquaHope

Mission: To provide access to clean drinking water using community-based approaches.

AquaHope is an organization dedicated to providing access to clean drinking water through community-based initiatives. We know that we have faced controversies regarding our practices, resource use, and transparency. We want to share our perspective to clarify misunderstandings and shed light on these matters.

On-the-Ground Practices:

Some controversies have arisen regarding our practices on the ground. While we understand concerns, it's important to know that delivering clean drinking water in challenging environments is complex. We always strive to do our best and follow the right way of doing things. We have years of experience in executing our projects on water filtration, infrastructure development, and community engagement and education. We will prioritize our existing methods and approaches, which have been developed through these experiences.

Efficiency and Transparency:

Criticism has been raised about our use of resources, claiming inefficiency. We recognize the importance of using resources effectively. However, it is essential to understand that we face limitations such as limited funds and logistical challenges. While we continuously evaluate our resource allocation, it is crucial to consider the constraints we work within. We must sometimes make last-minute decisions about resource use.

We have been accused of a lack of transparency. We value transparency, but it is also important to protect the privacy and security of the communities we serve. Our focus is on delivering tangible results rather than showcasing every step of the process. We assure you that our decisions are made in the best interests of those we help. While we may not disclose every detail, we are open to constructive feedback from those concerned.

Addressing Concerns:

AquaHope remains committed to our mission of providing clean drinking water to communities in need. We understand that concerns have been raised, and we take them seriously. We are constantly striving to address the concerns that have been brought to our attention. However, some of these controversies have been exaggerated or blown out of proportion. It is important to remember that delivering clean drinking water is a complex task with unique challenges.

AquaHope operates in demanding environments, and we appreciate the opportunity to learn and grow. Still, we ultimately stand by our actions and the impact we aim to make.

In conclusion, AquaHope is dedicated to providing clean drinking water through community-based approaches. We acknowledge and address controversies while striving to make a positive impact. AquaHope remains steadfast in our mission to bring clean drinking water to communities in need.

Buzzword Manipulation

As part of the experiment, survey respondents were presented with either a “non-buzzword” or “buzzword” pilot project report that provided the same details on project goals, outcomes, activities, impacts on the community, and future directions. The language of both reports was nearly identical, only adding in the buzzwords (and phrases necessary to incorporate the buzzwords). I took special care to ensure that both reports were similar in length (i.e., wordcount, number of sentences) and content, but the buzzword report does end up being a bit longer. The use of more imprecise and convoluted buzzwords will inherently make the text slightly more difficult to read, slightly increasing the reading grade level for the buzzword report compared to the non-buzzword report. Buzzwords included in the “buzzword” condition: sustainable/sustainability, resilient/resilience, equitable/equity, transformative change, inclusive/inclusion, innovative/innovation, vulnerable, evidence-based.

Figure J. Pilot project report – non-buzzword condition

Pilot Project Report: Enhancing Water Access in Central Valley Community

Project Overview:

AquaHope is pleased to present the report for our pilot project, named Water for All, aimed at implementing an improved water access solution in the Central Valley community. This project was initiated with the primary goal of providing safe and reliable access to clean drinking water for the residents of Central Valley. This report outlines the project's objectives, methodology, outcomes, and the impact it has had on the community.

Project Objectives:

1. To ensure a consistent water supply for the Central Valley community.
2. To improve water quality, making it safe for consumption.
3. To reduce the burden of water collection on residents, particularly women and children.
4. To raise awareness about water conservation and hygiene practices within the community.

Methodology:

1. Site Assessment: We conducted a comprehensive survey to assess the existing water sources, quality, and the needs of the community.
2. Water Source Enhancement: We identified an underground water source and invested in drilling a borehole to tap into it. This source was chosen for its reliability and water quality.
3. Water Treatment: A water treatment facility was established to ensure the purification and quality control of the water. The treatment process involved filtration, UV sterilization, and regular water testing.
4. Water Distribution: A network of pipes and distribution points were set up throughout the community, ensuring easy access to clean water for all residents.
5. Community Engagement: We organized workshops and training sessions to educate the community about water conservation, sanitation, and hygiene practices.

Project Outcomes:

1. Increased Access to Clean Water: The project has provided reliable access to clean water for over 95% of the community's population, reducing the distance and time spent on water collection.
2. Improved Water Quality: Regular water quality tests have shown a significant reduction in contaminants, making the water safe for drinking.
3. Health and Hygiene Awareness: The community is now better educated about proper sanitation and hygiene practices, leading to a decrease in water-related diseases.
4. Reduced Workload: The burden of water collection, which primarily fell on women and children, has been significantly reduced, allowing them to allocate their time to other productive activities.
5. Lasting Water Supply: The borehole-based water source is reliable, ensuring that the community has access to clean water year-round.

Impact on the Community:

The pilot project by AquaHope has had a substantial impact on the Central Valley community. Access to clean water has improved the overall quality of life for its residents. Health and hygiene practices have been enhanced, resulting in a decrease in waterborne diseases. Additionally, the reduction in the time and effort required for water collection has enabled community members to engage in income-generating activities and education.

Recommendations and Future Plans:

1. Regular maintenance and monitoring of the water supply infrastructure to ensure its long-term dependability.
2. Expand the project to neighboring communities in need of improved water access.
3. Foster local leadership and community ownership in managing and maintaining the water supply system.
4. Continue educational programs on sanitation and hygiene to further improve the community's health and well-being.

Conclusion:

The AquaHope pilot project in Central Valley has successfully implemented an improved water access solution, resulting in increased access to clean water, improved water quality, and positive changes in the community's quality of life. We remain committed to expanding our efforts and collaborating with community members to ensure a lasting impact.

Figure K. Pilot project report - buzzword condition

<p>Pilot Project Report: Enhancing Water Access in Central Valley Community</p> <p>Project Overview:</p> <p>AquaHope is pleased to present the report for our pilot project, named Water for All, aimed at implementing a sustainable and resilient water access solution in the vulnerable Central Valley community. This innovative project was initiated with the primary goal of providing equitable and sustainable access to clean drinking water for the residents of Central Valley, leading to transformative change for the community. This evidence-based report outlines the project's objectives, methodology, outcomes, and the impact it has had on the community.</p> <p>Project Objectives:</p> <ol style="list-style-type: none">1. To ensure a sustainable water supply for the Central Valley community.2. To improve water quality using an innovative solution, making it safe for consumption.3. To reduce the burden of water collection on residents and make community members more resilient, particularly women and children.4. To raise awareness about water conservation and hygiene practices within this vulnerable community. <p>Methodology:</p> <ol style="list-style-type: none">1. <u>Site Assessment</u>: We conducted a comprehensive survey to develop an evidence-based assessment of the existing water sources, quality, and the needs of the vulnerable community.2. <u>Water Source Enhancement</u>: We identified an underground water source and invested in drilling a borehole to tap into it. This source was chosen for its sustainability potential.3. <u>Water Treatment</u>: An innovative water treatment facility was established to ensure the purification and quality control of the water, leading to more resilience from disease. The treatment process involved filtration, UV sterilization, and regular water testing.4. <u>Water Distribution</u>: A network of pipes and distribution points were set up throughout the community, ensuring equitable access to clean water for all residents.5. <u>Community Engagement</u>: We organized inclusive workshops and training sessions to lead to transformative change in the community toward water conservation, sanitation, and hygiene practices. <p>Project Outcomes:</p> <ol style="list-style-type: none">1. <u>Equitable Access to Clean Water</u>: The project has provided sustainable and equitable access to clean water for over 95% of the community's population, reducing the distance and time spent on water collection.2. <u>Improved Water Quality</u>: Regular water quality tests have shown a significant reduction in contaminants, making the water safe for drinking while increasing resilience.3. <u>Health and Hygiene Awareness</u>: The vulnerable community has gone through an inclusive process to be better educated about proper sanitation and hygiene practices, leading to a decrease in water-related diseases.4. <u>Reduced Workload</u>: The burden of water collection, which primarily fell on women and children, has been significantly reduced, creating equitable and transformative change by allowing them to allocate their time to other productive activities.5. <u>Sustainable Water Supply</u>: The borehole-based water source is sustainable, ensuring that the community is resilient and has access to clean water year-round. <p>Impact on the Community:</p> <p>The pilot project by AquaHope has had a substantial impact on the vulnerable Central Valley community. Our evidence-based reporting shows that access to clean water has improved the overall quality of life for its residents, leading to more resilience, equity, and sustainability. Health and hygiene practices have been enhanced using inclusive awareness-raising procedures, resulting in a decrease in waterborne diseases. Additionally, transformative change is seen through the reduction in the time and effort required for water collection, which has enabled community members to engage in income-generating activities and education.</p> <p>Recommendations and Future Plans:</p> <ol style="list-style-type: none">1. Regular maintenance and monitoring of the water supply infrastructure to ensure its long-term sustainability and resilience.2. Expand the project to other vulnerable communities in need of transformative change toward improved water access.3. Foster inclusion and equity by supporting local leadership and community ownership in managing and maintaining the water supply system.4. Continue innovative educational programs focused on inclusion and transformative change, building awareness on sanitation and hygiene to further improve the community's health and well-being. <p>Conclusion:</p> <p>The innovative AquaHope pilot project in Central Valley has successfully implemented an improved water access solution, resulting in transformative change in a vulnerable community. This evidence-based report shows that there is now sustainable access to clean water, improved water quality, increased resilience, and positive changes in the community's quality of life. We remain committed to expanding our efforts and collaborating with other vulnerable communities to ensure equitable, resilient, and sustainable impact.</p>
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Demographic Covariates

Table H. Survey questions and aggregation logic for demographic covariates

Covariate	Scale	Survey Question(s)	Aggregation Logic
Age	18 – 100	What is your age?	
Education	Ordinal	<p>What is the highest level of education you have completed?</p> <ul style="list-style-type: none"> • Less than high school diploma • High school graduate, or the equivalent (for example: GED) • Some college, no degree • Trade/technical/vocational training • Associate’s degree • Bachelor’s degree • Master’s, professional, or doctoral degree • Prefer not to answer 	<p>Categories will be consolidated into:</p> <ul style="list-style-type: none"> • High school or less • Some college, technical training, or associate’s degree • Bachelor’s degree • Advanced degree
Income / purchasing power	Ordinal	<p>What is your total annual household income?</p> <ul style="list-style-type: none"> • \$0 - \$24,999 • \$25,000 - \$49,999 • \$50,000 - \$74,999 • \$75,000 - \$99,999 • \$100,000 - \$149,999 • \$150,000 - \$199,999 • \$200,000 or greater • Prefer not to answer <p>How many people live in your household?</p> <ul style="list-style-type: none"> • Slider from 1-20 • Prefer not to answer 	<p>Individual level income will be calculated as the midpoint of the household income group divided by number of people in the household (as a proxy for “consumer purchasing power”). If the choice of \$200,000 or greater was selected, \$200,000 will be used as the household income to be divided by household size.</p> <p>Categories of high, medium, and low will be calculated based on the individual purchasing power, anchoring the medium category around the median household income between 2017-2021 (\$69,021) divided by the median household size (2.6).</p>
Social media use	Ordinal	<p>How often do you use social media?</p> <ul style="list-style-type: none"> • Nearly all the time • Most of the time • About half the time • Once in a while • Never 	<p>Consolidate into three categories:</p> <ul style="list-style-type: none"> • Nearly all or most of the time • About half the time • Once in a while or never

Note. Median household income between 2017-2021 and median household size both derived from U.S. Census Bureau.

Participant Demographics

Table I. Full demographic profile of survey respondents

Categorical Variables	Response Category	<i>n</i>	%
GENDER	Woman	216	48.4
	Man	206	50.7
	Non-binary	4	0.9
EDUCATION	High school or less	57	13.4
	Some college, training, associate's degree	124	29.1
	Bachelor's degree	174	40.8
	Advanced degree	71	16.7
PURCHASING POWER	Low	118	27.7
	Medium	129	30.3
	High	179	42.0
SOCIAL MEDIA USE	Never or once in a while	95	22.3
	About half the time	88	20.7
	Nearly all or most of the time	243	57.0
Continuous Variables		<i>M</i> (<i>SD</i>)	Min Max
AGE		45.7 (15.8)	18 84

Inferences & Symbols

Table J. Inferences and symbols for different p-values

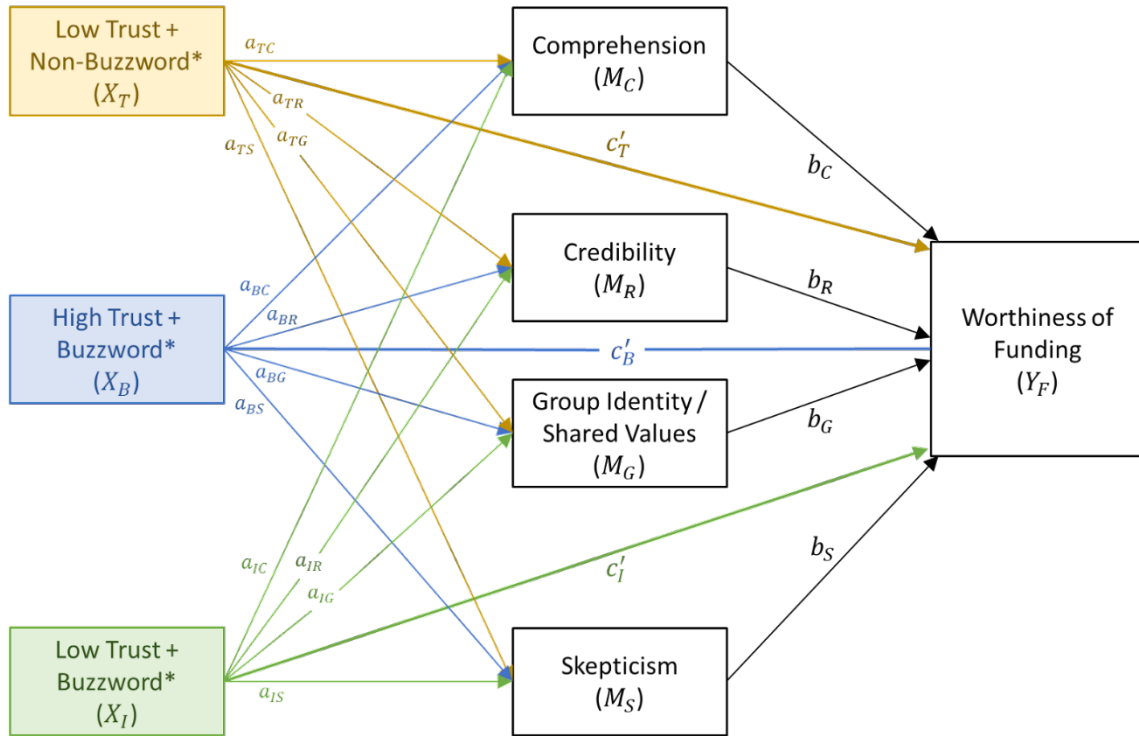
Values of p	Inference	Symbol
$p \geq .1$	No evidence against the null hypothesis	
$.1 > p > .05$	Weak evidence against the null hypothesis	`
$.05 > p > .01$	Moderate evidence against the null hypothesis	*
$.01 > p > .001$	Strong evidence against the null hypothesis	**
$p < .001$	Very strong evidence against the null hypothesis	***

Note. Table adapted from Singh, P. (2013). P Value, Statistical Significance and Clinical Significance. *Journal of Clinical and Preventative Cardiology*, 2(4), 202-204.

Full Conceptual Model

The full conceptual model for the mediation analysis includes causal pathways for each condition, all in reference to the high trust + non-buzzword condition.

Figure L. Full conceptual model used in mediation analysis, causal pathways separated out for each condition



*Reference condition: High Trust + Non-Buzzword

Hypotheses

Table K details all hypotheses and their path of causality and directionality, with a schematic linking them to the full conceptual model from Figure L.

Table K. Hypotheses for trust/buzzword effects on worthiness of funding (Y_F)

Hyp.	Condition	Mediating Variable	Path & Direction	Link to Conceptual Model
H1	Trust (X_T) Buzzword (X_B) Trust:Buzzword interaction ($X_T X_B$)		$X_T \rightarrow -Y_F$ $X_B \rightarrow +Y_F$ $X_T X_B \rightarrow -Y_F$	
MedH1	Low Trust + Buzzword (X_I)	Comprehension (M_C)	$X_I \rightarrow -M_C \rightarrow -Y_F$	
MedH2	Low Trust + Non-Buzzword (X_T)	Credibility (M_R)	$X_T \rightarrow -M_R \rightarrow -Y_F$	
MedH3 a	High Trust + Buzzword (X_B)	Credibility (M_R)	$X_B \rightarrow +M_R \rightarrow +Y_F$	
b	Low Trust + Buzzword (X_I)		$X_I \rightarrow -M_R \rightarrow -Y_F$	

MedH4	Low Trust + Non-Buzzword (X_T)	Group Identity (M_G)	$X_T \rightarrow -M_G \rightarrow -Y_F$	
MedH5 a b	High Trust + Buzzword (X_B) Low Trust + Buzzword (X_I)	Group Identity (M_G)	$X_B \rightarrow +M_G \rightarrow +Y_F$ $X_I \rightarrow -M_G \rightarrow -Y_F$	
MedH6	Low Trust + Buzzword (X_I)	Skepticism (M_S)	$X_I \rightarrow +M_S \rightarrow -Y_F$	

Note. Reference condition for all mediating hypotheses (MedH1-MedH6) is High Trust + Non-Buzzword

Model Specifications

Total Effects

Model specification for the total effects model on worthiness of funding, which excludes mediators but has each of the four conditions coded as a four-category variable rather than two binary variables with an interaction as presented in Model 1 in the main text.

$$\text{Worthiness of funding} = Y_F = d_F + c'_T X_T + c'_B X_B + c'_I X_I + \text{covariates} + \epsilon \quad (\text{S1})$$

Where,

X_T = low trust / non-buzzword condition

X_B = high trust / buzzword condition

X_I = low trust / buzzword condition

Thus, the reference condition for the four-category variable is high trust / non-buzzword condition.

Direct & Indirect Effects

The direct and indirect effects are derived from several models, with each mediator modeled independently as a dependent variable (Models S2-S5) and worthiness of funding modeled with all mediators included as controls (Model S6). The mediator models calculate one part of the indirect effect, moving from the independent variable to the mediator (e.g., a_{TC} in Model S2). The second part of the indirect effect is then the estimate derived from the mediator in the worthiness of funding model (e.g., b_C in Model S6). For example, the indirect effect of the low trust / non-buzzword condition (X_T), as mediated through changes in comprehension (M_C), would be $a_{TC} b_C$. The direct effect of the low trust / non-buzzword condition (X_T) is the estimate for X_T from Model S6, c'_T . The full conceptual model in Figure L details where each estimate from Models S2-S6 fit into the various causal pathways.

Mediator models:

$$\text{Comprehension} = M_C = d_C + a_{TC}X_T + a_{BC}X_B + a_{IC}X_I + \text{covariates} + \epsilon \quad (\text{S2})$$

$$\text{Credibility} = M_R = d_R + a_{TR}X_T + a_{BR}X_B + a_{IR}X_I + \text{covariates} + \epsilon \quad (\text{S3})$$

$$\text{Group identity} = M_G = d_G + a_{TG}X_T + a_{BG}X_B + a_{IG}X_I + \text{covariates} + \epsilon \quad (\text{S4})$$

$$\text{Skepticism} = M_S = d_S + a_{TS}X_T + a_{BS}X_B + a_{IS}X_I + \text{covariates} + \epsilon \quad (\text{S5})$$

Where,

X_T = low trust / non-buzzword condition

X_B = high trust / buzzword condition

X_I = low trust / buzzword condition

Dependent variable model:

Worthiness of funding = Y_F =

$$d_F + c'_T X_T + c'_B X_B + c'_I X_I + b_C M_C + b_R M_R + b_G M_G + b_S M_S + \text{covariates} + \epsilon \quad (\text{S6})$$

Additional Dependent Variable

The Open Science Framework pre-registration for this study (<https://doi.org/10.17605/OSF.IO/23K7W>) also included a second dependent variable, willingness to donate. Willingness to donate is a composite index calculated by finding the mean across three questions which prompt the respondent on how likely: (1) they are to donate their own money, (2) members of the general public would be willing to donate to the project, and (3) the communities targeted by AquaHope would be willing to donate to the project. Cronbach's alpha was .74 across the three questions, which is a bit less than that of the worthiness of funding index. This drop in correlation amongst the three questions for willingness to donate largely came from the discrepancy between individuals' willingness to donate their own money versus imagining others' likelihood to donate. In an open-ended question asking for any feedback on why they responded as they did, many participants would give personal circumstances for why they would not be able to donate at this time. Regardless, results for this dependent variable (regarding total, direct, and indirect effects) were quite similar to those presented for worthiness of funding.

Model (S7) provides the basic main effects and interaction effects model specification associated with the dependent variable, willingness to donate. Just as with Model (1) from the main text, this model tests for main effects and interaction effects between the trust and buzzword conditions.

$$\text{Willingness to donate} = Y_D = d_D + c'_T X_T + c'_B X_B + c'_I X_T X_B + \text{covariates} + \epsilon \quad (\text{S7})$$

Where,

X_T = trust condition

X_B = buzzword condition

$X_T X_B$ = trust:buzzword interaction

Model (S8) provides the basic total effects model specification associated with the dependent variable, willingness to donate. Just as with Model (S1) for worthiness of funding, this model tests for the total effects of the high trust / buzzword, low trust / non-buzzword, and low trust / buzzword conditions (all in reference to the high trust / non-buzzword condition) without yet including mediator variables to discern direct versus indirect effects.

$$\text{Willingness to donate} = Y_D = d_D + c'_T X_T + c'_B X_B + c'_I X_I + \text{covariates} + \epsilon \quad (\text{S8})$$

Where,

X_T = low trust / non-buzzword condition

X_B = high trust / buzzword condition

X_I = low trust / buzzword condition

Results

Experimental Manipulation Check

Table L. Experimental manipulation check for (a) high vs. low trust and (b) non-buzzword vs. buzzword conditions

(a) Perceived Organizational Trustworthiness (0-100) across High vs. Low Trust Conditions

Organizational Profile Condition	<i>n</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t-value</i>	<i>p</i>
High Trust	230	73.6	19.2	369.56	7.65	<.001
Low Trust	205	56.5	26.3			

(b) Perceived Buzzwordiness of Project Report (0-100) across Non-Buzzword vs. Buzzword Conditions

Project Report Condition	<i>n</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t-value</i>	<i>p</i>
Non-Buzzword	222	47.6	28.2	430.51	0.697	.486
Buzzword	213	49.5	29.2			

Summary Statistics across Four Conditions

Dependent Variables

Table M. Dependent variable means across experimental conditions

Org Profile	Project Report	<i>n</i>	Worthiness of Funding		Willingness to Donate	
			<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>
High Trust	Non-Buzzword	121	77.7	1.5	60.4	1.8
Low Trust	Non-Buzzword	101	64.0	2.2	48.4	1.9
High Trust	Buzzword	109	76.9	1.7	58.6	1.9
Low Trust	Buzzword	104	70.5	2.1	54.0	2.1

Table N. Pairwise Tukey HSD test results on dependent variables

Condition A	Condition B	Worthiness of Funding				Willingness to Donate			
		Δ	LLCI	ULCI	<i>p</i> adj	Δ	LLCI	ULCI	<i>p</i> adj
High Trust / Non-Buzzword	High Trust / Buzzword	-0.50	-7.14	6.14	.9974	-1.95	-8.76	4.85	.8801
High Trust / Non-Buzzword	Low Trust / Non-Buzzword	-13.60	-20.41	-6.79	<.001	-11.66	-18.64	-4.68	<.001
High Trust / Non-Buzzword	Low Trust / Buzzword	-6.85	-13.61	-0.10	.045	-6.23	-13.16	0.69	.095
High Trust / Buzzword	Low Trust / Non-Buzzword	-13.10	-20.01	-6.19	<.001	-9.70	-16.79	-2.62	.003
High Trust / Buzzword	Low Trust / Buzzword	-6.35	-13.21	0.50	.080	-4.28	-11.31	2.75	.396
Low Trust / Non-Buzzword	Low Trust / Buzzword	6.75	-0.27	13.77	.065	5.42	-1.77	12.62	.211

Mediators**Table O.** Mediator means across experimental conditions

Org Profile	Project Report	n	Comprehension		Credibility		Group Identity		Skepticism	
			<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>
High Trust	Non- Buzzword	121	85.2	1.4	80.1	1.4	70.8	2.0	33.2	2.1
Low Trust	Non- Buzzword	101	68.5	2.3	60.3	1.9	59.2	2.4	54.7	2.5
High Trust	Buzzword	109	79.6	1.8	78.9	1.6	71.7	2.1	32.2	2.3
Low Trust	Buzzword	104	71.0	2.4	66.4	2.0	67.1	2.2	44.0	2.7

Table P. Pairwise Tukey HSD test results on mediating variables, comprehension and credibility

Condition A	Condition B	Comprehension				Credibility			
		Δ	LLCI	ULCI	<i>p</i> adj	Δ	LLCI	ULCI	<i>p</i> adj
High Trust / Non-Buzzword	High Trust / Buzzword	-6.32	-13.24	0.61	.088	-1.45	-7.52	4.61	.926
High Trust / Non-Buzzword	Low Trust / Non-Buzzword	-17.37	-24.47	-10.26	<.001	-19.72	-25.94	-13.50	<.001
High Trust / Non-Buzzword	Low Trust / Buzzword	-14.73	-21.78	-7.68	<.001	-14.01	-20.18	-7.84	<.001
High Trust / Buzzword	Low Trust / Non-Buzzword	-11.05	-18.26	-3.84	.005	-18.27	-24.58	-11.96	<.001
High Trust / Buzzword	Low Trust / Buzzword	-8.41	-15.56	-1.26	.014	-12.55	-18.82	-6.29	<.001
Low Trust / Non-Buzzword	Low Trust / Buzzword	2.64	-4.68	9.97	.789	5.72	-0.70	12.13	.100

Table Q. Pairwise Tukey HSD test results on mediating variables, group identity and skepticism

Condition A	Condition B	Group Identity				Skepticism			
		Δ	LLCI	ULCI	<i>p</i> adj	Δ	LLCI	ULCI	<i>p</i> adj
High Trust / Non-Buzzword	High Trust / Buzzword	0.12	-7.45	7.70	.999	-0.38	-8.98	8.22	.999
High Trust / Non-Buzzword	Low Trust / Non-Buzzword	-12.33	-20.09	-4.56	<.001	21.90	13.07	30.72	<.001
High Trust / Non-Buzzword	Low Trust / Buzzword	-4.41	-12.12	3.29	.452	11.53	2.78	20.29	.004
High Trust / Buzzword	Low Trust / Non-Buzzword	-12.45	-20.33	-4.57	<.001	22.28	13.33	31.23	<.001
High Trust / Buzzword	Low Trust / Buzzword	-4.54	-12.36	3.28	.440	11.92	3.03	20.80	.003
Low Trust / Non-Buzzword	Low Trust / Buzzword	7.91	-0.10	15.92	.054	-10.36	-19.46	-1.26	.018

Total Effects

Table R. Linear regression for worthiness of funding (Y_F) and willingness to donate (Y_D), Models S1 and S8

Variable (reference)	Response Category (if applicable)	Outcome Variable							
		Worthiness of Funding (Y_F)				Willingness to Donate (Y_D)			
		<i>Coeff</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>Coeff</i>	<i>SE</i>	<i>t</i>	<i>p</i>
(Intercept)		77.68	4.79	16.22	<.001***	58.04	4.91	11.83	<.001***
LOW TRUST / NON-BUZZWORD (X_T)		-14.88	2.67	-5.57	<.001***	-12.97	2.74	-4.73	<.001***
HIGH TRUST / BUZZWORD (X_B)		-0.55	2.60	-0.21	.832	-2.24	2.66	-0.84	.400
LOW TRUST / BUZZWORD (X_I)		-7.53	2.65	-2.84	.005**	-7.15	2.72	-2.63	.009**
AGE		0.005	0.06	0.08	.937	-0.04	0.06	-0.63	.526
EDUCATION (High school or less)	Some college, training, associate's	-0.12	3.11	-0.04	.970	1.95	3.19	0.61	.541
	Bachelor's degree	-1.97	3.05	-0.65	.518	3.15	3.12	1.01	.314
	Advanced degree	-9.11	3.65	-2.50	.013*	-0.19	3.74	-0.05	.959
PURCHASING POWER (low)	Medium	-0.42	2.48	-0.17	.865	-0.27	2.54	-0.11	.915
	High	-2.94	2.45	-1.20	.231	-4.00	2.51	-1.59	.111
SOCIAL MEDIA USE (Never or once in a while)	About half the time	2.29	2.93	0.78	.436	3.72	3.01	1.24	.216
	Nearly all or most of the time	5.70	2.47	2.30	.022*	7.26	2.53	2.86	.004**
		<i>R</i> ²	Adj <i>R</i> ²	<i>F</i> (11, 414) = 5.35 <i>p</i> < .001		<i>R</i> ²	Adj <i>R</i> ²	<i>F</i> (11, 414) = 3.54 <i>p</i> < 0.001	
		.09	.06			.12	.10		

Note. Reference condition is high trust / non-buzzword

Mediation Analysis

Table S. Linear regression for mediators comprehension (M_C) and credibility (M_R), Models S2-S3

Variable (reference)	Response Category (if applicable)	Outcome Variable									
		Comprehension (M_C)				Credibility (M_R)					
		Coeff	SE	t	p	Coeff	SE	t	p		
(Intercept)		96.19	5.00	19.26	<.001***	81.68	4.37	18.68	<.001***		
LOW TRUST / NON-BUZZWORD (X_T)		-18.72	2.79	-6.72	<.001***	-20.72	2.44	-8.49	<.001***		
HIGH TRUST / BUZZWORD (X_B)		-6.47	2.71	-2.39	.017*	-1.56	2.37	-0.66	.512		
LOW TRUST / BUZZWORD (X_I)		-15.86	2.77	-5.73	<.001**	-14.91	2.42	-6.15	<.001***		
AGE		-0.10	0.07	-1.54	.125	0.03	0.06	0.55	.584		
EDUCATION (High school or less)	Some college, training, associate's	-2.49	3.25	-0.77	.444	-0.14	2.84	-0.05	.960		
	Bachelor's degree	-5.10	3.18	-1.61	.109	-0.85	2.78	-0.31	.760		
	Advanced degree	-7.63	3.80	-2.01	.046*	-3.97	3.33	-1.19	.233		
PURCHASING POWER (low)	Medium	-3.03	2.59	-1.17	.242	-3.30	2.27	-1.46	.146		
	High	-7.99	2.55	-3.13	.002**	-7.72	2.24	-3.45	<.001***		
SOCIAL MEDIA USE (Never or once in a while)	About half the time	2.08	3.06	0.68	.498	1.60	2.68	0.60	.551		
	Nearly all or most of the time	5.03	2.58	1.95	.052`	4.73	2.26	2.09	.037*		
		R^2	Adj R^2	$F(11, 414) = 7.87$ $p < .001$				R^2	Adj R^2	$F(11, 414) = 10.92$ $p < .001$	
		.17	.15					.22	.20		

Note. Reference condition is high trust / non-buzzword

Table T. Linear regression for mediators group identity (M_G) and skepticism (M_S), Models S4-S5

Variable (reference)	Response Category (if applicable)	Outcome Variable							
		Group Identity (M_G)				Skepticism (M_S)			
		<i>Coeff</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>Coeff</i>	<i>SE</i>	<i>t</i>	<i>p</i>
(Intercept)		63.92	5.46	11.70	<.001***	32.74	6.20	5.28	<.001***
LOW TRUST / NON-BUZZWORD (X_T)		-13.78	3.05	-4.52	<.001***	22.81	3.46	6.59	<.001***
HIGH TRUST / BUZZWORD (X_B)		-0.22	2.96	-0.07	.942	-0.63	3.37	-0.19	.851
LOW TRUST / BUZZWORD (X_I)		-5.34	3.03	-1.76	.078`	11.92	3.44	3.47	<.001***
AGE		0.06	0.07	0.87	.382	-0.05	0.08	-0.64	.525
EDUCATION (High school or less)	Some college, training, associate's	3.62	3.55	1.02	.309	0.10	4.03	0.02	.980
	Bachelor's degree	4.41	3.48	1.27	.206	2.87	3.95	0.73	.468
	Advanced degree	-0.81	4.16	-0.20	.845	9.64	4.72	2.04	.042*
PURCHASING POWER (low)	Medium	-1.53	2.83	-0.54	.589	-3.01	3.21	-0.94	.350
	High	-6.12	2.79	-2.19	.029*	1.75	3.17	0.55	.582
SOCIAL MEDIA USE (Never or once in a while)	About half the time	5.34	3.35	1.59	.112	1.01	3.80	0.27	.790
	Nearly all or most of the time	8.19	2.82	2.90	.004**	-1.46	3.20	-0.46	.649
		<i>R</i> ²	Adj <i>R</i> ²	<i>F</i> (11, 414) = 3.74 <i>p</i> < .001		<i>R</i> ²	Adj <i>R</i> ²	<i>F</i> (11, 414) = 6.33 <i>p</i> < .001	
		.09	.07			0.144	0.121		

Note. Reference condition is high trust / non-buzzword

Table U. Linear regression for full worthiness of funding model (Y_F), Model S6

Variable (reference)	Response Category (if applicable)	Outcome Variable			
		Worthiness of Funding (Y_F)			
		<i>Coeff</i>	<i>SE</i>	<i>t</i>	<i>p</i>
(Intercept)		19.70	6.30	3.12	.002**
LOW TRUST / NON-BUZZWORD (X_T)		-1.06	1.99	-0.53	.597
HIGH TRUST / BUZZWORD (X_B)		-0.04	1.79	-0.02	.983
LOW TRUST / BUZZWORD (X_I)		0.76	1.93	0.39	.693
COMPREHENSION (M_C)		-0.05	0.04	-1.39	.166
CREDIBILITY (M_R)		0.50	0.06	8.02	<.001***
GROUP IDENTITY (M_G)		0.34	0.04	8.95	<.001***
SKEPTICISM (M_S)		0.01	0.04	0.32	.750
AGE		-0.04	0.04	-0.86	.391
EDUCATION (High school or less)	Some college, training, associate's	-1.42	2.13	-0.67	.505
	Bachelor's degree	-3.36	2.10	-1.60	.109
	Advanced degree	-7.36	2.51	-2.93	.004**
PURCHASING POWER (low)	Medium	1.62	1.71	0.95	.344
	High	2.57	1.71	1.50	.134
SOCIAL MEDIA USE (Never or once in a while)	About half the time	-0.24	2.01	-0.12	.903
	Nearly all or most of the time	0.81	1.71	0.47	.637
		R^2	Adj R^2	$F(15, 410) = 40.29$ $p < .001$	
		.60	.58		


Note. Reference condition is high trust / non-buzzword

APPENDIXD

HUMAN SUBJECTS RESEARCH IRB APPROVAL

Interviews

Figure M. IRB approval letter for expert interviews



ASU Knowledge Enterprise
Development

EXEMPTION GRANTED

[Marcus Janssen](#)
[CGF-SOS: Faculty & Researchers](#)
 480/727-4641
 Marco.Janssen@asu.edu

Dear [Marcus Janssen](#):

On 7/1/2022 the ASU IRB reviewed the following protocol:


Type of Review:	Initial Study
Title:	Exploring the Spread, Use, and Impact of Imprecise Language on Decision Making - Interviews
Investigator:	Marcus Janssen
IRB ID:	STUDY00016143
Funding:	Name: National Science Foundation, Grant Office ID: FP00031937, Funding Source ID: 2214346
Grant Title:	FP00031937;
Grant ID:	FP00031937;
Documents Reviewed:	<ul style="list-style-type: none"> • Buzzwords_interviews_IRB_protocol_2022.docx, Category: IRB Protocol; • Claborn-DDRIG, Category: Sponsor Attachment; • consent_form_30-06-2022.pdf, Category: Consent Form; • NSF-Award-Notice, Category: Sponsor Attachment; • recruitment_methods_email_30-06-2022.pdf, Category: Recruitment Materials; • supporting_documents_20-06-2022.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (2) Tests, surveys, interviews, or observation on 7/1/2022.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Experiments

Figure N. IRB approval letter for expert interviews



APPROVAL: EXPEDITED REVIEW

[Marcus Janssen](#)
 CGF: Sustainability, School of (SOS)
 480/727-4641
 Marco.Janssen@asu.edu

Dear [Marcus Janssen](#):

On 9/18/2023 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Exploring the Spread, Use, and Impact of Imprecise Language on Decision Making - Experiments
Investigator:	Marcus Janssen
IRB ID:	STUDY00018514
Category of review:	(7)(a) Behavioral research
Funding:	Name: National Science Foundation, Grant Office ID: FP00031937, Funding Source ID: 2214346
Grant Title:	<i>DDRIG in DRMS: Exploring the Spread, Use, and Impact of Imprecise Language on Decision Making</i>
Grant ID:	FP00031937;
Documents Reviewed:	<ul style="list-style-type: none"> • Buzzwords_experiments_IRB_protocol_2023.docx, Category: IRB Protocol; • Claborn-DDRIG, Category: Sponsor Attachment; • consent_form_31-08-2023.pdf, Category: Consent Form; • debrief_script_09-09-2023.pdf, Category: Participant materials (specific directions for them); • NSF-Award-Notice, Category: Sponsor Attachment; • recruitment_methods_advertisement_25-08-2023.pdf, Category: Recruitment Materials; • supporting_documents_25-08-2023.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);

The IRB approved the protocol from 9/18/2023 to 9/17/2024 inclusive. Three weeks before 9/17/2024 you are to submit a completed Continuing Review application and required attachments to request continuing approval or closure.

If continuing review approval is not granted before the expiration date of 9/17/2024 approval of this protocol expires on that date. When consent is appropriate, you must use final, watermarked versions available under the “Documents” tab in ERA-IRB.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).