

Messaging matters: A systematic review of conservation messaging literature

Context

Communications that influence attitudes and behaviours are necessary for effective conservation programs and policy development. Strategically designed messages have been shown to influence attitudes and behaviour for other environmental issues, such as energy consumption, recycling and climate change mitigation. However, comparatively little is known about how best to design messages intended to change behaviours affecting biodiversity conservation. We conducted a systematic literature review to investigate the status of conservation messaging research.

What we looked at

While we can learn many lessons from the pre-existing literature on strategic messaging, biodiversity conservation may offer a unique communication challenge. Biodiversity issues are often context-specific or generalised, making the link between behaviour and biodiversity difficult to examine. In addition, unlike energy conservation behaviours, biodiversity behaviours are unlikely to provide immediate gratification or economic benefits to individuals.

We performed a systematic review of conservation messaging literature, aiming to:

- synthesise and describe the current state of conservation messaging research
- assess whether the conservation messaging literature draws on messaging theory from other disciplines
- identify and address research gaps that might provide guidance for developing and designing conservation messages.

We considered our own work through the lens of a standard strategic communication framework, as outlined in Figure 1.

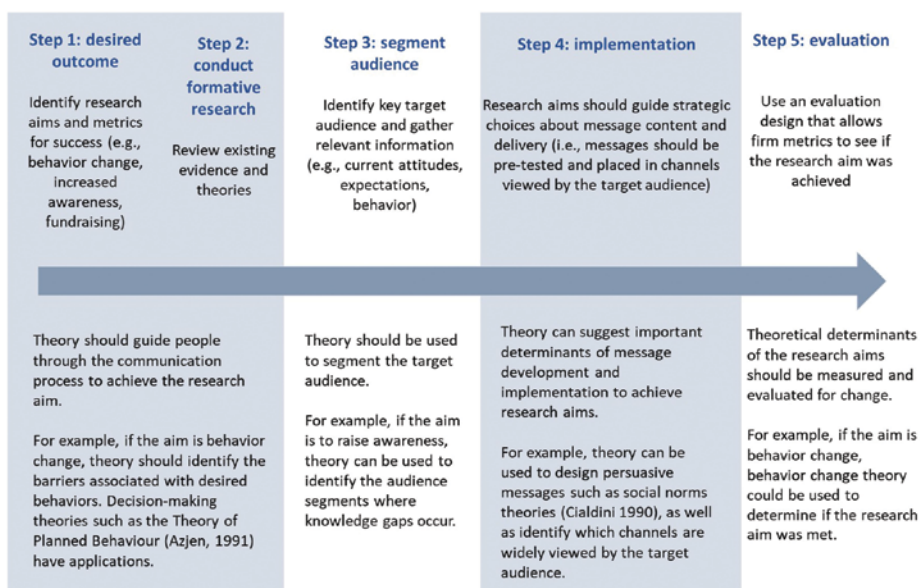


Figure 1: A strategic communication framework, showing campaign design steps and application of relevant theories. Adapted from Noar (2006).

LEFT: Communication programs with environmental behaviour change objectives can benefit from taking a strategic approach and utilising tested communication theories. Photo: Fabrice Florin CC BY-SA 2.0 Flickr

Findings

From a total of 89 conservation messaging papers identified, we found 24 papers that discussed theory, 27 experimental papers, and 38 case studies. The oldest study was published in 1995, while 69% of studies were published within the past five years, which shows that conservation messaging is an emerging research area.

The most common aim (one in three papers) was to increase awareness and educate people (see Figure 2). However, this 'knowledge-deficit' approach can be limited in encouraging behaviour change because behaviour change is determined by many complex factors additional to awareness or knowledge. Therefore, while eliminating knowledge gaps may be a useful first step, conservationists should also consider such other factors that may influence behaviour, for example, social norms and self-efficacy.

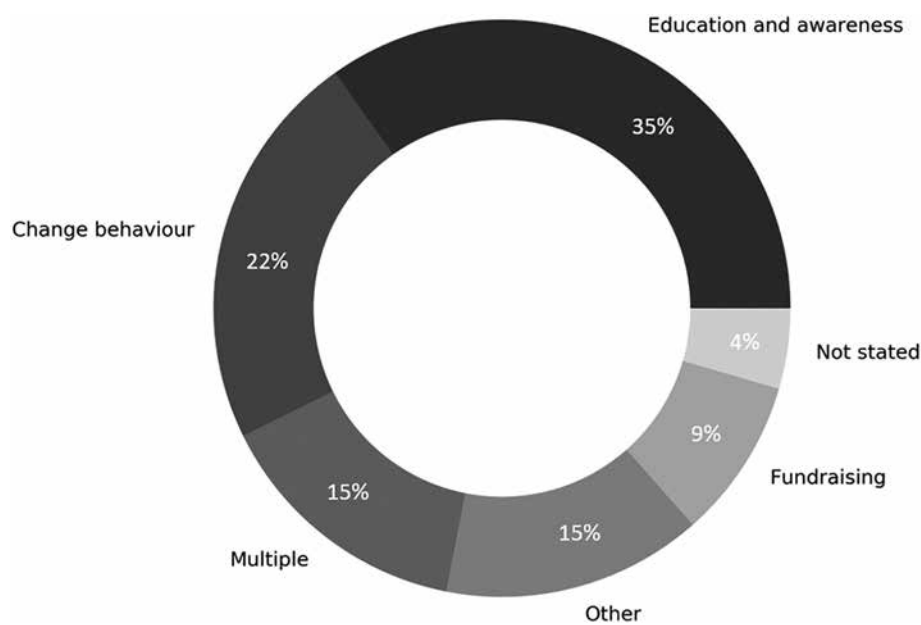


Figure 2: The aim of messaging studies in the peer reviewed academic literature, based on a systematic search of Web of Science. Credit: Kidd et al. 2019a

Table 1

The self-identified theory or approach used by 89 studies on conservation messaging, based on a systematic review of the academic literature in Web of Science. Some studies used more than one theory.

Self-identified theory or approach	Definition and key references	Number of papers
Framing	Message framing suggests that the structure or organization of a message can alter perception of its content (Entman, 1993).	36
Marketing*	Marketing involves a range of processes concerned with finding out what consumers want, and then providing it for them (Kotler et al., 1999). Social marketing is defined as 'the systematic application of marketing along with other concepts and techniques to achieve specific behavioral goals for a social good' (French et al., 2006).	26
Charismatic and flagship species	High profile species can act as symbols or ambassadors for conservation campaigns. They often possess appealing or charismatic traits (Jepson and Barua, 2015; Simberloff, 1998).	14
Theory of change (ToC)	Theory of Change is a process for mapping programs and initiatives working for social and political change (Taplin et al., 2013).	3
Familiarity principle	People develop preferences for things because they are familiar with them (Reder and Ritter, 1992).	2
Behavioral decision-making theories:		
Self-efficacy	Self-efficacy is an individual's belief in their own innate ability to achieve goals (Bandura, 1977, 1986).	1
Theory of planned behavior (TPB)	TPB links an individual's beliefs with their behavior. The theory states that attitude toward behavior, subjective norms, and perceived behavioral control all shape an individual's behaviors (Ajzen, 1991).	2
Theory of reasoned action (TRA)	The TRA is a model of persuasion which links the relationship between attitudes and behavior to actions. It is used to predict how people will behave based on their pre-existing attitudes and behavioral intentions (Fishbein and Ajzen, 1975).	2
Elaboration likelihood model (ELM)	The ELM is a model of persuasion which suggests that there are two routes of processing stimuli: the central route and the peripheral route, which influences people's attitudes (Petty and Cacioppo, 1986).	2
Risk perception**	People make subjective judgments about the severity and likelihood of a risk. Some of these judgments may be predictable (Starr, 1969; Wildavsky and Dake, 1990).	2
Connection to nature	Nature connectedness is the extent to which people feel integrated with all aspects of nature. This includes an individual's sense of care for nature, and their commitment to protecting it. When someone feels connected to nature they may be more inclined to protect it (Nisbet et al., 2009; Schultz, 2002).	2

* There are multiple theories of marketing. Social marketing was the most widely applied.

** There are multiple theories of risk perception, articles did not differentiate between them.

Table 1. The self-identified theory or approach used by 89 studies on conservation messaging, based on a systematic review of the academic literature in Web of Science. Some studies used more than one theory. Credit: Kidd et al. 2019a

Theory and approach

The theories used by the studies spanned a range of disciplines, including psychology, marketing and communication (see Table 1). Framing theory (which suggests that the structure or organisation of a message can alter perception of its content) and marketing (which involves using a popular approach to strategic communication) were the two most commonly used approaches. However, the results suggest that some conservation messaging studies are not grounded in established theories relevant to their research aim. For example, almost one-third of reviewed studies stated that their research aim was to encourage behavioural change, yet few studies used behaviour change theories such as the Theory of Planned Behaviour. Fourteen papers did not indicate that their research was guided by any theory.

Audience targeting and segmentation

One-third of reviewed studies did not state a target audience.

Of the 58 that did, 27 targeted a mass audience and 33 targeted a defined audience segment. This lack of audience segmentation highlights a major research gap. Identifying the key audience necessary to address the overall objective is a critical task for any strategic communications. It is very difficult to evaluate the effectiveness of a messaging campaign without a clear idea of the intended audience or the mechanism by which the message is proposed to affect behaviour. Audiences can be segmented in many ways in the context of conservation, for example, by their wildlife value orientation or level of involvement.

Evaluation

All of the experimental studies evaluated the effectiveness of message design using pre- and post-measures of a dependent variable and a control group. Most relied on self-reported measures (e.g., behavioural intention). Over one-third of the case studies did not include any evaluation. Only five studies evaluated specific behavioural change.

Evaluation is key in gathering further empirical evidence to inform the development and design of future messaging.

The need for empirical evidence

The results from this study show that a more strategic approach is needed to gather empirical evidence for conservation messaging. Other disciplines provide a wealth of past literature to draw from, however, there should be a focus on new empirical research within the context of biodiversity conservation.

For example, there is a current focus in conservation on optimism, which aims to inspire action through hope or motivation. However, there is insufficient evidence to know whether this approach is effective at inspiring attitudinal or behavioural change. There are multiple pathways by which people may be inspired to act for biodiversity (Figure 1) but limited conservation-specific evidence to know which pathways people are likely to follow.

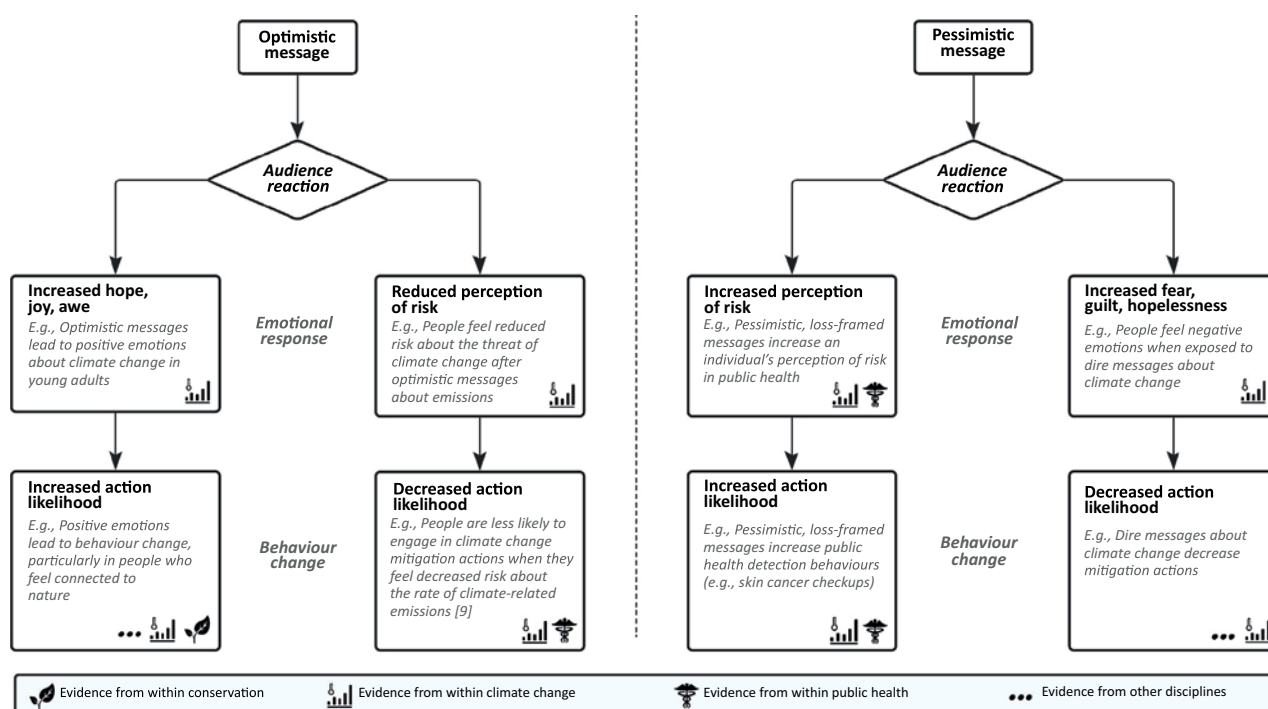


Figure 3: A conceptual model of the evidence-based pathways by which optimistic and pessimistic message framing may both lead to action or inaction. (Kidd et al. 2019b)

Recommendations

Conservation messaging is an emerging field of research which has the potential to drive attitudinal and behavioural change to benefit biodiversity. Our results suggest that opportunities exist to draw more effectively on the long-standing messaging expertise of other disciplines.

Adopting a strategic approach from the outset – through providing a clear grounding in theory, and identifying aims and audiences specifically – should help make sure that messaging strategies can be evaluated effectively. We have drawn some key points from our research that may serve as recommendations for future efforts towards strategic conservation messaging:

- 1. Move away from focusing on education and awareness-raising (e.g., consider behaviour change through social norms and self-efficacy).**
Providing people with information to increase their awareness is based on the assumption that people do not conserve biodiversity because they do not know how. However, behaviours are influenced by a range of factors, including social norms, capacity to act, sense of responsibility, and cultural factors such as status, habits and contextual factors. For behaviour change programs to achieve real world biodiversity benefits the communication strategies of these programs should address these factors.
- 2. Embrace established theories and approaches to messaging.**
Research into effective messaging for conservation behaviour change is an emerging field, but approaches should be informed by evidence-based, systematic approaches from other disciplines. For example, strategic communication approaches such as community-based social marketing can be used to encourage conservation behaviour change.
- 3. Target relevant audiences using audience segmentation techniques.**
Conservation communications are often characterized by a 'one-size-fits-all' formula, targeting a mass audience or the general public. Yet, with limited resources, it is essential to focus efforts on strategically targeted groups, for example those most likely to adopt the behaviour change or those whose behaviour change will have the greatest effect. In almost all other sectors, audience segmentation efforts have reached high standards and literature exists that segments people into different groups for targeted conservation communications.
- 4. Adopt a strategic approach which includes evaluation.**
Strategic communication involves planning, implementation, and evaluation through monitoring and research. Using this approach from the outset allows evaluation of the effectiveness of messages designed to change people's behaviour.

For example, evaluating the efficacy of any messaging strategy is only possible when the research aims and target audience are clearly defined to begin with.

- 5. Use empirical evidence to drive communication strategies.**
How people respond to biodiversity messages is poorly understood, even though it is crucial for interpreting why policies, management approaches and campaigns succeed or fail. Conservation is an evidence-based discipline, and we should compile empirical evidence about how to communicate effectively. There exists an exciting opportunity for conservation communicators to expand on the knowledge developed in other disciplines to build an evidence base for messaging strategies that work in conservation.

Further reading

Kidd, LR., Garrard, GE., Bekessy, SA., Mills, M., Camilleri, A., Fidler, F., Fielding, K., Gordon, A., Gregg, EA., Kusmanoff, A., Louis, W., Moon, K., Robinson, JA., Selinske, M., Shanahan, D., Adams, V. (2019a) Messaging matters: a systematic review of the conservation messaging literature. *Biological Conservation*. 236, 92-99. <https://doi.org/10.1016/j.biocon.2019.05.020>

Kidd, LR., Bekessy, SA., Garrard, GE. (2019b) Neither Hope nor Fear: Empirical Evidence Should Drive Biodiversity Conservation Strategies. *Trends in Ecology and Evolution*. 34(4), 278-282. <https://doi.org/10.1016/j.tree.2019.01.018>