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Enhancing Conservation Communication: Using Digital Literacy to Address the Misunderstanding of Southern Africa's Sustainable Use Approach in Western Settings

Metolo Foyet*[1], Maxi Pia Louis[2]
[1]Department of Geography, Focus Area: Catastrophes, Conservation, and Conflict, LifeThroughWildlife Lab, University of Florida, Turlington Hall, 3141, 330 Newell Dr, Gainesville FL 32611, USA.
Email: m.foyet@ufl.edu | ORCID: https://orcid.org/0009-0006-8054-2281
[2]Namibian Association of CBNRM Support Organizations (NACSO), 19 Lossen Street, Ausspannplatz, Windhoek, Namibia. Email: maxi@nacso.org.na | ORCID: https://orcid.org/0000-0002-6923-2411
**Corresponding author*

ABSTRACT

Effective communication and digital literacy are crucial for addressing misunderstandings about the Southern African approach to sustainable use in Western settings. This paper highlights the need to enhance conservation communication and explores the role of digital communication in bridging the gap between the Southern African approach and Western conservation paradigms. The Southern African emphasis on community-based natural resource management (CBNRM) and sustainable wildlife use for both conservation and economic purposes often faces misinterpretation and scepticism in Western societies that prioritize preservation and non-consumptive use. By analysing literature, case studies, and communication strategies, this study identifies the challenges stemming from cultural biases, differing conservation ideologies, and limited understanding of the Southern African context. It investigates the significance of digital literacy in overcoming these challenges by promoting the development of technology skills among conservation practitioners and members of communities coexisting with wildlife, equipping them with relevant digital tools, promoting information sharing, fostering cross-cultural dialogue, and engaging diverse stakeholders through digital platforms. The paper stresses the significance of utilizing diverse communication channels (including social media, online forums, websites, campaigns, multimedia tools, and educational resources) to share accurate and culturally sensitive information about the Southern African approach. It highlights the necessity for tailored communication strategies that consider the distinct needs and values of various audiences, incorporating digital approaches involving active listening, dialogue, and the integration of local knowledge. This study promotes the development of inclusive and accessible spaces through improved digital literacy and effective communication strategies. It advocates for mutual understanding and collaboration between Western and Southern African conservation practitioners, stakeholders, and decision-makers. By leveraging digital platforms and enhancing communication competencies, the Southern African approach can be better comprehended within Western settings, fostering sustainable conservation practices and nurturing collaborative partnerships in conservation initiatives.

Keywords: Conservation communication; Digital literacy; Sustainable use; Conservation

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1. INTRODUCTION

Amid the ongoing discourse surrounding trophy hunting, it has become evident that proponents of animal rights, who frequently prioritize the welfare of animals over human rights, often lack a comprehensive understanding of the African perspective on sustainable use. Recognizing the contrasting viewpoints on sustainable use held by these parties, it has become apparent that initiating a dialogue is crucial to foster a deeper understanding and bridge the gap between these differing perspectives.

In addition to the urgent need for dialogue, it is essential to acknowledge the role of cultural nuances in shaping perspectives on sustainable use. Southern Africa's longstanding traditions and cultural practices have historically involved a close relationship with wildlife, viewing animals as integral components of their heritage. Understanding the cultural context is pivotal in appreciating the intricate balance between human livelihoods and wildlife conservation. Engaging in meaningful conversations that incorporate cultural sensitivity can contribute to a more holistic understanding of how communities in Southern Africa perceive and value sustainable use practices, shedding light on the deep-rooted connections between humans and the environment.

Furthermore, the discourse on trophy hunting often oversimplifies the complex dynamics at play in Southern Africa's conservation strategies. Conservation efforts in the region are multifaceted, addressing not only ecological concerns but also socio-economic factors. Sustainable use, when managed responsibly, can provide communities with economic incentives for conservation, supporting local livelihoods and fostering a sense of stewardship towards wildlife. By highlighting the intricate web of ecological, cultural, and economic considerations in Southern Africa's approach to sustainable use, this dialogue seeks to dispel misconceptions and encourage a more nuanced understanding of the interconnected challenges faced by communities engaged in wildlife management. Only through a comprehensive and inclusive discourse can a path be forged towards conservation practices that respect both animal welfare and the well-being of local communities.

This paper is subdivided into three sections. The first section aims to provide a comprehensive understanding of the sustainable use approach adopted in Southern Africa for wildlife conservation. To do that, we explore the historical and cultural context that shapes the Southern African perspective on sustainable wildlife management. It is also aimed at identifying and conducting a critical analysis of the prevalent misconceptions and misunderstandings surrounding Southern Africa's sustainable use approach in Western societies. In that regard, we examine the factors contributing to these misconceptions, such as cultural differences, ethical perspectives, and media portrayals.

The second section discusses the role of digital literacy in addressing the misunderstandings discussed in the first section. In this regard, the potential of digital platforms and tools in shaping public perceptions and opinions related to wildlife conservation is investigated. Assessment is also made of the impact of misinformation and biased narratives on social media platforms and other online sources regarding Southern Africa's sustainable use approach.

The third section proposes strategies to bridge the gap between Southern Africa's sustainable use approach and Western perspectives. There, the use of social media, online campaigns, and other digital platforms to disseminate accurate information and engage diverse audiences is explored. Case studies and best practices in leveraging digital literacy for improving conservation communication and fostering a more nuanced understanding of sustainable wildlife management is equally evaluated. By addressing these objectives, the paper aims to contribute to the advancement of effective conservation communication strategies that utilize digital literacy to mitigate misunderstandings surrounding Southern Africa's sustainable use approach in Western settings.

2. METHODS

This paper relies on a combination of desk research and field observations conducted by the authors. They conducted a comprehensive literature review to gather existing knowledge and insights on the southern African and western views of sustainable use, conservation communication, and digital literacy. The authors also reviewed relevant academic journals, books, reports, and online resources to establish a theoretical foundation for the research.

Representative case studies were selected from both Southern African and Western contexts to examine the misunderstandings surrounding the sustainable use approach. These cases were chosen based on their relevance, diversity, and impact. Conversations (around experiences, challenges, and

perspectives) with practitioners, experts, and stakeholders from both end of the conservation spectrum, as well as observations from participation in surveys and activities in the field in Southern Africa have equally informed the development of this paper.

Having contributed to communication strategies and analysed the digital content of CBNRM-organizations in Namibia, including social media, websites, and online forums, the authors identified that digital literacy was an urgent need. Moreover, content analysis from previous research (Al-Shawaf, and Buss, 2021; Castillo-Huitrón et al., 2020; Snorek and Bolger, 2022) has identified misinformation, common misconceptions, and patterns of communication that contribute to misunderstandings. The combination of these methods will provide a comprehensive understanding of the misunderstandings surrounding the sustainable use approach in Western settings and the role of digital literacy in addressing them.

3. BACKGROUND ON SOUTHERN AFRICA'S SUSTAINABLE USE APPROACH AND IMPACTS OF PARK ESTABLISHMENT ON WILDLIFE CONSERVATION AND LOCAL COMMUNITIES

Historically, Southern African communities had traditional systems of resource management that involved sustainable practices to ensure the long-term availability of natural resources. These practices often incorporated local knowledge, customary laws, and cultural beliefs and rituals that promoted the sustainable use of resources (Child and Barnes, 2010; Fabricius, 2004; Mohamed-Katere, 2001). According to Pearce (2010), prior to the establishment of wildlife parks, animals were arguably better preserved. However, with the introduction of parks, a shift occurred in the dynamics of local populations and conservation efforts. This transformation brought about the implementation of quotas, privatization, and the emergence of small beneficiary groups, leading to a cascade of consequences that had detrimental effects on both wildlife preservation and community relations.

During the colonial era, the management of natural resources shifted towards centralized control by colonial powers, leading to the exclusion of local communities from decision-making processes and resource access (Dilys et al., 2009). This approach resulted in the degradation of ecosystems and marginalized local communities who had traditionally depended on those resources (Boudreaux, 2007). The exclusivity also led to a diminished sense of ownership and involvement among the local communities, as their original perception of their habitats – now turned parks - as communal resources for the benefit of all was altered. The imposition of privatization further exacerbated this issue, as it resulted in the exclusion of traditional users and cultivators of the land. According to Colchester (2003): "national parks and other protected areas have imposed elite visions of land use, which result in the alienation of common lands to the State. What is equally clear is that the conservationists' concept of wilderness is a cultural construct not necessarily shared by other peoples and civilizations, which have quite different views of their relationship with what we call nature".

Box 1: Views of nature by Indigenous peoples, extracted from Colchester's 2003 report entitled Salvaging Nature.

Indigenous peoples are thus perplexed by western views of what conservation means. For example, Jakob Malas a =/Khomani hunter from the Kalahari, whose lands were classified as the Gemsbok National Park, has noted: "The Kalahari is like a big farmyard. It is not a wilderness to us. We know every plant, animal, and insect, and know how to use them. No other people could ever know and love this farm like us". The nineteenth century Ogala Sioux Chief, Luther Standing Bear, made a similar point: "We did not think of the great open plains, the beautiful rolling hills, and winding streams with tangled growth as 'wild'. Only to the white man was nature a 'wilderness' and only to him was the land 'infested' with 'wild' animals and 'savage' people. To us it was tame. Not until the hairy man from the east came… was it 'wild' for us". Ruby Dunstan of the Nl'aka'pamux people of the Stein Valley in Alberta, Canada, who have been fighting to prevent the logging of their ancestral lands, has likewise remarked: "I never thought of the Stein Valley as wilderness. My Dad used to say, 'that's our pantry'. We knew about all the plants and animals, when to pick, when to hunt. We knew because we were taught every day. It's like we were pruning everyday… But some of the white environmentalists seemed to think if something was declared a wilderness, no-one was allowed inside because it was fragile. So they have put a fence around it, or maybe around themselves."

Furthermore, small beneficiary groups within the park management system contributed to the erosion of trust within local communities. As certain individuals or organizations gained exclusive access and privileges, suspicion and resentment grew among those who felt excluded. This breakdown in trust had a ripple effect, causing communities to disengage from collaborative conservation efforts and pursue their own interests, often at the expense of wildlife preservation. As a result, the accelerated extinction of animals occurred due to increased poaching, habitat destruction, and a lack of concerted efforts to address conservation challenges.

In the post-colonial period, there was a growing recognition of the importance of involving local communities in natural resource management. This led to the emergence of community-based natural resource management (CBNRM) initiatives in the 1980s and 1990s (Fabricius et al., 2013). CBNRM aimed to devolve rights and responsibilities over resources to local communities, recognizing their traditional knowledge and rights to benefit from those resources (NACSO, 2015). CBNRM programs sought to empower local communities by granting them ownership or access rights to natural resources, including wildlife, forests, and water. These programs emphasized community participation, benefit-sharing, and the integration of conservation with sustainable livelihoods (Child, 1996). The sustainable use of wildlife resources through regulated hunting and ecotourism became key components of CBNRM.

Over the past decade, a series of radical alternatives have emerged to refine the concepts, policies, and practices that underpin conservation in Africa. While the sustainable use approach in Southern Africa has often been interpreted as an effort to empower communities in conservation (Agrawal et al., 1997), it is important to distinguish that its dynamics are more intricate than a mere transfer of responsibility and authority from the state to the local communities (Borrini and Jaireth, 2007). Initiatives and alternatives developed under the Southern African sustainable use approach do not only involve the inclusion of local communities in conservation efforts but also incorporate market mechanisms and redefine the very essence of conservation, a concept further developed into the price-proprietorship notion (Child, 2000; Child, 2012; Bond, et al., 2004). Consequently, this approach represents a "new conservation" paradigm that aims to transcend the historical and western framework of "fortress conservation" (Adams & Hulme, 1998), which has been influenced by colonial and neo-colonial constructs for most of this century.

Mainstream, conventional or fortress conservation initiatives have repeatedly had negative impacts on local livelihoods (Betoko & Carvalho, 2020), frequently resulting in violence against people and property (Pemunta, 2019), as well as forced resettlement that leads to long-term deterioration of living standards (Luoma, n.d), contrarily to the new conservation model.

3.1 Significance of the New Conservation Model in Conservation Efforts

The new conservation model incorporates three arguments: Firstly, conservation is advocated to shift from a state-centric approach to one rooted at the local level in society. This challenges the perception that rural Africans are solely responsible for environmental degradation, as their Indigenous knowledge demonstrates a sophisticated understanding of environmental processes. Instead of being seen as perpetrators, they should be recognized as legitimate proprietors, with rights and responsibilities over conservation resources (Western et al., 1994). This shift rejects the notion of separating humans from nature through state coercion and advocates complete transfer of management responsibilities and property rights over natural resources to local communities. Initiatives like CBNRM have influenced practices in Namibia, and proponents of Zimbabwe's CAMPFIRE program see it as necessary for realizing its full potential (Hulme and Murphree, 1999). The success of CBNRM in Southern Africa can be attributed to various factors, including legal reforms, policy frameworks, institutional support, and community capacity building (IRDNC, n.d). Several countries in the region, such as Namibia, Zimbabwe and Botswana, have implemented successful CBNRM programs that have demonstrated positive outcomes for both conservation and local communities.

Secondly, conservation is advocated to shift from preservation to sustainable development, with the aim of simultaneously achieving both conservation and development goals. This shift means that the things to be conserved, such as species, habitats, or biodiversity, are no longer untouched, but are now seen as renewable natural resources that can be utilized as long as it is done in a sustainable manner that does not compromise their long-term viability (Hulme and Murphree, 1999). This shift in thinking reflects an acknowledgement that much conservation discourse in the past has been seen as "environmental imperialism," prioritizing Western conservation goals over the development needs of

African nations. The world commission on environment and development report (Brundtland et al., 1987) emphasized the futility and injustice of expecting the poor to remain impoverished in the name of protecting the environment.

Thirdly, conservation is re-thought from a neoliberal economic perspective, emphasizing the importance of unrestricted markets in determining patterns of natural resource use, including conservation. Individuals "protect what they eat" by ensuring the food source does not go extinct. Thus, the economic principle of "use it or lose it" argues against protecting species and habitats from market forces, suggesting that an inefficient state (susceptible to corruption from poachers and timber companies) could lead to degradation (Lee et al., 2002). Instead, proponents advocate for exposing resources to a distortion-free market, where high economic values are placed on them, thereby increasing the likelihood of conservation. This approach relies on consumers, such as tourists, trophy hunters, and those valuing the species or habitat, bidding up prices and discouraging environmentally damaging uses like commercial agriculture.

According to Buscher and Fletcher, the realm of political ecology in conservation can be delineated along two primary axes: Nature/Culture Dichotomies and Beyond Nature/Culture Dichotomies. Within the axe of Nature/Culture Dichotomies, we encounter Mainstream Conservation characterized by its capitalist orientation and Neoprotectionism, which adheres to a non-capitalist ethos. Meanwhile, in the axe of Beyond Nature/Culture Dichotomies, we find New Conservation, aligned with capitalist principles, and Convivial Conservation, embracing a non-capitalist perspective (Buscher & Fletcher, 2020).

Within the framework of Nature/Culture Dichotomies, Mainstream Conservation stands as a prominent archetype marked by its inherent capitalist orientation. This perspective places a significant emphasis on market-driven approaches, private ownership, and the commodification of natural resources as strategies for conservation. Mainstream Conservation often aligns with economic interests, framing environmental protection within the context of profit-making ventures, such as ecotourism or carbon trading.

In contrast, Neoprotectionism emerges as a counterforce within the same dichotomy, advocating for conservation practices rooted in a non-capitalist ethos. Neoprotectionism rejects the commodification of nature and challenges the idea that market-driven solutions alone can effectively address environmental issues. Instead, it emphasizes community-based initiatives, indigenous knowledge systems, and a holistic, ecosystem-centered approach to conservation. This paradigm seeks to safeguard the environment by prioritizing sustainable practices, equitable resource distribution, and the preservation of cultural and ecological diversity.

The tension between Mainstream Conservation and Neoprotectionism encapsulates a broader ideological struggle within the Nature/Culture Dichotomies, reflecting divergent perspectives on the relationship between human societies and the natural world. This dynamic interplay shapes the discourse on conservation, influencing policies, practices, and the overall trajectory of environmental stewardship in a global context.

Within the expansive terrain of Beyond Nature/Culture Dichotomies, two distinct paradigms emerge: New Conservation, as a forward-looking approach, aligns itself with capitalist ideologies, acknowledging the role of markets and economic incentives in environmental management. Advocates of New Conservation argue that by integrating economic interests with conservation goals, innovative solutions can be devised to address environmental challenges. This paradigm often promotes strategies such as payments for ecosystem services, eco-certifications, and market-driven conservation initiatives. Proponents argue that by assigning economic value to nature, it becomes a more salient factor in decision-making processes, leading to more sustainable resource management. Borrowing from Buscher and Fletcher (2020), the new conservation movement can be summarised in these terms:

- Emphases on the importance of working with local communities in conservation efforts, recognizing their traditional knowledge and values, rather than solely relying on government or private organizations
- Protects individual species, habitats, and processes that sustain entire ecosystems
- Addresses social justice issues
- Advocates for a holistic approach to conservation
- From protected to promoted areas
- From saving nature to celebrating human and non-human nature
- From touristic voyeurism to engaged visitation

- From spectacular to everyday environmentalisms
- From privatized expert technocracy to common democratic engagement

On the other end of the spectrum, Convivial Conservation stands as a contrasting force within Beyond Nature/Culture Dichotomies, championing a non-capitalist perspective. This paradigm challenges the commodification of nature inherent in capitalist models and seeks alternative pathways for conservation that prioritize social and ecological well-being over profit. Convivial Conservation emphasizes community-based stewardship, participatory decision-making, and the recognition of diverse cultural values in shaping conservation practices. It aims to foster a harmonious coexistence between human communities and the environment, rejecting the notion that economic growth must come at the expense of ecological integrity.

The juxtaposition of New Conservation and Convivial Conservation within Beyond Nature/Culture Dichotomies reflects a profound philosophical and ethical debate about the future of conservation. It prompts critical reflections on the values, power structures, and societal paradigms that underpin contemporary approaches to environmental protection, highlighting the need for a nuanced understanding of the intricate relationships between nature, culture, and socio-economic systems.

3.2 Benefits and Importance of Sustainable Use

By adopting sustainable utilization (careful and responsible use of natural resources), Southern African countries ensure that essential ecological processes, such as the hydrological cycle and soil productivity, are not compromised (MEFT, 2022). Also, in the context of trophy hunting, studies have proven that when wild species are conserved but not utilized, local resource users perceive them as pests, damaging livelihoods, and properties (i.e. edifices, crop-raiding, livestock) and posing threats to human life (Hewitson and Sullivan, 2021). Conversely, when they are fully utilized through tourism, trophy hunting activities (i.e. gastronomy, taxidermy, pharmaceuticals, cosmetics), providing economic incentives to local resource users (Lindsey et al., 2007), people become motivated to protect and manage wild species, prioritizing the maintenance of their habitat. If the market does not assign a high enough value to a species or habitat, it may be lost as humans prioritize other goals (Thomson, 2013). Therefore, effective conservation communication is essential in conveying this notion clearly.

3.3 Exploring Misconceptions in Western Settings

Although sustainable use is a globally significant concept, there are notable misconstructions (Wachala and Cupp, 2022) and divergent perspectives (He, 2020; UNEP, 2019) between Southern Africa and the West. To identify misunderstandings about sustainable use in both regions, it is necessary to consider their specific contexts. While it is challenging to capture the full range of perspectives, and crucial to recognize that perceptions can differ among individuals and communities, we will outline some general misconceptions that may arise. However, it is important to note that these misconceptions do not apply universally, as individuals within these regions may hold diverse views.

a. *Sustainable use is synonymous with unsustainable exploitation.* Sustainable use may mistakenly be perceived as license for uncontrolled exploitation of natural resources without considering long-term conservation goals (Hoyt, 1994). This misconception arises from a lack of understanding about the principles and practices of sustainable use, which aim to balance conservation and socioeconomic development; and prioritize responsible resource management and the preservation of ecosystems (Government of the Republic of Namibia, 2004). In Southern Africa, sustainable use involves a blend of regulatory measures including careful management, scientific assessments, and regulated practices to ensure long-term ecological and socio-economic viability.
b. *Sustainable use is only about hunting.* There is a distinction between hunting, trophy hunting and conservation hunting.
    - ► Hunting in Africa takes various forms, including subsistence hunting, commercial meat harvesting, and trophy hunting. Hunting is also used to manage herbivore populations and mitigate their impact on rangelands, particularly in fenced areas.
    - ► Trophy hunting refers to a specific form of hunting where clients pay for the opportunity to hunt and keep certain parts of the animal as a "trophy" or a symbol of their achievement. The remaining parts usually consumed by local residents and/or wildlife. In this practice, the focus is often on obtaining prized animal parts rather than primarily utilizing the meat or supporting local communities.

- The primary concerns for host countries regarding hunting are its alignment with wildlife conservation goals, support for local livelihoods, and welfare considerations. In Namibia, hunting that meets all three criteria is called conservation hunting.
- Conservation hunting, also known as sustainable hunting or well-managed hunting, is an approach that aims to contribute to wildlife conservation and support local livelihoods. Highly selective (age-based and gender-based adaptive quotas) (Dickman et al., 2021), it involves carefully selecting and harvesting a limited number of animals (taking only 1% of the national herd) to ensure the long-term sustainability of the population. It generates over 10 times more income per animal harvested than meat harvesting and provides meat as a by-product (Conservation Namibia, n.d). It occurs on both communal and freehold land and includes measures to ensure that local communities benefit from hunting activities through revenue sharing, job creation, or other means. While the term "conservation hunting" can sometimes be used in the context of trophy hunting, its broader meaning encompasses hunting practices that align with wildlife conservation goals and support local communities. It emphasizes sustainable practices, ethical considerations, and the importance of generating benefits for both wildlife conservation and local people. For example, it is crucial for Namibian hunting outfitters and professional hunters to educate their foreign clients about conservation hunting principles and the positive contributions of well-managed hunting to both Namibian people and wildlife. One common misconception is that sustainable use solely revolves around hunting practices. While hunting can be a component of sustainable use, it is just one aspect. Sustainable use in Southern Africa also encompasses practices such as community-based ecotourism, fisheries management, and sustainable forestry or savannahs, which aim to balance conservation and socioeconomic development.

c. *Economic interests solely drive sustainable use.* The latter may be perceived as solely focused on economic gains without considering ecological and social dimensions. However, sustainable use approaches in Southern Africa emphasize the integration of economic, environmental, and social factors to ensure long-term conservation and community well-being.
d. *Sustainable use undermines conservation efforts.* There is a common belief that sustainable use practices, such as regulated hunting, can have negative impacts on wildlife populations and ecosystems. However, when responsibly managed with scientific guidelines and monitoring, sustainable use can contribute to wildlife conservation by providing incentives for habitat protection, generating funds for conservation initiatives, and involving local communities in conservation efforts.
e. *Trophy hunting is purely for sport and has no conservation benefits.* Trophy hunting, when well-regulated and managed, becomes conservation hunting. The latter contributes to conservation efforts in Southern Africa. This practice involves strict quotas, monitoring, and revenue sharing that incentivize habitat protection, anti-poaching measures, and support for local communities. It can generate funds for conservation initiatives and provide economic incentives for wildlife conservation (Conservation Namibia, n.d).
f. *Trophy hunting is cruel and for psychopaths.* Apart from implying mental health bias, such belief is a misconception as it assumes that all trophy hunting is inherently cruel or that only psychopaths engage in this activity (Richardson, 2017). While some cases of trophy hunting may involve unethical practices or individuals with questionable motives, it is essential to avoid painting all trophy hunters with a broad brush. Trophy hunting can take different forms and occurs in various contexts around the world. In some cases, it is regulated and managed by wildlife conservation organizations and government authorities to ensure sustainability and conservation goals. These organizations set specific quotas and guidelines to maintain healthy wildlife populations and protect ecosystems. It is crucial to note that many trophy hunters adhere to legal and ethical guidelines established by conservation authorities. They obtain permits, follow hunting regulations, and participate in guided hunts conducted by experienced professionals. These hunters often prioritize fair chase, where animals have a chance to evade the hunter, and the goal is more often about experiencing the connection to nature, the thrill of the hunt, and the challenge it presents than the act of killing itself. When the latter occurs, regulations require it to be quick and humane. It is important to separate personal emotions

and opinions from factual assessments of hunting practices. And while ethical debates surrounding trophy hunting continue, it remains prejudicial, discriminating, and inaccurate to label all trophy hunters as cruel or psychopathic based solely on their participation in this activity. Ultimately, it is important to approach this topic with nuance and recognize that not all trophy hunters fit into a single stereotype.

g. *Trophy hunters do not care about animals.* It is a misconception to assume that all trophy hunters do not care about animals. It is important to recognize that individuals engage in trophy hunting for various reasons, and their motivations and attitudes towards animals can differ significantly. Hunting activities contribute to conservation efforts and support local communities (Aru Game Lodges, 2016). By paying for hunting permits and fees, hunters provide funding for wildlife conservation programs, anti-poaching initiatives, habitat preservation, and local economies. Hunters and members of communities where hunting is allowed believe conservation hunting can be an effective tool for wildlife management and conservation, especially in areas where alternative forms of land use might pose a greater threat to animal populations. However, it is crucial to distinguish between responsible trophy hunters who prioritize conservation and ethical considerations and those who engage in irresponsible or illegal hunting practices. Instances of illegal poaching, excessive trophy hunting, or targeting endangered or threatened species do occur, and these actions are condemned in Southern Africa.

h. *Trophy hunting is inappropriate and can be replaced by another alternative.* Opinions on trophy hunting vary widely among different groups, including conservationists, animal welfare advocates, human rights in conservation advocates, and local communities (IUCN, 2016). Some argue that the focus should be on promoting non-consumptive forms of wildlife tourism, such as wildlife photography or ecotourism, as alternatives to trophy hunting. Others, members of local communities across the globe, have multiplied publications and awareness actions stating that they are capable of deciding how they want to manage their natural resources. According to leaders and representatives of local communities and local community institutions (CLN, 2022), the judgement over alternatives should be left for them to make.

i. *Local communities are not capable of sustainable resource management.* Some misconceptions assume that local communities lack the knowledge or capacity to manage natural resources sustainably. However, community-based approaches in Southern Africa have demonstrated that involving local communities in resource management can be effective in achieving conservation goals while also improving community livelihoods and fostering a sense of ownership and responsibility.

j. *Ethical considerations.* From an ethical standpoint, trophy hunting raises concerns about animal welfare and the morality of killing animals for sport or trophies. It is argued that it is unnecessary and inconsistent with modern conservation values. Concurrently, similar concerns are increasingly raised about other types of animals, considering the environmental impact of animal agriculture (deforestation, greenhouse gas emissions, etc.) when discussing the morality of killing animals for food (large-scale meat production). According to Indigenous peoples (RA, 2020), if it is morally acceptable to kill animals for food because it is a natural part of the food chain – as supported by the Carnivorous/Naturalistic perspective that believes that humans are biologically designed to consume meat, and therefore, it is morally justified to do so – then it is morally justified to hunt wildlife as the benefits of this activity includes meat that is healthier than marge-scale produced meat. It has been documented that hunted wild game meat (HWGM) has a complete nutritional profile, and its environmental impact is lower than farmed meat (Annafrancesca et al., 2022).

k. *Sustainable use undermines animal welfare.* There is a concern that sustainable use practices, such as conservation hunting, can compromise animal welfare. However, sustainable use frameworks in Southern Africa typically involve strict regulations and monitoring to ensure ethical hunting practices and minimize animal suffering. These practices often align with international standards and prioritize humane and responsible utilization of wildlife resources.

l. *Local communities have limited or no involvement in decision-making.* It is assumed that sustainable use practices disregard the rights and perspectives of local communities. However, in Southern Africa, sustainable use approaches emphasize CBNRM, where local communities actively participate in decision-making processes, benefit-sharing, and conservation efforts.

m. *Local communities have little say or receive minimal benefit from sustainable use practices.* In reality, successful models of sustainable use emphasize community participation, ownership, and benefit-sharing. These practices aim to empower local communities, involve them in decision-making, and ensure they receive economic benefits from natural resource utilization. For example:
   - ► Namibia's CBNRM program has been widely recognized for its success in integrating local communities into wildlife conservation and sustainable resource management (NNF, 2021). The program involves communal conservancies that grant local communities rights and responsibilities over wildlife and other natural resources. These conservancies generate revenue through regulated trophy hunting and tourism, which is reinvested in conservation efforts, community development, and livelihood projects. The program has shown positive outcomes in terms of wildlife conservation, community empowerment, and poverty reduction (NACSO, 2018).
   - ► The Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) in Zimbabwe is another successful example of sustainable use practices. It enabled local communities to manage and benefit from wildlife resources in communal areas. The program allowed for regulated hunting and community-based ecotourism (Kiss, 2004), generating income that is shared among the communities and invested in conservation initiatives and community development projects. CAMPFIRE has been credited with increased wildlife populations, improved livelihoods, and reduced poaching in participating areas (Child, 1996).
   - ► Southern Africa is home to numerous private game reserves that have successfully implemented sustainable use practices. These reserves promote responsible wildlife management, including controlled trophy hunting, alongside ecotourism activities. Revenue generated from hunting and tourism is reinvested in conservation, anti-poaching efforts, and local community development. Private game reserves like Sabi Sands in South Africa have demonstrated the positive impact of sustainable use practices by maintaining healthy wildlife populations, protecting habitats, and contributing to local economies (Lindsey et al., 2006).

n. *Sustainable use is detrimental to wildlife conservation.* There is a misconception that sustainable use practices, including regulated hunting, can have negative impacts on wildlife populations and ecosystems. However, when implemented with careful planning, scientific monitoring, and adherence to sustainable quotas, these practices can contribute to wildlife conservation by providing incentives for habitat protection, anti-poaching efforts, and funding for conservation initiatives.

o. *Sustainable use neglects environmental conservation.* Critics argue that sustainable use prioritizes economic interests over environmental conservation. However, in Southern Africa, sustainable use practices are often designed to balance socioeconomic development with ecological integrity. These approaches recognize the importance of preserving ecosystems, maintaining biodiversity, and incorporating ecological considerations in resource management.

p. *Sustainable use is a one-size-fits-all approach.* Sustainable use is often perceived as a uniform approach that applies universally across different regions and contexts. However, sustainable use practices need to be tailored to the specific ecological, cultural, and socio-economic conditions of each region. Approaches that work in western settings may not be directly applicable or suitable for other regions.

q. *Sustainable use is a Western imposition on Southern Africa.* There may be a perception that sustainable use practices are imposed on Southern African countries by Western conservation ideologies. However, many sustainable use approaches in the region have emerged from within local contexts and have been shaped by local knowledge, cultural practices, and community aspirations.

It is crucial to recognize that these misconceptions do not reflect the views of all individuals or communities in Southern Africa or the West. Sustainable use is a complex and multifaceted concept, and perspectives can vary widely within and between regions. Public attitudes and perceptions towards sustainable use can vary significantly among individuals, communities, and even within different sectors of society (Song et al., 2021). Understanding and addressing these misconceptions requires open

dialogue, collaboration, and an appreciation for the diverse cultural, social, and ecological contexts in which sustainable use practices are implemented.

3.3 Understanding the Communication Gap

Contextual differences and cultural paradigms: sources of misunderstandings between Southern Africa and the West

In the realm of wildlife ownership, disparities between Western and Southern African perspectives create nuanced challenges for conservation dialogues. While the West generally adheres to the notion that wildlife is public or state-owned, Southern Africa recognizes private ownership. Game reserves, private landowners, and communities play pivotal roles in Southern African conservation by establishing protected areas, implementing sustainable practices, and engaging in eco-tourism. The varying perceptions on wildlife ownership can lead to misinterpretations in discussions about conservation approaches, highlighting the need for cross-cultural understanding.

Transitioning to the aspect of community involvement, Southern Africa places emphasis on sustainable practices that empower local communities. The prevalent concept of CBNRM allows communities to manage and benefit from wildlife resources sustainably. This stands in contrast to the Western focus on government-managed protected areas, potentially leading to a misunderstanding of the depth of community participation and benefits in Southern African conservation models. Striking a balance between community needs and conservation goals is crucial for the effectiveness of community-based initiatives in Southern Africa, where challenges such as resource depletion and governance issues persist.

Delving into wilderness areas and human presence, the Western belief in pristine wilderness devoid of human presence contrasts with Southern Africa's recognition that human communities can coexist with and benefit from protected areas through responsible tourism and resource management. The acknowledgment of these divergent perspectives is vital for fostering productive discussions on conservation strategies.

Transitioning to trophy hunting activities, it is crucial to dispel misconceptions surrounding this practice in both Western and Southern African contexts. Well-regulated trophy hunting programs contribute to conservation efforts and provide economic benefits for local communities in both regions. However, misinformed narratives (Dickman et al., 2021) on social media platforms have fuelled the misconception that trophy hunting is universally unsustainable. Understanding the nuances of trophy hunting in both contexts is essential to prevent unbalanced policy-making that may negatively impact communities coexisting with wildlife.

Shifting to cultural perspectives and traditional practices, it is imperative to recognize the value of local knowledge in sustainable resource management. While there may be a misconception that traditional practices are inherently unsustainable and should be replaced by modern approaches, Indigenous cultures in Southern Africa often possess longstanding traditions of living in harmony with nature. These cultural nuances shape the understanding and practice of sustainable use, which may not always be fully appreciated or understood by Western perspectives, leading to misapprehensions about the approaches taken.

Finally, addressing ecotourism, while it can have positive impacts such as raising awareness and generating revenue for conservation, poorly regulated or excessive tourism can lead to environmental degradation and disrupt local communities. Understanding the potential drawbacks of ecotourism is essential for ensuring its sustainability and minimizing negative impacts on both the environment and local cultures. It is important to note that perspectives on sustainable use can vary within southern Africa and the West. Recognizing and understanding these differences can foster better dialogue and collaboration toward shared conservation goals.

3.4 Analysing the Underlying Reasons for the Misunderstandings

The underlying reasons for the misunderstandings about sustainable use between Southern Africa and the West can be attributed to several factors discussed in tables 1 and 2:

3.4.1 Cultural and historical context

The differences in cultural backgrounds, historical experiences, and societal values between Southern Africa and the West can contribute to contrasting perspectives on sustainable use. Western

societies have often emphasized preservation and protection of nature, influenced by movements like environmentalism and the concept of national parks. In contrast, Southern African countries have faced different challenges such as poverty, land rights, and wildlife-human conflicts, leading to a different approach to conservation that incorporates sustainable use practices (Ashley et al., 2001). These differences have shaped attitudes towards wildlife, conservation, and resource management, leading to varying interpretations of sustainable use concepts.

Table 1: Cultural and historical context influencing sustainable use perspectives

National Parks in the West vs. Community-Based Conservation in Southern Africa	
Western Perspective - Strict Preservation	Yellowstone National Park, USA: • *Cultural background:* **T**he establishment of national parks in the West is rooted in the transcendentalist movement and a romanticized view of pristine nature. • *Historical context and sustainable use emphasis:* Established in 1872, Yellowstone National Park is widely considered the world's first national park, and an iconic symbol of preservation, where strict regulations aim to protect the natural environment and wildlife. Visitors are often passive observers, and the focus is on maintaining ecosystems in their pristine state. Similar parks in the West prioritize strict preservation, with limited human impact. The Sierra Club in the USA advocates for the preservation of wilderness areas. Their focus is often on protecting ecosystems from human impact, reflecting a narrative rooted in Western environmentalism. European Environmentalism: • *Historically:* Europe has a rich history of environmental movements dating back to the 19th century. • *Societal values:*European societies often place a high value on environmental conservation, with strong environmental regulations and a cultural emphasis on protecting biodiversity. • *Sustainable use emphasis:* Policies and public attitudes often prioritize the preservation of natural habitats and species, influenced by the Green movement and environmental consciousness. This explains why Europe today is the leader in global efforts to combat climate change and at the forefront of global environmental agreements like the Paris Agreement 2015, aiming to limit global warming to well below 2 degrees Celsius above pre-industrial levels; the Kyoto Protocol 1997, aimed at reducing greenhouse gas emissions. The EU committed to specific emission reduction targets during the first commitment period (2008-2012); the Aarhus Convention 1998, a UNECE (United Nations Economic Commission for Europe) agreement that grants the public rights regarding access to information, public participation, and access to justice in environmental matters. It has been ratified by many European countries; the Oslo-Paris Convention (OSPAR) for the Protection of the Marine Environment of the North-East Atlantic 1992, which addresses the prevention and elimination of pollution in the North-East Atlantic; the Water Framework Directive 2000, while not an international agreement, the EU's Water Framework Directive is a significant regional initiative establishing a framework for the protection and sustainable use of water resources across European member states.
Southern African Perspective - Incorporating Human Needs	Community-Based Conservation in Namibia: • *Historically:* Post-independence (after 1990), more than a century after the creation of national parks in the west, Namibia faced challenges related to poverty. • *Culturally:* The concept of communal conservancies emerged, involving

	local communities in wildlife management and benefit-sharing. • *Sustainable use emphasis:* Namibian conservancies focus on sustainable hunting and tourism, allowing local communities to benefit economically while ensuring the conservation of wildlife. South African Game Reserves and Private Conservancies: • *Historically:* South Africa has a history of wildlife-rich landscapes, but also issues related to land rights and conflicts, due to the Apartheid. • *Culturally:* Private game reserves and conservancies have developed, often owned, and managed by private individuals. • *Sustainable use emphasis:* These areas often combine wildlife conservation with sustainable tourism and controlled hunting, providing economic incentives for conservation. Zimbabwe's CAMPFIRE Program: • *Historically:* Zimbabwe faced challenges related to wildlife conservation and rural development. • *Societal values:* The CAMPFIRE program involved local communities in wildlife management. • *Sustainable use emphasis:* Through regulated hunting and tourism, the program aimed to alleviate poverty, promote sustainable resource use, and foster positive attitudes toward wildlife conservation. Here, conservation is seen as a means to alleviate poverty and secure land rights, showcasing a pragmatic approach shaped by the socioeconomic context.
Wildlife Conservation Policies	The U.S. Endangered Species Act prioritizes the protection of species at risk, often leading to stringent measures to prevent harm to these species or their habitats. While in Botswana, the government has employed a strategy of sustainable wildlife management, allowing controlled hunting of certain species, acknowledging the complex interactions between people and wildlife.
Tourism and conservation	Ecotourism in Western countries often promotes non-consumptive activities, such as wildlife watching, with a focus on minimizing impact and maintaining the ecological integrity of natural areas. In the South, countries like Kenya and Tanzania have embraced wildlife tourism, but the emphasis is on responsible tourism that contributes to local economies and community development. This aligns with the idea of sustainable use, where the economic benefits of conservation are shared with local populations.

3.4.2 Media representation and public perception

Media coverage and popular narratives about sustainable use practices in both regions can contribute to misunderstandings. In the West, the media tends to focus on sensationalized stories, such as trophy hunting controversies or negative ecological impacts, without providing a comprehensive understanding of the broader context and the positive aspects of sustainable use. Also, it often highlights extreme cases, such as poorly regulated trophy hunting or unsustainable tourism practices, which can create a negative perception of sustainable use. These biased portrayals may not adequately capture the complexities and nuances of sustainable resource management in associated context, thus contributing to misunderstandings and misconceptions.

Table 2: Examples of how media representation of conservation influences public perception

Trophy Hunting Controversies	*Selective reporting:* Media coverage might selectively report on conservation initiatives in Southern Africa, highlighting conflicts and challenges while neglecting successful community-based conservation models. For instance, if there's a conflict between wildlife and local communities, the media may focus on the negative aspects without adequately exploring the innovative solutions and coexistence strategies being implemented. Instances of poorly regulated trophy

	hunting or unsustainable tourism practices are sometimes sensationalized in the media. For instance, a high-profile case of unethical hunting or environmental damage may be disproportionately covered, leading the public to associate such extremes with sustainable use practices as a whole, rather than recognizing them as outliers. *Lack of context in reporting:* Media coverage often lacks the necessary context to understand the cultural, historical, and economic factors that shape sustainable use practices in Southern Africa. This lack of context can contribute to misunderstandings among the Western audience, as they may not appreciate the intricate balance that Southern African countries are striving to achieve between conservation and socioeconomic needs. *Lack of knowledge, information, and communication:* Limited awareness and understanding of the principles and practices of sustainable use can contribute to misconceptions. Lack of accurate communication, misinformation or incomplete information about sustainable use can lead to misunderstandings and biases. Limited exposure to each other's perspectives, policies, and scientific research on sustainable use can lead to stereotypes. Bridging this information gap and promoting dialogue can help foster better understanding. Education and awareness-building efforts are essential in addressing these knowledge gaps and fostering informed discussions. The killing of Cecil the lion in Zimbabwe in 2015 received extensive media coverage in the West. The focus was on the ethical issues surrounding trophy hunting, portraying it as a negative and harmful practice without delving into the complexities of how regulated hunting can contribute to conservation efforts and local community benefits (Lindsey et al., 2007). The fees paid by hunters for permits can fund conservation programs and benefit local communities, providing an economic incentive for them to protect wildlife habitats (Semcer, 2019). In 2020, a German hunter legally obtained a permit to hunt a large-tusked Namibian desert elephant. The event sparked outrage and critics argued that trophy hunting could have negative consequences for the gene pool and social structure of these elephant populations. However, it is argued that hunting older males past their reproductive age could potentially benefit the overall health of the elephant population and prevent resource competition. Another study reveals the complex historical roots of African culling practices in both pre-Colonial and Colonial elephant hunting (Shaffer et al., 2019). The authors state that by the late nineteenth century ivory hunting severely reduced elephant populations and supported colonial settlement and an expansion of agricultural cultivation (Ballard, 1981; Beinart, 1990; Forssman et al., 2014). Three year earlier, Xanda, the son of Cecil the lion, was legally killed by a trophy hunter in Zimbabwe. Like Cecil, Xanda's death reignited the debate on trophy hunting, but did not highlight that regulated trophy hunting has positive impact on wildlife populations (Brink et al., 2016). When properly managed, it can contribute to population control and conservation. In certain cases, removing specific individuals from a population, especially older males, can prevent inbreeding and improve the overall health of the species (Whitman et al., 2004). In 2019, Spanish conservationist Josep M. Mallord was killed while on an anti-poaching mission in Burkina Faso. His death highlighted the dangers faced by those working to protect wildlife and raised questions about the broader issues of poaching. The same year, an American hunter faced backlash after photos of her posing with a giraffe she had killed in South Africa went viral. It is crucial to distinguish between ethical, sustainable hunting practices and illegal poaching. Well-managed hunting provides funding for anti-poaching activities (Lindsey et al., 2013) and other conservation programs (Dickman et al., 2011). In 2016, Harambe, a western lowland gorilla, was shot and killed at the Cincinnati

	Zoo after a child fell into his enclosure. This incident generated widespread controversy, with discussions about the ethics of keeping animals in captivity and the decision to euthanize Harambe. This highlights the broader issues surrounding human-wildlife interactions and the public's emotional response to the death of iconic animals, in comparison to that of the human child. Also, it brought into perspective the immorality of zoos and why they should be banned (Engle, 2021; Gupta & Chakraborty, 2005; Kiley-Worthington, 1990; Laybourne, 2022) and the fact that they are not ours to use for entertainment (Peta, n.d.).

3.4.3 Different priorities and perspectives, ethical considerations

It is important to recognize these underlying reasons for the misunderstandings and work towards promoting open dialogue, cross-cultural exchange of knowledge, an appreciation of the diverse approaches to sustainable use, and mutual understanding between different regions and stakeholders. This can help bridge the gaps in perception and foster collaboration in achieving common conservation goals.

3.5 Exploring the impact of these misunderstandings on conservation efforts

When misconceptions arise surrounding sustainable use practices, it can undermine conservation efforts in several ways. Misguided perceptions can lead to public outrage and negative sentiments towards the Southern African conservation model, creating obstacles for conservation organizations, policymakers and rural stakeholders who recognize the potential benefits of well-regulated trophy hunting programs. They may also generate opposition to these practices, making it challenging to implement sustainable hunting regulations that could contribute positively to conservation efforts. Consequently, we may witness the surge of fragmented conservation initiatives, with different stakeholders pursuing divergent approaches. This lack of coordination will hinder overall effectiveness and result in inefficient use of resources.

Moreover, conservation hunting provides economic incentives for local communities living near wildlife habitats, leading to increased support for conservation initiatives. Nonetheless, if misunderstandings about it prevail, it can erode trust and cooperation between conservation organizations and local communities. It can also give way to public scepticism and lack of support for conservation initiatives. Diminished local engagement and support may hinder conservation efforts, as local communities play a vital role in protecting wildlife and their habitats. It may equally lead to decreased financial support from stakeholders, impacting the availability of funds for conservation programs. This funding shortfall can significantly hamper conservation efforts and impede the overall protection of wildlife.

Finally, misunderstandings can result in conservation efforts that disproportionately benefit certain groups or prioritize preservationist ideals over community well-being. This can lead to social and economic disparities, potentially undermining the long-term sustainability of conservation efforts. Such inequitable conservation outcomes may generate resistance to adopting new conservation models or practices. This resistance can impede progress and make it difficult to implement innovative strategies that could benefit both conservation and local communities. It may further accentuate the mistrust that local communities already have towards foreign-funded conservation initiatives. By cumulating into the creation of barriers to collaboration among stakeholders with different perspectives, this can limit knowledge sharing, hinder joint decision-making, and hamper the development of holistic and integrated conservation strategies.

Addressing these misunderstandings through education, dialogue, and transparent and accurate and strategic communication is crucial for ensuring that conservation efforts are not hindered by misconceptions surrounding hunting practices. By promoting a better understanding of the complexities and potential benefits of the sustainable use approach in the Southern African setting (including conservation hunting), and by borrowing tools from other fields such as communications (e.g., framing) (Wright et al., 2015), psychology (e.g., social marketing) (Smith et al., 2020), or even public health (e.g. behavioural change campaigns) (Kidd et al., 2019), it will become possible to foster greater support for inclusive conservation initiatives that benefit wildlife, habitats, and people.

4. IMPORTANCE OF CONSERVATION COMMUNICATION IN ADDRESSING MISUNDERSTANDINGS

Conservation communication is a vital component of the broader fields of conservation biology and environmental management, focusing on effectively communicating the importance of conservation efforts to diverse audiences. It involves the effective dissemination of information, ideas, and values to raise awareness, foster understanding, and promote positive action towards the conservation and sustainable use of natural resources and ecosystems. It plays a critical role in bridging the gap between scientific knowledge and public understanding, ensuring that conservation messages resonate and motivate individuals, communities, policymakers, and stakeholders to take conservation-oriented actions. By employing various communication strategies, channels, and techniques, conservation communication seeks to address the complex environmental challenges we face and promote a collective sense of responsibility towards safeguarding the planet for current and future generations.

Effective conservation communication is keys to addressing misunderstandings surrounding the Southern African approach to sustainable use in Western settings. By emphasizing clear and targeted communication, proponents of human rights in conservation can succeed in fostering a better understanding of the Southern African approach to conservation. The following points highlight the significance of conservation communication in addressing cultural differences, divergent conservation paradigms, and related misunderstandings:

- *Promoting awareness and understanding:* conservation communication can serve as a vehicle to raise awareness about the Southern Africa sustainable use approach and its underlying principles. It provides an opportunity to disseminate accurate information, debunk misconceptions, and educate the public about the positive aspects of sustainable resource management the Southern African way. While sharing information to raise awareness has traditionally been a common conservation communication strategy aimed at promoting behavioural change, the 'deficit' approach (Kidd et al., 2019) that assumes that people don't conserve biodiversity due to lack of knowledge, is now ineffective. As pointed towards in recent literature, while increasing awareness and education can address knowledge gaps initially, conservationists should also factor in other influences like nature relatedness (Nisbet and Zelenski, 2013; Schultz, 2002; Van Overwalle and Siebler, 2005), familiarity (Reder and Ritter, 1992), risk perception (Wildavsky and Dake, 2018), mode of persuasion (Petty and Cacioppo, 1986), social norms (Mengak et al., 2019), among others. Recent research suggests that leveraging psychological factors like social influence and habit in messages can encourage pro-environmental behaviours among consumers (White et al., 2019).
- *Clarifying misinterpretations:* misunderstandings often arise due to cultural differences, differing perspectives, and limited exposure to alternative conservation approaches. Conservation communication can help clarify misinterpretations by presenting the Southern Africa sustainable use approach in a contextually relevant and culturally sensitive manner, fostering greater understanding and empathy.
- *Building trust and credibility:* effective communication builds trust and credibility among stakeholders, including local communities, policymakers, relevant organizations, and the public. By transparently sharing information, engaging in meaningful dialogue, and involving diverse voices, conservation communication can establish a foundation of trust, enhancing the reception and acceptance of the sustainable use approach.
- *Influencing policy and decision-making:* conservation communication can influence policy and decision-making processes by providing evidence-based arguments and highlighting the positive outcomes of the sustainable use approach. It can enable policymakers to make informed decisions that align with conservation objectives while considering socio-economic factors and cultural contexts.
- *Empowering local communities:* conservation communication can empower local communities by providing them with the knowledge and tools necessary to engage in meaningful decision-making processes. By earnestly communicating the benefits of sustainable resource utilization and the role they play in conservation efforts, communities can become active participants in knowledge transfer and narratives shaping.

- *Encouraging collaboration and partnerships:* clear and effective conservation communication can facilitate collaboration and partnerships between Southern African and Western stakeholders. By fostering mutual understanding and respect, it will promote shared goals and cooperation in addressing conservation challenges, leading to the development of innovative solutions and joint initiatives.

4.1 Role of Digital Literacy in Bridging Communication Gaps

Digital literacy refers to the ability to effectively and responsibly use digital technologies, tools, and resources to find, access evaluate, utilize, create, and communicate information. It encompasses a broad range of skills, knowledge, attitudes, and competencies that are necessary for individuals to navigate the digital world, leverage digital technologies for various purposes and thrive in a digital society. The significance of digital literacy has increased dramatically in the modern era due to the pervasive use of digital technologies in various aspects of life, including education, work, communication, and accessing information.

Digital literacy plays a significant role in conservation communication, particularly in addressing misunderstandings in Western settings. Utilizing digital platforms allows for the dissemination of information to broader audiences, engagement with diverse communities, and the exchange of knowledge and experiences. To accomplish these goals, it is essential to possess the necessary digital skills to navigate the ever-evolving digital landscape proficiently. Finally, digital literacy is crucial for individuals to thrive in the digital age, participate fully in society, make informed decisions, and harness the benefits of digital technologies for personal, professional, and educational purposes. It promotes digital inclusion and helps create a more equitable society.

Table 3: Role of digital literacy in enhancing communication

Role of digital literacy in enhancing communication	
Access to information	Digital literacy empowers individuals to navigate the massive and complex online landscape, distinguish reliable information from misinformation, and make informed decisions.
Communication and collaboration	Digital literacy facilitates effective communication and collaboration through various digital platforms, such as email, social media, video conferencing, and instant messaging. It enables individuals to connect with others, share ideas, collaborate on projects, and engage in global conversations.
Employability and career advancement	In today's digital economy, many job roles require digital literacy skills, ranging from basic computer proficiency to more advanced skills like data analysis, coding, or digital marketing. Proficiency in using digital tools, software, and online platforms is often an essential requirement for employment and career advancement. Digital literacy enhances job prospects and increases productivity in the workplace.
Critical thinking and problem-solving	Digital literacy fosters critical thinking skills by encouraging individuals to analyze, evaluate, and synthesize information from a wide range of digital sources. It helps develop problem-solving abilities, adaptability, and creativity in utilizing digital tools and technologies to address challenges.
Empowerment and participation	Digital literacy empowers individuals to be active participants in the digital society. It enables them to express their opinions, engage in online activism, advocate for social causes, and contribute to the digital economy.
Online safety and digital citizenship	Digital literacy includes knowledge of online safety practices, privacy protection, and responsible digital behavior. It equips individuals with the skills to navigate online spaces safely, protect their privacy, identify, and mitigate online risks, and contribute positively to the digital community.
Lifelong learning	The digital world is constantly evolving, and digital literacy enables individuals to adapt and engage in lifelong learning. It empowers individuals to seek out new knowledge, acquire new digital skills, and keep up with technological advancements.

4.2 Role of Digital Platforms in Conservation Communication

The role of digital platforms in conservation communication is significant, offering numerous advantages and the potential to bridge cultural and geographical gaps. In the contemporary era, where information is rapidly disseminated and accessed globally, digital platforms serve as powerful tools to amplify conservation messages. Social media, websites, apps, games, ai and online forums provide a vast reach, enabling conservationists to engage with diverse audiences and disseminate information in real-time. Moreover, the accessibility of digital platforms transcends geographical boundaries, enabling conservation messages to reach audiences in remote or otherwise hard-to-reach areas. This global reach is particularly crucial in the context of cross-cultural conservation efforts, where understanding and collaboration between diverse communities are essential for effective wildlife preservation. Through digital communication, conservationists can tailor their messages to resonate with different cultural backgrounds, ensuring that the nuances of local perspectives on sustainable use are acknowledged and respected. The democratization of information facilitated by digital platforms empowers local communities to contribute their insights and experiences to the broader conversation, fostering a more inclusive and collaborative approach to conservation on a global scale. In the following sections, we will delve into specific strategies for leveraging digital literacy to enhance conservation communication and address the misunderstanding of Southern Africa's sustainable use approach in Western settings. Figures 1 through 3 depict the functions and benefits of digital platforms in the context of conservation communication.

In summary, digital platforms play a crucial role in conservation communication by disseminating information, promoting engagement, facilitating crowdsourcing, and supporting fundraising efforts. They offer advantages such as wide reach, interactive content, and real-time updates. Moreover, digital platforms have the potential to bridge cultural and geographical gaps, fostering cultural exchange, language accessibility, and global collaboration in conservation endeavours (Figure 3).

4.3 Initiatives using Digital Literacy to Address Misunderstandings

There have been successful initiatives that have utilized digital literacy to address misunderstandings and counter misinformation. By equipping individuals with critical thinking skills, fact-checking tools, and responsible online behaviour, these initiatives have empowered users to navigate the digital landscape more effectively and contribute to a more informed and responsible online community. These concepts can be applied in conservation to address gaps and foster a more informed and responsible online community. Figure 4 provides instances of successful initiatives that have utilized digital literacy to address misunderstandings.

4.5 Case Studies Using Digital Literacy in Conservation Communication

While specific case studies focusing solely on digital literacy initiatives in conservation are limited, there are few examples that demonstrate how digital literacy has been integrated into conservation initiatives to address misunderstandings and promote accurate understanding. By leveraging citizen science platforms, podcasts, online tools, and immersive technologies, these initiatives empower individuals to access reliable information, contribute to conservation efforts, and develop a deeper understanding of conservation challenges.

- ***iNaturalist:*** is a widely recognized citizen science platform that utilizes digital technology to engage individuals in biodiversity observation and data collection. Users can upload photos of species they encounter, and the community helps with identification. The platform incorporates digital literacy principles by providing resources to users on species identification, promoting accurate data collection, and fostering discussions among participants. iNaturalist has played a significant role in increasing public awareness and understanding of biodiversity, ultimately contributing to conservation efforts (iNaturalist, n.d.).
- ***Wild Podcasts:*** LIVE Safaris (Wildark, 2023) and Conservation Conversations (Spotify, 2021; Apple Podcast, 2022) are to address misunderstandings and engage the public in conservation topics. The podcast features interviews with experts, scientists, and conservationists, discussing various conservation issues. By leveraging digital literacy principles, such as fact-checking information and promoting critical thinking, the podcast aims to provide accurate information, dispel myths, and foster a deeper understanding of conservation challenges.

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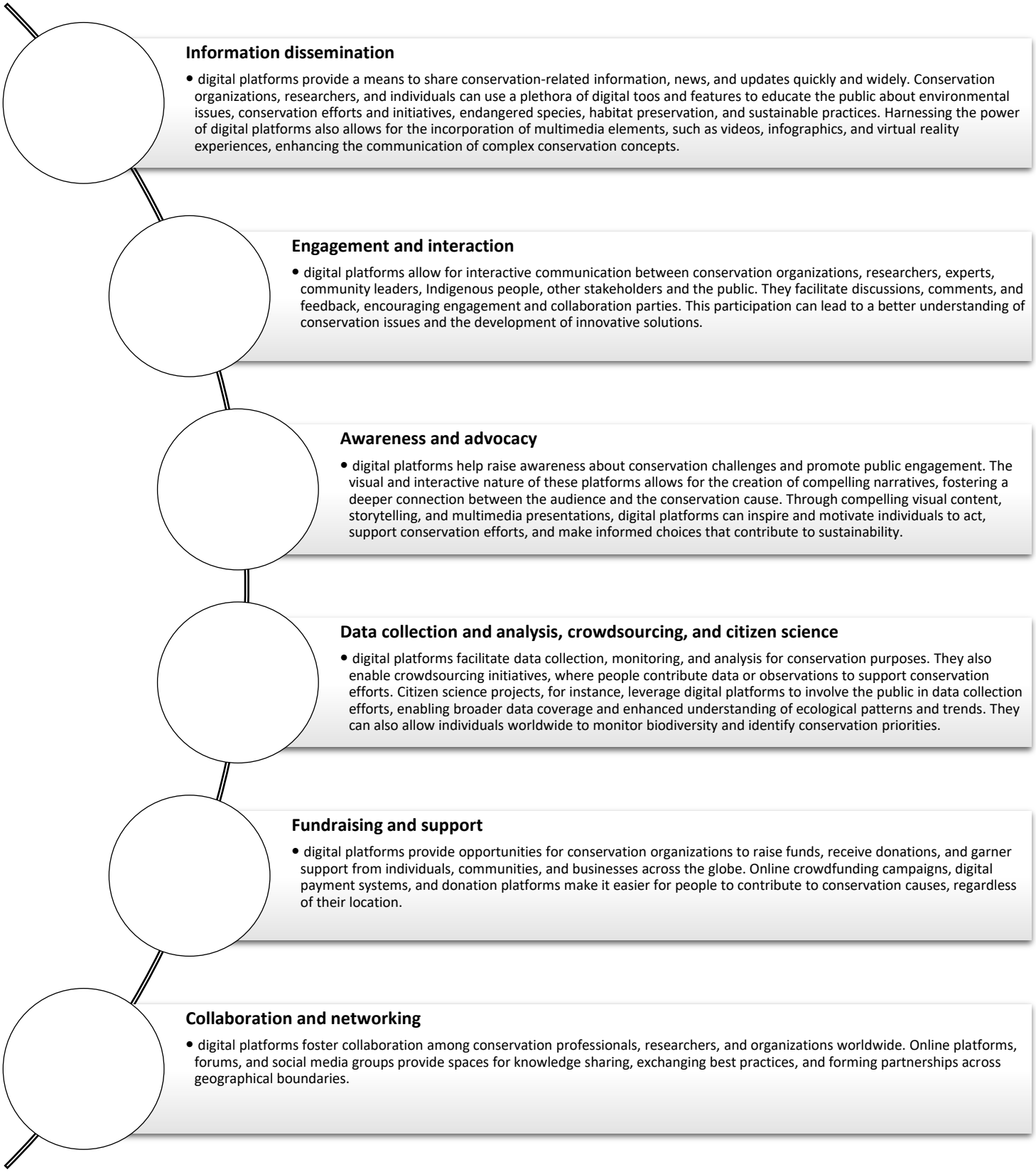

Figure 1: Role of digital platforms in conservation communication

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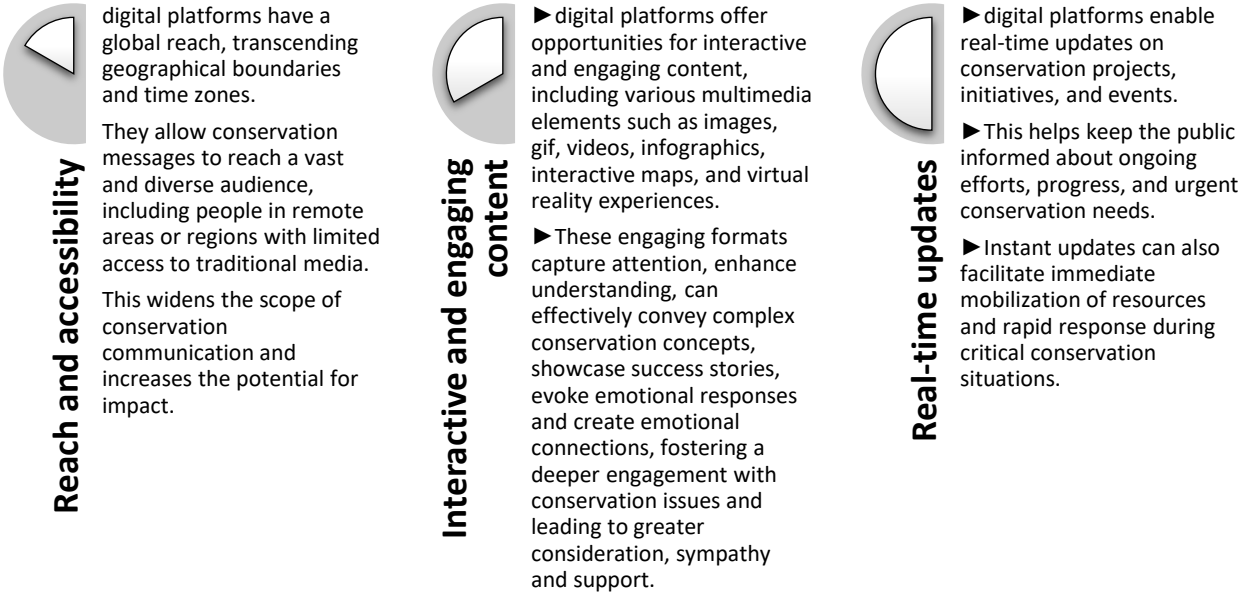


Figure 2: Advantages of digital platforms for communication

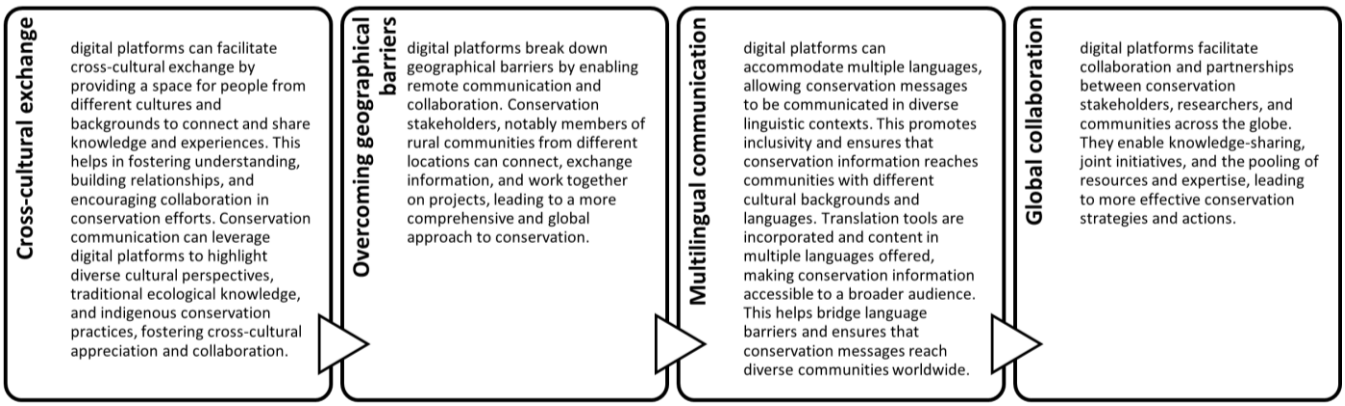
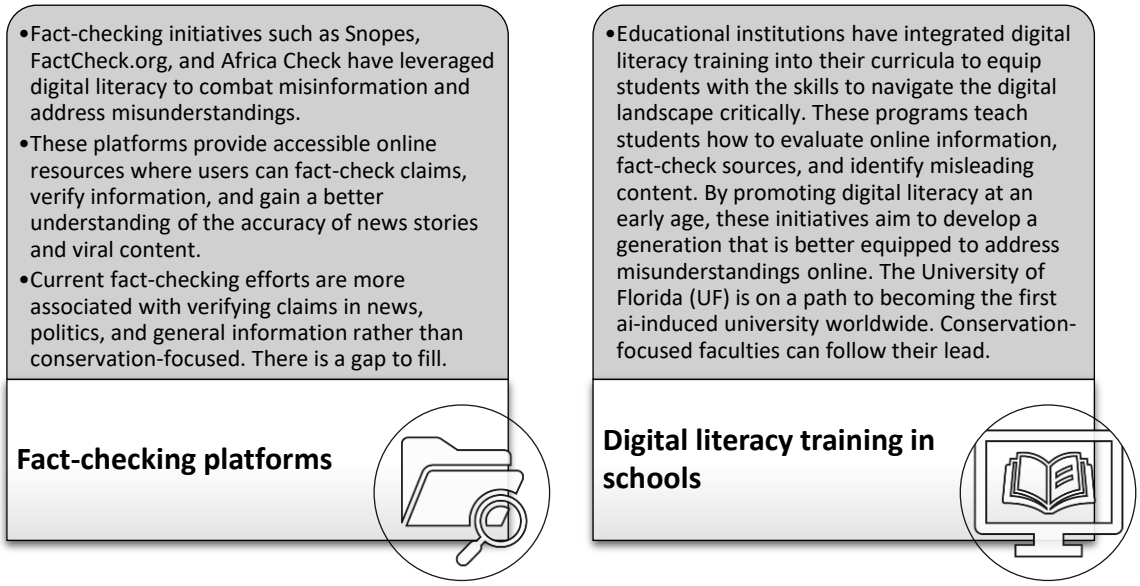


Figure 3: Potential for bridging cultural and geographical gaps



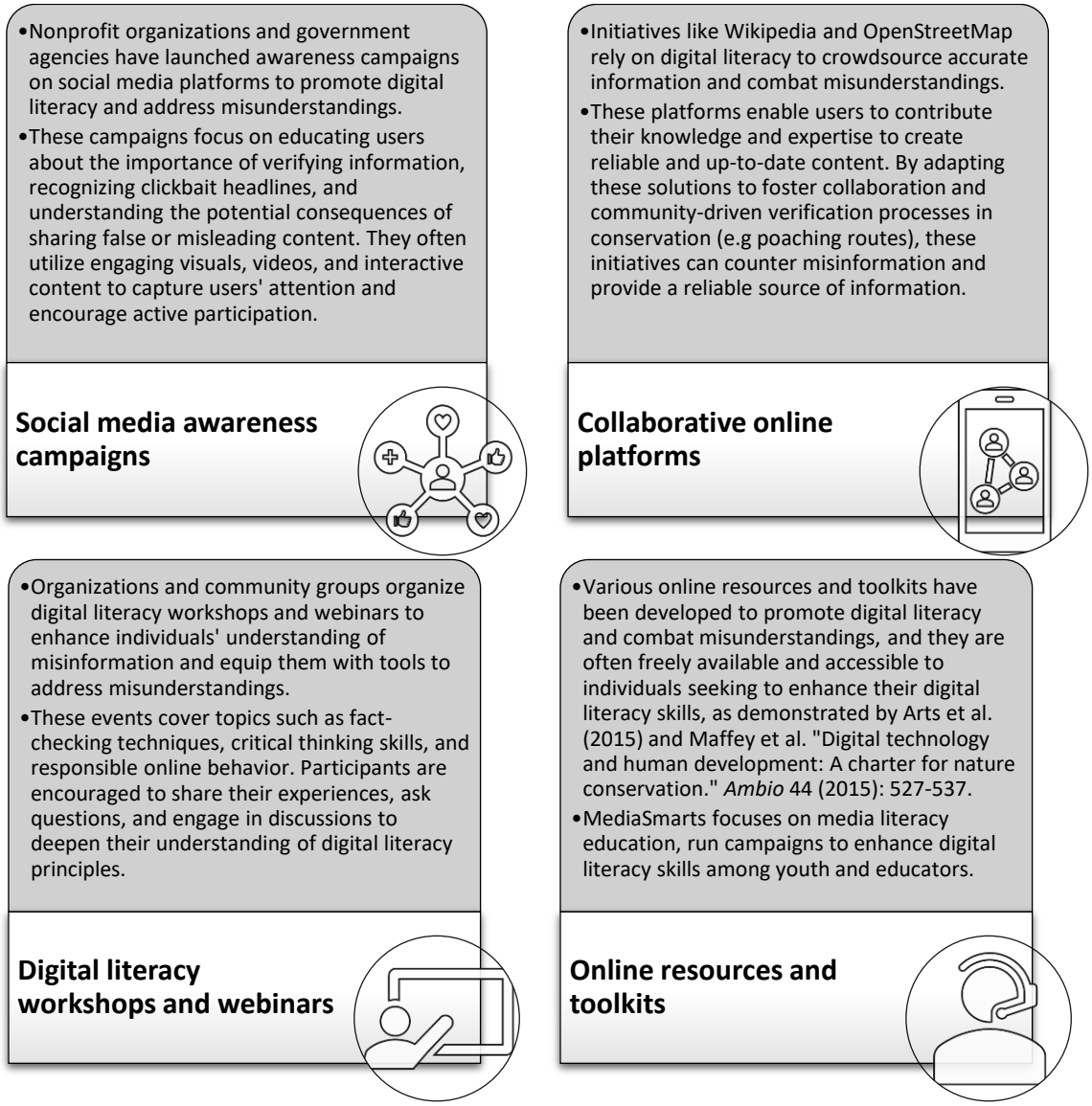


Figure 4: Successful initiatives using digital literacy to address misunderstandings

- ***Nature's Notebook:*** Nature's Notebook is a project of the USA National Phenology Network that engages citizen scientists in monitoring and recording plant and animal phenology (life cycle events) across the United States. The project utilizes an online platform where participants can submit their observations and access educational resources. By integrating digital literacy principles into the project, participants are encouraged to accurately record observations, engage in discussion forums, and access additional resources to improve their understanding of phenology and its relevance to conservation (USA-NPN, n.d.).
- ***Virtual Reality (VR) and Augmented Reality (AR) Experiences:*** Some conservation organizations have employed VR and AR technologies to enhance digital literacy and create immersive experiences for the public. These initiatives offer virtual tours of ecosystems, wildlife habitats, and conservation projects, allowing users to explore and learn about these environments. By using interactive elements and informational overlays, these experiences help address misunderstandings by providing accurate and engaging information about conservation issues (Lets Nurture, 2023).

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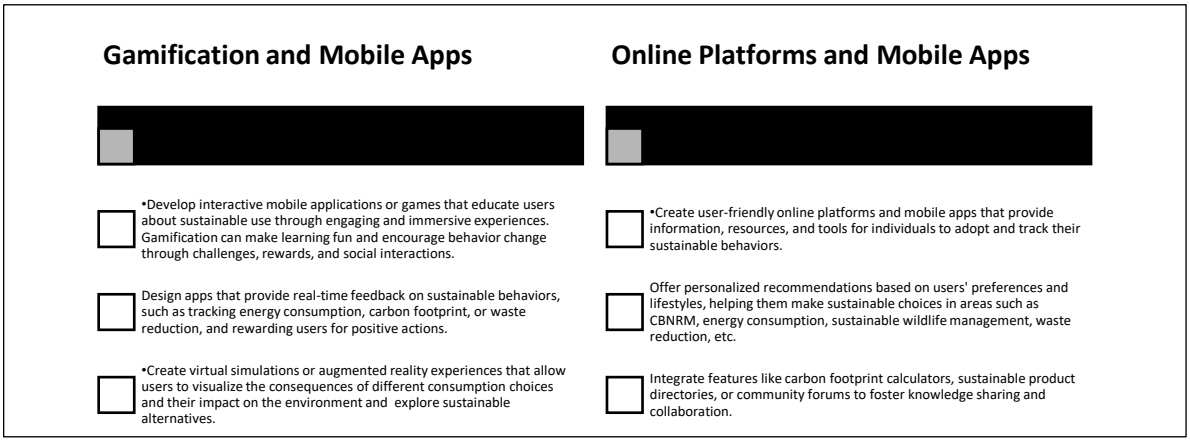
4.6 Using Digital Literacy to Address the Misunderstanding of Southern Africa's Sustainable Use Approach in Western Settings

To address this misunderstanding, innovative approaches that merge technology (Arts et al., 2015; Southworth et al., 2023; University of Florida, 2023), diverse cultural perspectives and traditional knowledge regarding sustainable resource management can be implemented to capture attention, engage individuals, and foster tolerance. Collaborative approaches that involve local communities in decision-making processes and integrate their traditional practices can lead to more effective and contextually appropriate sustainable use strategies. Moreover, it is crucial to consider the broader social, economic, and environmental impacts of resource use in Western settings. This includes examining issues such as overconsumption, waste generation, and the equitable distribution of benefits and burdens associated with resource extraction.

In Africa, despite the valuable contributions of Indigenous knowledge and innovation, there remain technology-related challenges, which in turn create imbalances in decision-making and policy-making processes. The lack of digital skills and limited access to digital tools – among community leaders, conservancy members, the youth and local conservation stewards – significantly impede the sharing of knowledge and dissemination of successful practices and local narratives online and to the global community. This situation also hinders their ability to stay informed about current debates, preventing them from participating in these influential discussions in real-time and on equitable basis. As a result, their exclusion from the conversations that shape and transform conservation efforts – and consequently their own lives and livelihoods – has detrimental consequences both for human rights and conservation outcomes.

This knowledge gap at both ends of the conservation spectrum highlights the pressing need for education in digital literacy, raising awareness about wildlife conservation and community-based natural resource management (CBNRM), and implementing effective communication strategies. By equipping individuals (who co-exist with wildlife) with digital literacy skills, they can access a wide range of information sources and engage in informed and meaningful discussions on sustainable use practices. Additionally, promoting awareness in and raising awareness about wildlife conservation and CBNRM principles can provide the necessary context for understanding the African approach to conservation, which considers the interdependence of ecosystems, communities, and sustainable resource utilization. As depicted in Figure 5, through strategic communication strategies, including open dialogues, public campaigns, and cross-cultural exchanges, stakeholders can foster a deeper understanding of the intricate balance between human livelihoods and wildlife preservation, mutual respect, and constructive engagement between proponents of animal rights and proponents of human rights and sustainable use. Initiating such dialogues is crucial to bridge the gap between these differing perspectives, work towards finding common ground that respects both animal and human rights within the framework of sustainable use and establish a foundation for collaborative efforts towards effective and sustainable wildlife conservation practices.



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Virtual and Augmented Realities (VR/AR)

- [ ] •Use VR and AR technologies to create and develop immersive experiences that allow users to witness the consequences of unsustainable behaviors, such as deforestation, overfishing, or pollution, in an immersive and impactful way. These technologies will also allow users to visualize the effects of unsustainable practices and explore sustainable alternatives.
- [ ] •Develop virtual tours of eco-friendly initiatives or experiences that showcase sustainable practices and their impact on the environment, such as sustainable farms or renewable energy projects, to provide a first-hand experience of sustainable practices.
- [ ] •Incorporate AR into educational materials, packaging, or advertisements to provide additional information about the sustainability attributes of products or services.

Social Media Campaigns and Challenges

- [ ] •Launch social media challenges and campaigns that raise awareness and promote sustainable use, encouraging users to share their sustainable actions, practices or experiences using specific hashtags. By developing hashtags and viral campaigns that raise awareness about sustainable practices, it can help inspire others to adopt them and thus contribute to changing mentalities.
- [ ] •Create sustainability challenges or competitions that encourage individuals or communities to adopt and showcase sustainable behaviors, with prizes or recognition for the most innovative or impactful initiatives.
- [ ] •Collaborate with content creators, influencers, or micro-influencers on social media platforms to amplify the promotion and message of sustainable use and reach a wider audience through engaging and relatable content.

Creative Arts and Media

- [ ] •Engage artists, musicians, filmmakers, and storytellers to convey messages of sustainable use through their creative works.
- [ ] •Organize sustainability-themed art exhibitions, film festivals, or music events that inspire and provoke thought.
- [ ] •Use creative mediums such as street art or guerrilla marketing to capture attention and spark conversations about sustainable use.

Interactive Exhibitions and Pop-up Installations

- [ ] •Organize interactive exhibitions or pop-up installations in public spaces, shopping centers, or educational institutions to showcase sustainable innovations, technologies, and practices.
- [ ] •Provide hands-on activities, workshops, or demonstrations that allow visitors to experience and understand sustainable solutions first-hand.
- [ ] •Collaborate with artists, designers, and architects to create visually striking installations that convey the importance of sustainable use and capture people's attention.

Sustainability Hubs and Living Laboratories

- [ ] •Establish physical spaces, such as sustainability hubs or living laboratories, where individuals, businesses, and communities can come together to learn, experiment, and collaborate on sustainable practices.
- [ ] •Offer workshops, seminars, or skill-sharing sessions on sustainable topics, such as zero-waste living, renewable energy, or regenerative agriculture.
- [ ] •Provide resources, tools, and prototypes for individuals to explore and implement sustainable solutions in their own lives or organizations.

Peer-to-Peer Learning and Mentoring Programs

- [ ] •Develop peer-to-peer learning programs where individuals with expertise in sustainable use mentor and support others who are interested in adopting sustainable practices.
- [ ] •Create online platforms or communities where people can connect, share experiences, ask questions, and seek advice on sustainable living.
- [ ] •Facilitate networking events or meetups that bring together individuals passionate about sustainability to exchange ideas, inspire each other, and collaborate on projects.

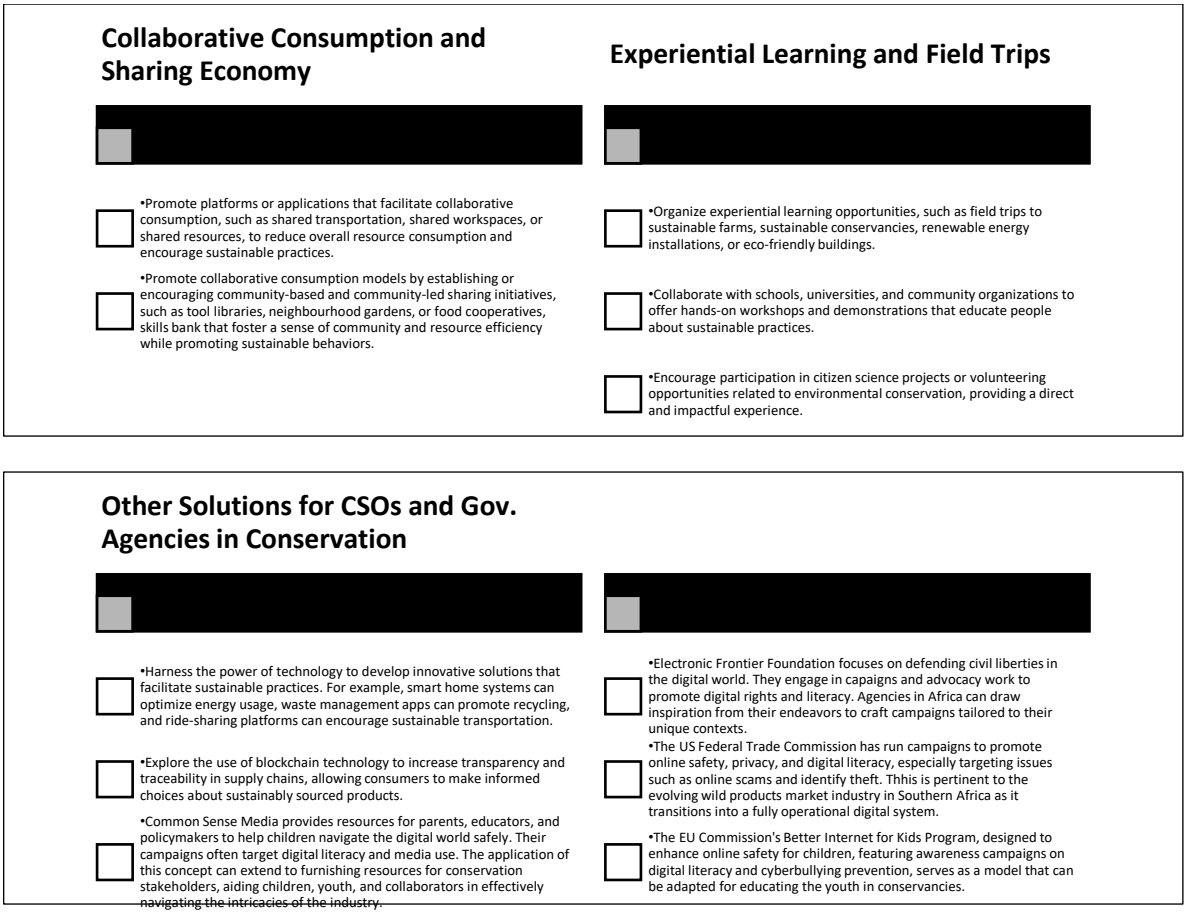

Figure 5: Usages of digital literacy tools to enhance conservation communication

These innovative approaches can help break through the noise and engage individuals in Western settings, encouraging them to rethink their behaviours and embrace sustainable use in creative and impactful ways. Finally, effective communication strategies should be ongoing and adaptable, and their impact regularly evaluated based on feedback and evolving public understanding.

Table 4: Effective communication strategies applicable to conservation

Clear and Accessible Messaging	• Simplify complex sustainability concepts into easily understandable messages without oversimplifying the issues. • Use plain language and avoid jargon or technical terms that may confuse or alienate the audience. • Communicate the principles, benefits, and relevance of sustainable use in everyday life in relatable terms,. • Highlight how it can improve well-being, save money, and protect the environment. • Make sustainability information accessible to a wide range of audiences through various mediums, such as public events, websites, social media, brochures, etc. • Utilize visual aids, infographics, and storytelling techniques to make the information more engaging and memorable.
Storytelling and Personal Narratives	• Utilize storytelling techniques to convey the real-life experiences of individuals and communities who have adopted sustainable practices successfully. • Share personal narratives that resonate with the target audience, emphasizing how sustainable use positively impacts their lives and communities, the environment, and future generations. • Highlight inspiring success stories to demonstrate that sustainable practices are

	achievable and beneficial. • Share real-life stories and examples of individuals, businesses, and communities that have successfully implemented sustainable use practices. • Showcase diverse perspectives and experiences to make the messaging relatable and inclusive
Visual and Multimedia Content	• Use images to convey key messages and statistics related to sustainable use. • Create short, attention-grabbing videos or animations that illustrate the consequences of unsustainable practices and the benefits of sustainable alternatives. • Leverage social media platforms and websites to share engaging content that educates and inspires people to adopt sustainable behaviors.
Engage Influencers and Opinion Leaders	• Collaborate with influencers, celebrities, environmental activists and opinion leaders who are passionate about sustainability to help amplify the message who have a wide reach and credibility. • Encourage them to share their own sustainable practices and advocate for responsible consumption through their social media platforms, interviews, public appearances, sharing information, personal experiences, and promoting sustainable products and services. • Organize events or campaigns that bring together influential figures to discuss and promote sustainable use.
Tailored Messaging for Different Audiences or Targeted Campaigns	• Recognize the diversity within Western settings and tailor the messaging to different target audiences, considering their unique interests, values, and concerns. • Highlight how sustainable use aligns with specific demographic groups' priorities, such as health-conscious individuals, parents concerned about future generations, or business leaders interested in corporate social responsibility. • Customize communication channels and formats based on the preferences and habits of specific audiences, such as using social media for younger demographics or traditional media for older populations. • Focus on the relevance of sustainable use to people's daily lives, emphasizing how it can improve their well-being, save money, and create a better future for their communities and the planet.
Collaboration with Media	• Establish relationships with journalists, bloggers, and media outlets to promote accurate and balanced coverage of sustainable use topics • Provide journalists with access to experts, case studies, trainings and data that can help them produce informed and compelling stories. • Organize press conferences, media events, or webinars to educate journalists and provide them with up-to-date information on sustainable use initiatives. • Collaborate with influencers, celebrities, and opinion leaders who resonate with the target audience to deliver the sustainability message effectively. • Encourage media coverage of sustainable use initiatives and success stories.
Social Media and Online Platforms	• Utilize social media platforms to disseminate information about sustainable use and engage with the public. • Create online communities and forums where individuals can share their experiences, ideas, and challenges related to sustainable use. • Encourage user-generated content and participation through hashtags, challenges, and contests that promote sustainable practices.
Two-Way Communication, Dialogue and Feedback	• Encourage or create opportunities for two-way communication, two-way communication channels, such as online forums, social media discussions, and public consultations, to engage with the public and address their questions, concerns, and misconceptions. • Actively listen to feedback, acknowledge differing perspectives, and respond constructively to criticism or skepticism. • Foster dialogue with stakeholders, including community groups, NGOs, businesses, and policymakers, to collaboratively develop solutions and address

	misunderstandings. • Listen to people's concerns, answer their questions, and address misconceptions about sustainable use. • Actively seek feedback from the public and stakeholders to improve communication strategies and refine sustainability initiatives.

5. INSTITUTIONAL STRATEGIES FOR CONVEYING THE POSITIVE ASPECTS OF SUSTAINABLE USE

Institutional strategies aimed at effectively conveying the positive aspects of sustainable use involve various approaches that comprehensively communicate and promote the benefits inherent in sustainable practices. These strategies recognize the need to bridge the gap in understanding sustainable use, particularly in Western settings where misconceptions may prevail. A key component of these institutional strategies is education. Establishing educational programs that provide accurate and nuanced information about the principles, methodologies, and positive outcomes of sustainable wildlife management can significantly contribute to altering perceptions. By fostering a deeper understanding of the ecological, cultural, and economic dimensions of sustainable use, these programs empower individuals with the knowledge needed to (a) appreciate the complex interplay between human activities and wildlife conservation, (b) dispel misconceptions surrounding sustainable use and (c) make informed decisions and engage in constructive dialogue about conservation. This educational aspect extends beyond theoretical understanding to practical insights, emphasizing the real-world implications of sustainable practices.

Simultaneously, raising awareness is essential for influencing public opinion and dismantling preconceived notions. Strategic communication campaigns, utilizing various media channels, can highlight the success stories of sustainable use in different regions, emphasizing the coexistence of wildlife conservation and local community development. These campaigns can also address the economic benefits, such as job creation and community empowerment, associated with responsible wildlife management practices. By showcasing tangible examples of positive outcomes, institutions can use awareness initiatives to reshape the narrative around sustainable use and contribute to a more informed public discourse. This proactive approach would help shift the narrative from one of skepticism to one that recognizes the symbiotic relationship between responsible human activities and biodiversity conservation.

Furthermore, institutional strategies should include practical steps that go beyond communication and actively promote sustainable practices. This involves collaboration with local communities, conservation organizations, and governmental bodies to implement and support initiatives that exemplify sustainable use. By demonstrating tangible benefits, such as improved community livelihoods, habitat conservation, and biodiversity enhancement, institutions will contribute to the actualization of sustainable practices and contribute to living testimonials that challenge and dispel misconceptions, fostering a more informed and supportive global community.

By implementing the following strategies in table 5, it is possible to increase understanding and promote sustainable use practices in Western settings at the institutional level, leading to a more sustainable and environmentally conscious society.

Table 5: Institutional strategies for conveying the positive aspects of sustainable use

Education and Awarenesss	• Encourage the inclusion of sustainable use concepts in school curricula at various levels, fostering an early understanding and appreciation for sustainable practices. • Launch public awareness campaigns, social media initiatives, and engage with mainstream media to promote understanding of sustainable use practices. • Organize workshops, seminars, and training programs to educate the public, professionals, and policymakers on local sustainable land practices. • Highlighting the importance, benefits for individuals, communities, and the planet, and long-term consequences. • Offer environmental education programs providing a comparative analysis of sustainable land use models.

Policy and Regulation	• Encourage governments to integrate sustainable land use practices into national and local policies, promoting responsible production and consumption. • Revise policies to ensure they promote sustainable land use aligned with global sustainability goals, emphasizing effectiveness and enforceability. • Implement economic incentives such as tax breaks, subsidies, and grants for businesses and individuals that adopt sustainable practices. Encourage research and development in rural technologies and practices and provide support for entrepreneurs and startups working in that sector.
Collaboration and Partnerships	• Foster CBNRM public-private partnerships to develop and implement joint initiatives and policies for sustainable use, sharing resources, knowledge, and expertise. • Engage diverse stakeholders, including local communities, Indigenous groups, industry representatives, and environmental organizations, in decision-making for sustainable land use practices. • Collaborate with international organizations, participate in global sustainability initiatives, and share best practices to foster cross-cultural understanding and learning. • Forge partnerships with stakeholders to promote sustainable consumption through joint initiatives like sustainability certifications and labeling programs. • Develop and promote clear labelling systems and certifications that indicate the sustainability credentials of products, allowing consumers to make informed choices.
Consumer Awareness, Engagement and Behavior Change	• Launch public campaigns that inspire individuals to adopt sustainable practices in their daily lives, emphasizing the positive impact of their choices on the environment. • Promote responsible consumption, and encourage the purchase of sustainable products and services • Encourage consumers to make informed choices by providing transparent information about the environmental and social impact of products and services. • Promote and support sustainable alternatives adopted in rural areas by highlighting their benefits (energy efficiency, reduced waste, lower ecological footprints, etc). • Foster a culture of conscious consumerism by encouraging individuals to prioritize quality over quantity, repair and reuse items, and reduce unnecessary consumption.
Research, Monitoring and Evaluation	• Back scientific research on ancestral sustainable practices (e.g. life-cycle assessments and impact studies, ecological footprints) for evidence-based information. • Create online platforms to share research findings, best practices, and narratives, fostering knowledge exchange among practitioners, policymakers, and the public. • Establish monitoring systems to track progress in sustainable use practices, assess the impact of policies, and identify areas for improvement. • Continuously assess and enhance sustainable use strategies by incorporating insights from scientific research, emerging trends, and feedback from stakeholders.

6. CASES DEMONSTRATING SUCCESSFUL COMMUNICATION INITIATIVES IN CONSERVATION IN SOUTHERN AFRICA

There have been several successful communication initiatives in conservation in Southern Africa that have made significant contributions to raising awareness, changing behaviours, and promoting conservation efforts. The following highlights few cases:

► ***Rhino Campaigns***

#RoomToRhino (Save The Rhino, n.d.), #EndWildlifeCrime (WWF, n.d.), #RhinoFriday (Rhino Friends of America, n.d.), and #GiveRhinosAHand or #GivingTuesday (International Rhino Foundation, n.d) are examples of campaigns to raise awareness and funds for rhino conservation. These

initiatives utilized social media platforms, including Facebook, Twitter, and Instagram, to spread the message and engage with the public. The campaigns included sharing informative posts about rhino conservation, success stories, threats, and updates on their projects. They also collaborated with influencers and partnered with local businesses to increase reach and generate donations. The campaigns gained significant traction and successfully raised funds for anti-poaching efforts, community engagement, and education programs.

► ***Save the Rhino Trust (SRT) - Namibia***

SRT has implemented effective communication initiatives to raise awareness about rhino conservation. They used various channels such as social media, traditional media, and educational programs to engage local communities and international audiences. SRT's campaigns focused on the importance of rhinos in the ecosystem, the threats they face, and the need for conservation efforts. Their efforts resulted in increased public support, donations, and a decline in poaching incidents (SRT, n.d).

► ***Peace Parks Foundation's Transfrontier News - Southern Africa***

Through annual infographic reviews (Peace Parks Foundation, n.d.) distributed both in print and online, showcasing success stories, research findings, and updates on conservation projects across the region and targeting stakeholders like governments, conservation organizations, researchers, and local communities, the Peace Parks Foundation facilitates knowledge exchange and raises awareness. Collaborating with Conservation International, the foundation engages local communities through outreach programs, educational campaigns, and interactive workshops. By involving local communities in decision-making processes and highlighting the benefits of conservation, the foundation has successfully gained support for their initiatives and helped reduce illegal activities such as poaching and deforestation (Conservation International, 2023).

► ***AWF #TimeToSaveWildlifeIsRunningOut Campaigns (Rhino/Elephant) - Africa***

The African Wildlife Foundation (AWF) has implemented successful communication initiatives that focus on both wildlife protection and sustainable tourism. AWF collaborates with local communities, government agencies, and tourism stakeholders to promote responsible tourism practices and wildlife conservation. Through educational campaigns (Pinterest, n.d; Dragon Trail, 2019; AWF, n.d), visitor centres, and interpretive signage, they raise awareness about the importance of protecting wildlife habitats and supporting local economies. AWF's communication initiatives have resulted in increased tourist engagement in conservation activities, enhanced wildlife protection measures, and the promotion of ethical wildlife experiences.

► **Monitoring and Reporting App and more**

Wildlife ACT in Southern Africa developed a series of tools to facilitate wildlife monitoring and reporting (WildlifeAct, n.d.). Other apps such as Forest Watcher (Global Forest Watch, 2023) or Wildlife Sentinel (Traffic, 2021) developed by a consortium of NGOs have been used by field rangers and conservationists to record and report wildlife sightings, poaching incidents, and other conservation-related data in real-time. The information collected through the app is shared with conservation organizations, government agencies, and the public. This initiative not only improves data collection and analysis but also engages local communities in conservation efforts. The app has been successful in increasing community participation, enhancing anti-poaching efforts, and raising awareness about wildlife conservation.

► ***African Parks' "Lion Recovery Fund" Campaign - Africa***

African Parks launched the "Lion Recovery Fund" (African Parks, 2018) campaign to address the decline of lion populations in Southern Africa. The campaign focused on raising awareness about the threats facing lions and garnering support for their conservation. African Parks utilized social media, traditional media outlets, and partnerships with celebrities (Lion Recovery Fund, 2018) and influencers to spread their message. They highlighted success stories of lion conservation, showcased the efforts of local communities, and emphasized the importance of protecting lions as a flagship species. The campaign generated significant public support, resulting in increased funding for lion conservation projects and the implementation of effective conservation strategies (African Parks, n.d.).

► ***The Bateleurs #FlyingForTheEnvironment campaign – South Africa***

The Bateleurs focuses on conservation through aerial initiatives. They successfully communicate aerial conservation to raise awareness and engage the public in conservation efforts. By utilizing small aircraft, they capture stunning aerial images and videos of conservation areas, wildlife, and environmental issues. These visuals are then shared through various communication channels, such as social media, websites, and documentaries. The Bateleurs' communication initiatives effectively

highlight the importance of conservation, showcase the beauty of Southern Africa's natural landscapes, and inspire people to act (The Bateleurs, n.d.).

► ***Painted Dog Conservation - Zimbabwe***

Painted Dog Conservation has implemented successful communication initiatives to engage local communities in protecting African wild dogs, also known as painted dogs. By using a combination of workshops, community meetings, and educational materials, they raise awareness about the importance of painted dogs and their conservation. The organization also involves local communities in monitoring and research activities, fostering a sense of ownership and pride in protecting the species. These communication initiatives have led to increased community support for conservation and reduced human-wildlife conflict (Painted Dogs, 2022).

► ***Wildlands Conservation Trust - South Africa***

The Wildlands Conservation Trust has implemented positive communication initiatives (Wild Trust, n.d.) to facilitate public-private partnerships for conservation. They actively engage with businesses, corporations, and individuals to promote sustainable practices and support conservation projects. Through targeted marketing campaigns, such as the #30x30Now campaign (Wild Trust, 2022), corporate social responsibility programs, and community engagement events, Wildlands effectively communicates the value of conservation to different stakeholders. By building partnerships, they secure funding and resources for conservation activities, establish conservation corridors, and protect critical habitats. The trust's communication initiatives showcase the positive impact of collaboration between the private sector and conservation organizations.

► ***WildAid's #Ivory Free Campaign - Zambia***

WildAid launched a highly successful campaign called "Ivory Free" in Eastern and Southern Africa. The campaign aimed to combat the illegal ivory trade by raising awareness about the devastating impact on elephant populations and the broader ecosystem (USAID, 2021). WildAid partnered with local communities, celebrities, and influential figures to spread their message (WildAid, n.d.) through TV, radio, billboards, and social media. The campaign successfully decreased the demand for ivory products and led to a decline in poaching incidents.

► ***Cheetah Conservation Fund #UnitingForCheetahs Campaign***

The Cheetah Conservation Fund (CCF) has developed successful communication initiatives to address human-wildlife conflict and promote cheetah conservation (CCF, n.d.). CCF employs a multifaceted approach, including educational programs in schools, community-based initiatives, and outreach activities. They work closely with local farmers and herders, providing them with tools and techniques to reduce conflict with cheetahs and protect their livestock. Through their communication initiatives, CCF has built trust, fostered collaboration, and increased awareness about the importance of conserving cheetahs as an integral part of the ecosystem.

► ***Rhino poaching awareness campaign - South Africa***

South Africa has been battling the poaching crisis affecting its rhino populations. In response, the Department of Environmental Affairs launched a comprehensive communication campaign to raise awareness about the importance of rhino conservation and the detrimental impacts of poaching. The campaign included TV and radio advertisements, social media outreach, educational materials distributed in schools, and community engagement activities. The initiative successfully increased public awareness about the issue, leading to a greater understanding of the need to protect rhinos and a reduction in poaching incidents.

► ***Community-led conservation efforts - Namibia***

Namibia's community-based natural resource management (CBNRM) program has been successful in engaging local communities in conservation efforts. Through effective communication strategies, such as community meetings, radio programs in local languages, and culturally relevant storytelling, the program has empowered communities to take ownership of wildlife and natural resource management. The initiative has resulted in reduced poaching, increased wildlife populations, and improved livelihoods for local communities, as they benefit from sustainable tourism and other conservation-related activities (NACSO Reports).

► ***#NotOnOurWatch African penguin conservation campaign - South Africa***

The African penguin population has been declining due to habitat loss, overfishing, and pollution. To address this issue, The Southern African Foundation for the Conservation of Coastal Birds (SANCCOB) launched a campaign to raise awareness and mobilize support for African penguin conservation. The campaign utilized various communication channels (Daniels, 2022), including social

media, websites (Two Oceans Aquarium, 2023), educational materials, and public events (ZoosAfrica, n.d.). The initiative successfully raised public awareness about the plight of African penguins, leading to increased public support and donations, as well as government action to protect their habitat and implement sustainable fishing practices (SAAMBR, n.d.).

► ***Elephant-human conflict mitigation - Botswana***

Botswana has faced challenges of human-wildlife conflict, particularly related to elephants (Save the Elephant, 1969). In response, conservation organizations and government agencies have implemented communication initiatives to reduce conflicts and promote peaceful coexistence. These initiatives involved working closely with local communities to understand their concerns, conducting awareness campaigns on elephant behaviour and conflict mitigation strategies, and establishing community-led early warning systems. Through effective communication and engagement, the initiatives have helped to minimize negative interactions between elephants and local communities, ensuring the long-term survival of both (CITES/Department of Wildlife and National Parks of Botswana, 2022).

These case studies demonstrate the power of effective communication initiatives in mobilizing support and driving conservation efforts in Southern Africa. By engaging and empowering local communities, raising awareness, and promoting behaviour change, these initiatives have made significant contributions to sustaining people and conserving wildlife and their habitats in the region (AWF, n.d.).

7. LESSONS LEARNED

Drawing insights from all the initiatives and case studies discussed above, the following section distils key lessons learned and highlights best practices gleaned from these impactful endeavours. Delving into the nuances of the cases, we aim to provide a comprehensive understanding of the strategies employed and the valuable takeaways that can inform and inspire future endeavours in similar contexts. By implementing these lessons learned and best practices, initiatives can use digital literacy to address misunderstandings more effectively. These approaches empower individuals to navigate the digital landscape with critical thinking skills, promote accurate information sharing, and foster a more informed and engaged digital community.

- *Tailor content to the target audience:* effective digital literacy initiatives understand the specific needs, preferences, and technological capabilities of the target audience. Content should be presented in a user-friendly manner, using language and formats that resonate with the intended recipients. Consider cultural sensitivities and ensure that the information is accessible to individuals with varying levels of digital literacy.
- *Promote critical thinking and fact-checking:* digital literacy initiatives should emphasize critical thinking skills and encourage individuals to evaluate the credibility and accuracy of online information. Teach participants how to fact-check sources, verify information through multiple channels, and discern between reliable and unreliable sources. Encourage a healthy scepticism and empower individuals to make informed judgments.
- *Provide skills for effective online communication:* effective communication in the digital realm is crucial for addressing misunderstandings. Digital literacy initiatives should equip participants with skills such as clear and respectful online communication, constructive dialogue, and conflict resolution techniques. Promote active listening, empathy, and the ability to express opinions in a non-confrontational manner.
- *Foster media literacy:* digital literacy initiatives should educate participants about media literacy, helping them understand how media messages are constructed, disseminated, and interpreted. Teach individuals to critically analyse media content, including identifying bias, recognizing manipulative techniques, and understanding the impact of sensationalism on public perception.
- *Encourage collaborative learning:* foster a collaborative learning environment where participants can share their experiences, perspectives, and challenges related to digital literacy. Encourage peer-to-peer support, group discussions, and knowledge sharing. This approach not only enhances learning but also creates a sense of community and collective responsibility in addressing misunderstandings.

- *Provide practical training and resources:* offer hands-on training and practical resources that allow participants to apply their digital literacy skills in real-life scenarios. This could include workshops, interactive activities, online tutorials, and access to reliable information sources. Ensure that participants have the tools and resources they need to navigate the digital landscape effectively.
- *Engage trusted community leaders and organizations:* collaborate with trusted community leaders, influencers, and organizations to amplify the reach and impact of digital literacy initiatives. Their support and endorsement can enhance credibility and facilitate wider adoption of digital literacy practices within the community.
- *Evaluate and adapt:* continuously evaluate the effectiveness of digital literacy initiatives through feedback mechanisms, surveys, and assessments. Regularly reassess the needs and challenges of the target audience and adapt the content and delivery methods accordingly. Flexibility and responsiveness are key to addressing evolving misunderstandings and effectively leveraging digital literacy.

7.1 Prospects and Potential Developments in the Field

The field of conservation is continuously evolving, and several prospects and potential developments hold promise for advancing conservation efforts. Here are some key areas to watch for:

- *Data-driven conservation:* the increasing availability of big data and advancements in data analytics present opportunities for data-driven conservation approaches. Integrating diverse data sources, including ecological data, socio-economic data, and satellite imagery, can provide comprehensive insights into conservation challenges and guide evidence-based decision-making. Data-driven approaches can enable more targeted conservation interventions and help measure the impact of conservation efforts more effectively.
- *Conservation technology for public engagement:* the digital age presents new opportunities for conservation communication and engagement. Social media platforms, online communities, and digital storytelling can amplify conservation messages, reach wider audiences, and foster global collaboration. Integrating digital literacy into conservation initiatives will continue to be crucial to address misinformation and promote accurate understanding. Digital platforms and technologies will continue to play a crucial role in engaging the public in conservation. Augmented reality, virtual reality, and interactive apps can offer immersive experiences, educational tools, and virtual tours, creating a deeper connection between individuals and conservation issues. These technologies can inspire action, foster empathy, and raise awareness on a global scale.
- *Conservation finance and sustainable funding models:* developing innovative and sustainable funding models is crucial for conservation in the future. Conservation organizations are exploring diverse financial mechanisms, including impact investments, payments for ecosystem services, crowdfunding, and public-private partnerships. These approaches can diversify funding sources, encourage private sector engagement, and ensure long-term financial sustainability for conservation projects. These models can attract investment capital, align financial incentives with conservation goals, and support sustainable livelihoods for local communities.
- *Policy and governance:* strengthening policy frameworks and governance mechanisms is crucial for effective conservation. Future developments will likely involve advocating for stronger legal protections, enhanced enforcement mechanisms, and international agreements that prioritize conservation goals in favour of human rights. Promoting policy coherence and addressing the drivers of biodiversity loss will be vital for creating an enabling environment for conservation action.
- *Education and public awareness:* education and public awareness will continue to play a pivotal role in conservation. Future developments will focus on expanding environmental education programs, integrating conservation principles into school curricula, and leveraging digital platforms and social media to engage and inform the public. Increasing public awareness and fostering a sense of environmental responsibility are essential for building a broader conservation movement.
- *Digital conservation:* leverages technology to preserve and protect cultural and natural heritage by digitizing and archiving artefacts, documents, and ecosystems. This innovative approach

(Figure 6) ensures the longevity and accessibility of valuable resources, fostering a sustainable method for safeguarding our shared global heritage.

These prospects and potential developments hold significant promise for advancing conservation efforts. By embracing technological advancements, engaging communities, developing sustainable funding models, addressing climate change, strengthening policy frameworks, and implementing effective conservation communication, conservation can make substantial progress in protecting biodiversity, ecosystems, and the planet for future generations.

Figure 6: Five key dimensions of digital conservation designed by Arts et al. (2015) in their article Digital technology and the conservation of nature. Ambio, 44, 661-673.

7.2 Conservation AI

AI is revolutionizing conservation efforts by offering advanced tools for monitoring, analysing, and managing ecosystems. By harnessing the capabilities of AI, conservation stakeholders can analyse vast datasets, model ecosystems, and implement data-driven strategies to enhance biodiversity preservation and sustainable resource management.

- *Data analysis and pattern recognition:* AI algorithms are used to analyse large datasets, such as satellite imagery, camera trap photos, and acoustic recordings, to detect patterns and identify key conservation indicators. This helps monitor (He, 2020) biodiversity, track species populations, and identify habitat changes. AI can quickly process vast amounts of data, enabling conservationists to make data-driven decisions and respond to emerging threats more effectively (Chalmers et al., 2019).
- *Predictive modelling and species distribution:* AI algorithms use existing data to develop predictive models that estimate species distribution and habitat suitability. This information is valuable for identifying areas of high conservation priority and planning conservation interventions. AI can also help forecast the impacts of climate change on species and ecosystems, aiding in adaptation planning (Reckling et al., 2021; Zhang and Li, 2017).
- *Wildlife monitoring and anti-poaching efforts:* AI-powered technologies such as drones, cameras, and sensors can be used for wildlife monitoring and anti-poaching efforts. AI algorithms can analyse real-time video and image feeds to detect and identify wildlife, including endangered species, and trigger alerts for potential poaching activities. This helps law enforcement agencies respond quickly and effectively (Bondi, 2018; Kuruppu, 2023).
- *Environmental DNA (eDNA):* eDNA sampling involves collecting and analysing DNA traces present in environmental samples, such as water or soil, to detect the presence of species. Advances in eDNA technologies and AI analysis techniques (Beng and Corlett, 2020) can improve species detection, especially for elusive or cryptic species. This approach can provide valuable information for conservation planning and monitoring biodiversity.

- *Ecosystem restoration and conservation interventions:* AI supports ecosystem restoration efforts by analysing ecological data and recommending appropriate restoration techniques. AI algorithms can optimize interventions like reforestation, invasive species management, and ecosystem monitoring, increasing the efficiency and effectiveness of conservation efforts (Shivaprakash et al., 2022).
- *Climate change modelling and resilience planning:* AI algorithms can analyse climate data, ecological variables, and species distributions to model the impacts of climate change on ecosystems. This information can aid in developing climate change adaptation strategies, identifying climate refugia, and enhancing ecosystem resilience to changing environmental conditions (Lee and Bharati, 2021) Leal et al., 2022).
- *Smart resource management:* AI can optimize resource management in conservation, such as efficient deployment of park rangers, predictive maintenance of conservation equipment, and intelligent monitoring of conservation projects. AI-powered systems can automate routine tasks, improve data collection efficiency, and enhance the overall effectiveness of conservation operations (Krishnan et al, 2022; Wu et al, 2021)).

Other conservation areas in which AI is used are wildlife trafficking, habitat monitoring and restoration, disease surveillance, and citizen science and engagement. Despite the observed utilizations of AI in conservation, its integration remains relatively new. There is a pressing need for more professionals in the field who possess the latest technological knowledge to advance the integration of the fourth industrial revolution tools in conservation efforts. Additionally, several urgent areas within conservation are expected to undergo significant developments, including technology-driven advancements.

- *Conservation planning and decision support:* AI can assist in optimizing conservation planning by considering various factors, such as ecological connectivity, habitat fragmentation, and the effectiveness of protected areas. AI algorithms can suggest optimal locations for protected areas, wildlife corridors, and habitat restoration efforts, considering multiple ecological and socio-economic variables (Xu et al., 2023).
- *Natural language processing and communication:* AI-powered natural language processing (NLP) can help analyse and understand large volumes of text data, such as research papers, reports, and social media discussions related to conservation. This allows conservationists to extract valuable insights, detect emerging issues, and understand public perceptions and sentiments regarding conservation topics (Tamrakar et al., 2023).
- *Public engagement and education:* AI-powered chatbots and virtual assistants can engage the public, answer conservation-related questions, and provide educational resources. These AI tools can facilitate interactive learning experiences, disseminate accurate information, and raise awareness about conservation issues, promoting a more informed and engaged public (Wilson, 2022).

While AI has immense potential in conservation, it is crucial to consider ethical considerations, such as data privacy, bias, and human-AI collaboration. The responsible integration of AI should prioritize human decision-making, local knowledge, and community involvement to ensure that AI supports and enhances conservation efforts while respecting human values and ethical standards.

According to Xu et al., “effective conservation management is a planning, implementation, and adaptation cycle consisting of three key steps. (1) We must understand the world; proximal and remote sensing technologies can help monitor land cover and animal populations. (2) We must act in the world; algorithmic decision making can help optimize and prioritize conservation efforts. (3) We must evaluate the impact of our actions; causal inference can help understand the direct effect of our actions.

8. CONCLUSION

Southern Africa's sustainable use approach to conservation emphasizes the involvement of local communities in natural resource management and aims to balance environmental protection with socioeconomic development. This approach has been implemented through community-based natural resource management (CBNRM) programs and sustainable wildlife management practices. It recognizes that involving communities in decision-making processes leads to more effective and equitable conservation outcomes. Communities are given rights and responsibilities to manage and benefit from their natural resources, including wildlife.

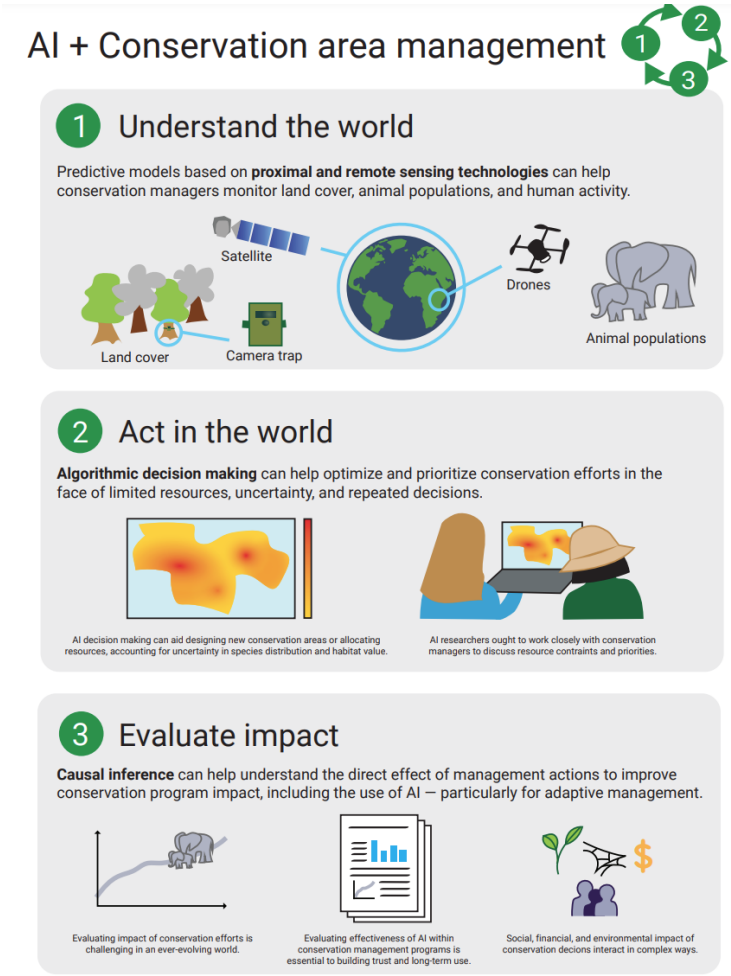

Figure 7: Extracted from - Reflections from the Workshop on AI-Assisted Decision Making for Conservation. arXiv preprint arXiv:2307.08774

However, the Western understanding of sustainable use can sometimes overlook cultural and ecological dimensions, prioritizing a preservationist approach over community well-being. Effective conservation communication is crucial in addressing misunderstanding between supporters of these diverging conservation models, promoting awareness, building trust, empowering communities, and fostering collaboration to achieve sustainable outcomes that respect diverse perspectives. Incorporating digital literacy into conservation strategies in Southern Africa will empower local communities to participate in decision-making, access conservation knowledge, and adopt sustainable practices. It will enhance their ability to implement initiatives, access sustainable markets, and communicate effectively.

Finally, collaborative approaches between Southern African and Western stakeholders are crucial for achieving sustainable conservation outcomes through knowledge sharing, mutual learning, and addressing cultural and ecological aspects. These collaborations will bridge gaps in approaches and contribute to effective conservation synergies across geographical boundaries.

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AUTHORS' DECLARATIONS AND ESSENTIAL ETHICAL COMPLIANCES

Author's Contributions (in accordance with ICMJE criteria for authorship)

Contribution	*Author 1*	*Author 2*
Conceived and designed the research or analysis	Yes	Yes
Collected the data	Yes	No
Contributed to data analysis & interpretation	Yes	Yes
Wrote the article/paper	Yes	No
Critical revision of the article/paper	Yes	Yes
Editing of the article/paper	Yes	Yes
Supervision	Yes	No
Project Administration	Yes	No
Funding Acquisition	No	No
Overall Contribution Proportion (%)	70	30

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The author(s) has/have NOT complied with PRISMA standards. It is not relevant in case of this study or written work.

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