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Creating a shared vision by uniting local stakeholders to tackle plastic bag consumption

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Single-use plastic bags contribute significantly to the plastic pollution in South Africa posing a serious environmental challenge. Hence, there is a need for comprehensive strategies to reduce plastic bag consumption. We report the results of an online workshop aimed to create a positive, shared future vision. The workshop was attended by 12 invited participants from diverse backgrounds and disciplines and utilized a collaborative approach to propose a framework for reducing plastic bag usage during grocery shopping in South Africa. The findings suggest that a combination of economic, structural and behavioral interventions is necessary to promote lasting behavior change, including financial incentives, a broad introduction of more environmentally friendly alternatives, and promoting bag reuse. Additionally, the vision underscored the importance of using social channels such as education and social norms. The invited stakeholders did not endorse conventional approaches such as increasing an already existing levy or implementing a complete ban on plastic bags. They also questioned the introduction of fully recycled plastic bags. Instead, the proposed vision encourages an integrated approach to reducing plastic bag usage involving individual behavior change and community engagement. The development of a creative product such as a video to showcase a future vision offers a powerful tool for communication with further stakeholders and political authorities, to engage with the community and broader population and for inspiring collective action. Overall, the findings have implications for policymakers, business leaders, environmental educators, and individuals committed to reducing plastic pollution and promoting sustainable practices in South Africa.

KEYWORDS

single-use plastic bags, stakeholder workshop, future visioning, South Africa, creative communication

1. Introduction

1.1. Plastic pollution in South Africa

The widespread use of plastic for short-lived products such as single-use bags has made it a significant problem, despite or rather because of low cost and durability. Policies and technical solutions have been developed to reduce plastic waste, but their effectiveness can be limited by human behavior, inadequate planning, and a lack of clear vision (Napper and Thompson, 2019; Da Costa et al., 2020; MacLeod et al., 2021). Today, South Africa generates an average of 41 kg of plastic waste per person annually (global average: 29 kg)

and ranks highest in mismanaged plastic waste in Africa (Nyathi and Togo, 2020; Meijer et al., 2021). This poses an increasing threat to public health, natural ecosystems, and the economy (Pucino et al., 2020).

One of the main (avoidable) sources of plastic waste in South Africa are the eight billion single-use plastic carrier bags (henceforth just *plastic bags*) consumed annually, mainly provided by retail supermarkets to their customers (O'Brien and Thondhlana, 2019).[1] To regulate their consumption the South African government imposed a plastic bag levy in 2003. However, the positive effects were only short-term (Dikgang et al., 2012).[2] As an additional measure, the South African government introduced a regulation demanding a hundred percent recycled content requirement for plastic bags by 2027 (Department for Environment, 2020). Nevertheless, regulations governing the constitution of plastic bags might not impact consumption (Hasson et al., 2007). If plastic bags continue to be used in large numbers and continue to receive inadequate end-of-life treatment, they will remain a major environmental issue no matter if the bag contains recycled content (Adeyanju et al., 2021). Thus, further attempts to resolve the issue are necessary, to create a sustainable and comprehensive solution for plastic bag waste in South Africa.

1.2. Literature review of studies on plastic bags in South Africa

Previous studies on plastic bag consumption in South Africa have mostly dealt with the phenomena from one particular perspective. As noted, introducing levies on plastic bags had a short-term benefit, which however wore off over time (Dikgang et al., 2012). The authors cite improper tax policy, neglect of continuous monitoring and enforcement, insufficient levies, increased consumption and customer habituation effects as reasons. Further, researchers have examined the environmental impact of plastic bags and their alternatives (i.e., life cycle assessment) in the South African context (Russo et al., 2020). O'Brien and Thondhlana (2019) explored individual consumer beliefs toward problem perception. The main findings indicate that the majority of the participants perceive plastic bags as an issue, however still use them because it is convenient. Finally, a recent study by Abiola et al. (2023) tested monetary and non-monetary interventions on individual behavior. In their study the non-monetary intervention (a plastic-free month campaign) was more successful than the two monetary interventions tested (one-time giveaway of reusable plastic bags and a subsidy on reusable bags). Although these are viable contributions, researchers have pointed out that the complex challenge of plastic bag over-consumption in South Africa requires a collective process incorporating multiple perspectives (Nhamo, 2008), which in essence is the aim of this article. The research question we formulate for this purpose is as follows.

> **RQ:** *How can diverse perspectives on the plastic pollution, deriving from single use plastic bags, be effectively incorporated to reduce plastic bag consumption in South Africa, and what changes can be made on an economic, structural and behavioral level to promote sustainable practices?*

1.3. Collectively visioning the future

To address our research question we chose a collective approach of visioning alternative futures to create relevant, credible, legitimate, and creative solutions (Alcamo and Henrichs, 2008). We define future visioning as a collective process of imagining alternative futures. This co-creative approach has been used in participatory workshops worldwide, where future scenarios have been used as a communication tool, to enrich scientific and political dialogues or to inform policymaking. It can help to engage with the future, to make better decisions in the present, evoke higher levels of problem awareness, encourage to be involved in solution development and elicit relevant action for sustainable behavior change (Daly-Smith et al., 2020).

To create future visions the confrontation with diverse circumstances and sometimes contradictory positions is necessary, since plastic pollution inherently affects nearly all aspects of human life (Wiesmeth and Häckl, 2017). Multi-perspective dialogues build trust, elicit creativity, advance learning and improve communication among stakeholders, the public, and the scientific community and increase salience and legitimacy of the results (Amor-Esteban et al., 2018; Reed et al., 2018). In other words, a multi-perspective dialogue creates knowledge for co-creation, but is also essential for ambitious but achievable future visions (Wiesmeth, 2020).

Future visions are particularly promising when having a protagonist resembling the visionaries and future audience, confronted with similar problems in similar environments (Pahl and Bauer, 2013). Visions of the future may place the main character, who represents a stereotypical member of society in its future version, solving the problem of the present. The similarity with visionaries and audience encourages a sense of similarity and connectedness, perhaps even social comparison (Richter et al., 2021b). In terms of visionaries, an identification figure boosts motivation and sets a necessary framework for the vision. Therefore, it is even more important that not only the protagonist of the vision has a local connection, but also the visionaries, making it is essential to collaborate with local stakeholders (van Asselt Marjolein and Rijkens-Klomp, 2002). This is because they are connected to local circumstances, to relevant problems and communicate in accessibly (Richter et al., 2021b). The resulting multi-perspective visions can thus address challenges more focused and informed and be made accessible to different audiences, such as community members, policy makers or educators more easily (van Vliet et al., 2010).

The present study demonstrates a multi-perspective, creative visioning approach resulting in a best-case scenario with

1 Formal retail supermarkets are the primary shopping destination for 70% South-Africans for objects of daily use, such as groceries or sanitary products, see Masojada (2020). For a definition of the formal retail in South-Afrika see Ligthelm (2013).

2 In some countries pricing mechanisms, such as levies have been more successful, see Thomas et al. (2019) for UK or BBC (2002) for Ireland.

selected stakeholders to tackle plastic bag over-consumption in South Africa.

2. Materials and methods

2.1. Participants

A diverse group of participants from Norway, South Africa and Namibia was brought together to a joint visioning workshop bringing different perspectives on plastic pollution through plastic bags—a prerequisite for a comprehensive understanding and discussion of the issue (Mitton et al., 2007). Nineteen people (12 women, 7 men) participated in the workshop. Of these, four were project team members (i.e., the authors of this article) and three were student assistants. The 12 invited participants brought a variety of backgrounds: experts from federal waste management agencies and environmental control boards, environmental engineers, environmental education managers, and researchers from the fields of biodiversity, life cycle assessment, community development, and environmental psychology. For a list of stakeholder affiliations see Supplementary Table 1.

2.2. Process

The aim of the 1-h virtual workshop, carried out in form of a guided group discussion in October 2022, was to co-create a vision of a plastic-bag-free shopping scenario in South Africa. Compared to face-to-face interactions and workshops, virtual interactions have a number of advantages in terms of accessibility, equity, and engagement (see Richter et al., 2021a). The meeting platform Zoom was chosen due to positive past experience, in terms of stable connectivity and sound quality. Further, an in-depth review on Zoom as a tool for qualitative research by Archibald et al. (2019) suggests that it is a viable option due to its user-friendliness, affordability, data management capabilities, and security features. Participants were encouraged to turn on their cameras to stimulate discussion and facilitate person-to-person interactions.

After a short welcome and summary presentation of the research project, participants were asked to watch a short video (see details below). This video illustrates a typical purchasing process, as it takes place under the current conditions in South Africa today, resulting in the purchase of several plastic bags as default. Based on this video, the task of the participants was to create a vision of how the shopping process could take place plastic bag-free. They were told that a second video would be created based on their input providing the participants with a concreate goal to increase motivation (Healey et al., 2015). Additionally, they were encouraged to be imaginative and creative and to critically question and modify every aspect of the *status quo* video. Giving stakeholders the opportunity to be creative and think outside the box, instead of staying in fixed thought structures, proves to be a fruitful method to create even unconventional and original visions (Sarantou et al., 2022).

An optimal group size for vision creation suggested by van Asselt Marjolein and Rijkens-Klomp (2002) is 5–10 participants. Thus, participants were equally divided into two breakout-groups, ensuring intra-group diversity ($n = 6$ stakeholders/room). Each breakout-room included two project team members as facilitators and one or two student assistants for taking minutes (for a discussion of the role and importance of facilitators see Durham et al., 2014). The workshop was recorded with the consent of the participants. Participants were offered to watch the video a second time before finding their way into a 20-min guided discussion. Succeeding the breakout-group discussions, results were summarized by a project team member and briefly discussed again in plenum.

2.3. Materials

2.3.1. Status quo video

The production of the *status quo* video involved collaboration with a professional graphic designer from South Africa, who contributed to the inclusion of a South African dialect in the voice-over to enhance local viewers' identification with the video. Since two of the project partners are from South Africa they contributed to the video authentically representing a typical shopping experience. The animated video features a middle-aged woman (Thandi) going through a shopping process that emulates a realistic scenario. Specifically, Thandi decides to go shopping and drives to a supermarket by car, where she fills her shopping cart with various items, including food, sanitary products, and wine bottles. During checkout, Thandi is offered different types of shopping bags, including cotton, paper, and plastic. When she opts for plastic bags, a packer begins to pack her purchases.[3] After Thandi arrives home, she unpacks her groceries and discards the bags directly into the trash. The video is approximately one and a half minutes long and available as Supplementary material to this article.

3. Vision

The ~4 min long video illustrating pathways to avoid plastic bags, is available as Supplementary material to this article, with a screenshot provided in Figure 1.

The design of the best case scenario video is similar to the *status quo* scenario video in terms of protagonists, setting and plot, but many details have been changed in order to modify the outcome. Thandi decides to go shopping for groceries. On the way out however, Thandi remembers having seen a sign advertising a promotion for a 5% discount for the first 1,000 customers bringing own bags. Therefore, she takes shopping bags from home. At the store, Thandi realizes she needs more than just groceries and purchases additional items, including laundry powder, shampoo, and wine.

At the checkout, she is informed that the store has replaced single-use plastic bags with reusable ones to reduce environmental impact. Since Thandi has too many items for the bags she brought,

3 A service of supermarkets in South Africa, which is not common everywhere in the world, is that customers do not have to pack their purchases themselves, but get them packed by a packer. This creates a choice environment *nudging* customers toward the non-environmental alternative [i.e., buying new (plastic) bags].

FIGURE 1
A screenshot of the video showing Thandi (left), the cashier (middle), and another customer (right) at the till.

another customer offers Thandi a spare bag. She decides to use it instead of purchasing additional bags. Thandi's purchase qualifies for the promotional discount, and she leaves the store feeling satisfied with her ability to avoid plastic waste and save money.

Upon arriving home, Thandi stores the bags, instead of throwing them away immediately, and makes a note to herself to remember bringing them next time she goes shopping. Further she makes sure to always have a bag in the trunk of her car in case she goes shopping spontaneously. She shares her experience and newfound knowledge with her family and friends, leading to the creation of a neighborhood reuse-your-bag scheme. The initiative gains media attention, and Thandi and her friends hope to inspire others to join the movement.

4. Discussion

The objective of the stakeholder workshop was to outline a hypothetical, but desirable, vision for a plastic bag-free shopping experience in South Africa. This vision, as perceived by the workshop participants, is not a concrete action plan but rather an initial, inspirational step. The vision proposes a combination of economic, structural, and behavioral modifications to the present situation to encourage a shift in plastic bag consumption in South Africa. This section delves deeper into the specifics of the individual changes presented in the video and how they transfer to the bigger picture.

4.1. Economic modifications

The initial phase of the proposed vision involves the use of financial incentives by the supermarket to encourage customers to bring their bags instead of purchasing new ones. While positive financial incentives, such as discounts, have been successfully utilized to promote reusable coffee cups (Poortinga and Whitaker, 2018), their effectiveness in the long term remains controversial (Heidbreder et al., 2019). Studies suggest they can initially trigger behavior change or reflection about habits (Maki et al., 2016), but their often time-limited availability and potential rebound effects can limit their long-term impact (Otto et al., 2014).

Interestingly, the stakeholders expressed reservations regarding the effectiveness of increasing the levy or imposing a complete ban on plastic bags. While a complete ban may appear efficacious, the local context of South Africa, characterized by a significant informal economy, renders it unenforceable and uncontrollable (Ligthelm, 2013). South African authorities have even advised against banning plastic bags, saying that a ban would be difficult to enforce and would encourage the use of illegal plastic bags (Department for Environmental Affairs, 2019). Similarly, increasing the levy may not necessarily decrease the usage of plastic bags, as it could result in individuals spending more money on plastic bags, leaving less money for other essential purchases. Thus, the social compatibility aspect should be considered while implementing measures to reduce the usage of plastic bags. Furthermore, supermarkets may be incentivized to sell more plastic bags to increase their revenue.

4.2. Structural modifications

Supermarkets have introduced alternative bags containing recycled content (Department for Environment, 2020) and aim to provide the most environmentally friendly (or least environmentally unfriendly) option. Life cycle analysis revealed that thick high-density polyethylene bags made from 100% recycled plastic and designed for reuse have the lowest environmental impact in South Africa in terms of CO_2 emissions (Russo et al., 2020). However, if the objective is to avoid plastic accumulation in the environment, biodegradable or paper bags may be a better option (Moshood et al., 2022; Stafford et al., 2022). Misconceptions about recycled plastic bags might also lead to rebound effects with people assuming that recycled plastic bags are less harmful to the environment and failing to recycle them (Ansink et al., 2022).

Even the least environmentally harmful newly bought reusable bags must be used 3–10 times to achieve a more positive balance than single-use bags (Stafford et al., 2022).

4.3. Behavioral modifications

To increase the likelihood of reuse, participants suggested the use of self-attached prompts, availability of used plastic bags, and educating family and friends. A meta-analysis by Osbaldiston and Schott (2012) found prompts to be among the most effective interventions for promoting sustainable behavior, especially when behavioral barriers are low (Schultz, 2014). Low behavioral costs, generally characterize plastic bag avoidance (Kaiser et al., 2010). Having a plastic bag in the car (i.e., increasing the availability of a plastic bag in the right situations) further lowers behavioral costs and thus lowers the chance of buying new shopping bags. By educating family and friends and through active personal behavior, a person can foster plastic-relevant knowledge and establish firm (descriptive) social norms (Heidbreder et al., 2019). Similar to prompts, education and social norms are particularly useful measures for behaviors with comparatively low behavioral barriers (Schultz, 2014). If these two mechanisms of action are also supported by media attention, they can be even more effective. In addition to its educational function, mass media can strongly influence what behavior people consider "normal" and thus establish guiding behavior (Borg, 2021). Finally, it has been shown that social media campaigns can also be effective in promoting plastic reduction measures and encouraging behavior change (Rapada et al., 2021).

4.4. Managerial and policy implications

Based on the modifications, we would like to derive practical implications the South African context. Pricing mechanisms do not appear to be necessarily effective. Numerous previous works point out possible pitfalls (e.g., rebound effects; Otto et al., 2014) and highlight the difficulty of designing long-term effective economic measures (Dikgang et al., 2012). However, even if the design of an effective economic measure succeeds, implementation obstacles complicate the path to success (i.e., unenforceability; Ligthelm, 2013). In light of the vision, combining results from structural changes combined with measures targeting behavior directly seems more promising. Altering the type of bags available and standardizing on the *least harmful* bags through policy measures could reduce the environmental damage caused production (Stafford et al., 2022). However, to enhance utilization of *better* bags and reduce the overall procurement of new plastic bags, which has to be the ultimate goal, it is imperative to address consumer behavior through environmental education (Otto and Pensini, 2017), prompts (Osbaldiston and Schott, 2012), (social) media campaigns (Borg, 2021; Rapada et al., 2021), community-based initiatives (Moraes et al., 2010), and event-based campaigns, such as plastic-free-months (Abiola et al., 2023).

With regard to the process of collective visioning as such, we emphasize once again the necessity of this approach, as a tool for integrating multiple perspectives and facilitating dialog across sectors of society. Doing this via online workshops is comparatively easy, cheap and accessible. Advancing, exciting technologies, such as the Metaverse, could also help to further increase the effectiveness of future workshops by reducing disadvantages compared to in-person-workshops, such as social exchange, personal contact and limitation in terms of procedure (Abbate et al., 2022). We recommend using emerging technologies to continue shaping fruitful future visions.

4.5. Videos as form of creative communication

Finally, we briefly discuss the role of the implementation of the vision as a video. Creating shared visions is first and foremost a creative and goal-oriented, yet self-contained process. Simply holding a workshop does not necessarily promise resounding success. If no direct decisions are made, results are often only, if at all, recorded in a report. Thus, it can happen that well-planned and well-staffed procedures remain ineffective. One way to counteract this is to preserve the visions in such a way that the results are exciting for non-participants, such as data-based graphs (e.g., IPCC), narratives (Steenberg et al., 2019), drawings (Löfström and Klöckner, 2019), photographs (see Tress and Tress, 2003; Sheppard, 2012) or even virtual reality (Lovett et al., 2002). Hence, capturing the vision in an appealing video, not only provides the participants with a specific task and thus a source of motivation (Stangor, 2017; Nyumba et al., 2018), but helps to conserve the vision and increases reusability, making it doubly sustainable in content and essence. The video could potentially be utilized for collaborating with other stakeholders, delivering compelling presentations to decision-makers, and to directly engage with the general population to drive change and to gain further insights on general perceptions (see also Neef et al., 2022), owing to its simplicity and ease of comprehension. This is something we aspire to test in future studies, and we encourage other researchers to do the same.

5. Conclusion

In conclusion, the workshop with invited local stakeholders aimed to create a vision of a plastic bag-free shopping experience in South Africa. The vision proposes a combination of economic, structural and behavioral changes to trigger lasting behavior change, such as financial incentives, the introduction of environmentally friendly alternative plastic bags, and encouraging the reuse of bags. It also emphasizes the importance of social channels, including education and social norms, in reducing plastic usage. Further, the invited stakeholders did not believe that increasing the levy or a complete ban on plastic bags was a sensible measure. Taken together the vision proposed a more holistic approach to reducing plastic usage. However, the present study is not without limitations. First, the vision is

focused on the formal economy and the South African context. Whether the vision can be generalized to informal places of consumption or other countries is questionable. Second, while emphasis has been placed on developing realistic, yet creative ideas, this is not a feasibility analysis. Whether the vision is achievable in its entirety and in what time frame could be remains open. Nevertheless, a future vision is merely the beginning of an informed transition that entails feasibility analyses and process planning (Szpilko, 2020). With concerted efforts from all stakeholders jointly working toward this vision of a plastic bag-free shopping process seems achievable. Many of the measures are simply waiting to be implemented. Finally, recording a vision in a video format provides a creative means of documentation and offers the potential for reuse and additional applications. We suggest this process to decision makers and academics as a template for stakeholder interaction for sustainable transitions, beyond the challenge of plastic pollution and the South African context.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

NN wrote the first draft of the manuscript. IR wrote sections of the manuscript. KS and CR provided feedback to the original manuscript. All authors contributed to conception, design of the workshop, manuscript revision, read, and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fcomm.2023.1177334/full#supplementary-material

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