
Literature review on Littering

A study exploring
littering behavior and
identifying strategies to
curb littering

Rutendo Furusa

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Introduction

Littering has increasingly become a cause for concern in many countries. Littering is known as “a method of incorrectly disposing of waste” (Garg & Mashilwane, 2015:91). Research has found that 70% of all litter can be attributed to people, while the rest is attributed to “unsecured vehicle loads” which includes parts of vehicles such as tyres (Schultz et al., 2011:2). Literature attempting to characterise the “litter-bug” is by far inconclusive as it varies from context to context depending on what the litter is. Besides contributing to visual pollution, it contributes to many detrimental health and environmental risks in society (Khan & Ghouri, 2011).

In South Africa the scholarship on littering has focused mainly on waste management and marine littering which leaves the area on urban littering under-researched. Internationally non-governmental organisations are at the forefront of reducing urban litter through various campaigns.

Statement of the problem

Pollution is one of the major threats to the environment. Since human beings are largely responsible for littering it is important to understand why people litter as well as how to encourage people not to litter. Such information would form the basis for strategies aimed at tackling the problem. This paper will present the literature around littering behaviour as well as explore the ways in which innovative initiatives can motivate people not to litter.

Methodology

The information in this desktop study was gathered by using online search engines such as Google, Google Scholar and publication databases such as JSTOR. To begin with keywords such as “littering” were typed in and the search was further expanded to include “littering strategies”, “motivation not to litter” and “littering South Africa”. The online resources found were narrowed and reviewed in order to consolidate this report.

Littering in South Africa

Section 24 of the Bill of Rights in the Constitution of South Africa affords every South African the opportunity to live in a healthy environment. Littering is described as “an example of an environmentally and socially unacceptable practice” in the White Paper on Integrated Pollution Management for South Africa of 2000. Fifteen years later littering has become a major issue which requires immediate attention.

The Population Studies Centre in Michigan in the United States and the Human Science Research Council of South Africa collaborated to produce a report on environmental consciousness in South Africa. The report used data from the General Household Survey of 2004. The report focused on exploring how people perceive, react or educate themselves about environmental conditions affecting South Africa such as pollution and littering (Population Studies Centre, 2010). The report found that urban households were more likely to perceive air pollution and littering as community problems (Population Studies Centre, 2010: 22). A widely held belief amongst African households was that environmental concerns were also community concerns (ibid). African households however were less likely to be aware of environmental interventions and initiatives than non-African

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households. Furthermore they found that there was a positive relationship between greater awareness and higher socio-economic status (Population Studies Centre, 2010:23). This report provided insight into the links between littering perceptions and social conditions in the South African context. This provides useful information for developing a more informed strategy for South Africa going forward.

Plastic bag litter is a common problem in South Africa. South Africans are said to consume 8 million plastic bags a year (Dikgang, Leiman, Visser, 2010). The plastic bag levy was a mechanism put in place by the government to curb the devastating effects of plastic bag litter on the environment. Research has found that 90% of the litter found on South African beaches contained plastic (Environmental Education Association of Southern Africa, 2001). This is a cause for concern because this litter is a serious threat to marine life as they might ingest it or it could probably cause them to become trapped inside it (Environmental Education Association of Southern Africa, 2001). Ocean Conservancy is an NGO that oversees the International Coastal Clean-up in 91 countries across the world (Ocean Conservancy, 2015). Ocean Conservancy partners with organisations in each country to make the clean-up possible. The campaign is aimed at reducing the amount of litter on beaches around the world in order to curb its effects of marine life (Ocean Conservancy, 2015). With the assistance of South African partner Coastal Cleanup, 11 659kgs of litter was collected over 132.7 km of South African shoreline (ibid). The clean-up in South Africa in 2014 involved over 3000 volunteers and the top items they collected were food wrappers, bottle caps, straws and cigarette butts (ibid).

Literature

Behaviour Change and Motivation

Environmentally responsible behaviour (ERB) is thought to consist of three steps (Osbaldiston & Sheldon, 2003). These include firstly, initiating new behaviour then repeating that behaviour and finally generalizing the behaviour (Osbaldiston & Sheldon, 2003: 355). For instance if a person decides to pick up litter, this is commendable behaviour; they then need to continue to do so over a period of time and then eventually start to tell other people to do the same or find ways to dispose of litter wherever they are. Osbaldiston & Sheldon (2003) found however that individuals who already possessed a higher level of self-motivation were more likely to develop environmentally responsible behaviour.

Behavioural scientists at Newcastle University conducted research to investigate the impact of eye images on littering behaviour in a university cafeteria (Ernest-Jones et al., 2013). The psychologists conducted a series of field experiments where posters with a set of eyes were put up

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in the cafeteria. As a control measure posters with flowers were put up on separate occasions and the effects were observed. The results showed that people were less likely to leave litter behind on the days that the eye posters were put up (Ernest-Jones et al., 2013: 176). This supports the theory that people are less likely to misbehave or act in a socially unacceptable manner when they are being watched.

Research by Schultz et al. (2011) echoes these sentiments. In a study of over 9000 individuals at 130 outdoor locations across the United States they found that 85% of general littering acts were as a result of personal qualities and individual differences (Schultz et al., 2011:21). This included demographic differences such as gender and age. Men were found to be more likely to litter than women and younger adults more likely than older adults (Schultz et al., 2011: 17). The researchers propose that such people may be motivated through increased education and awareness to reduce littering. Overall the littering rate for general litter was 17% and that for smokers was 65% (Schultz

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et al., 2011: 18). This high incidence of littering in smokers was attributed to the lack of proper sites to dispose of cigarette butts (ibid). The research however does not explore or propose any specific ways on how to effectively tackle the problems of cigarette butt litter.

Research conducted at Eindhoven University in the Netherlands suggested that trash cans with persuasive messages written on them contribute largely to less littering (de Kort et al., 2008). When coupled with “personal anti-littering norms” in individuals littering was reduced by 50% (de Kort et al., 2008: 15).

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Litter reduction strategy

South African engineers Mark Marais and Neil Armitage proposed guidelines for reducing litter in urban areas. The research concentrated on nine catchment points in Cape Town enabled the pair to propose a few matters of consideration before selecting a litter reduction strategy (Marais & Armitage, 2004). There are several factors to consider such as: the type of litter; its volume; where the litter is located; the type of community; the level of awareness in the community and the resources the community possesses (Marais & Armitage, 2004: 488). Once these factors have been determined then a strategy involving one or more of the following can be implemented: frequent collection of litter; street sweeping; raising awareness; increasing number of bins; recycling; composting and installing grates over entrances (Marais & Armitage, 2004: 489). Such a strategy is comprehensive because it ensures that multiple aspects of the litter problem are covered.

Innovative ideas

International

The research presented in the previous section highlights the need for innovative thinking when it comes to anti-littering strategies.

A recent innovation to curb cigarette butt litter is the introduction of “smoking zones”

Keep Britain Tidy is an anti-littering charity organisation in the U.K that has been operating for 60 years. Their success over the years in reducing litter has made them a well-known brand (Keep Britain Tidy, 2014). The organisation ultimately aims to reduce litter; improve local spaces and prevent waste. Keep Britain Tidy partners with a wide range of stakeholders including the British government, schools, business and community groups (ibid). The organisation develops a strategy every five years in order to evaluate their success and map out what still needs to be achieved. The bulk of the projects undertaken by Keep Britain Tidy are informed by their own research conducted in cities in the U.K. A recent innovation to curb cigarette butt litter is the introduction of “smoking zones” where smokers will be able to smoke freely and dispose of the cigarette butt properly in designated bins around the zone (Keep Britain Tidy, 2015). This innovation is one that can be easily applied in South Africa at shopping centres, universities,

malls and other places where smokers are likely to congregate. Keep Britain Tidy also runs a series of ads in which they depict people's littering behaviour in order to encourage them not to litter (Keep Britain Tidy, 2015). Launched in early November of 2015, the success of this initiative is yet to be established.

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Another innovative way of disposing of cigarette butts is one called "Neat Streets". The campaign calls on smokers to place their butt in a "voting box" as a way of voting for their favourite football player, hence avoiding littering. The campaign is run by a UK environmental organisation called Hubbub (Hubbub, 2015). (See Fig.1 below)



Fig.1: Derived from Hubbub (2015)

An anti-littering campaign in Hong Kong has recently started to use DNA from cigarette buds, bottles and gum in order to identify the perpetrator (Daily Mail, 2015). Once identified the face of the perpetrator will be displayed as a deterrent for other individuals not to litter. The campaign was launched in May this year by an advertising company Oglivy and Mather (Daily Mail, 2015). Since it is quite recent its success rate is yet to be established.



Fig 2: Derived from Daily Mail (2015)

Singapore has developed an anti-littering strategy which encompasses a number of areas including: educating the public, especially through schools; a series of by-laws preventing individuals from littering and thorough research on littering and society (National Environment Agency, 2011). These by-laws are policed using surveillance cameras as well as imposing high fines for litterbugs. Since 2012, 95 people have been caught littering on camera and fined (National Environment Agency, 2014). In 2014 Singapore recorded the highest fine for littering ever charged in history amounting to approximately \$13 000 (National Environment Agency, 2011). In 2013, 9346 tickets were issued for littering, this was an increase from the 8 195 tickets issued in 2012 (National Environment Agency, 2014)

Singapore's anti-littering strategy includes strict policing of by-laws and hefty fines.

South Africa

Ethekwini Municipality recently announced that they would be strictly **enforcing the by-laws** related to the management and disposal of waste (Ethekwini Municipality). The municipality announced that offenders would be charged with a fine or imprisoned if they were caught littering (ibid).

A report generated by the CSIR, documenting good waste management practices across different municipalities in South Africa showcases practical ways in which waste can be handled. To tackle the problem of illegal dumping, the Saldanha Bay Municipality strictly enforces by-laws especially against building contractors by encouraging the public to phone a **hotline should they see illegal dumping** in their area (CSIR, 2011). The Brede River Winelands Municipality on the other hand has developed

illegal dumping sites into play areas for children. This solution is premised on the idea that litter attracts litter, therefore ***beautifying the area will ultimately reduce the litter*** (CSIR, 2011:72). In order to change people's behaviours and attitudes towards litter, awareness needs to be created around the issue (Schultz et al., 2011). The Steve Tshwete Municipality in Mpumalanga created a series of ***educational awareness programs*** in schools. One such initiative is the 'Cleanest Schools Competition' targeting schools in dirty areas, as a way of encouraging learners to keep their surroundings clean (CSIR, 2011: 66)

The Green Campus Initiative (GCI) at the University of Cape Town runs a successful ***waste management project***. The introduction of a two bin system in 2012, allowed students to separate "recyclables" from "non-recyclables" (GCI, 2012). Prior to this GCI introduced a four-bin system with bins colour coded for paper, plastic, tin and other (GCI, 2012).

Conclusion

Research has informed many of the initiatives that have been introduced to deal with the problem of littering internationally. However much of this research is not produced within academia but rather by smaller organisations at grassroots level. Countries such as the United Kingdom have shown great innovation in their approaches to anti-littering. Through increased engagement with a wide range of organisations charity organisations in this space have the capacity to reach a wider audience and raise awareness on littering. South African environmental organisations may be able to adapt a few of these projects to suit this context. Furthermore an increase in the sharing of information is necessary. Reports showcasing good practices such as the one generated by the CSIR are practical ways of encouraging households, businesses as well as municipalities to management waste more effectively in South Africa.

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