

Developing a pilot community-based social marketing intervention promoting sorting waste at home for the RESQ Project

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Developing a pilot community-based social marketing intervention promoting sorting waste at home for the RESQ Project: “Don’t waste your waste”

Background/justification of the problem

Lebanon, a middle-income country in the Middle East, has been facing unprecedented social, political, economic, and ecological crises, including a countrywide waste crisis, which started emerging in 2015, when the biggest and principal national landfill was closed, generating mountains of garbage that piled up in the streets for months (Abbas et al., 2017). In the Lebanese community, appropriate and environmentally-friendly waste management practices are not common, hampered by technical, technological incompetence, lack of resources, and limited environmental awareness (Massoud et al., 2021, 2019). The situation has been aggravated by the Beirut Port explosion in August 2020 which severely damaged two key facilities involved in sorting, recycling, and composting waste (HRW, Human Rights Watch, 2020). The World Bank Group estimated this damage cost between 20 and 25 million dollars to the environmental sector; these costs are further heightened by the economic crises causing the 90% devaluation of the Lebanese currency to the dollar (Hubbard, 2021).

In response to the national waste crisis, a group of institutions led by the American University of Beirut and supported by the Delegation of the European Union in Lebanon launched the “RESQ project” in late 2018 (Rashid et al., 2021). The still ongoing project is aimed to develop and implement a model solid waste management system across two unions of municipalities (Iqlim el Tuffah and Jabal El Riyane) in the South of Lebanon. Following a circular economy framework (Paes et al., 2019), the RESQ project aims to promote good solid waste management practices, including recycling and reusing, with the aim to reduce waste generation. The overarching goal of the RESQ project is to ‘rescue’ and restore the targeted area’s waterways from pollution due to improper solid waste management practices, which will protect the maritime environment.

In this paper, we present the development of the “Don’t waste your waste” campaign aimed at promoting reducing, reusing, and recycling among residents in a selected village (Arab Salim). The pilot campaign was developed by a group of students attending a social marketing course offered by the American University of Beirut, in the Fall 2021 semester. During the course, which follows a service-learning pedagogical approach (Bardus et al., 2019; El Harakeh et al., 2017), the students collaborated closely with the original RESQ team, a local nonprofit organization responsible for waste collection in the village (Nida’ El Ard), and a local service provider of digital waste management solutions and a RESQ project partner (Nadeera) to develop the exchange propositions and the intervention plan, which will be implemented in the coming fall.

Aims and Objectives

The overall aim of the campaign is to reduce the proportion of the waste generated in the targeted area. We developed specific knowledge, belief, and behavioral objectives. By the end of the campaign, we want the citizens of Arab Salim to a) know how to segregate the waste, know which waste can be recycled (knowledge); b) believe that solid waste is a valuable resource and that they are capable to reduce and recycle their waste efficiently (belief); c) segregate their waste at home, produce less waste, and reuse waste (e.g., use tote bags for grocery shopping).

Target market profile

The project targeted 100 randomly selected households in Arab Salim, which has a population size of approximately 9,000 Lebanese and 1,000 Syrian citizens. The village was purposefully selected as it is one

of the villages producing the highest amount of waste in the Union of Municipalities of Iqlim el Tuffah, based on a waste characterization study, conducted during the initial phases of the RESQ project. The Arab Salim municipality was also very responsive and ready to help in the implementation. Furthermore, the village had an existent solid waste management system, operated by Nida' El Ard NGO, responsible for the waste collection, and second segregation at a dedicated sorting facility. Yet, the system required some tangible improvements, due to the low participation rates. In fact, consultations with the service provider Nida' El Ard showed that citizens inappropriately segregated the waste at home, mixing recyclables and non-recyclables, and disposing of large amounts of plastic shopping bags that could be reused.

Based on our analysis of the market using the Stages of Change of the Transtheoretical Model (TTM) (Prochaska et al., 2008), as applied to the solid waste management (Issock Issock et al., 2021), we considered the citizens of this village in the contemplation and action phase, requiring different types of support to influence their behavioral processes of change. According to the TTM, processes of change and behavior change techniques can be used to influence individuals' perceptions of the behaviors and motivate them to change (Escobar Ramírez et al., 2011). Relevant processes of change included the provision of alternatives to the competing behavior (counterconditioning), prompting commitments to act or boosting the citizens' belief in their ability to change (self-liberation), and providing tangible or intangible benefits to the behaviors (reinforcement management) (Prochaska et al., 2008),

The pilot intervention was based on the Theory of Planned Behavior (TPB) (Ajzen, 2011; Apinpath, 2014), which is one of the prominent used to explain pro-environmental behaviors such as recycling, reducing, and reusing (Raghu and Rodrigues, 2020). Accordingly, the campaign was aimed to (1) change citizens' behavioral beliefs by generating positive associations with the targeted behaviors; (2) change the normative beliefs by actively engaging the audience in the waste management process; (3) change their control beliefs by empowering them to manage waste at home and showing them how easy it is to engage in the targeted behaviors.

Systematic Planning and Citizen Orientation

The RESQ project is based on the community-based social marketing (CBSM) framework (McKenzie-Mohr, 2011), which includes five steps: 1) selecting target behavior(s); 2) identifying barriers and benefits; 3) developing strategies; 4) piloting; 5) and undertaking a broad-scale implementation and evaluation. After completing formative research and developing a technical master plan, we implemented a series of consultations and community-based activities to develop campaigns and awareness sessions.

CBSM has been used in other campaigns promoting waste management in various countries and settings (e.g., Haldeman and Turner, 2009; Heydari et al., 2021). We conducted formative research activities with the target population (behavioral observation, surveys, and interviews) and numerous stakeholder consultations, including the service provider Nida' El Ard, which provided invaluable insight for developing the campaign focus, content, implementation strategies, and validating the social offering and exchange propositions.

The Social Offering

The core product was defined to reduce waste generation and its negative side effects; according to our theoretical framework, we aimed to influence the knowledge, normative, control, and behavioral beliefs underlying the core TPB constructs, such as the perceived behavioral control, perceived social norms, attitudes towards the behavior, intention to perform the behavior, and actual behavior.

Branding: To create positive attitudes towards the behaviors and to increase the project recognition, we developed a branding proposition including the RESQ project logo accompanied by the Arabic sentences that translate into "Protect me, protect you" and "Make use of your waste". These slogans are aimed to influence the belief that waste is valuable and can be reused. The logo is used in all communication materials including reusable cloth bags, magnetic flyers (to be placed in the citizen's fridges), and a how-to video tutorial.



Reusable cloth bags: These are intended to encourage reusing behavior and reduce plastic bag consumption. In each of the bags a card with the slogan “Bring me with you” is placed to remind people to keep the bag with them wherever they go, providing support for the behavior as well as promoting a sense of social norm when diffused in the community.

Magnetic flyers: Since waste creation and sorting mostly occurs in the kitchen, these flyers can be put on the door of a fridge. This flyer provides basic information about types of waste and instructions on how to use the waste collection system. The flyer itself also acts as a constant reminder of the behavior. The magnetic flyers entice their perceived behavioral control.

How-to video tutorial: A video tutorial is developed to demonstrate how to correctly sort at source and features citizens from the targeted area. This is a way to empower citizens and show them that they are making a difference. It also reminds them in what condition the waste should be sent to the sorting facility. Similarly, the video starts by thanking the audience for their previous efforts in sorting. This reassures them that their efforts were not in vain and encourages new adopters to engage in the ‘normative’ behavior. It also increases their perceived behavioral control through educating the people about the proper ways of sorting therefore inducing a positive attitude about reducing and reusing through targeting the beliefs of the audience.



QR codes stickers



Sorting bags

Augmented products: Using the Nadeera app (<https://www.nadeera.org>), citizens will receive QR codes, stickers, and bags for sorting waste at home. The organization will distribute these materials to the targeted households. The Nadeera app features a QR code-based system that allows to track waste from the collection to its arrival at the sorting facility. The system allows collectors to provide feedback to citizens (positive reinforcement through a reward system), encouraging the desired behavior. The collection system provided by Nidaa Al Ard facility standardizes the behavior,

thus targeting the subjective norms. This way, the residents will acknowledge that everyone is involved in the project and that this is the norm. Furthermore, the Nadeera app has a growing community on local social media, which will improve the social impact and the diffusion of the culture of recycling and reduce waste in the area and in the rest of the country.

Competition Analysis

Even though most residents were motivated and willing to participate, formative research revealed that the target audience perceived the competition (i.e., not reusing, recycling, or reducing waste) as less time-consuming and more convenient. This is because reducing waste and sorting waste at home requires some preparation and cognitive effort. For example, one needs to have the physical space to host recycling bins at home; they need to remember to bring the cloth bags when going shopping, etc.

Another form of competition comes from the industry, local producers of plastic packaging, as this project may decrease their financial profit in selling plastic shopping bags to the local grocery stores. Additionally, Lebanese citizens are going through many crises, and families are facing different challenges daily which cause a high sense of dissatisfaction and mental strain. As a result, they might not perceive waste reduction as a priority action.

Integrated Intervention Mix

In addition to the product platform outlined above in the social offering paragraph, we defined the marketing mix in terms of price, place, and promotion. As for the price, the main focus is to decrease the monetary and nonmonetary costs for households in terms of time, effort, and physical and psychological discomfort in sorting waste at home, reusing and reducing waste. The augmented products are aimed to address these barriers.

As for the place, the target audience performs the behavior of sorting in their houses and the behavior of reducing plastic bags in the supermarkets or grocery shops, where we will enhance our presence with the presence of branded augmented products.

The promotion of the campaign will consist of a mix of face-to-face and mass media communication channels. We will use the products as delivery modes and we will tap into the existing social networks of the municipality, Nida' El Ard, and Nadeera to create a sense of social community. The head of the municipality will be used as a reputable messenger, who will encourage the target audience to participate in the initiative and change their behavior. The messages are formulated using plain Arabic language and were developed through an iterative process using meetings and stakeholder consultations.

The campaign will be evaluated using a Difference In difference Model (DID) model (Wing et al., 2018), based on a before-after quasi-experimental design. We will collect baseline and follow-up data on the main outcomes (knowledge, TPB constructs, and behaviors) using an interviewer-administered questionnaire, which will be conducted in person with the help of Nida' El Ard personnel and trained research volunteers. The Nadeera app will be used to track the waste collected at the household level as well as the total quantities of different waste collected at the facility level. In terms of process evaluation, we will analyze the Nadeera app usage patterns and the way the campaign is implemented as planned.

Results and Learning

As this pilot campaign has not yet been implemented, we are expecting it to have an impact on the knowledge, belief, and behavioral outcomes we identified. Aligned with the social marketing literature on interventions promoting recycling and sorting waste at home (Haldeman and Turner, 2009; Heydari et al., 2021), we expect positive changes in knowledge about waste segregation, and in those who know both the type and the conditions of waste that can be collected. We also expect more people to use the Nadeera app and the segregation system. We also expect users to use reusable cloth bags, hence reducing plastic bag use.

The main lesson we learned when developing the campaign in very low resource settings affected by crises, is that solutions to address pressing environmental and health issues such as solid waste require flexibility, determination, and resilience. Several challenges affected the implementation of this social marketing campaign, including COVID-19, the political and economic instability accompanied by fuel and electricity scarcity, which made it difficult to visit the targeted village and to communicate with the partners. The intermittent electricity and internet services will also likely reduce the ability to implement the app-based tracking, so we had to develop a paper-based solution to overcome this limitation.

Conclusions and Recommendations

Once the campaign is implemented, it is crucial that it is properly and accurately evaluated according to the monitoring and evaluation plan we outlined in the social marketing strategy. Comparing the changes in the subjective outcomes (knowledge, TPB constructs, and behaviors) with the objective report from the service provider will allow us to establish the rate of change which will allow defining the effect size for scaling up the intervention, the last phase of the CBSM framework.

An important component of our campaign is the adoption of Nadeera app, which could be also used to diffuse campaign messages and encourage the desired behaviors while observing the progress towards the campaign goals. Nadeera app could be adopted to ensure the sustainability of the campaign beyond the RESQ project duration, but considering the limited resources (internet, electricity), it will be crucial to increase the reliance on reusable sources of energy to support the implementation of the campaign or to introduce waste-to-energy solutions. This will promote sustainable principles and encourage citizens to participate in the program as they will see tangible benefits for their participation.

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