

APE & BANANA

A NEW USER EXPERIENCE FOR COLLECTING BIOBASED DISPOSABLES AT FESTIVALS

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ABSTRACT

This paper reports a study on the implementation of a bio-plastic material (PLA) for disposables at the Lowlands Music Festival. The main aim of the study is to develop a system which motivates Lowlands festival visitors to litter their PLA disposables effectively. In the paper, littering behavior of festival visitors, their norms and values are explored; and several approaches are discussed for creating a motivation for effective littering at Lowlands. Two concepts are created and tested at the festival. One of them is selected and further developed.

Keywords: behavior change, motivation, biobased materials, PLA.

INTRODUCTION

Our consumption society is to a great extent built upon products made of plastics which are accepted as a threat for our environment. The emergence of bioplastics is one of the proclaimed answers to this threat put forward by the industry who are looking for ways to be progressive in a sustainable way. This project involves the implementation of bio-plastics for disposables within the context of the music festival Lowlands and offers possibilities for having a controlled system for collection of these disposables after use for waste processing. In order to achieve a successful system of a waste collection in a festival setting a thorough understanding of the 'festival visitors', their values and attitudes is required. Creating motivation among festival visitors for collection of bio-plastic disposables is taken as a stem point in the project.

We focus on a well-known bio-plastic material PLA (poly lactic acid) in this project. PLA material is polymerized from lactic acid which can be derived by fermentation from sugar feedstock, such as sugar beets or corn starch. The material is still being developed to offer diverse characteristics for different production techniques, applications and various aesthetic properties. For instance the heat-resistant PLA is in development (Productie Groene Grondstoffen, 2010) which will offer containers for hot content.

A professional event management for the music festival Lowlands provides disposables and deals with the total waste system at the festival for waste processing purposes. At the festival, a diverse range of eat-and-drink spots and waste collection facilities for festival visitors is offered. Festival disposables differ from each other in terms of their shapes or brands for different food/drink types (Figure 1), as well as their materials (e.g. PLA vs. PP/PS or paper).



Figure 1. Impression of diversity for disposables used at the festival Lowlands; material, overprint, size, shape etc. (Right; cold beverage PLA cups)

For solely cold-beverages the PLA cups have been provided since 2003 at the Lowlands festival (Figure 1). These cold-cups do not particularly express their

better environmental properties. This is different from other markets for bio-plastic disposables where these properties are emphasized through for instance overprints on cups; e.g. 'this cup is made of corn' or 'biodegradable/compostable' (Figure 2). In other words, PLA transparent beverage cups are not recognizable compared to common fossil fuel cups. From the organization point of view the focus is the implementation of PLA materials and to offer various brands the possibility of using their brand-overprints on disposables.



Figure 2. An example of a PLA cup in the market advertising better environmental credentials (Left); indistinguishable Lowlands PLA beverage cups from fossil fuel cups (Middle); a familiar observer could notice the PLA imprint on bottom of the cups (Right).

As mentioned above the collection of PLA cup disposables at Lowlands by motivating festival visitors is the focus of this project. Littering behavior of Lowlands visitors was explored through literature research and Lowlands publications. Also in addition to that, theory on motivation related to basic human desires/needs and behavior steering or persuasion was explored; focus group studies were conducted with dedicated Lowlands visitors, and three-day observation attending the Lowlands festival was done. Based on the explorative study results and the findings from the literature survey, being different from the existing deposit system (monetary reward) which is merely an extrinsic motivation imposed by the festival, the intrinsic motivation is selected as a core approach involving users self-satisfaction in the creation of motivation. Following this approach, development of a new way of motivation for Lowlands festival visitors is presented in this paper.

LOWLANDS APPROACH FOR WASTE COLLECTION

Lowlands is a well-established festival in the Netherlands with a strong identity attracting 55.000 visitors annually. Every year Lowlands transforms few

acres of field to a festival and campsite area for duration of three days. The festival hosts a variety of visitors by offering a large diversity of multiple dance/pop/rock music performances/theatre/ (street)performance/literature/art and more at the festival area. Lowlands uses an identity recognized for being 'Lowlands' and it expresses a feeling of togetherness and being a part of a common sole such as 'being a LLowlifer' (Figure 3).



Figure 3. Impression of the three day music festival Lowlands.

Lowlands aims to be more sustainable implementing different ways of doing things or using different products. Implementing bio-based disposables is part of their broader aim. Lately, the waste system at the festival has been of focus for the festival organizers and the PLA disposable suppliers due to the lack of an effective way of collecting PLA waste, which should be collected separate from fuel based waste in order to be effectively recycled. The festival terrain offers waste bins, special uplifting awareness teams for collection, (monetary) deposit counters for cups and trays, advertisement to motivate for collection behavior, free waste bags, etc. (Figure 4). However, none of the systems work as effective as expected.



Figure 4. Impression of the Lowlands approach for waste collection.

Some other festivals around the world focus on being a 'sustainable' festival for that they for instance offer

separate collection bins (e.g. compostable, landfill) for different types of waste. Lowlands does not make use of separate collecting facilities; and they want to come up with creative ideas instead of placing separate bins which they believe do not fit in the Lowlands festival atmosphere and will not be motivational enough to separately collect the PLA cups. The festival visitors are aimed to be motivated as an alternative method for the collection of the PLA disposables; which becomes a big challenge when 'free-flow', 'entertainment focus' festival context is considered.

Through making use of generative techniques (Sleeswijk Visser et al., 2005) with focus groups it was possible to understand the festival visitors experiences/needs/beliefs for the Lowlands festival 'experience' also in relation to waste at the festival. Two groups of six and four people (age between 25-31 years), who are regular visitors of Lowlands, participated to the focus group studies. They were asked to discuss on how they experience the festival, waste at the festival terrain and how they approach to recycling and 'bio-plastic' materials in general. At the end of the session, they were asked to create a concept for the collection for PLA cups in the festival. At Lowlands, sustainability related aspects of disposables such as the use of bio-plastics or its special waste processing goal are not expressed to the visitors. It raises the question whether such aspects can be used for motivation. Currently motivation for collection is partly done by the deposit system. In focus group studies, participants mentioned that this system does not involve a pleasurable festival spirit.

Lowlands is known to have very loyal visitors who cherish the festival for how it is. They do not want to see big changes in the festival's original environment; they do not want to be bothered with 'sustainability related messages' and forced to be more conscious in their littering behavior within the festival context. Participants of the focus groups studies also stated that this might be related to the difficulty of the term 'sustainability' which can be interpreted differently by different visitors. We observed that there was a misperception among the participants that they believed that they could throw bio-plastic disposables around as bio-plastics would dissolve in the ground.

INFLUENCING LITTERING BEHAVIOR

LITTERING BEHAVIOR

From basic intrinsic desires of humans described by Reiss (2004) the following seem of interest for the Lowlands setting; e.g. play, curiosity, social contact, physical movement, love/romance. It is also parallel to our findings from the focus group studies that the festival visitors search constantly for fun/ play, they would like to feel free (no obligations) and to feel social togetherness. These desires, which can be inspirational to activate visitors for participation can be related to the persuasive techniques by the design with intent method (Lockton, Harrison and Stanton, 2010), which offers design directions for creation of a desired behavior. Three directions were inspirational for us; playfulness when interacting as kind of a reward, a novel activity to provoke curiosity, social proof which suggests doing what others have done before and seems to be a safe or 'normative' choice.

Fogg (2009) defines the most common aspects in a situation to make a user act for a certain desired behavior as: high motivation, the ability to perform and a possible trigger at the time. High motivation could at best (in this case) involve a pleasurable experience. The ability to perform a certain action relates to case specific elements, for this project the ability to collect could involve to provide bins when needed. It should suit the users characteristics for the context. A trigger is meant supportive and can be used at the time needed for the desired behavior but also a reminder of the task could work as a trigger.

Exploring the littering behavior in literature, we came across two fundamental approaches. The first one is to influence the littering behavior by adjusting packaging (Wever et al. 2010). In a conducted study a significant difference was found in behavior of users between littering of premium or budget-price brand wrappings for water bottles. Wever et al. (2010) emphasize that although the results of the study could be influenced by the user and the context, the study promotes the use of simple means such as an attractive image of a packaging (product).

In another study, they explored (Wever et al. 2010) applying playful wrappings to positively affect littering

behavior by attracting attention of the user. The result was an increase of littering behavior that users would leave the controlled environment (where the bins are not offered properly) with the playfully wrapped packaging. Thus, playful wrapping extended the time up to disposing though it resulted to littering behavior due to limited ability for collection (offer of bins). It emphasizes the importance of the 'ability' to collect for users.

Another study was conducted by Kort et al. (2008) to explore the explicit and implicit activations for norm setting by changing elements of a public bin. It resulted with two approaches: Social injunctive 'this is how we do it here!' and personal norm 'do you litter?'; which can be applied to the Lowlands context.

MOTIVATION

Motivation for a certain desired behavior is a complicated subject. In the very basic theory on human needs such as Maslow's hierarchy of needs it is indicated that different levels of needs move humans to do things. A festival setting is a situation which is based on additional pleasurable aspects of life. It is a context in which visitors are situated in a safe and controlled environment with all facilities at hand. It is a hedonistic setting which relates to a human aspect for that we are generally in search for pleasurable experiences opposed to painful or negative experiences. Lowlands facilitates a pleasurable experience for visitors.

Motivation is described by Ryan & Deci (2000); to be moved to do something. They explain motivation by extrinsic and intrinsic motivation. Intrinsic motivation is explained as to do something because it is inherently interesting or enjoyable. Extrinsic motivation can be explained as to do something because it leads to some separable outcome. The current monetary deposit on disposables at Lowlands is a motivation that is merely based on extrinsic motivation; a clear reward imposed through a system or society. The festival itself is merely based on pleasurable experiences or 'fun' which can be seen within intrinsic motivation; self-satisfaction. This type of motivation seems to suit the Lowlands setting.

Based on the above listed approaches and methods found in the related literature and conducted focus group studies and observations within the Lowlands festival, two concepts were developed. The following section explains these concepts.

TWO CONCEPTS FOR LOWLANDS

Exploring the diverse elements as explained within previous paragraphs for the implementation of PLA disposables, litter behavior and the desire for a different motivation other than a deposit system resulted in three key elements focused in the concept creation:

The first (I) is the emphasis on the ability to perform the desired collecting behavior of disposables, opposed to littering behavior at the festival area. This requires that the visitors should be able to collect when needed; thus easy access and high number of collecting spots of the system play an important role. It also relates to norm setting by the organization in communication towards visitors on the desired behavior.

The second (II) element is an alternative bin, which triggers motivation for waste collection. The alternative bin should be seen as an additional bin to the general bin offer at the festival. The goal here is to create more involvement for collection of cup disposables at the festival. It should not give a direct 'sustainability message' or 'separation of waste' message to the visitor. Instead, it should offer an additional activity within an intrinsic motivation which should fit in the Lowlands mind set. Observing others while collecting waste or observing what is collected by others (so traces of others) for social validation or signifiers of behavior introduced by the design with intend method and Norman's theory on signifiers can also be used here as a motivational aspect.

Third one (III) is a so called 'cup cult', which is aimed to be created based on the insight that high valued brands might have a positive effect on littering behavior. The disposables in the festivals are littered without a thought and challenge lies in increasing the perceived value of disposables to make visitors litter more carefully.

PRELIMINARY CONCEPTS, TESTS AND SELECTED CONCEPT

ALTERNATIVE BIN

What participants commonly mentioned in the focus groups studies for motivation was the importance of Lowlands activities. These activities are the means for being part of the festival and visitors express high involvement for play with anything they can find. For instance with waste, messaging with carton boards or bamboo branches removed from the festival pond area (Figure 5).



Figure 5. Lowlands visitors main occupation is 'Lowlands activities' including their own search for fun/play with anything they can find.

Beverage disposables are 'dry' waste instead of other 'dirty' waste which may result in offering reuse of disposables by making a Lowlands (disposable collection) activity; part of the Lowlands experience. Following these points, two alternative waste bin ideas were created with the following common aspects: accessibility for all visitors, visible traces of collected cups (social proof), easy application for a simple play, feedback (such as getting big in size or mobility). Two concepts have been created: 'Cup Fence' and 'Bold Inflatable Balls'.

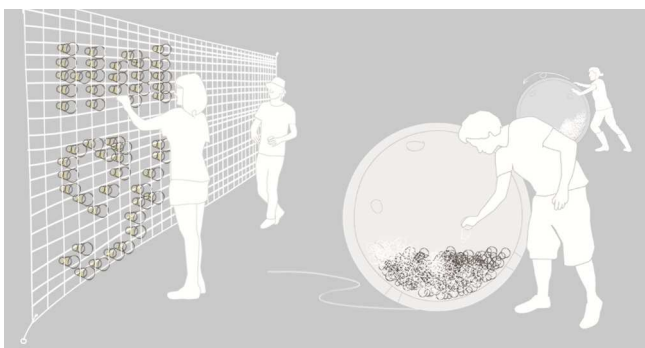


Figure 6. Two concepts. Left; 'Cup Fence'. Right; 'Bold Inflatable Balls'.

The first one derives from a current trend for fence-art, in which we offer a net-canvas wall for pressing cups between the net holes. The Lowlands visitors are

invited to create illustrations or messages with disposables on a big net-canvas (Figure 6). The second concept is a transparent inflatable (shell) ball in which cups can be disposed. The balls would wonder around the area by that visitors play with the ball and collect cups while the collected cups spin inside the balls (Figure 6).

The 2011 Lowlands edition was used to perform tests for these two concepts to observe the motivation level for participation, the collection of cups, whether visitors enjoy the concepts as Lowlands activities (Figure 7). For the inflatable ball test, a ball was made of PLA cups (for an ease of production for the test purpose).



Figure 7. (Principle) Testing at Lowlands for the two concepts (Middle; additional lighting test for the balls).

Main result from the Lowlands test was that a mobile object (the ball) attracted more attention and encouraged people more for involvement in the activity. The ball elicited curiosity and its mobility made it a play object. Visitors played with the ball and collected cups. On the other hand, visitors did not want to spend too much time on creating something on the cup fence- and it was not attractive enough to

engage a lot of visitors. In addition to that, in order to create a 'satisfying image' on the net wall, visitors needed more cups than one cup. In the case of rolling ball, visitors interacted with the ball for 4-5 seconds, attached their cup with enjoyment to be part of the activity. We also tried the balls with lighting for 'night collection in Lowlands' (Figure 7). The result was not successful for that the visitors found the object rather an 'art object' and did not want to damage the ball by adding disposable cups in it (although it was made of cups).

CUP CULT

In order to create the cup cult, we conducted a qualitative study with fifteen participants to explore the values attributed to different types of drinking cups. Materials (including PLA) and prints on cups (brands, etc.) were two basic variables aimed to be explored . Participants were first asked to rank the cups based on their perceived values with a question of: “please rank the cups from the least valuable one up to the most valuable one for you”. The question was supported with an additional explanation that “we expect that you will want to keep the most valuable ones longer”. All participants were asked to explain their ranking (see Figure 8 for an example from the ranking test).

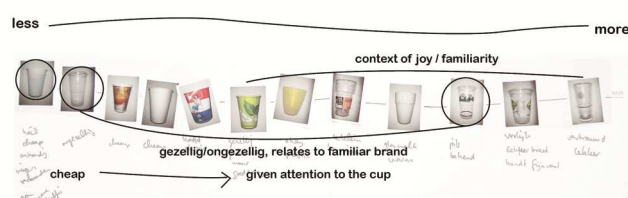


Figure 8. Exemplar ranking test: rich insights indicated in black.

Familiarity with the cup was an important aspect in high value attribution. For example, if participants recognized the brand of a cup, or if they were familiar with the context in which the cup was used, they attributed higher value to that cup. A memory of a pleasurable situation of using the cup also affected the attributed values. This was seen for the PLA cup with a well-known brand overprint which was valued higher opposed to the same `clear` PLA cup.

Cups with decorative expressions (one of the participants used the term ‘happy colors’) were found

effective in the attribution of higher values to the cups if the print suits the users values.

Considering these main findings, we focused on exploring 'prints' for PLA cups which will make the cups part of the Lowlands festival as a Lowlands cup cult. In addition to that, there should be a link between the cup cult and the created alternative bin concept (rolling ball) to complete the overall motivation aim.

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A rolling ball concept was developed further through combining the two motivation approach aspects (alternative bin & cup cult). We aimed to create a kind of analogy between the bin and the cup which will make people understand at the first glance that these two things belong to each other. A fun element for the link was also one of the criteria we considered in this process. Figure 9 shows some examples from the focus group session conducted with festival participants to select the most fitting analogy for the Lowlands context.



Figure 9. Testing analogies (focus groups) through making use of examples as indicated here.

An analogy in the Lowlands context is expected to be extreme, absurd, creative and humoristic . One of the analogies discussed in the brainstorming session was the ape/banana in which a cup serves as a banana to feed the ball which personifies as an ape.

In the focus group, more abstract or ‘arty’ relations were found too ambiguous or extensive for the short attention span. Making use of Lowlands values such as absurdity (ape/banana) or known Lowlands elements (e.g. robots) work best for the visitors as emphasized by the focus group participants. The final concept of ‘Ape & Banana’ is presented in Figure 10.



Figure 10. The final concept; 'Ape & Banana'

The overall goal of this concept is to facilitate a collecting activity that suits the Lowlands mind set of visitors. The cup cult contributes to the collection activity by creating a clear link between the cup and the container. Making use of Lowlands elements for the cups can increase value for disposables especially when implemented over upcoming years making it a recognized item of the festival.

DISCUSSION

The starting point of this project was to develop a collecting system which motivates Lowlands festival visitors to litter their PLA disposables effectively. Several approaches have been reviewed and discussed. Considering the Lowlands festival context and its dedicated visitors' characteristics, some of these approaches have been selected to be further explored and implemented in our design process. Through explorative research with focus groups on the sustainability aspects and motives effective for collection of waste, we concluded that within this particular context where people's main aim is to have fun for 3 days in an isolated environment without considering anything (e.g. throwing the disposable cups around after use was defined as one of the characterizing behaviors during the festival), using 'sustainability message' as a main motive might not be effective.

The motivation concept presented in this paper does not have a direct relation with the sustainability. Fun/play element, curiosity, social signifier, feedback (enthusiasm) and collection were the keywords we focused on the creation of the concept. In addition to that, we found out the aspects such as mobility for play, absurdity/estrangement for curiosity to participate as main stem points. Other aspects such as visible traces of collected cups inside the ball

(social proof) and also making use of a Lowlands related analogy strengthen the concept. The cup element in relation to the analogy (trigger) was found to be effective when using very direct interpretable elements instead of extensive instructions. The cup cult element offers the possibility to make disposables part of the festival experience such as seen for festival wrist bands.

Our test at the Lowlands festival, particularly with the rolling ball, showed that very simple means can be effective in changing littering behavior of users. However, this requires a thorough understanding of the context and the user. The rolling ball is planned to be further developed in a bigger size, made out of environmentally sensitive materials. The embodiment design and materialization are the next steps we would like to proceed and test the final design of 'Ape and Banana'.

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