Consumer Driven Multivariate Landing Page Optimization: Overview, Issues, and Outlook

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Abstract - ***Although widely recognized as highly important in increasing a websites' conversion rate and overall ROI, landing page optimization (LPO) was for a long time a domain of subjective predilections. A simple approach such as an A/B split test cannot provide reliable data as it involves a very limited set of alternatives. This article shows the development, classification, advantages and shortcomings of the most advanced form of LPO, Multivariate Landing Page Optimization, and its variations. The approach allows for the testing of thousands of web page prototypes with consumers and finds real optimal solutions on an aggregated, segmented and individual basis. The latter paves the road to individually optimized pages and 1-on-1 marketing in the near future.***

Index Terms— ***bounce rate, conjoint analysis, landing page, multivariate, optimization, Rule Developing Experimentation (RDE), survey.***

1. Introduction

MULTIVARIATE Landing Page Optimization (MVLPO) is the experimental design based process of improving a visitor's perception of a website by optimizing its content and appearance in order to make the pages more appealing to the target audiences as measured by the marketing goals such as conversion rate or others.

2. Consumer Driven Web Pages Optimization

The average bounce rate on a website is about 37% (White, 2006), while many sites have a rate well above 50%, with the conversion rate in low single digits or even a fraction of 1%.

A more serious problem according to some sources is derelict conversion. According to *MarketingSherpa* data, the average ecommerce shopping cart has about a 59.8% abandonment rate (compare this to *three out of five* department store shopping carts left abandoned in the aisles) (Booth, 2006).

For a long time, the only solution to improve the aesthetics of a website was based on the subjective predilections of web designers. This dependence on individual preferences, extended to heterogeneous internet audience, is prone to mistakes and neglecting to anticipate the effect of all the variables. As people's perception differs, a potential loss of not optimizing the landing pages may be staggering. Furthermore, many website designers do not consider the aesthetics of payment pages as being important. However, simple changes to those pages could bring a substantial improvement to revenue per visitor with some reporting boosting conversion rates as much as 600% (www.web-site-evaluations.com, 2007).

A recent study by researchers in Canada showed that the snap decisions Internet users make about the quality of a web page have a lasting impact on their opinions. They also reported that impressions were made in the first 50 milliseconds of viewing (Lindgaard et al, 2006). The implication of these findings is that it is *mostly the main features and the general appearance of the landing page that make a difference, not necessarily the actual content.*

In the last few years, an approach called *Landing Page Optimization (LPO)* became prevalent. The underpinning of it is multiple experimentally designed prototypes tested with the consumers. In the most trivial case, the A/B Split Test approach, there may be only two variations of a page. Alternatively, MVLPO, the most advanced form of LPO, involves thousands and thousands of the prototypes. Although MVLPO was developed in the late 1990s, it didn't get the deserved attention until very recently, especially after the introduction of the Google Website Optimizer (www.google.com, 2007).

3. Description and Classification of MVLPO

A typical MVLPO involves multiple experimentally designed variations of a web page and evaluates the difference in the reaction or behavior of the consumers who visit these pages. It structurally handles a combination of multiple groups of elements (graphics, text, etc.) on the page. Each group comprises multiple executions (options). For example, a landing page may have *n* different options of the title, *m* variations of the featured picture, *k* options of the company logo, etc. An experimental design is applied to the elements of the page and the resulting prototypes are served to customers.

MVLPO is the most consistent scientific based

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approach to understanding the customers mind and using it to optimize their experience. It evolved into an easy to use approach in which not much programming and IT configuration is needed. In many cases, a few lines of JavaScript on the page allow the remote servers of the vendors to control the changes, collect the data and analyze the results. Moreover, it provides a foundation for a continuous learning experience.

At the same time, MVLPO is prone to distorted results if the original materials are not chosen carefully (a so-called GIGO effect - 'garbage in, garbage out'). Another limitation is that MVLPO usually optimizes one page at a time. Website experiences for most sites are complex multi page affairs. For a typical e-commerce website, a successful purchase involves visiting around 12 to 18 pages; a support site engrosses even longer. For the holistic experience optimization, the *Total Experience Optimization* approach could be considered (Kaushik, 2006).

MVLPO can be executed in a Live (production) Environment (e.g., Google Website Optimizer, Optimost.com, etc.) or through a Market Research Survey / Simulation (e.g., StyleMap®.NET).

In *Live Environment MVLPO Execution*, a special tool (server) makes dynamic changes to the web site, so the visitors are directed to different executions of landing pages created according to an experimental design. The system keeps track of the visitors and their behavior (including their conversion rate, time spent on the page, etc.) and with sufficient data accumulated, estimates the impact of individual components on the target measurement (e.g., conversion rate).

With an adequate number of observations, this approach is very reliable because it tests the effect of variations as a real life experience, generally transparent to the visitors and it is evolving towards a relatively simple and inexpensive approach (applies to Google Optimizer only at the writing time). On the other hand, it may take a long time to achieve statistical reliability caused by variations in the amount of traffic, which generates the data necessary for the decision. It may not be appropriate for low traffic / high importance websites when the site operators do not want to lose any potential customers because of the suboptimal design of some experimental pages.

Simulation (survey) based MVLPO is built on advanced market research techniques called *Rule Developing Experimentation (RDE)* – a new paradigm developed in cooperation with Wharton Business School (University of Pennsylvania) and introduced in Selling Blue Elephants (Moskowitz, Gofman, 2007).

In the *research phase*, the respondents are directed to a survey, which presents them with a set of experimentally designed combinations of the landing page executions. The respondents rate each execution (screen) on a rating question (e.g., interest or purchase intent). At the end of the phase, regression model(s) are created (either individual or for the total panel). The outcome relates the presence/absence of the elements in the different landing page executions to the respondents' ratings and can be used to synthesize new pages as combinations of the top-scored elements optimized for subgroups, segments, etc.

This approach in most cases is much faster and easier to prepare and execute compared to the live environment optimization. It works for both high and low traffic websites and usually produces more robust and rich data because of a higher level of control of the design. On the other hand, there is the possibility for bias of a simulated environment as opposed to a live one and a necessity to recruit and optionally incentivise the respondents (Gofman, 2007).

The MVLPO paradigm is based on an experimental design (e.g., conjoint analysis, Taguchi methods, etc., Green, Srinivasan, 1978) which tests a structured combination of elements. Some vendors use a full factorial approach (e.g., Google Optimizer that tests all possible combinations of elements). This approach requires very large sample sizes (typically, many thousands) to achieve statistical importance. Fractional designs typically used in simulation environments require the testing of small subsets of possible combinations. Some critics of fractional designs raise the question of possible interactions between the elements of the web pages and the inability of most fractional designs to address the issue.

Advanced simulation methods based on the RDE paradigm have resolved these limitations (Moskowitz, Gofman, 2007). RDE creates individual models for each respondent using a permuted fractional design, discovers all and any synergies and suppressions between the elements (Gofman, 2006), uncovers attitudinal segmentation, and allows for databasing across tests and over time.

The first application of an experimental design to website optimization was done by Moskowitz Jacobs Inc. in 1998 in a simulation demo-project for the Lego website (Denmark), although MVLPO did not become a commercialized approach until c. 2003-2004.

4. CONCLUSION

Individual models afforded by RDE also pave the road to real-time 1-to-1 marketing on the websites by matching new visitors to the probable segments based on a decision tree developed during the simulation stage. This allows website operators to *individually* optimize landing pages based on whatever information is available about the visitor (the more information that is available, the more precise may be the optimization) (Moskowitz, Gofman, 2003).

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