A Comparison between Text and Image Search in the Context of Online Shopping for the UK Women's Fashion Industry

Abstract: This study investigates the role that online search has in shopping for women's fashion. A comparison of different navigational techniques such as visual/image search, traditional text search, faceted classification systems, and contextual advertising links identified which methods were favoured by users in an interview environment. The semi-structured interviews used observational techniques, experimental scenarios, and follow-up questions to gain insight into how women navigate to their final destination website. The sample size was small, therefore not representative of the population, but the results give an indication of themes to follow up in more depth. Interestingly, Google text search was not always considered the best method.

Keywords: Online shopping, fashion marketing, internet search, visual internet search

Track 12: New Technologies and E-Marketing

Introduction

Technological innovations over the last five years have impacted upon how consumers search, browse, discover and purchase items on the internet. This report describes the findings from thirteen in-depth interviews and additional study carried out in the women's online fashion sector. The purpose was to identify different search and navigation techniques used by consumers in this market, and to establish which methods satisfy their needs most effectively and encourage further activity such as clicking through to retailer sites and purchasing products.

1. Context

The fashion sector was the fastest growing area across all online retail segments in 2008 as reported by Mintel (2008) and Bullhound (2008). This growth has been fuelled by heavy investment in internet operations in the areas of online availability, fraud and security measures, and improved customer services such as free delivery and returns. Technical developments in web design such as multiple image views, zoom functionality, and virtual dressing rooms have increased the visual information available online. Creative search functions have enabled users to navigate more freely through inventories.

In addition to the above factors, the increased uptake in broadband services has enabled a higher percentage of the population to access ~~to~~ these visual displays. 57% of UK households subscribe to broadband from home (Keynote 2009), which suggests the market is still a long way from saturation point, as 99% of UK households have access.

Comment [K1]: I wld delete this bit as confusing given the far from saturation comment

As the broadband boom took effect it became necessary for search engines to provide efficient ways of searching images and video online. Google, Yahoo!, Ask and MSN launched image searches that presented the results visually, but still represented the query as text. The results depended on manually added meta-tags associated with each image and ~~could~~ were not ~~be~~ classified by visual similarity.

The prospering online fashion market has driven fierce competition and increased spends in online advertising budgets. In 2003 the lowest percentage of marketing budget spend went to online advertising, which increased to the third largest category in 2007. Paid search made up 57.6% of this (Keynote, 2008).

Comment [K2]: Lowest relative to what perhaps rewrite as a small percentage. Maybe add (and reference the fact online advertising now exceeds TV in the UK

2. Aims and Objectives of the Study

The aim of this study was to investigate the role search engines have in online shopping, and to compare visual / image displays to traditional text displays within the context of the women's UK fashion industry**.** The research explored: perceptions users have about search engines when shopping for women's fashion online; how users interacted with search engines when their online objective was shopping; navigation methods perceived as useful when searching for fashion items; the different user interfaces available; and how retailer sites enable their customers to navigate their full product catalogues.

3. Literature Review

Search engines have become extremely valuable for online marketing because they can deliver access to self-segmented markets (Seigel 2006). A study by Yahoo! and OMD (Business Wire, 2006) revealed that 61% of consumers said search engines are one of their favourite tools for finding product information. Of the traditional text search engines, Google dominates significantly with Google UK taking 64% of the total UK market (Hitwise, 2009).

Online searches are considered to be mainly analytical or heuristic, although these are not mutually exclusive. Overall, a search can be pre-planned, relying on search engines and deliberate, analytical queries; or adversely it can be low-deliberation, navigating through hyperlinks and relying on trial and error (Ylikosoki, 2005). Based on the work of Choo ~~and~~ et al.~~associates~~ (2005), Ylikoski defined analytical characteristics as brief search, refining, extracting and formal search; and heuristic search characteristics as starting, browsing, differentiating, and monitoring. Ylikoski surmised that internet shoppers favour heuristic search methods partly because of the open-ended nature of their objectives, and partly because the cognitive load of directed seeking is too high with analytical search. Whilst text search is analytical, it provides a good starting point for targeted shopping goals. The more heuristic styles outlined below, are alternative ways to navigate search? the worldwide web.

Comment [K3]: A bit unclear

3.1. Image and visual search

Research into visual search began in the mid nineties when Frankel, Swain and Athitsos (1996) combined subject taxonomy, indexing, and pixel analysis to determine colour changes in images. In parallel, Smith and Chang (1997) were working on similar research with the intention to expand this further to include other visual dimensions such as shape, texture and spatial layout. These are just two examples of early attempts to develop an image search engine for the worldwide web. There were many challenges associated with pixel analysis, namely speed and relevance of results, and side effects caused by the image type and quality (Frankel et al, 1996).

Visual search introduces image classification by visual similarity as a new way to navigate content. In 2005 the first known visual search engine launched commercially – Riya.com. The USA based company enabled photos to be uploaded in order to search and retrieve similar items. In the UK, Heesch's visual search research (~~Heesch,~~ 2006) led to the launch of Pixsta.com in 2007, introducing visual search to the women's online fashion industry. Subsequent launches have been made the world over with sites such as Modista.com, Incogna.com, and pikadeo.com to name a few.

Comment [K4]: Why no capital letter for just this one?

3.2. Faceted navigation

This concept relies on complicated faceted classifications to refine search queries. Metadata associated with an item is assembled into multiple taxonomies from which visible facets are created (Uddin & Janacek, 2007). These facets describe alternative classifications of items on the website such as ~~by~~ category, colour, price range, or brand ~~to name a few.~~ This enables users to access information in multiple ways. Pre-arranged categories reduce the cognitive effort required for the user to refine their search query and manipulate their result set according to priorities. Shopping aggregators and leading e-commerce sites have adopted this style of navigation in addition to ~~a~~ offering a text search box.

3.3. Contextual advertising

Contextual advertising acts as a form of search, directing browsers to sites related to search queries on websites that are not search engines. Smith (2008) suggested that contextually relevant banners and paid search help the process of information gathering. ~~In~~ Referring to (?)~~reference to~~ Choo ~~and~~ et al.'s~~associates'~~ definitions, the chaining aspect of heuristic search behaviour uses contextual advertising as signposts on an online journey. Whilst contextual advertising is not new, Google led the revolution with the launch of AdSense which enables~~d~~ website publishers to serve ads precisely targeted to the specific content of their individual web pages (Google Press Centre). Battelle (2006) refers to this phase of paid search results as a move from intent to content, the presumption being that if the user was visiting a site of interest; ads relating to that topic would be contextually relevant and therefore a good fit.

4. Research Approach

~~Visual Search is in the early stages of its product life cycle and little is documented about text search comparisons.~~Visual Search is relatively new and there is limited literature on the area. Consequently, the research adopted an inductive approach ~~was taken~~ using elements of grounded theory to develop theories from central themes that emerged in the data. Thirteen semi-structured interviews were conducted. The interviews included~~using~~ observational techniques, and experimental scenarios ~~and questions were conducted~~ to explore respondents' perceptions and responses. ~~Candidates~~ The convenience sample was~~were~~ selected from active internet users aged 25 - 44 years (this is ~~in~~ the target market for online women's fashion sales ~~which was defined as women aged 25 – 44 years~~ (Mintel, 2008).

The interviews ~~was~~ were designed to encourage ~~the~~ interviewees to discuss their thoughts and opinions freely, and to allow them to interact with the internet as naturally as ~~was~~ possible. The Four different methods of search and navigation were observed on sites that were both new and familiar to the interviewees. ~~A~~ The range of sites explored included analytical style text search, faceted navigation, visual image search, and the heuristic style of contextual advertising links.

Comment [K5]: No?

Comment [K6]: Shoppers?

In accordance with the grounded theory approach, each interview was transcribed and analysed for main themes before the next interview was conducted. The software Jing Project® was used to capture activity from the computer screen. This ~~data~~ showed mouse activity and the physical choices made on the online journey. An audio recording was also taken to capture the full the interview with both interviewer and interviewee ~~dialogue sets.~~

Comment [K8R7]: Could delete for space reasons if you wish

Comment [K9]: Can delete for space if u want

As It was ~~going to be~~ more difficult to evaluate total heuristic behaviour such as clicking on contextual advertising links due to the artificial nature of the interviews. A separate experiment was run to gather quantitative data from statistical impressions and click-throughs in an advertising campaign. The objective was to establish whether ~~statistically~~ there was a statistically significant difference in response rates ~~comparing~~ between the click-through rate (CTR) on contextual text based ads (~~f~~igure 1) and the CTR on contextual image based ads (figure 2). ~~These data were used to triangulate with the data collected in the interviews.~~ Sample size? More about experiment if space. Make it clear that these are different samples

Figure 1

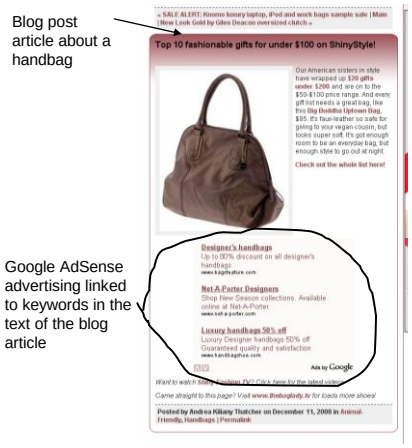

Figure 2

5. Findings

5.1. Contextual advertising

~~All~~ The interview respondents recognized the image of an 'ad by Google contextual text ad. They associated these ads~~based ads by Google and associated them~~ with sponsored results on the Google search site. Whilst the majority were happy to click on sponsored links within a Google search, ~~eleven~~ nearly all respondents claimed they avoided the 'Ads by Google' links on other sites. The main reasons for this were mistrust for advertising, a reluctance to be distracted from the task at hand, and simply not noticing them.

In The advertising campaign experiment ~~resulted in~~ the contextual text ads ~~having~~ had a CTR of 2.75% compared with 1.86% for the contextual image ads. However, the interviewees were unanimously ~~in~~ preferred~~favour of~~ the ~~ad~~and (Figure 2) ~~with~~ which used images rather than text to display search links.~~the image displayed in preference to the contextual text ad.~~ ~~Th~~The discrepancybetween the interviews and the experiment~~e difference could~~ can perhaps be attributed to the presentation of visual information making the process of evaluating content more efficient, enabling a more instant and informed decision whether to click or not. The sample group was likely to be made up of the 97% that wouldn't have clicked at all, so encouraging the respondents to think about their actions could have altered any subconscious choices they may have made and distorted this part of the data.

5.2. Text search, visual search and faceted navigation

Google was the search engine of choice, but was regarded as more helpful for ~~non-shopping~~ information ~~seeking~~rther than shopping, or as a point of entry for the url of a desired retailer site. Traditional text search was not regarded as good for browsing fashion by most ~~. Eleven of the thirteen~~ respondents who expressed dissatisfaction with this technique. They found it difficult to define appropriate keywords, and the volume and range of results were overwhelming and too time consuming to digest. All interviewees said they would not type a generic search term such as "dress" into a search engine. Say what they did instead i.e. go straight to branded sites

Their Attitudes changed if ~~the~~ they were~~motivation was~~ shopping for a specific item and product details were known. ~~The~~ in these cases the search term ~~was~~ could be~~more~~ easily defined by typing the brand and product type into the search box, then scanning the results for recognisable stores. This behaviour reinforces the importance of brand power for online stores, in that respondents used brand as a key qualifier in searching~~. However~~, when asked, none of the respondents ~~said~~ thought ~~that~~ brand was an important ~~to~~ criterion when shopping~~them;~~ the look of the item, the~~including~~ colour, and price featured higher in their selection criteria. This was ~~apparent~~ highlighted when using visual search: ~~and the interviewees~~ respondents appeared to be open to consider unknown brands, but with text search engines brands became more important ~~than~~ because it was a search modifier.~~they realised~~.

The group were unanimous ~~in their feedback~~positive when introduced to a selection of visual search sites. Inclusion of ~~the~~ images in the results ~~set~~ was ~~more~~ interesting and relevant, and helped them to reach their end goal more effectively. Visual search addressed the most important factor, which was the look of the item. However, it did not satisfy secondary needs such as classifying items by price range and so was not sufficient on its own.

~~Eleven~~ Nearly all respondents felt~~people stated~~ that price was an essential element ~~to~~ which they needed to know upfront.~~know immediately~~. Other non-visual information such as size, brand or material were important as refinement criteria, but not as part of the initial search. The group ~~was~~ were familiar with faceted navigation systems but only

Comment [K10]: Good point but can you reformat

Comment [K11]: unclear

Comment [K12]: URL?

Comment [K13]: Effective?efficient

Comment [K14]: Quote on this would be great if you can find the space

seven people regularly used these refinement tools on retailer sites. Three preferred to use text search for a targeted query and three preferred to see everything and not restrict their choices. Two respondents suggested ~~the idea of~~ combining visual search with faceted navigation techniques as a useful approach.

Visual search forces~~required~~ ~~the~~ users to learn a new search technique. Similarity search was a new concept that they had not used before. Relevant results were very important, and if expectations were not met, the interviewees felt let down and confused. This fundamental element needed improving for users to embrace it as a valid navigational tool. It is worth noting that since these interviews were conducted in January 2009, rapid progress has been made in visual relevancy and a different set of data would most likely be gained if this part of the experiment were to be repeated.

Comment [K15]: Bit confusing

6. Conclusions

There was a reluctance to use traditional text search engines such as Google ~~engines~~ for browsing fashion since results were vast and random, and defining keywords was difficult. It was however, the search method of choice when shopping for specific items. Visual search was perceived as more efficient, fun and relevant for browsing, but on its own did not address ~~elements~~ aspects such as price, size or brand. ~~If~~ The research suggests that visual search ~~was~~ combined with ~~a~~ faceted navigation would be an effective and popular search engine, with a competitive advantage over Google's text and image engines. ~~system, then results could be manipulated by other non-visual information as well.~~