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PRACTITIONER PAPER

The changing digital dynamics of multichannel marketing

The feasibility of the weblog: text mining approach for fast fashion trending

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Abstract

Purpose – The purpose of this paper is to examine the theoretical/conceptual development and application of weblog-textmining to fashion forecasting in general and street fashion trending in particular.

Design/methodology/approach – The current methods of forecasting cannot keep pace with the changing dynamics of the marketplace – mostly due to the rampant diffusion of data/information. The company that can tap the continual flow of data/information in the present, contrast it with a stored set of information from the past, and adjust based on repeated cycles, will have the best insight into the lingering trend, changing trend, or dynamic trend. The paper uses a simple example to explain blog trend analysis using Nielsen BuzzMetrics' BlogPulse.

Findings – The study finds that to make fashion weblog forecasting a reality, there needs to be a rich accumulation of fashion communication in structured blogs. In addition, there needs to be a classification of the various forms of industry web text, web venue. Furthermore, rich research traditions must be in place to chronicle the cultural, behavioral, linguistic, socioeconomic, and communication behaviors over time for the weblog and the fashion weblogger in particular.

Practical implications – The changing dynamics of the fashion business makes it a good example for understanding the weblog-text mining approach developed in this paper.

Originality/value – The understanding and implementation of trend forecasting using blogs as data mining sources will add another dimension of forecasting techniques to survive the multi-channel revolution in fashion marketing.

Keywords Distribution channels and marketing, Worldwide web, Fashion, Forecasting, Text retrieval

Paper type Research paper

Introduction

Visualize this scenario. It is 8 a.m., at the Showman House of All Style (SHAS). The fashion design, marketing, advertising, and management teams are gathered around the boardroom table and the teleconferencing hardware is buzzing with the distant boardroom sounds of the worldwide manufacturing facilities. The numbers are in from the very expensive Italian Essato fashion forecast group. And now decisions have to be made so the SHAS can deal with their supply chain. Then, "fast fashion" discovered

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trends to multichannel customers worldwide and maintain their dominance in the ever changing dynamic fashion industry.

This decision scenario is not new as the example below shows:

> *Street Trending Now*
> With trends moving at such dizzying speeds, the likelihood of fashion forecasters getting it right seems remote. But as Dawn Pedersen, editor of *Trendzine*, the seven-year-old online women's wear magazine produced by the London-based forecasting company FashionInformation.com, has explained, many trends don't die but rather morph into new looks. It's a phenomenon that the former fashion designer claims makes her job easier.
>
> "Sometimes you'll have ugh boots or cowboy boots, things that are latched onto so quickly they flood the market and then quickly fizzle out," she says. "But ugh boots have continued into a trend for softer footwear like mukluks [suede boots]. The underlying trends are moving quite slowly and stay in fashion year after year before slowly petering out.".
>
> Paris-based Amanda Hallay, who works as a trend-spotter for the Doneger Group, is one 39-year-old who understands fashion at the keep-it-real street level. Her job involves traveling around Europe's cities, snapping fashion-forward folk on the street, seeking out the hottest boutiques and labels and discovering emerging fashion scenes (excerpted from Fashion Forecast, by Lara Zamiatin).

There are generally a few constants in all businesses, fashion or otherwise. The very essence of any managerial action in any modern organization is decision making (Simon, 1977):

- *Constant 1*. Every company must make decisions that reduce risk, and create win/win for all constituents. In order to reduce risk, companies rely on planning – planning horizons that incorporate knowledge of the changing dynamics of the customer and the business environments.
- *Constant 2*. There will be continuous change in the business environment and those who can predict change can reduce risk and achieve dominance. These environmental changes are not easy to detect because of "noise", "falsehoods", "differences", and "complexity" in the markets of the world (global business environment). Therefore, constant monitoring of the environments by collecting data and developing decision-making information is essential to success.
- *Constant 3*. Decision makers need decision-making information (forecasts to begin with) – especially forecasts that indicate time constant information (a fashion style that lingers), or dynamic change (a fashion style that is believed to be new/innovative). Therefore, forecasters are constantly striving to uncover lingering growth (relatively easy – trends), changing growth (end of a trend, fad – harder to forecast) or dynamic change (not so easy to forecast – newness/innovation). Whether lingering trend, changing trend, or dynamic change, both sets of information (time constant and dynamic change) enable a company to manage both present and future business. Although accurate information is a necessary input to decision making, there are other elements that add sufficiency and credibility to the development and use of information – particularly forecasting information.
- *Constant 4*. The human decision elements of authority, intuition, and experience add sufficiency and credibility to decisions by adding expertise, reasoning and logic to the decision-making process (Davis and Cosenza, 1993).

So it is 8 a.m. at SHAS, and the stage is set for the sum of all the constants to take place; SHAS will make decisions that will impact them for short and long periods of time. Hopefully the forecasting and decision gurus at the meeting are having a great day! They are uncovering what is "in style" and that is what drives their market share and profitability.

Style

Solomon (2006) defines fashion as the process of social diffusion by which a new style is interpreted as a context dependent code, and then adopted by a group of consumers. Fashion contains all types of cultural phenomena including adornment, clothing, art, music, and architecture. He further defines "a" fashion as synonymous with style. As such, a fashion refers to a particular combination of attributes. To be "in style" means that some reference group positively evaluates the combination. Barnard (2002) in an analysis of Simmel (1971) reports that without the need for union and the need for isolation, there can be no fashion. Furthermore, individuals must possess the desire to be part of the larger whole, society, and also apart from society. These conflicting needs are central to Simmel's account of fashion: the conflict between adaptation to society and individual departure from its demands. Thus, individuals need to be social yet not so bound up in it that they cannot exert their individuality in fashion (in style). The individual nature of the conflict might seem to develop an anti-style that is common, for example, when looking at clothing as style. Barnard (2002) implies that individuals "in style" communicate to referent others, in a coded manner, their inner feelings toward society. Style is then likened to a bond, a communicative code that represents the DNA of the genre. Muggleton (2002), in his studies of the postmodern style in subcultures, implies that style is coded communication of resistance. Although, some style scenes demonstrate style that is extraordinarily intrusive, communicating resistance to societal reality can be done in a non-intrusive manner. This communication/connectiveness forms the basis of most post-modern style groups. The discovery and understanding of the changing dynamics of these groups form the basis of the multichannel decisions that have to be made in this style industry.

Although style has morphological variability, it can be consistently defined as a manner of expression of a particular individual or group. The definition also has subsumed elements or patterns unique to the person that make him or her individual. To know a style group, one must follow them into a common space – to find their commonalities. Commonalities become the expressive elements of the segment. Following these elements and observing the style can give a good indication of what style is or is not. The quickness of discovering "in style" elements of a segment can give multichannel fashion distribution systems incredible competitive advantage – from handshakes to channels to customers in just a few days or weeks. In a world of possibility, laggards end up losers. Shortening forecasting cycles, spotting shifts in demand, and fine-tuning your company to deliver to the market in weeks, not months is the key survival in the dynamic multichannel world (Hamm, 2006).

Dynamic channel advantage

Friedman and Furey (1999) define channel advantage as an advantage that does last. It is about reaching more customers by using sales channels to meet where and how they want to do business. Dynamic channel advantage is created through "fast" strategy

that moves more stuff, reduces costs, improves customer retention and satisfaction, and grows market share and profits by giving customers flexible ways to do business with you. It is not surprising that the Internet has become the key action aspect to obtaining dynamic channel advantage. This occurs in two ways:

(1) by optimizing supply chain interaction – the melding of partnerships to discover, develop, and deliver fast to market style; and

(2) by managing the multichannel environment available to the end shopper, you and me.

Although the focus of this paper is more supply side, it would be ludicrous not to think that demand does not move two ways in a "style" business environment. As such, consumers are increasingly shopping across multiple channels of the same retailer. Understanding this cross shopping behavior and determining which is best (for example catalogs vs. Internet, vs. traditional) is not as important as developing a flexible, fast, cross channel delivery environment for consumers. Although the jury is still out on which is the best multichannel compliment to traditional retailing (Anderson *et al.*, 2005; Balasubramanian *et al.*, 2005; Kim and Park, 2005; Knox, 2005; Kumar and Venkatesan, 2005) some companies are not waiting for the verdict and have decided that the Internet can deliver much better and faster. For example, Walt Disney Co. is embarking on a web-only initiative and will stop distributing its catalog. Paul Gainer, vice president of Disney Shopping, a division of Disney Consumer Products, told *The New York Times*, "Once they go online, we just don't see them going back to the phone" (Clark, 2006). So how can the fashion industry obtain multichannel advantage utilizing the internet? It begins with the fashion forecast.

The fashion forecast

General state of the art

The choice of forecasting techniques varies by decision variable (i.e. color), by purpose (i.e. planning, long run vs short run), by method (i.e. quantitative, qualitative, mixed), or by forecaster (i.e. experience). The commonality for forecasting is prediction of the how, why, and motivation that drive customers to behave, shop, and buy. Although push forecasting continually predominates in the fashion business, most fashion researchers, academicians, and business decision makers would agree that forecasting begins with the consumer of fashion products –from the intermediaries in the supply/value chain (textiles, intermediaries) to the ultimate fashion consumer. The fashion customer is really a consumer of images and of products as image. The trick to anticipating consumer demand is discovering what "bonds" a consumer to a product. Generally, the fashion business has the same successes and failures as most businesses. However, it is very difficult to score the state of the forecasting art in fashion because of the proprietary nature of all decision making. We, the public, see only the successes and the failures of decision making – the outcomes. We can only speculate on the adequacy of the methods and information that contribute to the successes and failures. Does the fashion world do well in forecasting? Most would agree that predicting anything is 50-50 at best or more accurate by chance alone. The important thing to remember about forecasting is not accuracy but outcome. Forecasting fashion, like anything else, is an art and a science that depends a lot on the touch rather than the science. The frenetic nature of the fashion business makes it

necessary to keep a continual watch on the environment. Fisher and Rajaram (2000) used merchandise department tests, introducing new products at a small sample of selected stores for a short period prior to the selling season and then observing sales to forecast demand for the entire selling season for the entire chain. A more recent analogy to this method would be the "test shop" approach to forecasting using test websites.

The current methods of forecasting cannot keep pace with the changing dynamics of the marketplace – mostly due to the rampant diffusion of data/information. The company that can tap the continual flow of data/information in the present, contrast it with a stored set of information from the past, and adjust based on repeated cycles, will have the best insight into the lingering trend, changing trend, or dynamic trend.

Current state of the fast fashion trend methods

Trend monitoring from the street usually begins with but is not limited to (other methods have been used, focus groups, etc.) the collection of a time-oriented set of visuals from various global markets around the world. These companies are called cool hunters, trend-spotters, futurologists and even consumerologists. The companies that effectively trend in the fashion business can compete. In addition, they can adapt their target marketing in a multi-channel environment, whether adjusting retail store inventory or catalog/web store inventory, or offering DM opt in direct email, etc. Trend monitoring/fast fashion forecasting is exemplified as a competitive tool as shown below:

> *Effects of Trend Monitoring/Fast Fashion Forecasting*
>
> With its bright-red H&M logo on 1,200 stores, Swedish retailer Hennes & Mauritz has long been the world's leading purveyor of cheap-chic apparel. No more. On Mar. 29, Spanish retail group Inditex – best known for its Zara stores in Europe – reported 21% sales growth in 2005, to $8.15 billion. That puts Inditex ahead of H&M, which posted $7.87 billion in sales last year.
>
> Zara's secret? It moves fast. With an in-house design team based in in La Coruña, Spain, and a tightly controlled factory and distribution network, the company says it can take a design from drawing board to store shelf in just two weeks. That lets Zara introduce new items every week, which keeps customers coming back again and again to check out the latest styles.
>
> Zara's success is all the more surprising because at least half its factories are in Europe, where wages are many times higher than in Asia and Africa. But to maintain its quick inventory turnover, the company must reduce shipping time to a minimum. The fast-fashion approach also helps Zara reduce its exposure to fashion faux pas. The company produces batches of clothing in such small quantities that even if it brings out a design that no one will buy – which happened during an unseasonably warm autumn in 2003 – it can cut its losses quickly and move on to another trend (Tiplady, 2006).

In another example, Trendstop (Trendstop.com) publishes street style images from London, Paris, Milan, Antwerp, Copenhagen, Stockholm, New York, Sydney, Tokyo, Amsterdam, Barcelona, Berlin, L.A. and more. By providing these images – at a cost – they imply that they take the grunt work out of trend spotting. You do not have to tour the world to find the most exciting and up-to-the-minute trends – they have taken care of it. They also imply that all you have to do is just choose your city and get motivated by image after image of the coolest looks on the street, in no time at all. Then fast fashion it and Voila! We have success! These data may or may not be useful to a

fashion company. It is obviously data that can help determine a "bandwagon" trend. However, unless the visuals can be tracked over time, no change or innovation forecasts are possible. In fact, most decision makers would also argue that the data on trends must be guided by their own common sense, as well as their knowledge of their own local area and their customers. Minimally, data like this, to be critical to the forecaster, must have commonality, similarity, difference, and clusters. Here lies the science and art of forecasting – the model that incorporates the data in a reality of the future, and the decision maker that sets the rules for discovery – developing the way the model works (finding commonality, similarity, difference, clusters) and how the predictive outcome is used. Thus, the current state of the street forecast will benefit those in the industry with evolved supply/value chains who can apply fast fashion techniques, managing their growth trends. But, it will do nothing to find a decay in a trend or the next real pull trend from the customer. This must occur in a longitudinal fashion and incorporate street data into large databases and database management. Due to the proprietary nature of the data in the industry, this is unlikely to happen.

The fashion weblog

Although many would disagree with the numbers, there seems to be a considerable number of fashion blogs in existence worldwide. According to Technorati, Inc, the number of general (personal blogs or mentioning fashion) shot to 2 million in 2006. The long tail is growing appendages. A recently released 2006 survey of over 56,000 readers of blogs shows different segments of blog readers (the ClickZ interpretation of readership usually implies that the reader is also a participant) have distinct characteristics (Copeland, 2006). Conducted by the Blogads network, the study breaks out blog audiences into four categories: readers of political, gossip, mom and music blogs. The fashion blog fits into the gossip segment of blogging. According to ClickZ (Kaye, 2006) 77 percent of gossip blog readers are women, and over 49 percent are ages 22-30. More than 60 percent have a college degree and over 22 percent are students. Compared to the also young music blog audience, fewer, 63 percent, bought music online. More gossip blog readers, 68 percent, purchased clothing on the web than both music and political blog readers, and over 48 percent spent more than $100. A total of 15 percent of gossip blog fans read three blogs daily, and nearly 15 percent spend two hours each week. Because consumers under the age of 25 have spending power and a greater interest in fashion, they are influential in setting trends (Brannon, 2005). In addition, this demographic also is powerful in the use of the Internet and also blogging. Knowing what these consumers want could be the basis of a new street trend forecasting revolution. Feitelberg (2001) has described the worth of individual data in all forms, especially fashion by eloquently stating:

> When you collect (data) from the same individuals every month, you get a good idea about what's in their closets.

Unique personalization is used in the context of chronicling, storing, and/or receiving information that is transformed by an individual into a personalized form and delivered to a larger body of the population that has an interest in the information, person, or the group. It forms the basis of the development of very unique and personal information portals, databases. This is called the popularized weblog or simply the blog (Baker and Green, 2005). All controversy aside (and as in any conceptual

definition, there are major differences in conceptualization and definition) a weblog for all practical purposes looks inward — the author's thoughts, experiences, and opinions (Ozawa, 2001). Thus, the fashion blog would contain thoughts, opinions, experiences, and in most instances visual content. A consequence of the pervasive use of computers is that most weblogs originate in digital form. Although not all of them are fashion blogs, Technorati, a blog search engine, is now tracking 35.3 million weblogs, and the total number of weblogs tracked continues to double about every six months. This trend has been consistent for at least the last 36 months. In other words, the blogosphere has doubled at least five times in the last three years. Another way of looking at it is that the blogosphere is now over 60 times as big as it was three years ago. Although not all internet users know what a weblog is, nor do a majority of them participate, the phenomenon is growing rapidly. Estimates range from 10-20 percent, with a growth rate illustrated above. The fashion blog (see, for example, www.top-blogs.com/fashion.shtml), although it fits amongst all blogs, is estimated by the author to contain at least 3.8 million sites (this was determined by using the search term "fashion" in the Google Blog Search engine, February 2007). Figure 1 shows an example of a weblog text set from Style Bytes.

What this means to the world of fashion forecasting is a repository of untapped fashion data that are individual, to what they are and what they want to be and what they do not want to be, and to make it even more exciting, personalized for the most part with cultural, demographic, shopping data and more – all just waiting to be extracted to find the next real "trend." Is this the new street, the digital repository of the internet? Only if we can ferret out the fashion information from the textual and visual personalized fashion data. Although data mining has been used for years for prediction, new algorithms, rules, models, and methods have recently been developed and tweaked to make sense out of the text (pictures are another revolution called object mining, see: http://labs.live.com/photosynth/) using semantic rules for creating similarity and commonality, clusters, and differences in clusters; in other words, tuning in to the next real trend or tipping point.

Text mining

Text mining (Wikipedia, 2005), also known as intelligent text analysis, text data mining or knowledge-discovery in text (KDT), refers generally to the process of extracting interesting and non-trivial information and knowledge from unstructured text. Text mining is a young interdisciplinary field that draws on information retrieval, data mining, machine learning, statistics and computational linguistics.

Text mining aims to automatically determine various attributes of a free-form text (e.g., a news article, office memo, technical report, etc.) including key features, frequently occurring words, summary, category, etc. (Sullivan, 2000; Weiss *et al.*, 2004). Key features include, for example, names of people or organizations or products, locations, dates, prices, etc. Frequently occurring words and certain phrases, such as "in conclusion", are used to help automatically generate a summary of a text. Key features and keywords are compared against keywords maintained in a knowledgebase to determine the category for a text (e.g., internet taxation, professional basketball, luxury automobiles, social impact of the internet, etc.). Unstructured information makes up about 80-90 percent of all information available for decision making. Although numbers are preferred by data analysts, context-sensitive

December 3, 2005

MC Princess

Filed under: Fashion, Designers

Oh how I love the look of matching cute dresses with heavy leather jackets. Pink princess and motorcycle badass is my favorite combo at the moment. Here by Dior:

I've posted these pictures earlier, but they give such a good idea of other ways to play with the look:

In other words: a pair of black driving gloves and a cute dress is all it takes. Budget tip: A cute vintage night gown and a something black leather off Ebay.

3 Comments »

The URI to TrackBack this entry is: *http://fashiondiy.blogsome.com/2005/12/03/sweet-and-rough/trackback/*

1. i love the combi too!

   Comment by missy-j — December 3, 2005 @ 11:44 am

2. Me too–it really is my only look (well, beyond tank tops and shorts–its hot here in Texas!), hence my reluctance to cover fashion on ebeautydaily :) LOL

   Comment by Christina — December 3, 2005 @ 2:31 pm

3. Generally I think that use of contrasts attract me when it comes to fashion. And this one is so good cause you get to be cute and cool at the same time.

   Comment by Agathe — December 3, 2005 @ 6:30 pm

Figure 1.
Weblog entry from Style Bytes

text mining is a great tool for structuring this content for decision making. Therefore, when structured, this text information becomes an asset for any corporate decision making, value delivery, and especially forecasting (Anthes, 2004; Fickenscher, 2005). Although text mining has been around for many years, it is not a panacea for finding worth in text data. The models (algorithms), operations (rules), and the software (i.e. Davi *et al.* (2005), not totally interoperatable, proprietary) are human researcher dependent and therefore the output, though highly structured, is interpretable (Byrne, 2005; Froelich *et al.*, 2005; Smalheiser, 2001). Forecasting seems to be one of the more decision oriented uses of text mining techniques. For example, Mittermayer (2004) was very successful developing accurate trend forecasts of intraday stock prices using text mining techniques.

However, the fashion industry seems to be in a quagmire when it comes to forecasting. As with all industry, they are searching out the latest and greatest technology tools that can give them the boost to determine dominant fads and real trends in a more reliable and accurate manner. The text mining technology, coupled with the historical and current repository of unstructured information on the internet (weblogs) seem to promise at the least an alternative and/or concomitant technology to deal with shorter lifecycles, competitive selling environments, and more comprehensive style and color offerings (Baker and Green, 2005).

Weblog-text trending

The internet is currently thought of in terms of its semantic structure. Currently the semantic nature of weblogs is limiting in developing robust trend forecasting (but still very useful as was evidenced in the above references). When webloggers get away from traditional blog writing and get acquainted, taught, and experienced with RSS, the dynamics of semantic structure will change forever. The upside is better trend forecasting using weblogs. Why? RSS is a format for syndicating news and the content of news-like sites, including major news sites like Wired, news-oriented community sites like Slashdot, and personal weblogs. But it is not just for news. Pretty much anything that can be broken down into discrete items can be syndicated via RSS: the "recent changes" page of a wiki, a changelog of CVS checkins, even the revision history of a book. Once information about each item is in RSS format, an RSS-aware program can check the feed for changes and react to the changes in an appropriate way. Technically, *RSS* (http://en.wikipedia.org/wiki/RSS_) file format is an XML-based format that allows the syndication of lists of hyperlinks, along with other information, or metadata, that helps viewers decide whether they want to follow the link. This will allow bloggers'/users' computers to fetch and understand the information, so that all of the lists they are interested in can be tracked and personalized for them. It is a format that is intended for use by computers on behalf of users, rather than being directly presented to them (like HTML).

Alexander Halavais, a communication researcher at SUNY Buffalo, believes that analyzing weblogs could provide a vivid picture of the future social landscape (Wagner, 2005). Future convergence, using the cell-phone, will also impact the diffusion/proliferation of weblog information, especially in the less than 25 age group (*New Media Age*, 2005). Striving to keep an eye on the changing dynamics of their consumers and to operate in an efficient supply chain/value chain, furniture retailers are using the weblog-text-trending. What exactly is the buzz?

Weblog mining is a special case of data mining (Mena, 1998). The objective is to determine a variety of structural patterns to text data contained within weblogs. The models marry text mining algorithmic attributes and operations with the somewhat unstructured content from the internet blogsphere to determine present and future patterns. Okumura (2005) presents a weblog mining methodology that captures trends on Japanese blogs. Okumura's weblog mining system automatically extracts and mines "burstiness" (trend, frequency, time-span), "hot words", and favorable and unfavorable opinions toward objects (i.e. fashion objects) from a collection of specified weblog pages. Although it is in rough form, Fukuhara (2005) developed algorithms and methods that evaluate Chinese weblogs and real time social occurrences to find matches, lag, and leading indicators of social concerns. Building on the work of Gruhl *et al.* (2004) and Kumar *et al.* (2003), Nakajima *et al.* (2005) proposed and tested a methodology to search weblogs to find important bloggers. They found two groups of important bloggers, the agitators, and the summarizers. The agitators are able to generate the buzz – analogous to the trendsetter. Although in its infancy and seminal in nature, there is some evidence to indicate that textmining weblogs in general and fashion weblogs in particular could generate musing that could identify the next real fashion innovation/trend.

Street fashion weblog text mining

Obviously, the fashion world is driven by its own fads. Cool forecasting, a fad of the last few years, has given way to Trend forecasting. Piccalo (2005) a writer for the *LA Times* sums it all up beautifully:

> Trends are hot – cool isn't. As culture morphs at internet speed, forecasters fight to stay ahead of it all.

Furthermore, the traditional trend watchers will not provide the needed speed to predict short run color, fabric needs, and hot fashion and definitely not real long run innovation/trend.

Arguably, the digital dynamics of the blogsphere is constantly changing. The less than 25-year-old group, especially the male component, is hailed as ruling the web. However, according to a recent survey (Copeland, 2006), blog readers appear to be much older and affluent than originally purported estimates. And if technology morphs like it has since the first IBM computer accessed the internet, this less than 25-year-old cohort will likely share the digital roost. The bloggers polled consider themselves opinion makers (Copeland, 2006), thus, they will be the group that will provide all of the data necessary to create a new forecasting dynamic from the marriage of the weblog and textmining. The weblog buzz is alive and growing. The tippers are out in blogspace. They need to be discovered in the digital world. Then as the weblog diffuses to the later adopters, which for all practical purposes has started (look at the buzz created on the web to sort out the new Medicare pharmaceutical policies), forecasters will be able to take the technology to different fashion cohorts. Future fact or fiction, textmining the weblog is not going away – especially in a short cycle, hard to forecast, dynamic business/fashion global environment. Whether we like it or not, the traditional methods have to morph. Qualitative research will need a whole new generation of human muses that go beyond the traditional methods and sift through web based digital data/information to find trend. Take for example this simple

weblog trend textmining example developed from Blogpulse trend tools. The authors continuously monitor blogs in the course of their research. The authors queried the trend tool to go out to the blogsphere and look for the search terms jeans, revealing, conservative- both in 2005 and in 2006. Theoretically, linguistics would find some commonality – trend – then provide some explanation for the commonality. The following trend graphs were produced by the Nielsen Buzzmetrics blog trend engine (BlogPulse Trend Search allows the creation of graphs that visually track "buzz" over time for certain key words, phrases or links. It is then possible to compare search terms/links in isolation, or use all three fields to compare search terms/links against others.). Figure 2 shows the results and comparison of these queries. As can be readily seen from the graphs, the linguistic coupling of the words jeans and conservative is apparently creating the most "buzz".

Blogpulse's drill tool enables the capability to zero in on an area of the graph that seems interesting. For example, why are there interactions in late October 2005 and early November 2006 between "jeans" and "conservative" while there is very little

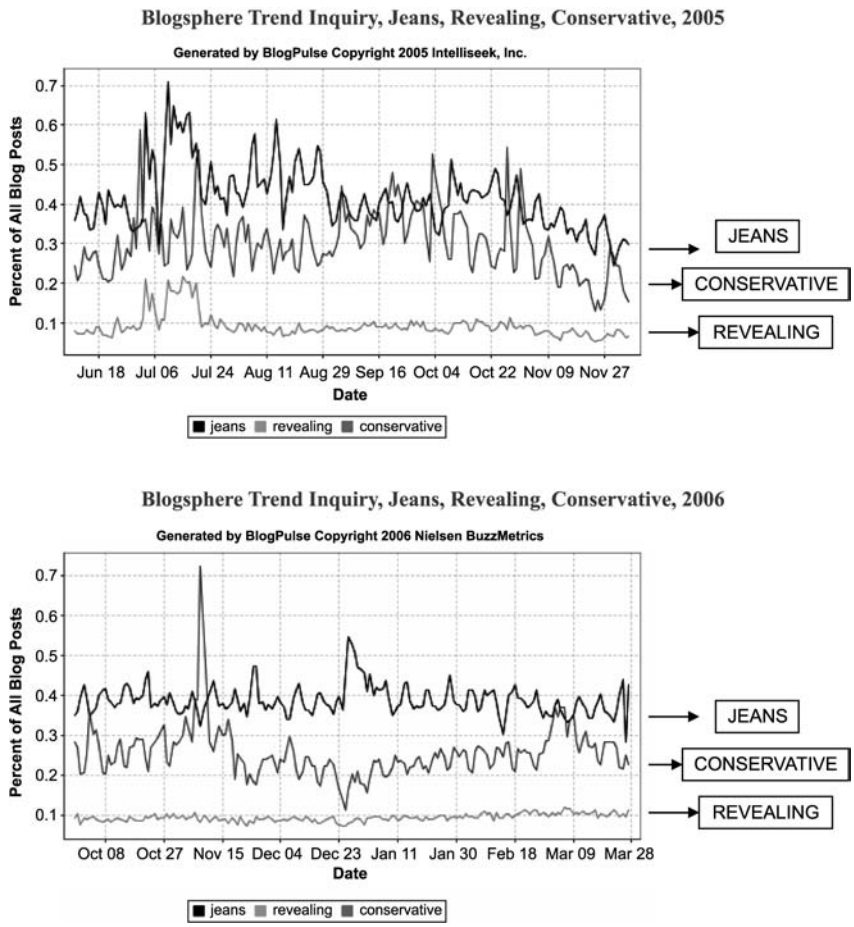

Figure 2.

constant buzz on "revealing" and the "jean" – no interaction. Drilling the jeans/conservative interaction for October 28, 2005 reveals the following set of buzz (see Figure 3). Examine the ON PANTS entry in the blog from Figure 3, "A well fitting pair of jeans and a snug but non-skin-showing top can serve to provide a sculpted version of the female form, just as (in another sense) …" umm, very interesting. Now look at the buzz from drilling for interaction of conservative and jeans on November 5, 2006 from the Paintmerainbow's journal, Figure 4, "I have no jeans because my thighs are too big for all of them. Does anyone have any advice? Today I tried to find new jeans, but my legs were too big for any and the pair I did find was too big in the waist and perfect in the legs …" Is this trending news? Although this example was contrived, it provided a simplistic view from the street blogsphere using very simplistic algorithms. Obviously, a more complete mining could have validated if the trend appeared in the across a time frame. However, this is beyond the scope of this paper. As fashion forecasters get more sophisticated with the models and procedures, forecasts will get very interesting.

Future directions

Most in the field of direct marketing would have to agree that the field has one commonality that drives its existence. Direct marketing is all about capturing the attention of a consumer long enough to make an impression and a sale. It is about connecting and communicating value through benefits. In this scenario, blogs are the storehouse of the content and data necessary for future connection and communicating.

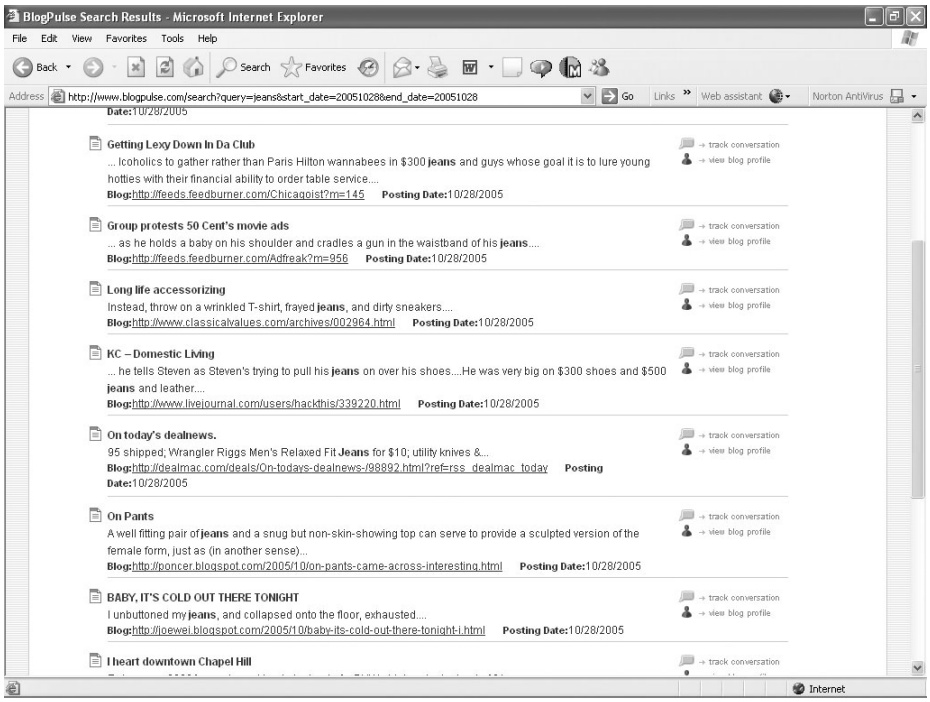

Figure 3.
Drilling For Jeans, conservative, revealing, October 28, 2005 – first ten blog entries out of 1,925

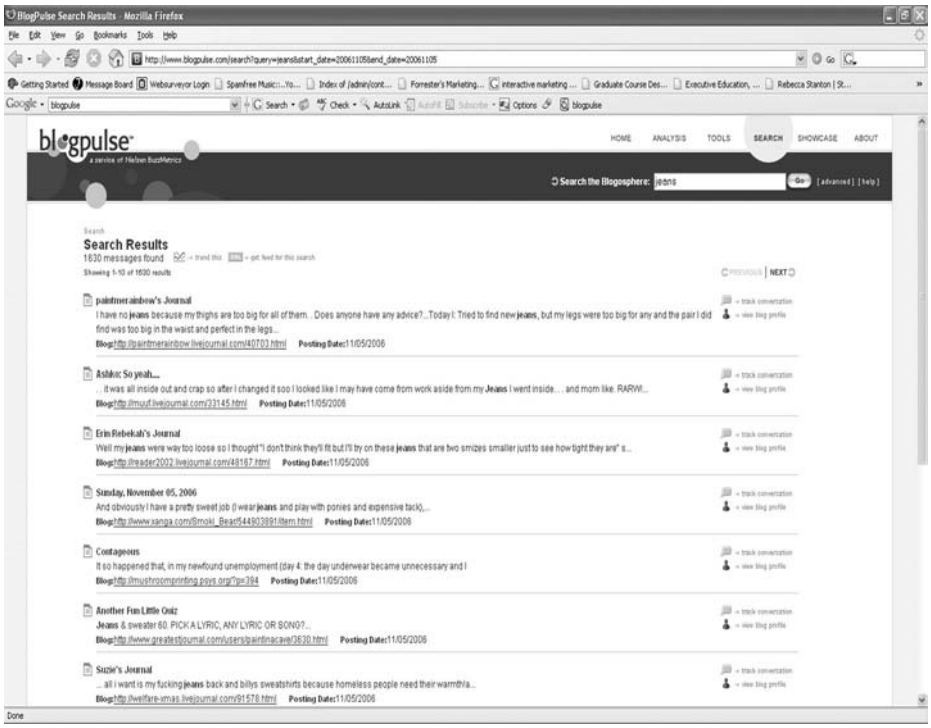

Figure 4.
Drilling For Jeans, conservative, revealing, November 5, 2006 – first ten blog entries out of 1,630

Semantic and image mining of the web will be the next frontiers of data mining and trend spotting. Initially from the street level, the methods will morph to other cohorts as they are verified. These emerging technologies will enable researchers to find semantic meaning hidden in data and documents, share and integrate information with supply chain/value chain members, and find more valuable insights:

- When this semantic analysis is combined with other emerging technologies, such as image mining and searching images for "similar" patterns, enormous forecasting potential can be realized. For example, fashion researchers/forecasters could look at fashion photographs from databases or current cellphone sent images to determine cyclical change or predictive redundancy in fashion structure. Collaboration between Microsoft and researchers at the University of Washington has produced the Photosynth initiative (http://labs.live.com/photosynth/default.html). Photosynth takes a large collection of photos of a place or object, analyzes them for similarities, and displays them in a reconstructed 3-dimensional space. This is an evolution of object mining, which focuses on text, image, video and audio mining. Contemplate this futuristic example of weblog mining: Using the multimedia sites that collect images, audio, and text (www. Youtube.com for example) and the fact that these sites have evolved using RSS or similar structured data/information, a forecaster could actually construct the image of the style or

trend in real time. This would be a complete supply chain solution. Why? Not only do I know what might sell, I will know what it might look like.

- Similarly, using this technology, forecasters could also delve into barely tapped historic image fashion databanks for similarities or changes in the structure of fashion over time to create a predictive database of trend changes with adequate explanations.
- The capability of integrating data currently in customer databases, weblogs generated/and or read by those customers (using an agreed upon weblog language, RSS for consistent semantic structure) and methods to extract new information and tapping previously unmined, "unstructured" web data (text and images) opens to the door to many exciting possibilities for new fashion research discoveries and delivering these fashion discoveries very quickly (multichannel) to a target market. The question, would consumers opt in to this scenario?

Final comments or let's get real

Limitations, considerations, opportunities

So we are back at the boardroom of SHAS. The numbers are in from the very expensive Italian Essato forecast group. Everyone in the conference has the numbers and the meeting is beginning. Ms Muse, always the "agitator" presents the following blogsphere web mining trend graph that disputes the Essato numbers. The conference gets heated … The forecast gets better … Why? The melding of forecasting methods creates a better, more accurate. Why?

- To make fashion weblog forecasting a reality, there needs to be a rich accumulation of fashion communication in structured blogs. Although fashion/style has morphological variability, it can be consistently defined as a manner of expression of a particular individual or group. The definition also has subsumed elements or patterns unique to the person that individuate him or her. To know a fashion/style group, one must follow them into a common space – to find their commonalities. Commonalities become the expressive elements of the segment. This will evolve over time. As discussed in *The Clutrain Manifesto* (Levine *et al.*, 1999), the internet is not a medium, but rather it is a means by which people are enabled to have human to human conversations.
- To make fashion weblog forecasting a reality, there needs to be a classification of the various forms of industry web text, web venue. For example, we can use quantitative forecasting methods if we know that our data are historical, has cycles, and is interval in nature. We need this structure or levels of text measurement in weblog text – usable semantics. Then, methods can be based on selection of text levels and forecast purpose. The industry might have to stimulate the development of the needed fashion text (fashion RSS for example) and more fashion blog communications to make this more of a reality. This would be analogous to finding out why people are dissatisfied with a product. Since only about 10 percent complain when they are dissatisfied, then to understand why they are dissatisfied, we need to stimulate the other 90 percent to complain.
- Rich research traditions must be in place to chronicle the cultural, behavioral, linguistic, socioeconomic, and communication behaviors over time for the weblog and the fashion weblogger in particular. This can take place concurrently

with the development of the weblog forecasting tools and methods. In the meantime weblog fashion forecasts could be corroborated by traditional fashion forecasting techniques.

- Historical object and text databases must be constructed and maintained for the fashion industry.
- Fashion linguistics/communication will form the basis of the techniques and must be developed as a science in our universities.
- The mere facts that the world is flat and open sourcing has become prevalent, excellent open architecture programs are now available (like the Apache web server). The availability of these programs will insure that the software needs for weblog/text fashion forecasting will be available to everyone for commercial and non-commercial use.
- Not since the federal government invented the census has there been such abundance of data – and in the case of the internet, digital data – available to the public domain for analysis. The wealth and amount is growing at an incredible speed. For security purposes, even the government has entered the weblog mining business, using proprietary (recently privatized) Starlight technology (Pacific Northwest National Laboratory, 2004).
- As security, identity, and privacy issues are dealt with on the web and individual bloggers opt in to the weblog mining system, fashion personalization will evolve (Kim, 2002).
- The majority of internet users and blog readers/writers are male. While some would consider this a limitation with regard to the fashion industry, the authors see this as an opportunity. Females have a long tradition of being relational/social shoppers. They go to the mall, discuss fashion with friends, and seek new outlets to do more of the same. They are not to be marginalized considering the web-use gap is closing between the two groups. However, as the blogad survey reveals, the majority of the blog readers polled are male, older, wealthier, and click on blog advertisements (Copeland, 2006). They undoubtedly have fashion needs and the ability to satisfy them. Their chosen venue is within the blogsphere, creating conversation for mining and opportunity for marketing.
- Instead of rejecting blogs outright, direct marketers should embrace the blog as a method of refining messaging to the consumer in the convergence era of the Internet. Maybe it is not the most reliable tool for data collection and database development. However, neither is the focus group and it is still around and used very often to help target and adjust direct mail. Blogs might not be the final answer. However if a fashion marketer can adjust inventory on their clicks site to better multichannel to their customers, then the efforts described in this paper would seem worthwhile.
- Every fashion forecaster will agree that simple, accurate, understandable forecasting is better than complex, hard to operationalize forecasts. However, one of the authors once went to a swap meet and bought, with trepidation, two crates of mixed Lego parts, toy logs, and other building toy elements for his young daughter. When he brought them home, she did not ask for directions, she sifted through the crates and built an empire.

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