Cross - Cultural Consumer Convergence as Indicated by Online Search Data

Gauri Kulkarni*

The rise of global economies and markets has resulted in the need for research on cross-cultural issues, particularly in business and management (e.g. Rao, 2010). While much research has investigated stock market integration in the financial domain (e.g. Mukherjee and Mishra, 2007) , global management strategies (Raghavan, 2008; Rao, 2010), and international product diffusion (Talukdar et al, 2002), research on cross-cultural consumer interest is of particular interest to marketers.

The diffusion (i.e. product adoption over time) of new products has been a widely researched area in marketing (e.g. Bass, 1969; Van den Bulte, 2000). However, the diffusion literature focuses on sales, and a product sale represents a later stage in the consumer decision-making process, which is typically described by the steps of need recognition, information search, evaluation of alternatives, purchase decision, and post-purchase behavior (Armstrong and Kotler, 2011). Consumer interest in a product is generated prior to a sale taking place, and thus it is worthwhile to investigate the diffusion of consumer interest - better understanding of the diffusion of consumer interest, which is present in an earlier stage in the decision-making process, will allow managers to plan their marketing strategies more effectively, be more influential earlier in the decision-making process, and ultimately impact later sales. In a global context, better understanding of *what* consumers are interested in and *when* this interest is generated (at a market level), relative to a foreign market, can aid in managerial-decision making on international marketing strategies. We explore this idea in this study.

Previously, it had been difficult to measure consumer interest in a product without sales data, however recent advances in information technology and increasing use of the Internet allow for the measurement of consumer interest through mechanisms such as content analysis of online blogs, search engine

*Assistant Professor of Marketing, Sellinger School of Business and Management at Loyola University Maryland, Baltimore, Maryland, USA.

activity, social network posts, product reviews, etc. These types of online activities also allow for the measurement of consumer interest in new products prior to the availability of sales data or during the pre-launch period (Kulkarni, 2010). One example of such measures is the volume of terms submitted to search engines. Search term volume refers to the number of times a given term is submitted to a search engine. Since the submission of a term to a search engine requires an action on the part of the consumer, it can be inferred that the overall volume of a term submitted to a search engine indicates aggregate interest in that term (Ettredge et al, 2005). Search engine use is a very prevalent online activity and search term volume data does not require as much coding or cleaning as other online measures of consumer interest such as blog posts, reviews, etc. It is not difficult or costly to obtain, and changes in volume over time can be used to study patterns or trends in consumer interest. Thus, this measure offers many advantages to other recent metrics that have been used to measure consumer interest.

Prior research in a macroeconomic context has found that the volume of search terms related to job searching (e.g. resume, job hunt) can be used to effectively predict the unemployment rate (Ettredge et al, 2005). From a marketing perspective, this type of measure is available prior to the launch of a product, since a product need not be available to consumers for them to search for it. For example, a consumer can search for a movie title before a movie is released. This indicates a consumer's interest in that movie, although sales data is not yet available, since the movie is not yet released for purchase or consumption (Kulkarni, 2010). Thus, consumer interest can be measured prior to the launch of a product. Since this online measure of consumer interest is not restricted by geographic boundaries, the diffusion of consumer interest across international markets can also be investigated. Findings from the study of the diffusion of consumer interest can offer insight on the future diffusion of related product sales and can also aid in managerial decision-making on international marketing strategies.

Diffusion across both domestic and foreign markets has been studied (e.g. Mahajan et al, 1990; Talukdar et al, 2002), with international marketing

research in general becoming more important as markets become more globalized (Malhotra, 2010). More specifically, there has been recent focus on emerging markets (e.g. Talukdar et al, 2002), as many markets in the United States are approaching saturation (Malhotra, 2010). Recent emphasis on research on emerging economies has focused on the BRIC nations – Brazil, Russia, India, and China, since these countries are expected to have a stronger presence in the global market (Altman, 2009). There is also "a strong belief that cultures around the globe will become more similar to one another – particularly in macro issues such as...product preferences" suggesting that marketers need to adapt marketing strategies to these emerging markets (Czinkota and Skuba, 2009). It is commonly accepted that the widespread dissemination of information has resulted in Indians adopting many Western practices (Mujtaba and Pohlman, 2010), and more generally, that "Asian tastes and preferences will increasingly influence product design and corporate business practices (Czinkota and Skuba, 2009)."

Thus, the current study aims to investigate the cultural convergence of consumer interest of India and the United States. We take online search term volume as a measure of consumer interest and compare the search term volume trends of the United States and India. Since our research project aims to study the diffusion of consumer interest across two international markets, and search engines are widely used internationally (Jansen and Spink, 2006), search term volume will serve as an effective measure of consumer interest. Though designed to be exploratory in nature, the results of the study offer insight into what the Indian market is most interested in and when this interest peaks, relative to the United States, and vice versa. We consider this relationship in both directions – how Indians are converging towards what Americans are interested in, as well as how Americans are converging towards what Indians are interested in. In a limited sense, we look at whether cultural convergence is unidirectional or mutual. Methodo-logically, we take the terms that Americans are most interested in and compare the search patterns of these terms to the search patterns of the same terms in India. We then consider the reverse relationship and take the terms Indians are most interested in and

compare the search patterns of those terms to the search patterns of the same terms in the United States. The rest of the paper is structured as follows, we present our data and analytical approach in the next section. We follow with a discussion of the results, and conclude with directions for future research.

Data and Methodology

Our research methodology involves three main steps. First, we must identify what the American and Indian consumer markets are most interested in. Second, we collect search term volume data on these topics/terms for both the United States and India for the 2010 calendar year. Third, we correlate the consumer search data of the United States and India for both sets of terms and analyze the results. We describe each of these steps in detail below.

Our first step is to identify the topics/terms that both the American and Indian markets are most interested in. We limit our data analysis to the 2010 calendar year. Google Zeitgeist 2010 (http://www.google.com/intl/en/press/zeitgeist2010/) compiles search engine queries for 2010 by region and topic. We consider the top ten fastest rising queries for google.com as the terms consumers were most interested in for 2010 in both the United States and in India. These ten terms are the following for the United States: ipad, chatroulette, iphone 4, world cup, justin bieber, myxer, facebook, grooveshark, glee, mocospace (Google Zeitgeist, 2010). For India, the ten fastest-rising queries are the following: irctc login, micromax mobile, youtube videos, fifa, facebook, cricket live score, twitter, way2sms, samsung mobile, zedge (Google Zeitgeist, 2010).

These terms reflect a variety of interests in both the United States and in India. Beginning with the American terms, Ipad and Iphone 4 represent technology products from Apple Inc. Chatroulette and Facebook are names of online social tools. The World Cup is an international soccer/football event. Justin Bieber is an American pop music star. Myxer is an online personalization service for mobile devices that allows users to upload and download various media, while Grooveshark is an online music site that allows users to search for and stream music. Glee is a popular musical television show in the US. Lastly, Mocospace is a social networking tool for mobile devices.

In India, IRCTC Login is used for online railway booking. Micromax Mobile and

Samsung Mobile are cellular phone companies. YouTube is a popular online video sharing site. Fifa refers to the Federation Internationale de Football Association – the soccer/football organization that sponsors the World Cup. Facebook and Twitter are online social networking tools. Cricket live score likely indicates live score updates for cricket matches, a popular sport in India. Way2SMS is an online service that allows users to send free messages to mobile phones in India. Lastly, Zedge is an online service that allows users to download various media for mobile phones.

Next, we take these twenty terms (ten from the US and ten from India) and collect the weekly search data for each of them for both the United States and India. The online search data which is to serve as the measure of consumer interest is collected through a service known as Google Insights for Search (http://www.google.com/insights/search/). This service allows search term volume data to be collected for specific time periods, as well as for specific geographic areas, including international markets. The data is available at the weekly level. Data is collected for the United States and for India for the calendar year 2010. The search term volume data is indexed on a scale ranging from 0-100, where a measure of 100 indicates the peak number of searches for the given search term for the specified time period, which would be the calendar year 2010 for the purpose of this study, and for a given geographic market – either the United States or India. The data is normalized to allow for comparison and is available in downloadable format (Google Insights for Search, 2011). Thus, a weekly index of 100 for the United States represents the peak in searches for a given term in the United States, and a weekly index of 100 for India represents the peak in searches for a given term in India, however this does not imply that the actual number of searches taking place are equal in the United States and in India.

Three of the ten search terms we identified for the United States (myxer, grooveshark, mocospace) did not generate enough searches in India to provide reliable indices, so we proceed with our analysis of the remaining seven terms (ipad, chatroulette, iphone 4, world cup, justin bieber, facebook, glee) for the US and all ten terms for India (irctc login, micromax mobile, youtube videos, fifa,

Table 1: Correlation of Top American Online Search Terms Between the United States and India

Search Term	Correlation Coefficient
chatroulette	0.81
facebook	0.97
glee	0.35
ipad	0.90
iphone 4	0.84
justin bieber	0.48
world cup	0.92

Note: All results are significant at 95% level
Source: Calculated
Data Source: Google Insights for Search

facebook, cricket live score, twitter, way2sms, samsung mobile, zedge). Thus, in our dataset, we have two data points (US and India) per search term (17 total terms) per week for the year 2010 (52 weeks).

Lastly, we obtain the Pearson correlation coefficient for the weekly data points for each of the seventeen terms between the US and India. We present and discuss our results in the next section.

Results and Discussion

We discuss the correlation coefficients and the timing of peak searches for the top American search terms first and follow with a similar discussion for the top Indian searches. The correlation coefficients between the US and India for the American terms are presented in Table 1. All correlation coefficients are significant at the 95% confidence level. From the results, we can note some interesting patterns.

First, we can see that facebook has the World cup has the second-highest correlation (r=.92), which suggests a similar interest pattern in the US and India. This is an international soccer/ football event with a relatively short time frame (11 June to 11 July 2010), thus worldwide interest in the event is likely to follow similar trends. The next two highest coefficients are for ipad (r=.90) and iphone 4 (r=.84). These are both innovative technology products, and with India's booming technology sector, we would expect Indians to follow Americans closely in terms of interest in such products (Mujtaba and Pohlman, 2010). Chatroulette also has a relatively high coefficient (r=.81), and given its objective to connect people around the world, it is intuitive that the patterns of interest would be similar internationally. Lastly, justin bieber (r=.48) and glee (r=.35) have the lowest coefficients. These two

terms are strongly associated with popular culture in the US, and while the correlation coefficients are still positive, it would make sense that the patterns of search are not as similar as the patterns of search terms associated with social networks, world events, and technology products. Social networks serve to connect people across geographic boundaries, world events are international in nature, and high technology products are of particular interest to the Indian consumer market, thus our correlation coefficient results are aligned with expectation.

Table 2: Correlation of Top Indian Online Search Terms Between the United States and India

Search Term	Correlation Coefficient
cricket live score	0.67
facebook	0.97
fifa	0.98
irctc login	0.95
micromax mobile	0.45
samsung mobile	0.69
way2sms	0.38
youtube videos	0.90
zedge	0.75

Note: All results are significant at 99% level
Source: Calculated
Data Source: Google Insights for Search

It is also worthwhile to look at the timing of peak searches or consumer interest. Three of the analyzed terms peaked in the same week in both the US and India. These are facebook, ipad, and world cup. Facebook peaked in the final week of the year (26 Dec 2010 – 1 Jan 2011). Many consumers are on vacation during this time, and Facebook is a tool that is often used to stay in touch, so the reasoning behind this is likely that consumers are more active on Facebook during this time. They have more free time, and the holiday season is a time to connect with others. Searches for ipad peaked during the 24 Jan 2010 – 30 Jan 2010 week. Apple's press release on the Ipad took place on 27 Jan 2010, thus it appears that interest in this product took off very quickly in both the American and Indian markets, as both are known for being leaders in technology innovation. Lastly, world cup peaked during the week of 13 June 2010 – 19 June 2010. This is expected, given the timing of the actual World Cup event in June - July 2010.

Considering the reverse relationship, the correlation coefficients between the US and India for the top Indian terms are presented in Table 2. The coefficient for the term twitter is not

statistically significant, so we exclude it from further analysis. All other correlation coefficients are significant at the 99% confidence level. From these results, we can again note some interesting patterns.

We can see that fifa has the largest correlation coefficient (r=.98). Following our earlier discussion of the world cup, this is likely due to the timing and international nature of the Fifa World Cup event. Facebook has the next highest correlation coefficient (r=.97), and we refer to the earlier discussion of this term for further elaboration. The irctc login term has a very high correlation coefficient (r=.95), and since this term is related to travel/transportation booking, the high correlation is likely driven by Indians living in the United States who follow similar travel schedules as residents of India when visiting India. Youtube (r=.90) and zedge (r=.75) also have very high correlation coefficients which is not surprising, since both are popular media sites internationally. Samsung mobile (r=.69) and micromax mobile (r=.45) again indicate the Indian market's interest in technology products. Samsung's higher coefficient follows from the fact that Micromax targets the Indian market, while Samsung is a more global brand. The high correlation of cricket live score (r=.67) is likely driven by the international interest in cricket, particularly by Indians living in the United States in this case. Lastly, the lower correlation coefficient of way2sms (r=.38) is likely due to the service being available only in India.

Looking at the timing of peak searches, facebook and irctc login are the only two terms that peaked in the same week in both the US and India. We again refer to the earlier discussion on facebook. For irctc login, the peak week was 19 Dec 2010 – 25 Dec 2010. This likely results from holiday travel and the large number of Indians living in the US who visit India during the Christmas holiday break.

From a practical standpoint, managers can use these insights to plan international marketing strategies. They can use these types of results to develop a market roll-out plan for new product launches in foreign markets. For example, it may be worthwhile for high-technology firms to launch new products in the US and India simultaneously, rather than sequentially. Similarly, social network or media services that are not restricted to specific geographic regions may also benefit from international promotional activity at certain times, particularly if

their objective is to connect people from around the world. Additionally, given the popularity of online social networking, it may be worthwhile for firms with plans to market internationally to implement social media marketing into their strategies – for example maintaining a Facebook page or Twitter account. It may also be beneficial for travel and transportation services to make online booking available internationally, especially if many customers are foreign tourists.

Conclusion

In conclusion, the present research takes an exploratory look at consumer interest in two international markets – the United States and India. The results indicate some interesting patterns. High-technology products seem to generate high levels of interest in both markets very quickly. Similarly, social networking sites also exhibit closely aligned patterns of consumer interest. Marketers in related product categories can use these finding to help guide international marketing strategies. Popular culture in the United States does not appear to generate a lot of interest in the Indian market. World events such as the Fifa World Cup, as expected, generate interest internationally.

While this work takes a preliminary step in understanding cultural convergence, there remain several other areas for further research. Comparisons involving other international markets, both developed and emerging, can be done. Similar analyses can be conducted at a more micro level, such as with particular regions, states, and cities within foreign markets. This type of research would be beneficial to managers in developing targeting strategies within a foreign country. Lastly, search data can be analyzed in conjunction with sales data to get a better understanding of the relationship between consumer interest and purchase.

This work contributes to the recent stream of literature on international business and management, particularly in rising or emerging economies. As these markets continue to grow and converge with mature markets, it will be become increasingly important to understand how and when consumer interest is generated in foreign markets. Managers can use this to better plan and implement marketing strategies internationally.

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