Utilizing Social CRM to Boost SEO Strategy

Sumana Ganne and Phanuwat Keesai

Masters of Science in Data Science
Faculty of Engineering
Chiang Mai University
Chiang Mai, Thailand
sumana_ganne@cmu.ac.th
phanuwat_keesai@cmu.ac.th

***Abstract*— This paper discusses the concept of using social CRM methods to optimize SEO and thereby boost a brand's online presence. The idea is to guide a consumer to content that mirrors his/her intent by understanding his customer journey phase. By establishing enough awareness and confidence, the offline conversion is guaranteed to be faster. For this paper two kinds of datasets were required. Customer data is one of the highly protected datasets guarded by many legalities. For creating customer profile, a new dataset was created using a survey that does not collect any personally identifiable information. For determining customer sentiment data was acquired from online product reviews. Focus of the research was on a commonly used commodity - Sports shoes. This paper delves into the customer profile and customer sentiment for this product in the Thai market. Market research was performed on a sample population in Chiangmai, Thailand. Amazon reviews were used as a comparable qualitative data as a proxy for understanding consumer sentiment. Topic modeling was used for discovering the abstract "topics" that occur in a collection of reviews. The topics derived from the model are compared to commonly used keyword research tools online to establish correlation between the research approach and currently used industry approach.**

Keywords*— *SEO, Social CRM, Keywords, sentiment analysis, customer journey, Brand management

I. INTRODUCTION

The whole purpose of a CRM is to help a brand build and manage relationships with leads, prospects, and customers. Aside from gaining new customers and building brand awareness one of the best outcomes from nurturing these relationships is the ability to convert online intent to offline sales and potential users into brand advocates, especially on social media. To build brand awareness that creates brand advocates, one should determine consumer needs and deliver to these needs where they are searching for them. In this context, the power of social media is undeniable.

A customer's journey is comprised of behavioral or experiential data generated using data-driven and anecdotal research. Mapping the customer journey forces organizations to become more customer centric. Search behavior fills a huge bucket in any customer journey because humans are seekers of information -- especially now when information is almost instantaneously available whenever users demand it.

Search engines like google are a great channel for finding consumers and for understanding their intent. Brands often use keyword research to understand the intent. Keyword research is the process of finding and analyzing actual search terms that people enter search engines. The insight into these actual search terms can help inform content strategy, as well as your larger marketing strategy. Currently, keyword research is performed using commonly available SEO tools that can be generalized for search terms across the internet and market segments. This can be considered more of a top down approach of determining consumer intent. Generic keywords spewed from a keyword tool do not match the search intent of your prospective customers. When a brand can deliver content specific to consumer's needs, the customer's journey from awareness to advocacy will be relatively quicker.

This paper aims at a bottom up approach to zero in on the specific consumer intent first and then move to more generalized needs. We will be using social CRM methods to determine the customer demography, psychography and sentiment and apply the same to generate keywords that are optimal for search engine optimization.

II. SEARCH ENGINE OPTIMIZATION

Due to the presence of a vast number of websites, the Search Engine has a crucial job of providing the relevant pages to the user, Search Engines such as Google, use Page Ranking Algorithm to rank web pages according to the quality of their content and their presence over the world wide web. Search Engine Optimization is a process of increasing the chances of a webpage to appear in the first page of the search result.

Fig. 1. Search activity in customer journey.

Since, whenever the consumer searches for information, they provide a particular phrase or a keyword instead of the complete web address, then the search engine use that keyword to find the relevant web pages and show it in a list with the most relevant page at the top. So, an organization could use Search Engine Optimization techniques to reach up

to its potential consumer by appearing at the top of the search results. Laura Lippay, former Yahoo marketing manager, traced out a multi-step strategy in a series of Moz articles. The top 3 steps in her study were

1. Define Your Target Audience and Their Needs
2. Categorized Keyword Research
3. Finding Gaps and Opportunities

Keyword research tells a brand what topics people care about and how popular those topics are among their audience. The operative term here is topics -- by researching keywords that are getting a high volume of searches per month, a brand can identify and sort content into topics that they want to create content on. Then, you can use these topics to dictate which keywords to look for and target. User intent is now one of the most pivotal factors in your ability to rank well on search engines like Google. Today, it is more important that a webpage addresses the problem a searcher intended to solve than simply carries the keyword the searcher used.

III. CUSTOMER JOURNEY

A consumer's journey on social media starts with discovery and then progresses towards consideration, decision, and advocacy. [2]

Fig. 2. Customer journey.

The concept of customer journeys has been used, at least since the early nineties, to describe services from the customer's point of view (Whittle & Foster, 1991). [1] In the literature, a customer journey is seen as the process that a customer goes through to reach a specific goal, that involves one or more service providers or products (Følstad et al. 2013). Rather than making a straightforward, linear path from awareness to purchase, the modern customer is interacting with a brand through a kaleidoscope of mediums and touchpoints; from social media to word-of-mouth, in-store visits, above-the-line advertisements, customer service calls and much more.

[1] Since today's customer is exposed to many different on-and-offline messages and channels; they are also more likely to have a fragmented journey with a brand. This makes the journey harder for marketers to understand and to join the dots across their marketing, sales, and customer service departments.

According the Neil Patel, leading digital marketing entrepreneur, Customer journey maps are key to bridging the gaps in understanding so that a brand can fully be across the customer's experience, whether it be during their awareness, consideration, conversion or post-purchase phase.

[1] In fact, having an increased focus on the customer journey can boost a brand's ROMI (Return on Marketing Investment) by as much as over 50%, according to the Aberdeen Group's report The CMO Dilemma: Bridging the Gap Between Love and Money.

Customer journey mapping also lets a brand:

a.) Understand how a customer feels at any given stage of their journey (anxious, excited etc.) which allows a brand to nail their messaging at that point in time - whether it be an email, advertisement, or phone call. Above all, messaging that is both relevant and empathetic.
b.) Align sales, marketing, and customer service departments around a clear vision, with an improved understanding of where each department fits into the vision.
c.) Identify the higher-converting channels where you should be investing more of your time and budget into.
d.) In terms of product and UX design, user journey mapping is an excellent way to keep the design process focused on the customer's needs, resulting in more user-centric products and websites.

Successful brands capture, measure, and analyze their consumers and then target them in personalized campaigns. This may be in the form of an email newsletter tailored to meet who you are as a buyer, a birthday gift (hello, Sephora!). It might look like a sponsored Instagram post planted directly in your feed (not everyone's) based on your likes and dislikes, or it could be blatantly showing you where your individualized shopping sites are based off of your present location.

Brands cannot afford to drop off from the journey after the awareness has been generated. More and more emphasis is being given to be part of the consumer journey post purchase.[2] For example, on the Nike+ website, users can log their running data, interact with their peers, and get more information on their sport. Each day, recreational and avid athletes have a reason to log back in and interact with the website, because they themselves are also interested in looking at those numbers. The customer gets a quality app/program to keep track of their physical fitness, while the company gets the traffic and customer insight to inform their marketing strategy for other customers. It is a win-win. The insight gathered through their website and app is also used toward product development. If a massive number of users express the desire for arch support in a certain model running shoe, you better believe that Nike is going to release a 2.0 with better arch support. Additionally, the company offers the option for consumers to design their own sneakers. While this is certainly a fun and convenient way for the shoe connoisseur to create the sneaker of their desires, it's also an intuitive way for Nike to learn the customers' styles and preferences, while banking on the website traffic.

IV. WHERE DOES SCRM MEET SEO ?

A social CRM takes the CRM tool one step further by allowing data exchange in real time. Like a newsfeed on a social media platform, steadfast updates allow for the most accurate analytics. It enables the use of social media to engage with customers in a closely guarded and managed community. The data obtained from a social CRM can help a brand communicate online with potential and current customers in a more interactive and dynamic way, and their engagement with the brand in turn gives its SEO a major boost.

Today's brand building makes it a compulsion for businesses to come up with personalized elements. This is one prominent reason organizations across the world are rendering a human touch to their brands. A Social CRM can help a brand do that with ease, since it helps fetch a deeper understanding of your customers' and their preferences to help reach them in a more personalized manner. Social media is not a second thought—it is a primary promotion and distribution channel. Before marketing the product on Social media, it is essential to research the industry and the intended audience. Social CRM provided exactly this powerful data that is essential for brand management.

Social CRM via customer journey mapping can help improve SEO performance as follows:

- Record the keywords and conversations

Recording the keywords and conversations that a brand has with its potential and existing customers gives the business insight needed to shorten sales cycles, improve customer relationships, and repeat sales methodologies that work. Asking audience for information on how they found the brand on the web, specifically keywords queries used, can give intelligence on how your leads are finding your business online, and the type of keywords you should be optimizing. For instance, for a brand selling running shoes will try to rank for the keyword phrase "running shoes." While this is generally a good keyword to aim for, this keyword phrase might be competitive and might take more time and effort to see significant results. Through conversation with a lead, the brand may however discover that, consumers searched for "running shoes for flat feet" instead of just "running shoes." So, in this example, if CRM recorded this information, the brand now has a new long-tail keyword opportunity, to help its SEO get better results.

- Discover how the target audience describes their problems

A key element of effective communication is for each party involved to feel like they are understood. Digital marketing strategies are no different. And since search engine optimization strategies are geared towards providing answers to end user problems or search queries, with access to conversations that describe customer problems, SEO professionals can create increased online visibility and relevant web pages centered on providing solutions to actual problems that your "real" customers have. Using this data provides the brand with the ability to increase relevance and attract high quality leads.

- Analyze customer data to discover buying trends

Generally, one of the key advantages of having a central repository for all customer interactions aka your CRM system, is to help discover buying trends. For instance, being able to run a report of all sales for a particular year and the products associated to them, to discover when customers tend to buy more of one product over the other. Knowing this information can also help with planning SEO marketing activities. For a business that has many products, there may have a plethora of target keywords. Having the insight into customer buying trends can help concentrate and plan efforts better. If customers tend to buy one product around the holiday season, then the brand should plan to make sure that it has prepared relevant SEO strategies to help gain the biggest online presence around that time.

A case study done by a leading CRM company HubSpot shows how CRM implementation increased organic web traffic and leads:

TABLE I. A CASE STUDY DONE BY A LEADING CRM COMPANY HUBSPOT SHOWS HOW CRM IMPLEMENTATION INCREASED ORGANIC WEB TRAFFIC AND LEADS

Company	Organic Traffic Increase	Leads Increase	Strategy
Casio	12%	496%	Created customer journey, landing pages for content, FAQs, user guides and video tutorials, as well as Smart Calls-to-Action (CTAs) and Forms to encourage visitors to share their details
Bell Performance	620%	9000	Created centralized view of customers, created content and expanded presence online
EHL	150%	100%	Created Ads, personalized content and landing pages based on data stored in CRM

V. IMPLEMENTING SEO ALONG THE CUSTOMER JOURNEY.

The phases of the customer journey that involve online search must, by necessity, involve one of three types of search actions by the customer: navigational search, informational search, or transactional search. Each of these phases is correlated with a different type of search query.[3] To tailor a brand's SEO strategy to the customer journey, the SEO strategy must feed into each of these three types of searches.

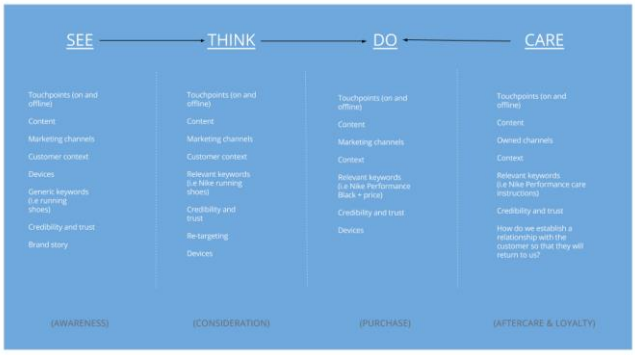
Fig. 3. Customer journey & SEO Strategy.

According to a study done by a leading CRM app HubSpot, implementing SEO alongside customer journey can be a four-step process

- Create a customer journey map
- Identify the specific points points at which a user is conducting one of the three types of search queries (navigational, transactional, or informational).
- Make a list of keywords/queries for each point in the customer journey that involves a specific query type.
- Connect each keyword to a specific method of SEO strategy.

According to digital marketing specialist/author Veronica Stenberg, the classic AIDA model (attention, intention, desire and action) can be replaced by a simpler new age model [7] See, think, do and care – which according to her is more straight forward and easy to use.

Fig. 4. Simpler new age model.



To further illustrate the model, using online shoe brand promoting running shoes:

See – this is where a brand is aiming gain attention, perhaps it is through ads, on and offline. Perhaps with articles relating to running in this case.

Think – is where a consumer is thinking about a solution to buy a pair of new running shoes. However, he/she is open to any brand and model but found this online store and are now browsing the selection available. They are starting to consider some options.

Do – this is where the consumer has decided that they want to buy a pair of new running shoes, from a brand, to color and model and is ready to make the purchase.

Care/loyalty – is after a consumer has bought the running shoes, how can a brand care for them in a way so that next time they need a pair of new running shoes they come back to the same online store. Perhaps with advice on how to best wash and care for the shoes for better durability? perhaps the person signed up for a newsletter, where it is based on the purchase target this person with other items and inspiration related to running? Or another possibility is that the brand in question attracts someone else customer into this type of content and therefore may attract additional customers from this in the future.

The research focused on making a list of keywords derived from customer sentiment and psychography and comparing them to existing search volumes for verification.

VI. RESEARCH RESULTS

1. *Customer Demographics and lifestyle*

The customer demographics and lifestyle were determined by performing a survey. We focus on Chiang Mai's population which have around 1,682,164 [9]. The number of samples of this survey is calculated by using Taro Yamane (Yamane, 1973) formula with 95% confidence level. The calculation formula of Taro Yamane is presented as follows.

$$n = \frac{N}{1+N(e)^2} \quad (1)$$

Where : n = sample size required

N = number of people in the population

e = allowable error (%)

Substitute numbers in formula (1):

$$n = \frac{1,682,164}{1+1,682,164(0.05)^2}$$

$$n = 400 \text{ (Rounded)}$$

Then, we use non-probability sampling methods as convenience sampling to collect the data and get the results as follow:

Demographic

a) Gender

Fig. 5. Pie chart shows the ratio of gender of the sample in a survey.

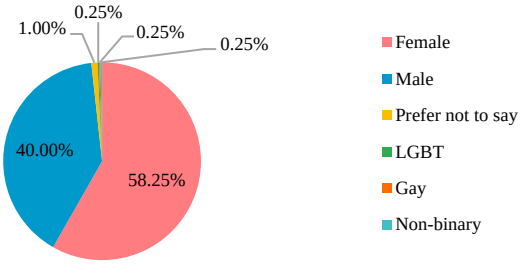


Fig. 5. shows that most gender dsitribution of the sample in the survey is female (58.25%) followed by male (40.00%).

b) Age

Fig. 6. Pie chart shows the ratio of age of the sample in a survey.

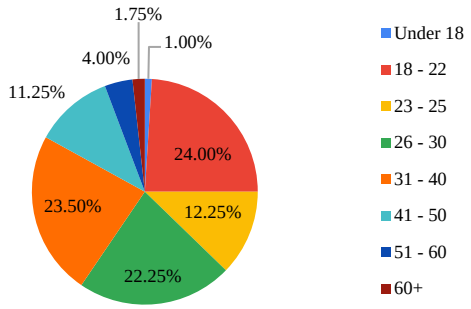


Fig. 6. shows that most largest age group of the sample in the survey is 18-22 (24.00%) followed by 31-40 (23.50%), and 26-30 (22.25%).

c) Education

Fig. 7. Pie chart shows the ratio of education of the sample in a survey.

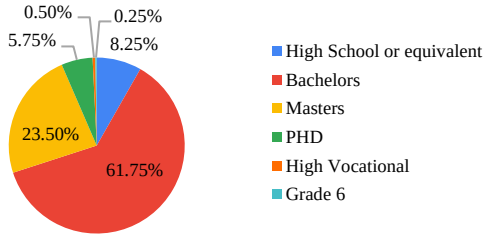


Fig. 7. shows that most education of the sample in the survey is bachelor's degree (61.75%) followed by master's degree (23.50%).

d) Employment Status

Fig. 8. Pie chart shows the ratio of employment status of the sample in a survey.

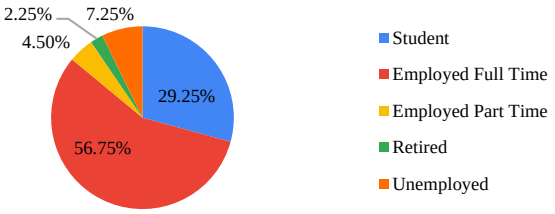


Fig. 9. Bar chart shows the number of employed full time and student in age.

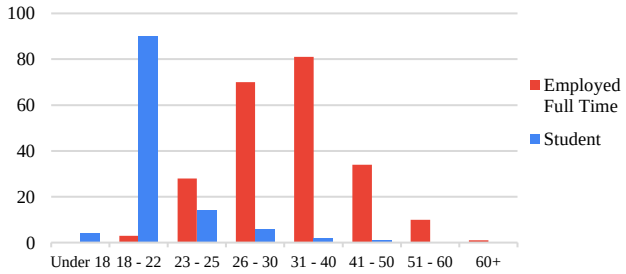


Fig. 8. shows that most employment status of the sample in the survey is employed full time (56.75%) followed by student (29.25%).

Fig. 9. shows that most of employed status are in the age range 26 – 40 (66.52%) and the most of students are in the age range 18 – 22 (76.92%).

e) Monthly Income Range

Fig. 10. Pie chart shows the ratio of monthly income range of the sample in a survey.

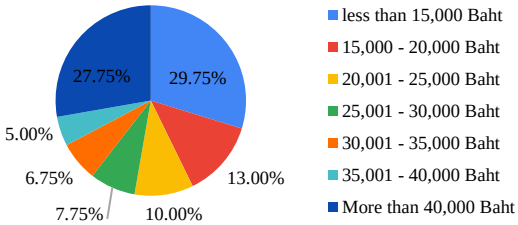


Fig. 11. Bar chart of the number of employed full time and student in monthly income range.

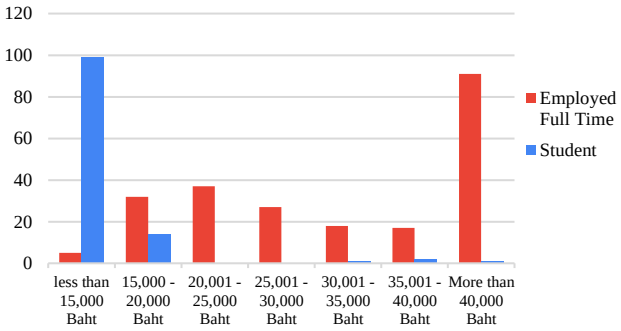


Fig. 10. shows that the largest monthly income range of the sample in a survey is less than 15,000 baht (29.75%) followed by more than 40,000 baht (27.75%).

Fig. 11. shows that most of employed status are in monthly income range more than 40,000 baht (40.09%) followed by 20,001 – 25,000 (16.30%) and 15,000 – 20,000 (14.10%) and the most of students are in less than 15,000 baht (84.62%).

Lifestyle

a) How many sport shoes do you own currently ?

Fig. 12. Pie chart shows the ratio of sport shoes they have. *(Q: How many sport shoes do you own currently ?)*

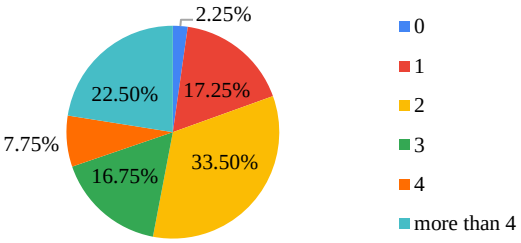


Fig. 12. shows that majority of them own they have 2 (33.50%) sport shoes followed by more than 4 (22.50%).

b) What type of sport shoes do you prefer ?

Fig. 13. Bar chart shows the number and ratio of types of sport shoes they prefer. *(Q: What type of sport shoes do you prefer ? - Can choose more than 1 option)*

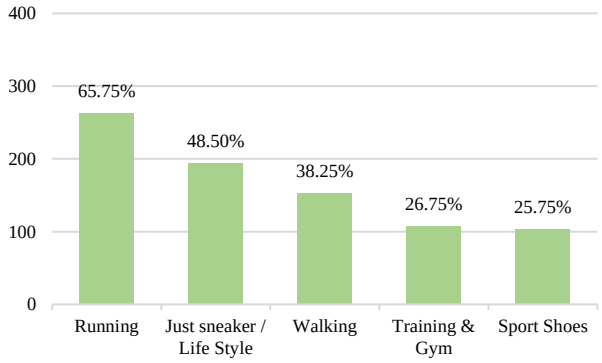


Fig. 13. shows that majority of participants prefer running (65.75%) followed by just sneaker/lifestyle (48.50%) shoes.

c) How do you use sport shoes in your everyday life ?

Fig. 14. Pie chart shows the ratio of the ways to use sport shoes in everyday life. *(Q: How do you use sport shoes in your everyday life ?)*

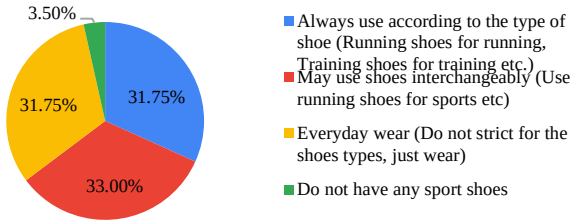


Fig. 14. shows that the ways to use sport shoes in everyday life of them split in 3 paths equally. They always use sport shoes according to the type of shoes 31.75%, may use interchangeably 33.00%, and everyday wear 31.75%.

d) Which brand of sport shoes do you prefer ?

Fig. 15. Bar chart shows the number and ratio of the brands of sport shoes they prefer. *(Q: Which brand of sport shoes do you prefer ? - Can choose more than 1 option)*

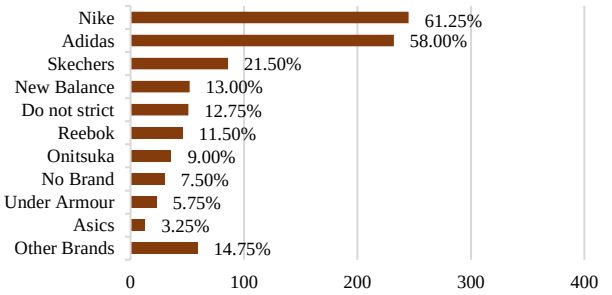


Fig. 15. shows that brands that they prefer the most are Nike (61.25%) followed by Adidas (58.00%).

e) Do you switch brand normally ?

Fig. 16. Pie chart shows the ratio of switch brand. *(Q: Do you switch brand normally ?)*

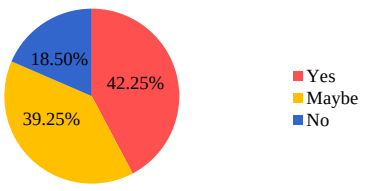


Fig. 17. Stacked bar chart of the ratio of switch brand of each brands.

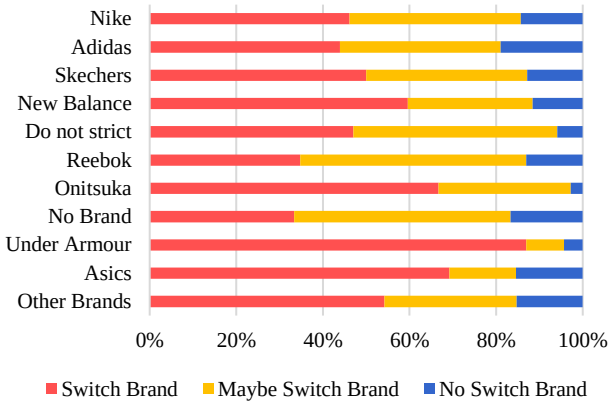


Fig. 16. shows that the most of the participants switch brand normally (42.25%) and maybe switch brand (39.25%). As per Fig. 17. The persons who prefer Nike and Adidas will switch brand around 42% and the others look quite similar ratio while Under Armour has the most ratio of switch brand around 87%.

f) What are your favorite color(s) in sport shoes?

Fig. 18. Bar chart shows the number and ratio of their favourite color(s). *(Q: What are your favorite color(s) in sport shoes ? - Can choose more than 1 option)*

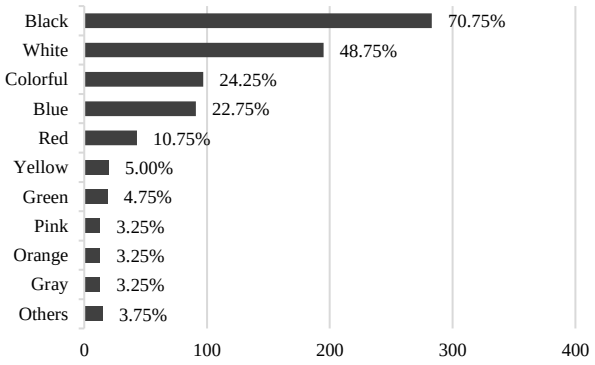


Fig. 18. shows that most of them love in black (70.75%) followed by white (48.75%) color.

g) Select your shoe size (US/EU)

Fig. 19. Pie chart shows the ratio of shoe size. *(Q: Select your shoe size (US/EU))*

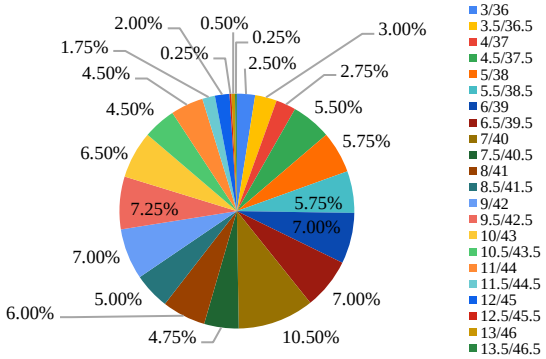


Fig. 20. Bar chart shows shoe sizes of male and female.

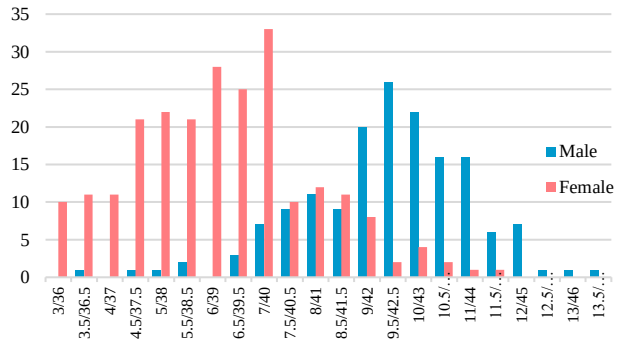


Fig. 19. may not be clear for the popular sizes of sport shoes but if we plot it by gender, we will see the results in Fig.20. The popular size of male is between 9 to 11 in US size or 42 to 44 in EU size and the popular size of female is between 37.5 to 40 in EU size.

h) How do you get knowledge about available products and Trends ?

Fig. 21. Bar chart shows the number and ratio of the ways how they get the knowledge about available products and trends of sport shoes. *(Q: How do you get knowledge about available products and Trends ? - Can choose more than 1 option)*

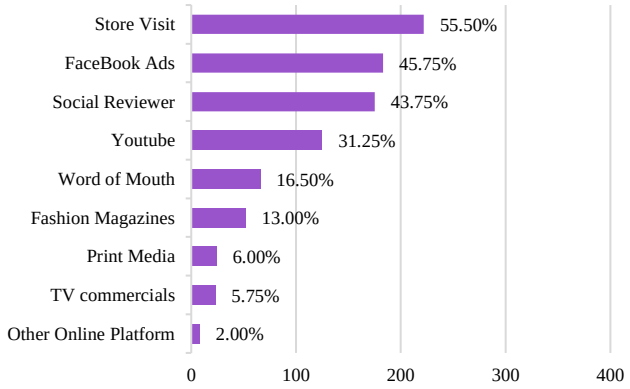


Fig. 21. shows that participants get knowledge about available products and trends of sport shoes via store visit (55.50%) followed by Facebook ads (45.75%), and social reviewer (43.75%).

i) Which place(s) do you prefer for buying sport shoes?

Fig. 22. Bar chart shows the number and ratio of places they prefer for buying sport shoes. *(Q: Which place(s) do you prefer for buying sport shoes ? - Can choose more than 1 option)*

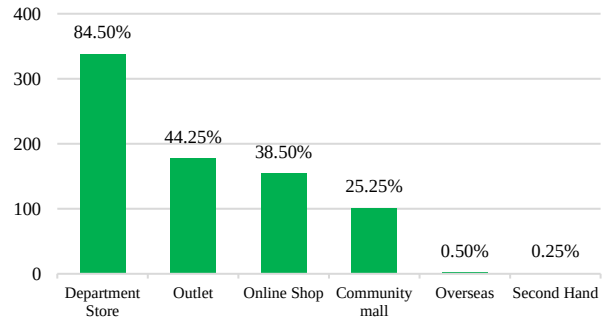


Fig. 22. shows the places they prefer for buying sport shoes is department store (84.50%).

j) What is important when buying shoes?

Fig. 23. Bar chart shows the number and ratio of important reason when buying sport shoes. *(Q: What is important when buying shoes ? (Choose 4 from 7))*

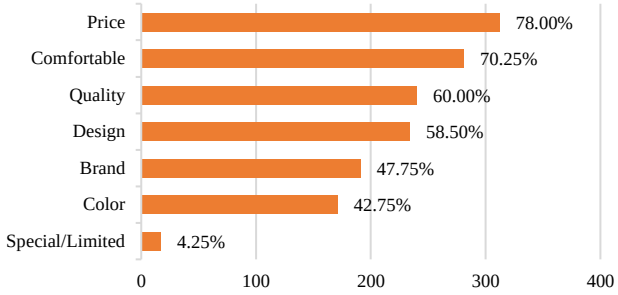


Fig. 23. Ranks the factors that influence buying sport shoes. Biggest factor is price (78.00%) followed by comfortable (70.25%).

2. Create Customer Profile

A target customer profile is one whose needs are met by the chosen product. Identifying leads and engaging them will boost conversion rate significantly. In case of running shoes, according to marketsegmentationstudyguide.com, the consumers may belong to 5 different market segments:

Sporty Market Segment: This is the traditional segment of the sports shoe market. These consumers are actively involved in fitness or sports on a regular basis. They are usually looking for a good quality sports shoe that has the performance required to support them in their chosen field of activity. Many of these consumers would go to the gym or some form of fitness class on a regular basis or participate in some form of organized sport. They are most interested in well-known brands that offer higher quality shoes. They are willing to pay a higher price (within reason) for a suitable product.

Elite Sports Market Segment: Consumers in this market segment are highly committed to a sport, and probably train more than 10 hours per week. Some may be professional athletes, but the majority are serious competitors in their chosen sport. They are particularly interested in shoes that are designed for a function (such as running, cycling, basketball, and so on) and typically seek out more modern innovations and technologically advanced products. This will be a high involvement purchase decision for these consumers and will tend to be relatively brand loyal as a result.

Everyday wearers segment: It is a very mainstream market. It consists of a wide variety of people who are looking to purchase sports shoes to wear on day to day lifestyle basis. Because they do not wear the shoes for any specific sporting purpose, they are less concerned with the actual quality and performance specifications. They are most interested in comfortable shoes that represent good value for money. They tend to be quite attracted to very well-known brands because they consider that to be a safe, low risk choice.

Fashion Sport Segment: This is an emerging segment that is looking for sporty looking fashion shoe. They do NOT buy the product for its sports function, but for its style, look

and brand image (for their social/self-identity). As this market tends to be teenagers, young adults, and young professionals, they want brands that are unique to themselves, not brands that their parents wear.

Budget Conscious segment: Like any market there are a proportion of people who are very budget conscious or will buy cheaper shoes on occasions. These consumers are after low quality, low priced shoes that have a sporting look about them. Consumers in this market tend to be families, retirees, or consumers looking for an extra pair of shoes simply to wear around the house or in the garden.

For this paper, we used the results of the survey to determine the customers segments for this commodity on Chiang Mai market. Based on the results from customer demographics and lifestyle, depicting the survey results, the 3 biggest segments are

a) Sporty Market Segment

We can conduct this segment from results combining with the people who always use sport shoes according to type of shoe and use interchangeable excluded who are not prefer sport shoes (specialty). The result is in the figure below.

Fig. 24. Venn diagram for sporty market segment

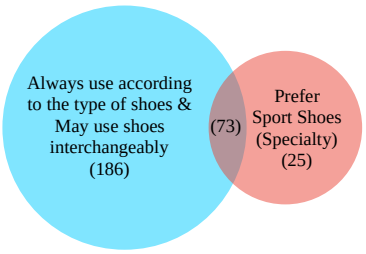


Fig. 24. shows that most paricipants - 46.50% (blue path ~ 186) wear sport shoes for running or actively involved in fitness or sports on a regular basis and 25.75% of them are in the elite sport market segment.

We can attract more demographic and lifestyle information for sporty market segment in the results below.

Fig. 25. Pie chart shows the ratio of gender of sporty market segment

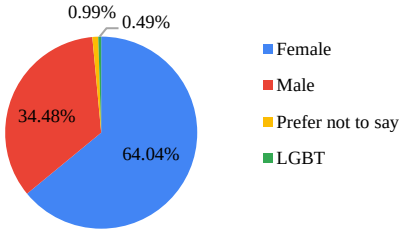


Fig. 26. Pie chart shows the ratio of age of sporty market segment

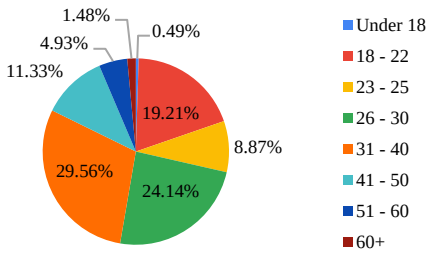


Fig. 27. Pie chart shows the ratio of monthly income range of sporty market segment

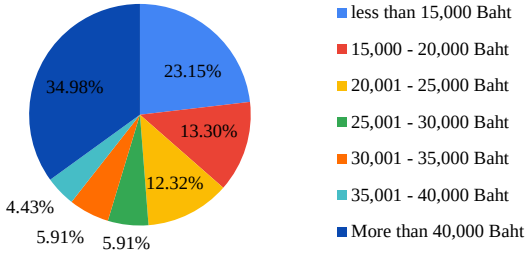


Fig. 28. Bar chart shows the number and ratio types of sport shoes that the people in sporty market segment prefer.

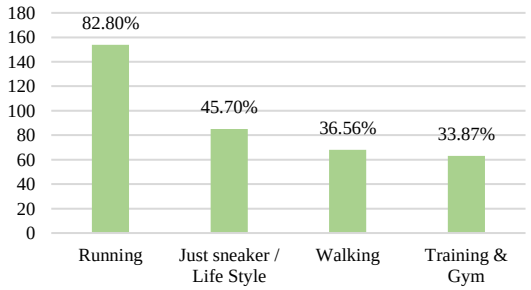
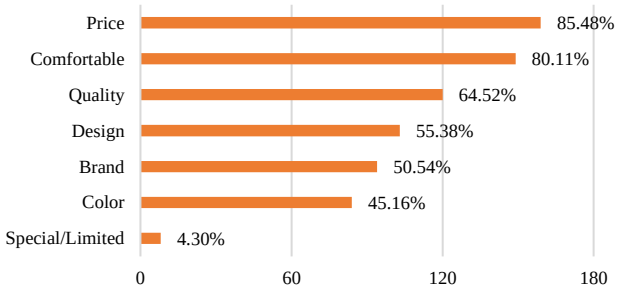


Fig. 29. Bar chart shows the number and ratio of important reasons when the people in sporty market segment buying sport shoes.



Most people in sporty market segment are female (64.04%), age in range 26 – 40 (53.70%). Most of their income in both range of less than 15,000 baht (23.15%) and more than 40,000 baht (34.95%). The types of sport shoes they prefer the most is running shoes (82.80%) and they still make the important reason to buy a sport shoes mostly in price (85.48%) and comfortable (80.11%).

b) Everyday wearer segment

Around 32% of Chiang Mai people use sport shoes in every wear which they need to buy sport shoes to wear in their lifestyle. We can attract more demographic and lifestyle information for everyday wearer segment in the results below.

Fig. 30. Pie chart shows the ratio of gender of everyday wearer segment

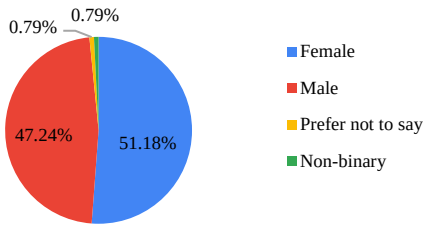


Fig. 31. Pie chart shows the ratio of age of everyday wearer segment

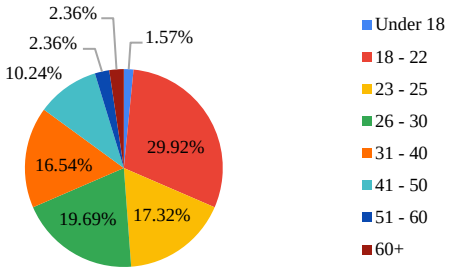


Fig. 32. Pie chart shows the ratio of monthly income range of everyday wearer segment.

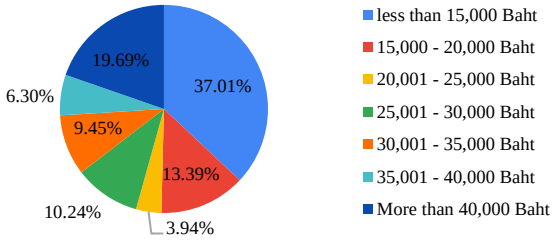


Fig. 33. Bar chart shows the number and ratio types of sport shoes that the people in everyday wearer segment prefer.

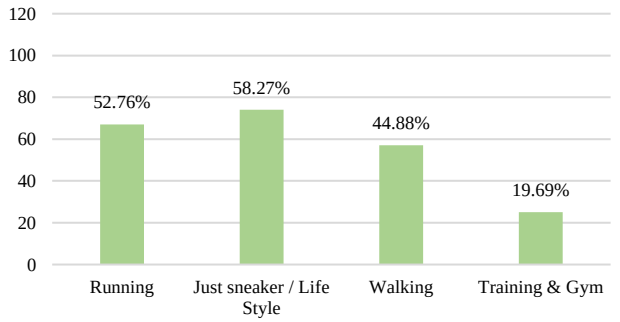
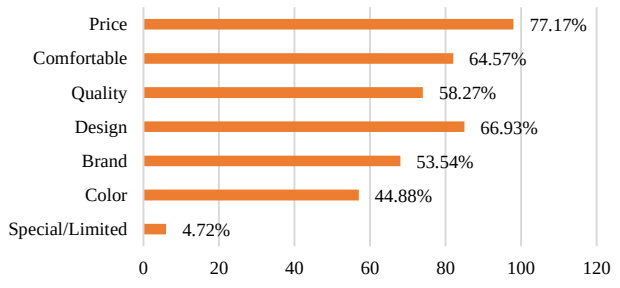


Fig. 34. Bar chart shows the number and ratio of important reasons when the people in everyday wearer segment buying sport shoes.



Most people in everyday wearer segment is both male (47.24%) and female (51.18%) equally, age mostly in range 18 – 22 (29.92%). Most of their income in range of less than 15,000 baht (37.01%). The types of sport shoes they prefer the most is sneaker or lifestyle shoes (58.27%) followed by running shoes (52.76%) and walking shoes (44.88%). They still make the important reason to buy a sport shoes mostly in price (77.17%) but the followed reasons change to design (66.93%) and comfortable (64.57%).

c) Budget conscious segment

Most of participants consider price of sport shoes when they need to buy sport shoes (78.00%).

Fig. 35. Pie chart shows the ratio of gender of budget conscious segment

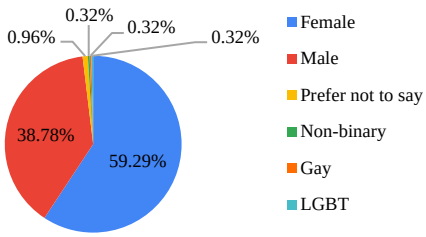


Fig. 36. Pie chart shows the ratio of age of budget conscious segment

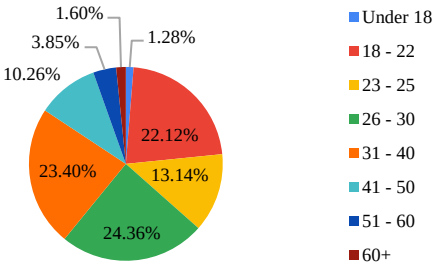


Fig. 37. Pie chart shows the ratio of monthly income range of budget conscious segment.

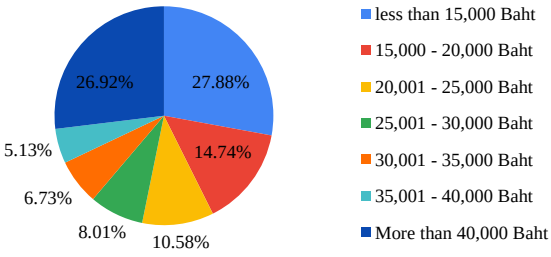


Fig. 38. Bar chart shows the number and ratio types of sport shoes that the people in budget conscious segment prefer.

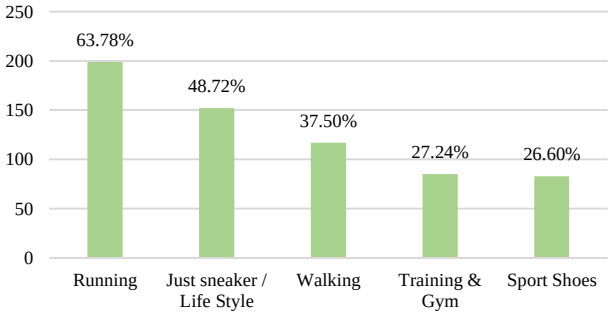
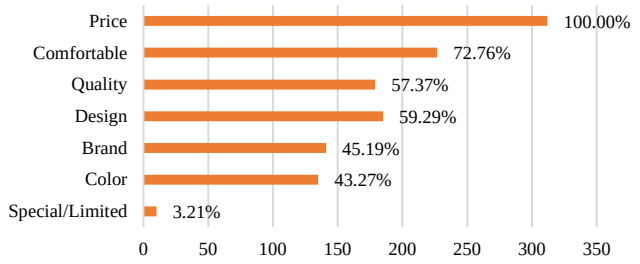


Fig. 39. Bar chart shows the number and ratio of important reasons when the people in budget conscious segment buying sport shoes.



Most people in budget conscious segment are female (59.92%), age in range 18 – 22 (22.12%) and 26 – 40 (47.76%). Most of their income in both range of less than 15,000 baht (27.88%) and more than 40,000 baht (26.92%). The types of sport shoes they prefer the most is running shoes (63.92%) followed by sneaker (48.72%) . They consider price , comfort (72.76%) and design (59.92%) while buying sport shoes.

3. *Topic Modeling Results*

With the boom in the number of online buyers and the simultaneous influx of reviews, understanding user experience is becoming an increasingly challenging task. Reviews talk volumes about a product, the seller, and local partners. Topic modeling is a type of statistical modeling for discovering the abstract "topics" that occur in a collection of documents. LDA expands to Latent Dirichlet Allocation (LDA) is an example of a model which is used to classify text in a document to a topic. It builds a topic per document model and words per topic model, modeled as Dirichlet distributions.

The following steps were followed to perform topic modeling on the reviews.

a) Data Acquisition

For this research reviews of top- rated running shoes were scraped from amazon.com. Top rated running shoes for Men and Women were scraped. For each review scraped, Title, Date, Rating, Purchase confirm, and Review information was obtained.

b) Data preprocessing

- Tokenization: Split the text into sentences and the sentences into words. Lowercase the words and remove punctuation.
- Words that have fewer than 3 characters are removed.
- All stopwords are removed.
- Words are lemmatized — words in third person are changed to first person and verbs in past and future tenses are changed into present.
- Words are stemmed — words are reduced to their root form.

c) Topic Modeling

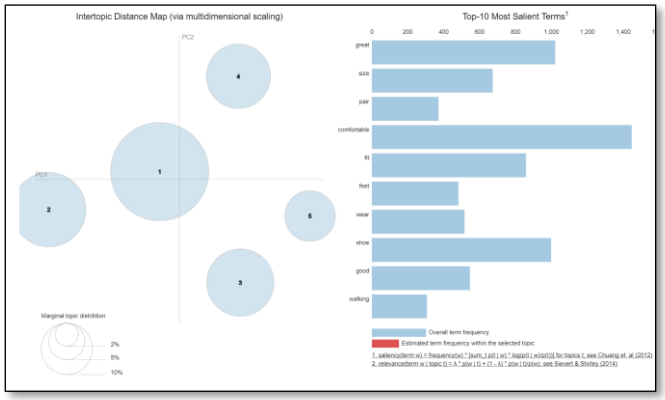
For the sake of this research, we will be using the gensim version of LDA model. To interpret the results pyLDAvis an interactive LDA visualization python package was utilized. LDAvis is a web-based interactive visualization of topics estimated using LDA. It provides a global view of the topics (and how they differ from each other), while at the same time allowing for a deep inspection of the terms most highly associated with each individual topic.[5] The package extracts information from a fitted LDA topic model to inform an interactive web-based visualization.

The visualization has two basic pieces.

- The left panel visualizes the topics as circles in the two-dimensional plane whose centers are determined by computing the divergence between topics, and then by using multidimensional scaling to project the inter-topic distances onto two dimensions. Each topic's overall prevalence is encoded using the areas of the circles.
- The right panel depicts a horizontal bar chart whose bars represent the individual terms that are the most useful for interpreting the currently selected topic on the left. A pair of overlaid bars represent both the corpus-wide frequency of a given term as well as the topic-specific frequency of the term.

The λ slider allows to rank the terms according to term relevance. By default, the terms of a topic are ranked in decreasing order according their topic-specific probability (λ = 1). When small values of λ (near 0) are used highlight potentially rare, but exclusive terms for the selected topic are displayed. For large values of λ (near 1) highlight frequent, but not necessarily exclusive, terms for the selected topic. For this research λ = 1 has been chosen to determine customer sentiment using high frequency terms.

Fig. 40. Overall Topic Model Visualization.



It is interesting to observe that the terms:

Great, size, comfortable, pair, fit, feet, wear, shoe, good, walking

Data and tools for replicating the LDA model and analysis are available at

https://github.com/sganne/CRM_Research

The top 10 salient terms for each topic which are the basis of the topics formed for analysis are below:

TABLE II. TOP 10 SALIENT TERMS OF THE 5 TOPICS EXTRACTED FROM LDA MODEL

	Topic # 01	Topic # 02	Topic # 03	Topic # 04	Topic # 05
0	pair	shoes	comfortable	shoe	size
1	shoes	feet	great	shoes	wear
2	bought	like	shoes	foot	fit
3	ive	comfortable	fit	heel	small
4	comfortable	running	love	box	ordered
5	ever	shoe	good	back	little
6	black	wear	shoe	material	big
7	buy	great	light	narrow	half
8	one	walking	perfect	way	shoes
9	another	day	nice	came	shoe
10	first	work	super	one	8
11	best	feel	fits	sole	12
12	love	support	comfy	thought	run
13	armour	good	well	tongue	wide
14	got	dont	look	right	comfortable

Topic1: The customer sentiment was that running shoes that were comfortable and black in color and were the best pair they ever owned.

Fig. 41. Topic 1 LDA Visualization.

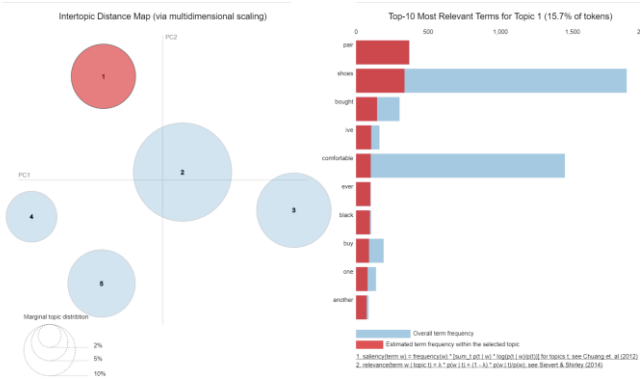


Fig. 41. above is the LDA visualization of this topic. It ranks second highest as it contains 15.7% of the tokens.

Fig. 42. Topic1 salient terms Word Cloud.

Word bubble above indicates comfort to be the most important factor for consumers. This ties back to the results of the customer survey results section 1 where 70% of the sample chose comfort as the most important factor in buying shoes.

Topic2: The customer sentiment was that running shoes must be comfortable for walking all day.

Fig. 43. Topic2 LDA Visualization.

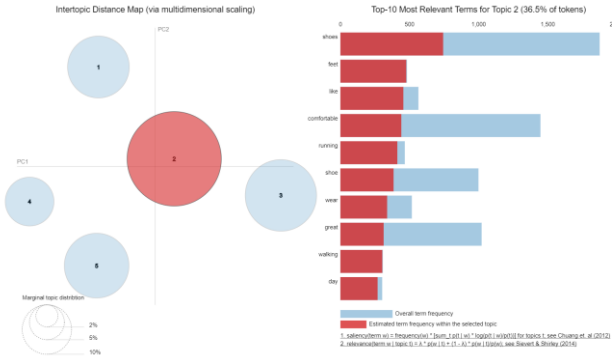
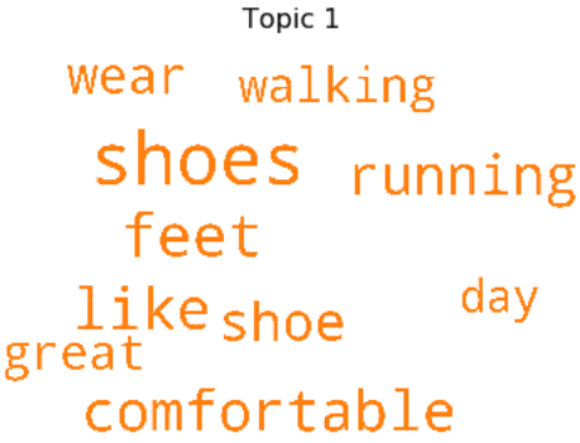


Fig. 43. above is the LDA visualization of this topic. It ranks highest as it contains 36.5% of the tokens.

Fig. 44. Topic 2 salient terms Word Cloud.



Word bubble indicates that shoes are interchangeably used as running and walking shoes. As per the results of the customer survey more than 50% of the sample population use sports shoes interchangeably.

Topic3: The customer sentiment was that running shoes must be great fit and light.

Fig. 45. Topic 3 LDA Visualization

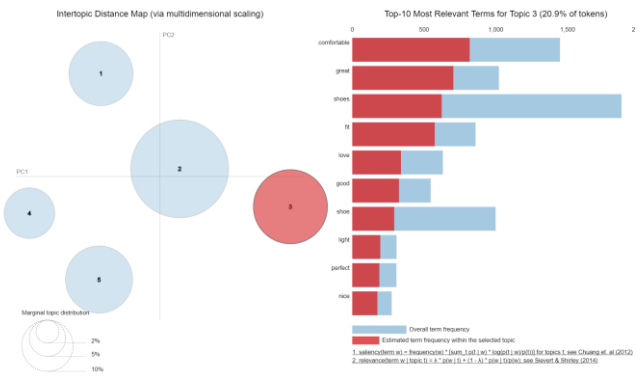


Fig. 46. Topic3 salient terms Word Cloud.

Topic 4: The customer sentiment was that running shoes must be made of good quality and cater to narrow or wide feet.

Fig. 47. Topic4 LDA Visualization

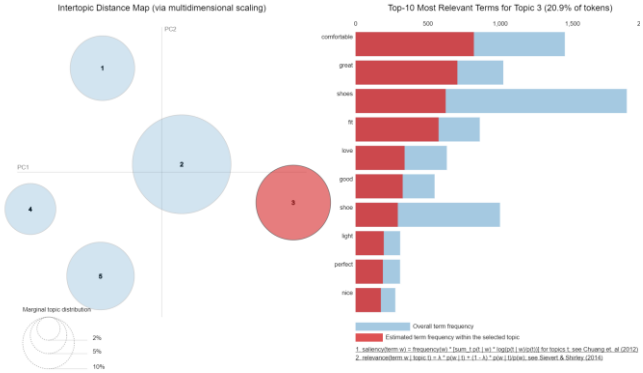
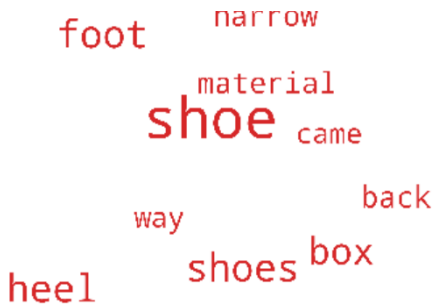


Fig. 48. Topic 4 salient terms Word Cloud.



Topic 5: The customer sentiment was that running shoes must be correct size as ordered.

Fig. 49. Topic 5 LDA Visualization

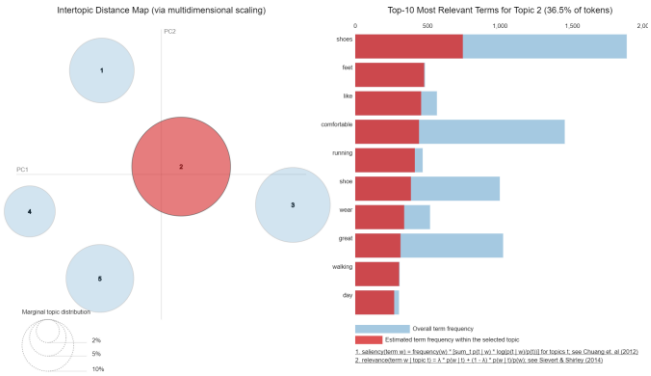
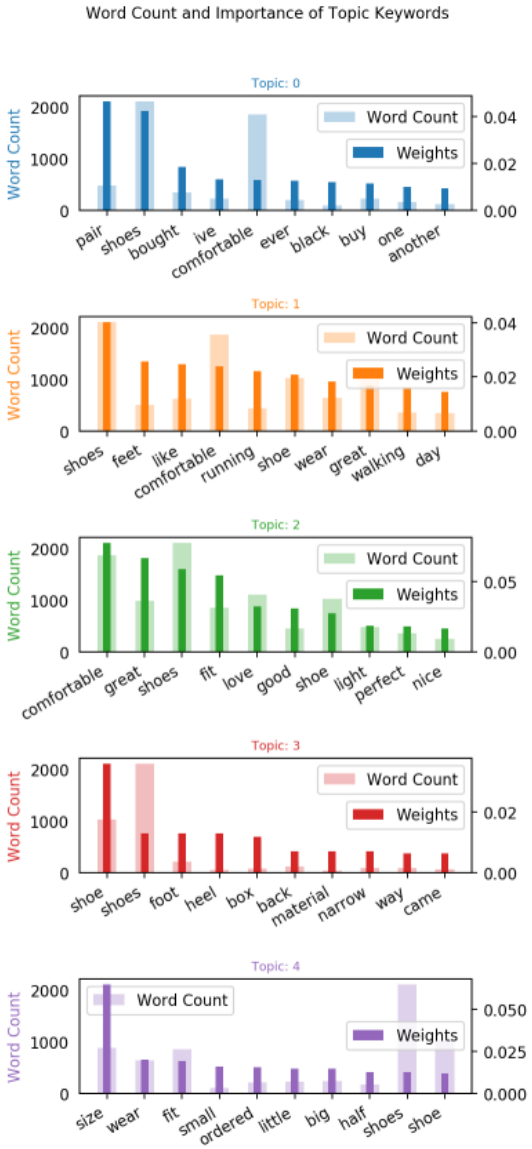


Fig. 50. Topic 5 salient terms Word Cloud.

Fig. 51. Word count and importance of each keyword in the topic.



d) *Evaluate the model*

Model was evaluated using the coherence score and perplexity.[6] Perplexity is a statistical measure of how well a probability model predicts a sample. Given the theoretical word distributions represented by the topics generated by the LDA model and comparing that to the actual topic mixtures, or distribution of words in your documents, 5 topics were optimal for this dataset. Coherence scores measure the logical consistency and similarity of topics. The model was tuned to ensure no overlap of topics exists.

Fig. 52. Coherence Score Vs Number of Topics

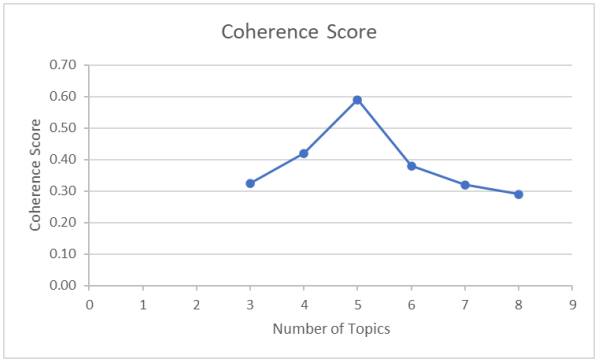
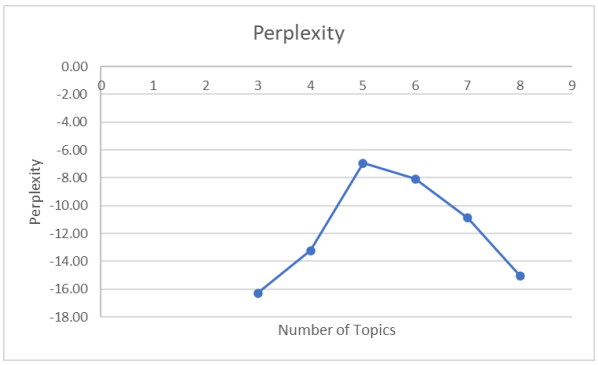


Fig. 53. Perplexity Score Vs Number of Topics



e) *Recommended keywords for SEO optimization based on Survey and Topic Modeling results*

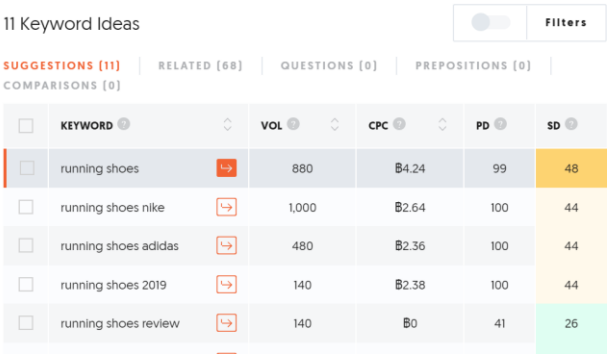
Based on the results of the Survey and Topic Modeling, our research suggests that brands optimizing a show brand's website for the following keywords will align better with consumer intent and convert to an offline sale faster.

1. Comfortable shoes
2. Walking and running shoes
3. Running shoes with good fit

4. *Correlation to current methods of keyword research*

In the current method of keyword research, online tools ca n be used that suggest keywords for a market and their related metrics. For running shoes, the online tool ubersuggest lists the following keywords.

Fig. 54. Keyword suggestions from ubersuggest tool for running shoes



Snapshots below are from google trends website. We show below comparison plots for the keywords suggested

by the research vs the suggested high CPC keyword from ubersuggest. In all three cases below –

The plot in blue is the interest over time on search engines for keyword suggested by our research vs the plot in blue is the interest over time on search engines for keyword suggested by our ubersuggest

Fig. 55. Interest of keyword “comfortable+running shoes” vs only “Running Shoes

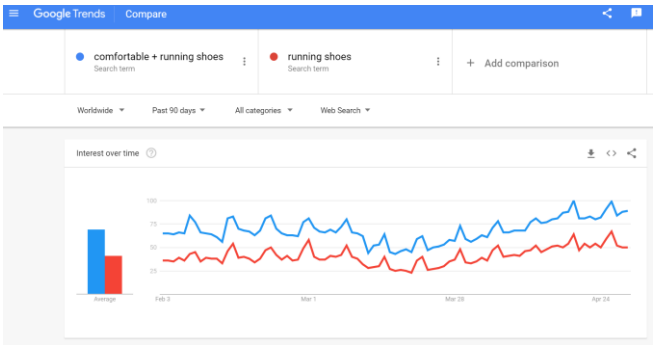


Fig. 56. Interest of keyword “walking+running shoes” vs only “Running Shoes

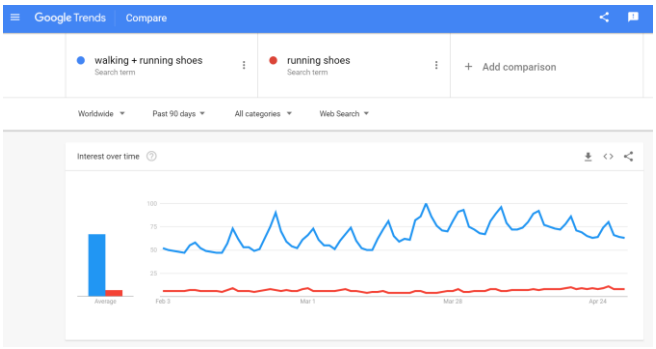
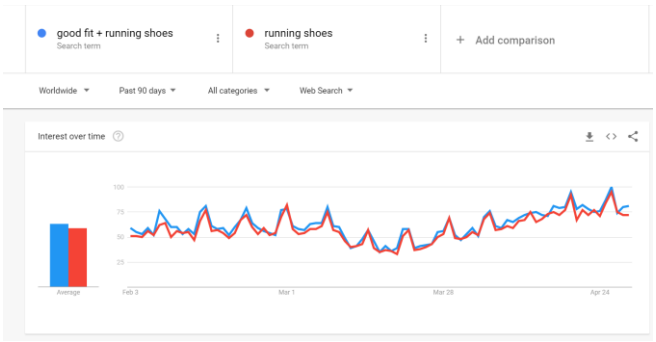


Fig. 57. . Interest of keyword “good fit+running shoes” vs only “Running Shoes



The keywords suggested by this research are consistently of higher interest to target consumers.

VII. Conclusion

Customer journeys might not be linear, or quick. Every customer journey is different. SEO is a very important factor in how a potential or existing customer might view a brand. Touchpoints in organic search happen all the time during the purchase funnel. By understanding the customer segment and sentiment both SEO and customer journey can be benefited side by side. Improving SEO benefits brand presence and improving customer journey benefits customer satisfaction, resulting in a win-win.

Acknowledgment

We thank Aj.Arunotai Pongwat for her valuable feedback, and all the participants who provided their responses to the survey.

References

[1] Følstad, A., Kvale, K., & Halvorsrud, R. (2013). Customer journey measures – State of the art research and best practice. Report A24488, Oslo, Norway: SINTEF.

[2] HM Government (2007). Customer Journey Mapping: Guide for Practitioners. Instruction material. Kankainen, A., Vaajakallio, K., Kantola, V., & Mattelmäki, T. (2012). Storytelling Group–a co-design method for service design. Behaviour & Information Technology, 31(3), 221-230.

[3] Fennell, Patrick & Pongpatipat, Chatt. (2016). The Effect of Product Reviews on the Purchase Intent of Bundled Products. 10.1007/978-3-319-26647-3_181.

[4] Jason Chuang, Christopher D. Manning and Jeffrey Heer. 2012b. Termite: Visualization Techniques for Assessing Textual Topic Models. AVI.

[5] Michael Röder, Andreas Both, Alexander Hinneburg - R&D, Unister GmbH Leipzig, Germany
Exploring the Space of Topic Coherence Measures

[6] Syed, S., & Spruit, M. (2017). Full - text or abstract? Examining topic coherence scores using latent Dirichlet allocation. In 4th IEEE International Conference on Data Science and Advanced Analytics (DSAA) (pp. 165 – 174). Tokyo, Japan: IEEE. https://doi.org/10.1109/dsaa.2017.61

[7] Wagner, Gerhard & Schramm-Klein, Hanna & Steinmann, Sascha & Mau, Gunnar. (2017). Understanding the New Online Customer Journey: The Multichannel E-Commerce Framework—An Abstract. 10.1007/978-3-319-47331-4_20.

[8] Chiangmai Governor's Office. (2015). Population Information. http://www.chiangmai.go.th/english/index.php/welcome/information