

Final Year Project Report

**SINGAPORE
POLYTECHNIC**



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Purpose of Report

The purpose of this report is to provide beneficial insights for the business of The Caffeine Experience (herein referred to as TCE). The insights include a list of food items to be suggested to TCE which could potentially be added to the menu and a deeper dive into why the most popular cafes in Tanjong Pagar and what can we learn from them. With these insights, TCE can have a wider view of how the cafe industry is doing in the Tanjong Pagar area and make better and beneficial business decisions. The business questions that we are answering are “What food items can TCE add to the menu or improve on?” and “What can we learn from the top competitors?”. Refer to Appendix A1 for “Roles” to see what the individual members had done specifically in this project.

Food Analysis

Methodology

We asked ourselves how to determine which food item to prioritise on when analyzing. To make sure our insights are up-to-date, we only analyzed data that are within 1st quarter of 2016 – 2nd quarter of 2018 for cafes *in the Tanjong Pagar area*. As we have over 100 food items, we categorised them into ‘Food’ and ‘Beverage’. Then we established metrics for finding the top food items - by having a scatter plot with number of reviews on the x-axis and average polarity of the food item on the y-axis. We feel that the number of reviews and average polarity are both a good representation of how popular the food item are. Hence we decided to use both the two metrics mentioned above, we then choose the top items on the top polarity and top count. After this process, we are left with 10 items to consider with essentially 4 categories - Top Food items based on count/polarity and Top Beverage items based on count/polarity. The insights and recommendation are derived from the food item reviews. Please take note that there are only 4 beverages analyzed as Earl Grey and Green Tea appeared in both top polarity and top count analysis.

Refer to Appendix A2 for a more detailed methodology on the research method and process.

Top food items by Count

From the scatterplot in Appendix B , it shows that the top food items by count are ice cream, onsen egg and french toast. We decided to choose these 3 food items as it has the highest number of mentions among the reviews.

Ice Cream

Reviewers like their ice cream with a lot of toppings. Some of the more popular ice cream flavours are vanilla, honey, green tea, coconut and earl grey. Other popular food items often paired with ice cream are french toast and waffles. A sample review shown in Appendix B1 mentioned about how the texture and flavour of the ice cream contributed to the ice cream experience. However, do be cautious of adding two strong ice cream flavours together as some reviewers may find the flavours too overwhelming. A sample review in Appendix B2 mentioned on how one flavour was overpowering and ruined the taste of the other.

In conclusion, we recommend TCE to add in those ice cream flavours mentioned above as it is mentioned in a good light in several reviews. In addition, be generous with ice cream toppings such as crunchy oats and fruits such as raspberries and blueberries.

Onsen Egg

As for onsen egg, we found out that reviewers pay attention to the doneness. The runny yolk is appealing and satisfying for consumers to indulge in. Onsen egg is often in rice bowl dishes which includes chicken or beef and vegetables in it. Onsen egg enhances the flavour of the meal as a whole and provides moisture for the rice as the yolk is runny and absorbs well into the rice and other ingredients. In a sample review shown in Appendix B3, a reviewer had mentioned about how an onsen egg has enhanced their meal experience. This goes to show that onsen egg is an important touch to improve a dish. Fortunately or unfortunately, we could not find a negative review regarding onsen egg. This further proves that onsen egg is a favourite amongst reviewers.

We recommend that, when serving rice bowl dishes, onsen egg is recommended to be added in. It increases the flavour and experience of the dish. Ensure not to overdo the egg as the runniness of the yolk is the winning factor.

French Toast

Most reviewers has mentioned how they prefer their french toast to be fat, fluffy and moist. Toppings on a french toast are often berries, cheese or fig jam. The combination of the french toast and toppings complements each other and enhances the taste of the dish. A sample review in Appendix B4 stated how well the toppings and french toast compliments

each other. However, some negative reviews have stated how the sauce/ice cream had caused the toast to be soggy. Thus, when preparing french toast, be careful not to overdo it with the portion and the sauce. Reviewers also pointed out that overcooking which resulted in charred sides of the toast was a pet peeve. A sample review mentioning this issue is shown in Appendix B5.

Based on the insights mentioned above, we should serve an ideal portion of french toast and do not put too much syrup or sauce to prevent it from being soggy. We should add toppings that complement the taste of the french toast, such as the ones mentioned previously.

Top Food Items by Polarity

In Appendix C, the scatter plot shows that the top food items by polarity are buttermilk waffle, pulled pork and eggs benedict. We decided to analyse these top 3 food items to see what the buzz is about. We have gathered positive and negative insights on each food item.

Buttermilk Waffle

Starting off with buttermilk waffle, some of the reviewers noted that the fluffiness and their crisp are plus points on what makes it appetising. A sample review in Appendix C1 mentioned this. However, several reviewers had mentioned that if the waffle was not crisp enough and even soggy when topped with ice cream, it is a pet peeve. Another insight we found was that the buttermilk waffles were too thick. The sample review in Appendix C2 mentioned about the thickness. With these insights, should TCE plan to introduce buttermilk waffles, they should keep in mind how to make the perfect buttermilk waffle which is not too thick, not soggy but is crisp on the exterior and fluffy within.

Based on the insights mentioned above, when serving waffles with the ice cream, one tip to avoid the waffles from getting soggy is to place a biscuit underneath the ice cream. The buttermilk waffles should be made to order ensuring that it will be warm and crisp as reviewers find it really appealing to have ice cream on warm waffles.

Pulled Pork

As for pulled pork, what the reviewers look for in it is its tenderness and flavour. Some has noted the taste and how roasted it is as a winning factor. Some appreciated it as they do not have to sacrifice taste while eating healthy when having grain bowl with pulled pork. A sample review in Appendix C3 has complemented the well-seasoned pulled pork. However, reviewers do not like pulled pork that are dry. When not done well, some of the

reviewers thought the pull pork was too dry and not tender at all. Thus, when cooking pulled pork, ensure that it is not over cooked to avoid drying the pork. A negative sample review is shown in Appendix C4.

To conclude, the reviewers love the pulled pork for its flavour and tender texture without being too unhealthy. Therefore, we would recommend TCE to add pulled pork as a choice for the salad corner under the “rich protein” section in the current menu (stated on the TCE website as of 8th August). However when preparing the pulled pork, be careful not to overcook the pulled pork as to make it too dry.

Eggs Benedict

Eggs benedict are appreciated in large portions. Some of the plus points that the reviewers mentioned are the price point, as well as interesting additions such as the unagi, mentaiko sauce and smoked salmon. Another plus point would be to have crunchy toast to go with the egg. Reviewers are able to accept the high price point provided if the quality and the taste of the eggs benedict are of high standards. Look at Appendix C5 for the sample review has mentioned this. However, for some reviewers the prices are too expensive for their budget. The price range of \$17 to \$25 are considered pricey to these reviewers. The sample review in Appendix C6 shows a reviewer that is not okay with the price of the egg benedict.

In conclusion, customers are not willing to pay a high price for eggs benedict unless the cafe are able to justify the high price point by offering more- high quality ingredients to go with the eggs benedict. Therefore, when offering eggs benedict to the customers, TCE might want to add extra toppings to the dish to satisfy the customers. As for the toppings, the choice can be quite assorted; competitors offer eggs benedict topped with unagi to mentaiko sauce, so don't be afraid to experiment with the toppings for eggs benedict.

Top Beverage by Count

All the food items mentioned in this section is based on the most mentioned food items in the reviews, which can be seen as a scatter plot graph under appendix D. With the help of the graph, we decided to deep dive into these three food items to derive the reasons for their popularity while pointing out mistakes to avoid when preparing the food.

Green Tea

From the reviews, it seems like green tea is also a popular variant of the milk tea, popularised by Chatuchak Thai Tea. Some takeaways would be to maintain a balance

between the milk and the flavour of the green tea that does not overwhelm the customer's taste buds. For an example of the reviews, please refer to appendix D3. Some customers noted the drink for being the healthier choice. Perhaps this can be a go-to match with the salad for customers who are going for healthier meals. When preparing the green tea latte, some mistakes to avoid would be to putting in too much milk and making it too sweet, both in contrast to the positive points noted in the previous paragraph. For an example of this, please refer to appendix D4. Green tea is also known as a flavour for other desserts such as cakes and ice cream.

In consideration of the insights, we should be mindful of the flavour balance when serving green tea based beverages such as matcha latte. To avoid pet peeves of customers, TCE can implement different levels of green tea, sugar and milk (with relativity to the original ratio) in tranches of 25% for customers to tweak the beverage content ratio to their liking. Another possible workaround is to serve the milk and syrup on the side to create a customizable experience where consumers are able to tweak it to their personal preferences (offered only when they are dining in).

Earl Grey Yuan Yang

One variation of the earl grey tea that has numerous reviewers raving about would be the earl grey yuan yang by Dapper Coffee. This unique drink is well liked for its harmony between the coffee and the earl grey tea. In addition to the interesting choice of tea for the drink, lavender petals are added to further enhance the aroma and the fragrance of the drink and making it refreshing, without being too sweet. To see an example of this, please refer to appendix D1.

While gathering insights from the reviews that are related to earl grey, we found out that earl grey tea is not just a drink to the other cafes, but rather a flavour to add some uniqueness to their menu. Some of the cafes have earl grey ice cream, while others have earl grey cake and even as cream for their toast. It seems like the reviewers thought the flavour as interesting as they are open to the idea of earl grey flavoured food. For an example of this, please refer to appendix D2. This insight will be further explored under the section, "Other Recommendations".

Since the only cafe that offers Earl Grey as a beverage in Tanjong Pagar (based on our reviews) is Dapper Coffee, there is not much detailed recommendations to be made. However, having a unique item offered by a single cafe to appear in top count for beverages indicate that reviewers do not mind the unconventional and experimental approach towards beverages.

Milk Tea

Reviewers liked their milk tea for many reasons: some like it because it is a perfect balance of taste without being too sweet, some liked it because they sourced the ingredients straight from thailand so they deemed it as "quality", some preferred it due to it being a healthier choice. Please refer to appendix D5 for an example of a review that mentioned this. However, when it comes to the negative aspects of the milk tea, some reviewers said that the Thai Milk Tea was rather tasteless, until they replaced the drink with thai green tea. However, one reviewer thought the milk tea was too strong, and did not suit the palette of a typical Singaporean. Please refer to appendix D6 for an example review. Like earl grey and green tea, they are also used as a flavour for ice cream. For example, Chatuchak currently has the thai milk tea ice cream that is popular with the customers.

To conclude, the reviewers liked their milk tea to be balanced, so when preparing the milk tea, our recommendation would be to avoid adding too much of each component of the beverage. Implementing a customizable experience is also possible as mentioned under our recommendations for green tea, to add an option for the customers to select the intensity of each component. Secondly, TCE can take another approach where they look into creating their own unique milk tea by incorporating other flavours, much like how Dapper Coffee incorporated Earl Grey into Yuan Yang.

Top Beverage by Polarity

The food items mentioned under this section are the food items with the highest sentiment, which is to say, the reviews for these food items are mostly positive. We were able to conclude the 3 foods with the highest polarity with the scatter plot graph under appendix E. Then, we will dissect the food item on what makes them so popular as well as mention any negative points when mentioned in the reviews. However, there are some constraints when reviewing the data, which will be explained later on.

Iced Mocha

Iced Mocha is a staple in every cafe, but what makes it stand out among the cafes are the strong and rich chocolatey taste to it, yet maintaining the smooth texture of the iced mocha. This is a good idea to ensure that the customers will always get the kind of iced mocha that they want. To look at a positive sample review of iced mocha, please refer to appendix E1. However, when preparing the iced mocha, be careful not to add too much milk, which can dilute the chocolatey taste that the reviewers seem to go for. For an example of this occurrence, please refer to appendix E2.

Based on the above discussed factors, the insights of iced mocha is similar to that of green tea where pet peeves of reviewers were the imbalance of flavours. Similarly, implementation of a customizable experience such as serving milk on the side and offering different percentages of coffee, milk and chocolate would allow consumers to come to terms with the beverage content ratio.

Other recommendations

One other recommendation we would like to give would be for TCE to open up a dessert section in their menu, as three out of the six top foods mentioned are desserts, which are ice cream, french toast and the buttermilk waffles.

In addition, earl grey tea, green tea and milk tea, all of which are the top drinks, are famous as flavour profiles for desserts with frequent mentions in the reviews. Most reviewers discussed and praised green tea, earl grey and milk tea flavoured ice creams and cakes as it is a unique flavour profile that cannot be widely found. In addition to our earlier recommendation for ice cream, TCE should not hesitate to include green tea, earl grey and milk tea as selections for ice cream flavours.

Another recommendation would be to take a unique spin on the green tea. As mentioned previously, green tea is one of the top drinks. However, unlike the unique earl grey yuan yang offered by Dapper Coffee, no other reviews has mentioned anything special about green tea, other than the typical green tea latte or the green milk tea. Perhaps TCE could take this opportunity to develop an interesting spin on the green tea, just like Dapper Coffee with their earl grey yuan yang. Make the green tea good and unique enough to make people talk about it, and come just for that one unique green tea offered by TCE.

The Caffeine Experience Items

All of TCE's items were generalised under the keywords that we analysed and were then plotted as can be seen in Appendix F. Take for example, coffee brew which was included as part of TCE's offerings to represent the various kinds of coffee offered by TCE such as Espresso, Long Black and Latte which were not present as individual keywords in our Food Analysis. The purpose of this scatterplot is to highlight the items that TCE should focus on improving based on the average polarity and the number of reviews of the item. As a reference, an average line was drawn to highlight the more popular items that TCE should focus on if they intend to improve on the selected few items on their menu. From the graph as shown in Appendix F, TCE should consider moving towards improving perhaps their grain bowls as compared to their coffee brews since grain bowls are more popular among reviewers than coffee brews. The main idea here is that it is more worthwhile to improve on popular foods which will be frequently ordered. In doing so,

more people would notice these improvements and hence, TCE would be viewed in a better light and possibly more recommendations about TCE would be circulated among consumers. This will increase TCE's sales and possibly make TCE ahead of the game as to selling these items the way most reviewers prefer them to be.

Competitor Analysis

Methodology

Apart from looking at singular food items, we asked ourselves how we could find out the strongest competitors within a reasonable geographical boundary. With consistency in mind, the data that we have chosen are strictly reviews from 1st quarter of 2016 – 2nd quarter of 2018 for cafes *in the Tanjong Pagar area*, identical to that used for the food items analysis. That is where we established metrics for finding out our competitors - by having a scatter plot with number of reviews on the x-axis and average polarity of the cafe on the y-axis. Objectively, the best performing cafes would be in the top right quadrant where both polarity and number of reviews are high. However, due to a statistical phenomenon, the distribution of reviews tend to be normal with larger sample counts. The implication is that competitors of higher polarity have lower review count yet competitors with a higher review count had an average polarity score.

Weighing the two choices we had, we eventually decided upon analyzing competitors with higher review counts but an average polarity score. We did so because firstly, having high polarity while not having substantial amount of reviews means that the insights are not representative of the population of reviewers. Secondly, as mentioned earlier, it is safe for us to assume that a normal distribution will very likely occur to competitors with high polarity but low review counts resulting in lower polarity when review count increases. Thirdly, review counts is a form of metric to indicate how popular a cafe is. We should prioritize cafes with higher review counts as regardless of polarity, they are the ones generating the higher revenue.

Thus, the purpose of our competitor analysis is to analyze the defining factors of the top cafes, and propose 3 actionable insights from each of the top competitor. We believe that by understanding consumer preferences, TCE is able to appeal to customers to a larger extent. Taking storage, sourcing, costs and other factors into consideration, TCE may adopt the insights as they deem the most rewarding to do so.

Insights

Ninja Bowl

Ninja Bowl serves primarily grain bowls containing premium meats such as salmon sashimi, scallops, mussels, unagi etc. topped with a variety of greens. Carbs such as rice are an additional topping available with extra charges. They also serve sides and brunch, although there were little to no mentions of those items.

Firstly, reviewers mentioned that they liked the variety of greens that Ninja Bowl offered which allows them to eat healthy. Popular mentions include cherry tomatoes, sauteed mushrooms, asparagus, quinoa and avocado. As consumer preferences are shifting towards healthy food choices, it is recommended that a variety of popular and nutritious greens should be offered by TCE.

Secondly, a handful of reviewers also praised Ninja Bowl for their general aesthetic. This includes great lightings and beautiful interiors which made it a nice place to hang out, marble bowls and pleasing food setting which made the food very “instagrammable” and also a chill vibe in the cafe which encourage reviewers to dine in. The learning point is that reviewers actually pay attention to general aesthetic of the dining area. Therefore, we recommend that TCE should pay attention to the aesthetic as this may act as a form of attraction for potential customers.

Thirdly, it was widely mentioned that although Ninja Bowl charged a relative premium at \$16-20 per grain bowl, reviewers felt that it was worth every single penny. As a justification for the premium, they were generous with their servings - even premium ingredients such as salmon and beef were plenty in an average bowl and reviewers mentioned that they were filled by the meal. The insight gathered is that consumers are willing to pay if servings are generous.

Xiao Ya Tou

Xiao Ya Tou is an Asian based fusion cuisine cafe that serves exotic and experimental dishes ranging from culinaries of chinese to even western. They also pride themselves on their interior design and decoration which resembles a traditional chinese vibe.

First insight gathered is that there are several compliments about the interiors of the cafe with decorations such as chinese lanterns and traditional umbrellas. Reviewers stated that the interior and decorations enhances the ambience of the dining experience as they felt like it was indeed a traditional chinese restaurant, yet serving unconventional fusion food. The combination of the food offered along with the exotic interiors made Xiao Ya Tou a unique cafe that differentiates from its conventional western cafe competitors, etching deep within reviewer’s minds.

Secondly, there was extensive mentions about the experimental fusion offered at Xiao Ya Tou which is expected since that is their core selling proposition. Fusions can sometimes be funky in a negative light, but the opposite was true for Xiao Ya Tou. Reviewers generally favour the innovation placed in fusion dishes such as unagi kabayaki benedict, which exotic combination brings about new and interesting flavours. There was almost no bad mentions about their fusion dishes and they were at least complimented with their brave and unconventional take on traditional basic dishes.

Thirdly, the preparation on Xiao Ya Tou's food is widely praised among the reviews. Handful of reviewers were hyped up and impressed by the preparation of over 30 hour sous vide prepared and thoroughly marinated short ribs. The insight gathered here is that reviewers are actually aware of the preparation process and preparation proved to be a distinguishing factor as several reviews sung praise about the melt-in-the-mouth esque texture of the short ribs whilst complimenting the preparation process.

The Populus Coffee & Food Co

The Populus Coffee & Food Co is an Asian influenced Western cuisine cafe and is known for its scrambled eggs and grain bowls which have been fan favourites among reviewers. However, there are specific time periods for certain items to be served such as the grain bowls which are only served after 10 am.

The first insight gathered was that The Populus Coffee & Food Co had great design in terms of the cafe's interior aesthetics. Their cafe was decked out with beautiful hexagonal marble tile flooring, classy rose gold furnishings and modern looking wooden panels as part of their wall design. The cafe implemented a modernistic and classy approach to the cafe which appealed to many reviewers.

Another insight was that The Populus Coffee & Food Co served vibrantly colourful dishes by making use of vastly differently coloured ingredients such as purple cabbage, carrots and pickles to bring out the aesthetic appeal of the dish. The overall presentation and aesthetic look of the dish was a factor in reviewers' minds.

The last insight for The Populus Coffee & Food Co was that they served very refreshing dishes since they used light ingredients such as low-fat skimmed milk. In addition, their dishes had a great balance of flavours which made it so that customers would not feel surfeit throughout consumption of the dish.

The Lokal

The Lokal is an Australian Restaurant-Bar that serves house-made comfort foods and takes a diverse and worldly approach towards the food it serves. The Lokal has implemented a local twist to its food by incorporating ingredients like gula melaka and kaya spread into their menu. In addition, reviewers praised The Lokal for offering a customisable breakfast option which allows them to pick and choose from a variety of breakfast items. Aside from that, The Lokal is known for its sticky date pudding and lobster roll.

The first insight gathered was that they were generous with their portions as the serving size for main dishes were big and sizable, there were huge chunks of pork belly and the salads were of considerable size. Reviewers mentioned that the dishes were worth the price, taking into consideration the huge portions and the fact that house-made ingredients were used rather than pre-prepared ingredients.

The second insight was that the ambience of the cafe was enjoyably cozy as the cafe had a homy vibe to it and there was great service. Reviewers enjoyed that the energy within the cafe was not too noisy or intrusive and the interior decor was colourful and rejuvenating. Reviewers were able to enter into a relaxed state of mind while dining in at The Lokal.

Lastly, reviewers commented that their dishes were rich in flavour as their meat was juicy, succulent and soaked in sauce which was said to be a contributing factor to its incredible flavour. Furthermore, The Lokal makes use of good produce to create their very own house-made ingredients like sauces, meats, butter, pickles and more which added to the vibrant flavours of the dish. Reviewers also commented that they enjoyed savoury sauces with a zesty/spicy kick to make the dish more appetising.

Competitors Map

The competitors map was created with the goal in mind of highlighting the most similar competitors that The Caffeine Experience should look out for by comparing each competitor against each other in terms of the number of review mentions these competitors had as well as their average sentiment which is a measure of how highly these competitors were regarded by reviewers. These competitors were identified as most similar to The Caffeine Experience due to them offering some of the same foods as well as their shared price range.

At first glance, the competitor map displays the locations of all the cafe data we have collected, thus showing the relative distance of these competitors from the Tanjong Pagar

MRT. The map also features a tooltip which displays details such as the top 3 foods that the competitor offers, price per pax and more upon hovering over the points on the map.

Some of the indicators of which competitors to look out for are high average sentiment scores, high number of mentions and the foods that are offered. Take for example 5 The Moments, a cafe that has a price per pax of \$10 as compared to The Caffeine Experience's price per pax of approximately \$12 and offers earl grey as well. 5 The Moments has a relatively high number of 83 reviews which suggests that it is a popular cafe amongst reviewers. 5 The Moments is also one of the closest in terms of distance from The Caffeine Experience and hence, 5 The Moments poses a threat to The Caffeine Experience as they both offer earl grey and are around the same price range. Potential customers of The Caffeine Experience's earl grey could be attracted to 5 The Moments instead due to their popularity and hence The Caffeine Experience should monitor 5 The Moments closely.

In conclusion, the map displays a summary of how reviewers perceive competitors and highlights those that pose a bigger threat to The Caffeine Experience based on the number of reviews that the competitor has and how similar the cafes are in terms of price range and the foods they offer.

Conclusion

To conclude this report, TCE now has the insights on how they can improve their business and make beneficial future business decisions. We have distinctly picked six food items - Ice cream, Onsen egg, French toast, Buttermilk waffle, Pulled pork, Eggs benedict that TCE may want to add on to the menu and specifically explained how reviewers preferred those food items. In addition to that, four beverages - Green tea, Earl Gray Yuan Yang, Milk Tea, Iced Mocha that was mentioned earlier. The insights are to guide TCE on the specific details on making the food items or beverages if TCE decides to include them in the menu.

Moreover, on 31 July 2018 we went to Tanjong Pagar to look at the menu of TCE. We saw that TCE offered two of the beverages that are in the suggested list, which is Iced Mocha and Green Tea. Thus, with the insight given, TCE can make the perfect cup of Iced Mocha and Green Tea which will appeal to more customers.

TCE can also make use of the insights we have gathered regarding the top popular cafes nearby Tanjong Pagar area. Most of the insights stated about how reviewers do not mind if the food is pricey as long as it is worth the money. Reviewers also appreciate the aesthetics of the cafe. From the presentation of the food to the interior design, reviewers

are more likely to be attracted to go into an aesthetically pleasing cafe. The theme of the cafe plays an important role of ensuring that the customers are comfortable and cozy. As mentioned previously, reviewers find the unique theme of Xiao Ya Tou as a plus point to their dining experience. Furthermore, as reviewers nowadays are more health conscious, TCE now know that reviewers love a wide range of healthy greens for them to choose from. Since TCE has a salad bar of its own, TCE may want to widen the range of offerings to accommodate the wants of health conscious customers.

Appendix

Appendix A1

Each members in the team have individual roles. Jasper, the team leader, leads the team to the right direction of finding specific insights that can help improve TCE's business. He instructs each team member on what to do and ensure they do it within a period of time. Nurasilah, the secretary, keeps track of the team's meetings, discussions and ideas. She minute keep every meeting to ease the workflow of the other team members. Mei Xuan, the lead consultant, guides the consultants on how to gather the important data and technical ways of visualising the data into informative insights. She web scrape data from Burpple using Python. Mabel and Donovan, the consultants, follows Mei Xuan's instructions on the technical ways on cleaning the data and zooming into specific important data we should look into. Mabel cleaned and organised the raw data into formats suitable for tableau using python and Donovan turns that data into useful visualizations on Tableau.

Appendix A2 (Detailed Methodology)

Research Approach

In order to satisfy the objectives of our research, both quantitative and qualitative research was held. According to this approach, we will begin with transforming our raw data into usable statistics to uncover trends and patterns. Next, we will explore the results from the statistics gathered and develop insights .

Method of Data Collection

To gain insights on customer preference and satisfaction, we focused on food review platform. The primary data was collected from Burpple.com, we looked into cafes around Tanjong Pagar area and took their customers' food reviews for further analyzing.

Research Process

To make sure our insights are up-to-date, we only analyzed data that are within year 1st quarter of 2016 – 2nd quarter of 2018. Furthermore, to ensure that the competitors have statistical significance, we filtered our data to ensure that all reviews have more than 10 words.

In order to make our descriptive data into usable statistics, we first make a list on all the food items that were found in the reviews. Then we did a sentiment analysis (using Python) to determine whether the review is positive, negative, or neutral. Reviews are given values whereby if their polarity score is a positive value it means that the review is positive in nature. Polarity is also assigned a value between -1 to 1, with any panning towards to extreme sides indicating a stronger positive/negative.

After we have established the statistical data we wish to analyze, we plot out the food items in a scatterplot. The metrics are the number of reviews of the food in x-axis and the average polarity of the food in y-axis.

As we initially have over 100 food items, we categorized them into two categories: 'Food' and 'Beverage' and focused on the top 3 items in each category. With the two metrics mentioned above, we choose the top items on the top polarity and top count. After this process, we are left with 12 items to consider with essentially 4 categories - Top Food items based on count/polarity and Top Beverage items based on count/polarity. However, due to data constraints, we eventually filtered out some items as there was a lack of insightful reviews.

Data Analysis

With just statistical analysis, we were not able to gain meaningful and actionable in-depth insights. We moved on to looking at the reviews of the food items itself. The reviews would give us insights on reasons behind why the reviewers enjoy the food and why not. Through our subjective analysis on the qualitative reviews, we were able to conclude on the plus points of each item and what to possible backfire when preparing the mentioned dishes.

Research Limitation/Assumptions

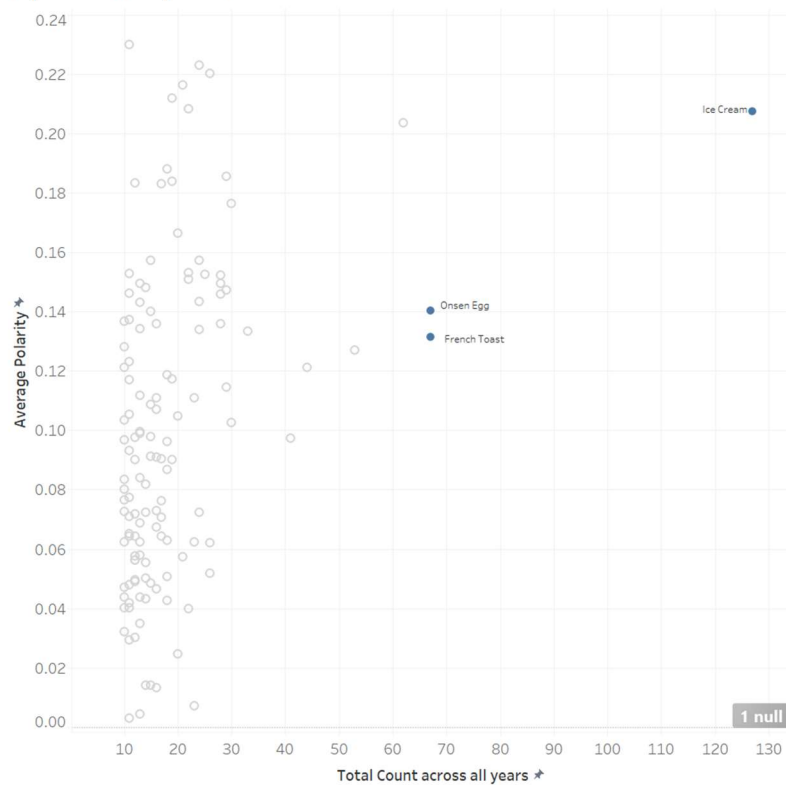
As it is for every research, we were faced with the following limitations and made the following assumptions:

- The last month of the review was May 2018. Hence, we used 2.5 years (2016 – May 2018) data for relevancy.
- The content of the reviews was not always descriptive enough for analyzing. Hence some of the top item selected did not have relevant insights. We only included top items that have wide range of reviews to back up our insights.
- Some of the food items are as top-ups and not a full meal itself. E.g. Onsen egg. Hence with this kind of items, we would view it as an additional toppings when we are giving out recommendations.

- When analyzing the sentiment of each food item or competitor, we assumed that it is reasonable to depend on the the sentimental analysis code library used. Results may deviate, but we settled on it as it is the best objective standard we had for transforming qualitative into quantitative data.

Appendix B (Scatter Plot on top food items by count)

Top 3 Foods by Count



Appendix B1 (Positive sample review of ice cream)

“A garden of edible flowers, meringue kisses, fresh lemon jelly, white chocolate crumbs, citron mascarpone and cornflake crumble on a Tahitian vanilla tower drizzled with white chocolate sauce! Having a gorgeous bowl of sundae to end the meal, it was indeed filled with surprises in very mouthful as you get a little taste of the different ingredients. An array of textures and flavours, the elements were a hit and miss for me as it can get a little sour but the luscious Tahitian vanilla ice cream can balance them out nicely. Refreshing, light and tangy, it is the perfect treat to beat the heat.” - Reviewer of The Populus Coffee & Food Co.

Appendix B2 (Negative sample review of ice cream)

"This for me is deserving of being served in a Michelin establishment if not for 2 minor issues: tapioca balls have a honey note which is a repetition, and the strong flavours of the other elements end up overpowering the coconut tau huay (and there isn't really a easy resolution to this problem since the coconut flavour is already there on its own)" - Reviewer of Xiao Ya Tou

Appendix B3 (Sample review of onsen egg)

"The gouchujang sauce also added a sweet-spicy flavourful note to the plain white rice. Unfortunately, the onsen egg that was supposedly included in this rice bowl was absent 😞 Thank god I managed to obtain it as a separate side upon request! 🙏 One of the essentials in my daily diet- the soft, fragile and runny yolk was a pleasant feast for the sight and sense, providing some moisture and flavours to the white rice as well! Portion is satisfying and filling for one, though I must admit the price is pretty steep for a rice bowl." - Reviewer of Lunar Coffee Brewers

Appendix B4 (Positive sample review of french toast)

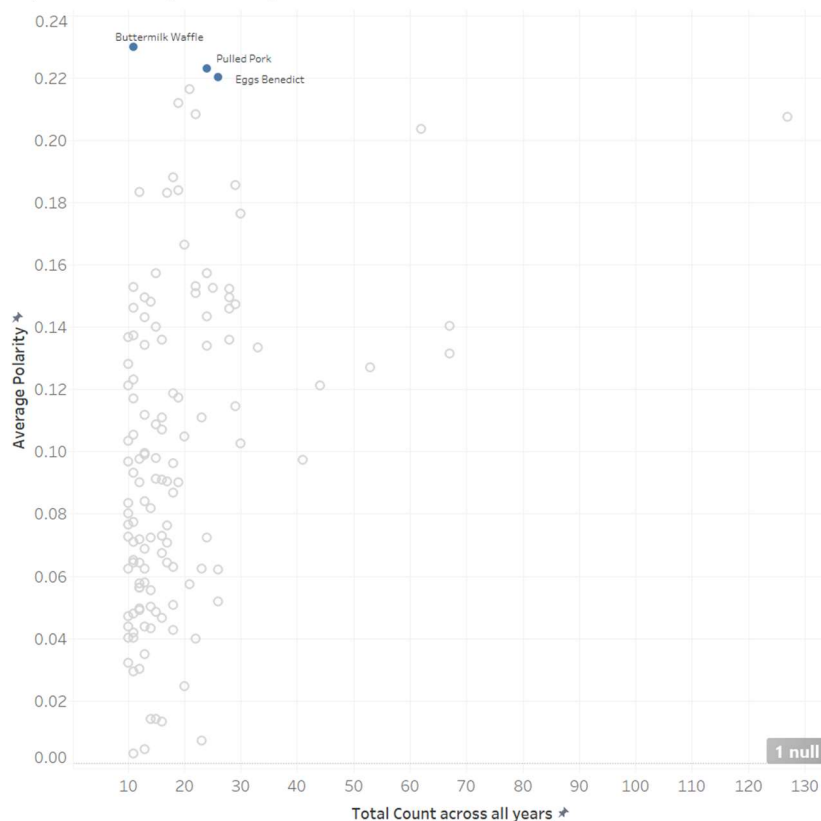
"Indulgence is having a really fat French toast served with a scooper full of raspberries and mascarpone cheese. I loved how fluffy the French toast in and how well it went with the citrusy flavours, but the portion was a little too much of an overkill." - Reviewer of The Lokal

Appendix B5 (Negative sample review of french toast)

"Drizzled in ume-boshi infused honey & topped with a dollop of hazelnut butter which was surprisingly sweet. Fig jam by the sides was tangy-sweet. My favorite were the figs, plums & grapes. The toast was a tad charred at the sides." - Reviewer of NINJA BOWL

Appendix C (Scatter Plot on top food items by polarity)

Top 3 Foods by Polarity



Appendix C1 (Positive sample review of buttermilk waffle)

"The buttermilk waffle was one of the better ones I had - crisp, but still soft and fluffy inside. Portion is quite substantial, but perhaps still better to share with friends." - Reviewer of The Populus Coffee & Food Co.

Appendix C2 (Negative sample review of buttermilk waffle)

"The waffle at Kosnica is the circular ones that are made upon order. Served warm and I could still see the steam rising. It is a little thick and slightly crisp. Not too bad but my personal preference is still the thin crust with jagged edges." - Reviewer of Kosnica

Appendix C3 (Positive sample review of pulled pork)

"The meat is tender and well-seasoned, sitting on a bed of quinoa, bulgur wheat and pearl barley, and lots of vegetables like mushrooms, tomatoes and pumpkin." - Reviewer of The Populus Coffee & Food Co.

Appendix C4 (Negative sample review of pulled pork)

"I had pulled pork with poached egg. The pulled pork was dry and not tender. The hashbrown was over-fried." - Reviewer of Luxe

Appendix C5 (Positive sample review of eggs ben)

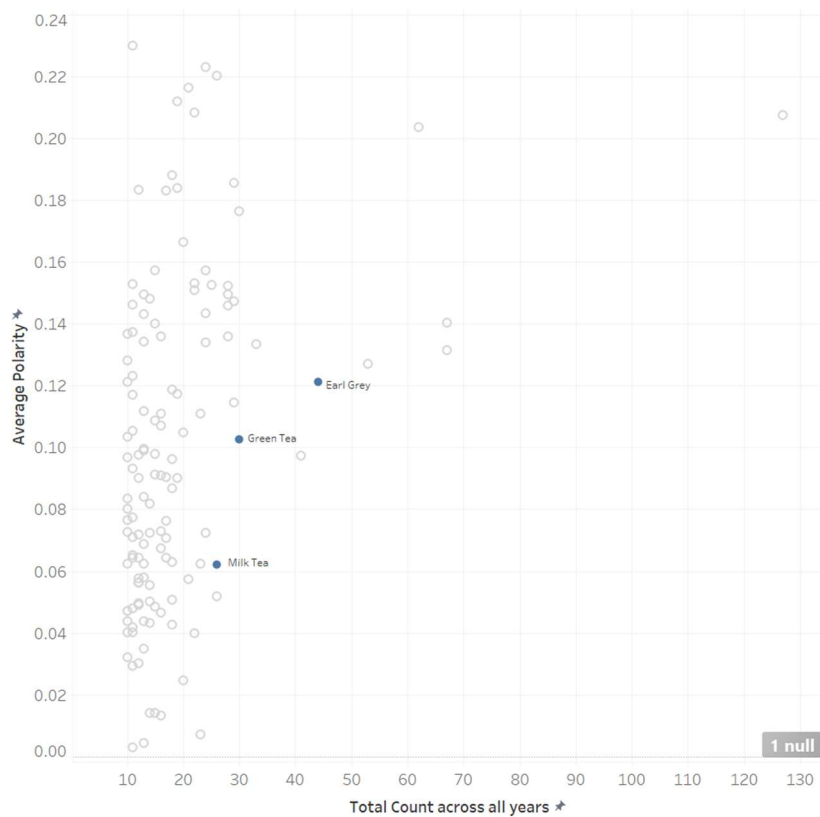
"Just had the BEST eggs ben so far!!! (\$16) really worth it for a rather large portion of toast AND smoked salmon! They serve one of the sauce that doesn't taste "weird" and really goes quite well with the salmon & toast! Toast was rather crispy which made the entire dish more thumbs up!!!! Can't wait to go back for more 😊" - Reviewer of Group Therapy (Duxton)

Appendix C6 (Negative sample review of eggs ben)

"\$17. I like the avocado spread, it makes the eggs ben less gelat. But it's slightly pricey than usual fare." - Reviewer of Group Therapy (Duxton)

Appendix D (Scatter Plot on top drink items by count)

Top 3 Drinks by Count



Appendix D1 (Positive sample review of earl grey)

(Only Dapper Co sells)

"Positive Sample Review - Earlier today, I had the pleasure of bumping into Daniel, a barista who used to work at Maison Ikkoku, and is now at Dapper Coffee. It's been a very long time since he made me a cuppa, and I thought it was kind of him to treat me to this signature drink (thanks again Daniel! 😊) The "Earl Grey Yuan-Yang" (\$8++) revealed itself to be deeply aromatic, which shouldn't surprise given that it's a concoction of single ristretto, bergamot oil-infused milk and lavender. It had the kind of thoughtful details I like as well: a single extra-large cube of ice and tiny purple petals to prettify. Nicely done, Dapper Coffee!"

Appendix D2 (example review of an earl grey dessert)

You can kinda tell if the texture of frozen desserts are spot on just by trudging a spoon through them; so when my spoon didn't exactly slide effortlessly through this Earl Grey Soft Serve, instead meeting a wee resistance before lopping off a chunk, I readied myself for a mouthful of icy soft serve. Oh but lo and behold, what I tasted instead was paradoxically the exact opposite. Melting in my mouth so quickly it had to be an obvious sign of an icy dessert, but with a flavour so creamy and well-rounded it was confounding. Now texture aside fans of the floral tea would find its flavour exceedingly prominent here, though I'd personally have liked it a little less sweet.

Appendix D3 (Positive sample review of Green Tea)

"With the set lunch, I don't know why I chose this. Specially requested it without sugar. Green tea not overwhelming and was not too milky. Quite a nice balance. No regrets!!"

Appendix D4 (Negative sample review of Green Tea)

"The green tea latte was too milky and sweet. I only managed a quarter of the cup before giving up. Hopefully their other offerings are better. Just don't get the green tea latte!"

Appendix D5 (Positive sample review of Milk Tea)

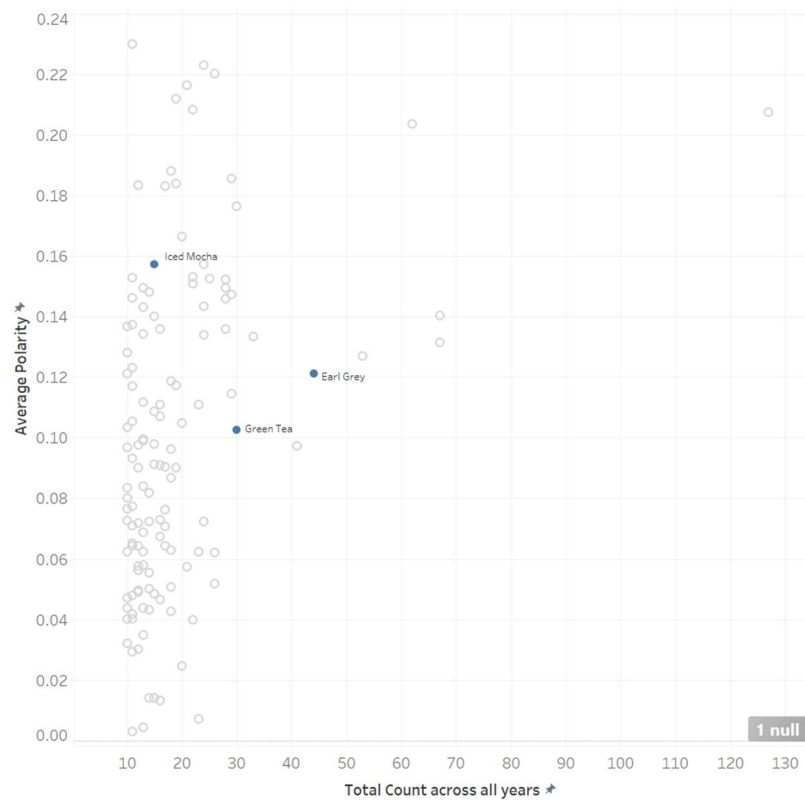
"The egglet (\$4) is fluffy and delish, we enjoyed it totally! Some other interesting ones would be like the charcoal cheese (savory), chicken floss or green tea ones. Pair it with a ice cream to level it up to the ultimate dessert after meals. Don't forget to try their thai milk tea also, which is flavourful and yet not overly sweet (can we get an Amen on this)! #chatuchak #thaimilktea #iconvillage #egglet"

Appendix D6 (Negative sample review of Milk Tea)

"Initially their original Thai milk tea was rather tasteless"

Appendix E (Scatter Plot on top drink items by polarity)

Top 3 Drinks by Polarity



Appendix E1 (Positive sample review iced mocha)

“The service is good and the most important the coffee is awesome. The iced mocha has a heavy body with lingering aftertaste; chocolatey and rich.”

Appendix E2 (Negative sample review iced mocha)

“Some reviewers stated that the Mocha had too much milk in it, resulting in the chocolate flavours being dull and unpronounced. Be Careful not to let the iced mocha be too bland.”

Appendix F (Scatter Plot of The Caffeine Experience items)

TCE Items Scatterplot

