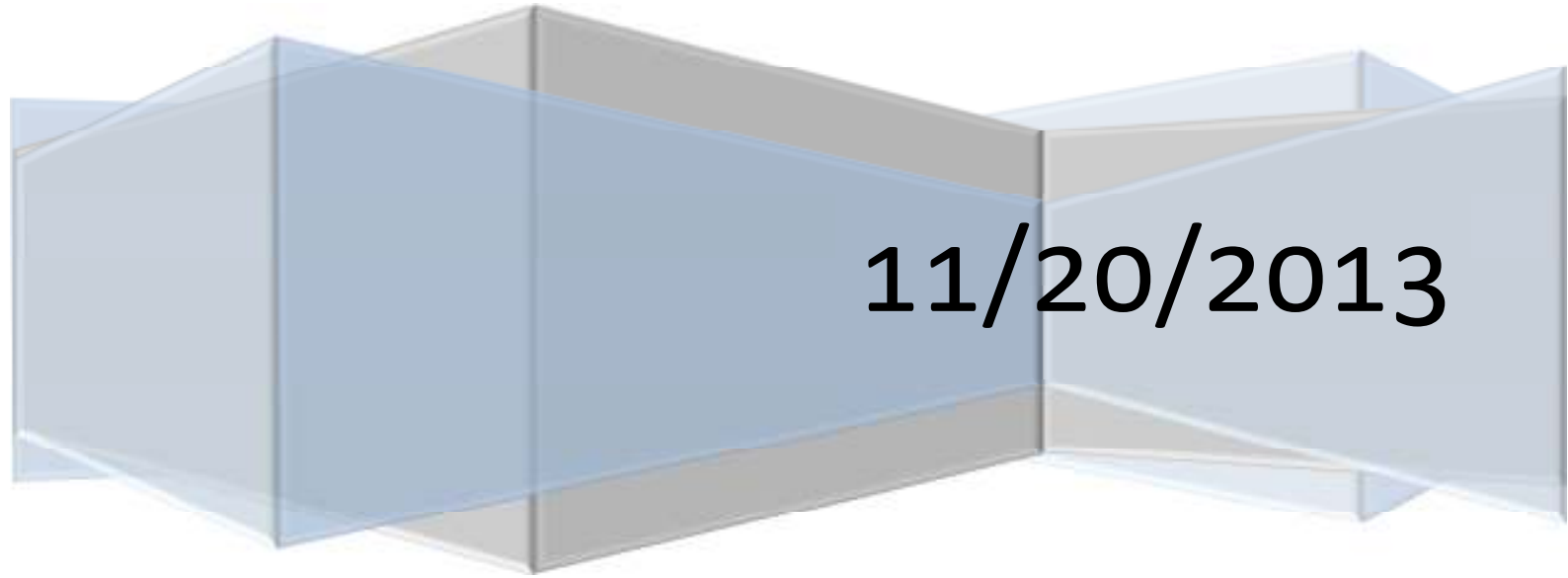


Thesis Paper

Efficient Store Layout and Traffic Flow in Japan

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11/20/2013

Efficient Store Layout and Traffic Flow

Abstract

Consumer behavior in recent years has grown to become an important field in marketing research. The consumer is arguably the most important aspect of any business, which is why it is essential for a firm to gain a solid understanding of its consumer and target market. By determining what their consumer needs and want are, and how they go about fulfilling those needs, a firm can better design optimal product and services for their customers and learn how to best make their product available for the consumer.

The Consumer behaviors field of research can be broken down into many different fields, such as internal and external motivations, social, economical and environmental aspects, but this paper will concentrate on the external environmental aspect of consumer behavior, or more specifically the Store layout and Design.

My research will aim to look at Japanese store design and how it influences consumer behavior through an outsider or foreign perspective. The aim of my research is to study and understand the behavior of the Japanese consumers in order to help foreign companies and businesses succeed in the Japanese market.

Due to the potential size of this topic, my research will be primarily focused on the store design and layout of Japanese convenient stores. The reason why I have selected convenient stores is that due to their small size they have a use their very limited amount of space as efficiently as possible if they want to succeed. This means that they have to design the stores in a manner that would influence their customers to spend more than they would otherwise. I have also chosen convenient stores due to the fact that their layout design is mostly similar throughout the entire country, thus the results of my research would still be fairly accurate despite the limited sample size.

I have selected eight different convenient stores from the four most successful convenient store chains located in the city of Beppu, Oita. I will observe the store layout and design, as well as how effect the designs are in influencing the behavior of the store's consumers.

1. Introduction

During my year long stay in Japan, I have run crossing a peculiar phenomenon. Whenever I went shopping in my local grocery store, I began to notice that I kept going against the flow of the other shoppers. Now this may not have been anything unusual if this only happened on occasion, or if this occurred to other shoppers, but this was a daily occurrence for me when shopping and as far as I can tell, I was the only going against the flow of the shopping crowd. For a time I even believed there may have been signs in Japanese, that I am unable to read, herding shoppers on certain paths.

Now I would have continued to believe that assumption until one day when I ran to another foreign shopper, and he too seemed to walk against the flow of the crowd. Once I noticed that, I kept my eyes open for other foreign shoppers to see if they experienced the same difficulties. And over the course of several weeks I have come to the realization that almost every single foreign shopper experienced the same difficulty. Each one of us seemed to subconsciously end up walking on the opposite direction of the Japanese. And I could not help but ask myself, why?

After a bit of research I found an answer to my question. It was a phenomenon known as the *Elephant Herd* (Sorensen, 2009). Humans have a tendency to move in patterns, similar to other herd animal. This is the reason why people are able to navigate through crowds quickly with crashing into each other. But these patterns tend to differ from culture to culture. For example, how some countries tend to drive on the right-hand side of the road, while others drove on the left. This I soon realized was, much to my surprise, was only one of many fundamental shopping behaviors that seemed to differ from what I was accustomed to.

This discovery has led me to ask other questions. Did the foreign shoppers' tendency to navigate differently than the local Japanese shoppers decrease the stores ability to predicate their shopping behavior? What other difference are there between foreign and Japanese shopping behavior. Can the knowledge of the consumer behavior patterns help managers run a business more efficiently? And is this why many western stores originally had difficulty when they first started expanding to Japan? Despite having over a dozen grocery stores in Beppu, all of them are local stores, not one of them foreign based. And I have noticed that Japan as a whole has a lot less foreign stores compared to other developed countries such as Britain or Canada or even the Middle East.

But as a continued my research, I found out how diverse a field consumer behavior was. Not only were there dozens if not hundreds of little factors, that often the consumer does not even realize, that could affect their shopping decisions. What's worse is that theories and research that were based and effective in one country could end up completely worthless and inaccurate when based in another country. This is due to the fact that a consumers' behavior is created by the culture the consumer was raised in. And as different countries have different cultures, many of

the theories are rendered completely inaccurate (such as the elephant herd theory where the results are backwards in Japan compared to the US).

This is why I have decided to limit my research to the field of store design and consumer traffic flow in Japan. Due to the limited resources available for my study; I have decided to focus on convenient stores.

I have chosen to focus on convenient stores for three key reasons. One, convenient stores are generally small and have limited amount of space, therefore in order to be successful they must have learned how to design their stores in order to effectively use the limited amount of space they have available.

Two, they all share a similar design between throughout the country. Due to a lack of funding, my research is limited to the city of Beppu, so I will only have a limited sample size for my research. By basing it on convenient stores which are more or less identical all over Japan, the risk of inaccuracy of having a smaller sample size will be reduced.

And finally, due to their small size, convenient stores are easier to research more thoroughly. In a large store, such as a grocery store, it would be easy to miss a key detail during the research, not to mention time consuming to examine the entire store in detail. Convenient store on the other hand are much smaller, and be examine completely and thoroughly much more easily and quickly. The small size of the convenient store will also allow me to monitor and track the movement of customers far more easily than I would have in a larger store, as it is possible to view the entire store and all its customers in a single proper location. In a grocery store I would be forced to follow a customer's one by one in order to track them, which would have been a very difficult task on my own.

This is why I have decided to conduct my own research in Japanese consumer behavior. My research is aimed on aiding foreign companies attempting to expand to Japan, which is why I decided on making this a comparison study between western and Japanese consumer behaviors, to highlight and better understand the differences.

My research objects is to find out as much I can about what kind of tactics do Japanese convenient stores use in their store layout. By the end of my research I intend to answer the following questions:

- What are the most common store layouts used in Japanese convenient stores?
- How do they affect the consumer's shopping behavior?
- Why do they affect the consumer (the theory behind the strategy)?

And by the end of my research, I aim to have gathered several layout designs and strategies that retail stores that plan to expand into the Japanese market can adopt, and hopefully help them succeed.

2. Literature Review

A)

Inside the Mind of the Shopper: The Science of Retailing by Herb Sorenson

The book '*Inside the Mind of the Shopper*' looks into consumer behavior - how shoppers made buying decision as they make their way through supermarkets and other retail stores. By identifying and analyzing what are the deciding factors that results in a consumer buying a product or not, stores can generate strategies to creating more effective stores designs and marketing strategies in order to greatly boost sales.

The book is primarily target for retail store owners and managers, and gives explanation on consumer shopping behavior, and strategies on how take advantage on that.

An example of this is the *Elephant Herds* theory. Over the course of his research, the Author has observed that like herd animals, such as elephants, humans move in predictable patterns. He found that consumers have a subconscious need to move in a counter-clockwise pattern.

This is why most successful groceries stores tend to keep their fresh produce sections immediately on their right, because that is the direction that consumers tend to look, it is also the reason why stores tend to be organized in a counter-clockwise pattern in mind, in order to help consumer navigate more conveniently.

Another example is on how the consumers tend to link the first thing they see when they enters a store in the overall impression of the store. For example, if a grocery store has fresh fruits and vegetable in the entrances, it tends to make a great psychological impression on the consumers. Stores that have frozen food in the entrance on the other hand tend to leave the consumer with a cold and sterile impression of the stores. That is why most grocery stores tend to have either fresh fruits and vegetable or fresh baked goods in the entrance.

The book also examines on how customers look for product. What they discovered after countless of hours of research, is that customers tend to only look for products at a certain height, which is between the customer's eye level to around their waist.

What this means is that products placed high up on a shelf, or at the bottom near foot level, tend to be missed entirely by customers. While customers will examine those locations when looking for a particular product, they would unconsciously ignore those areas when they're browsing or simply walking by.

In addition, the book goes into detail when explaining the methods they used to gather their research data, and how they were able to insure their data collection methods were accurate.

In conclusion, this book provides a near perfect example on the kind of information I am researching; only it's based solely on western consumers and not Japanese, and it focuses on grocery stores instead of convenient stores. Yet by attempting to confirm if these facts and theories apply to Japanese consumers, and if not why, I will be able to identify the differences between the two types of consumers shopping behavior.

B)

'Improving the study of consumer in-store behavior' by Donald H Granbois

A large part of my report will involve researching how changing in the store layout and design can affect consumer behavior. In order to do this I need to have a better understanding on the methods I can use to measure the effects of changes in the store layout has on the customer. This is where the article comes in.

'Improving the study of consumer in-store behavior' is a journal article that describes methods that researchers can use to accurately measure changes in customer response to changes in controlled variables such as price or store-layouts.

In the article it describes three methods for studying in-store behavior. The simplest method is manipulating the display or the price of the product and measuring the difference in sales. The second method is to conduct interviews with shoppers at the entrances and exits. The purpose of the interviews is to find out what are their planned purchases (interview conducted at the entrance) and what were their actual and unplanned purchases (interview conducted at the exit). The third and final method is to observe and record the customer's behavior when shopping.

The author conducts an actual research on in-store consumer behavior using these methods to show their effectiveness (although he does not use the first method due to it already being a widely accepted and used method).

During the course of the research he was able to find out how the party size of the customer can greatly affect their behavior. For example, the amount of unplanned purchases a customer will increase the larger the group the shopper are in. He concludes that customers should be not only be divided by age and gender (and other variable) when conducting research but also the size of the group the customer is in.

An interesting fact he found during the course of his research is that customers who spend two minutes or less shopping are unlikely to have purchased any unplanned goods, while customers who spend longer amount of times shopping show a larger tendency of purchasing unplanned goods. Now according to the author this may lead to the conclusion that the longer the customer spends in the store the more they spend, and thus store must attempt to keep customers in-store as only as possible. This conclusion however is false, as customers who have trouble navigating and leaving a store (thus are having an inconvenient shopping experience) are less likely to return.

One of the largest concerns of observing customers when shopping is that they may be aware of being observed and behave differently than they typically would. The results of the author's research though should put those fears to rest. Out of 388 parties studied only one was aware he was being observed. Shoppers tend to be so focused in their activities that they become unobservant of their surroundings.

In conclusion, the article gives clear and helpful instructions on effective methods that I can use to conduct my research on the effects of in-store layout and designs on the consumer behavior.

C)

“Estimating the Effect of In-Store Travel Distance on Unplanned Spending” by Sam K. Hui, J. Jeffrey Inman, Yanliu Huang, and Jacob A. Suher

One of the most important goals of altering a store's layout and design is to increase the amount of sales. Most of the products sold can be divided into two categories; planned spending and unplanned spending (also known as impulse purchasing). Store layouts tend to have little to no positive effects on planned spending, but it can have huge influence on unplanned spending. And since unplanned spending can account for up to 50% of sales it is understandingly an important consideration when designing a store's layout.

The Journal article looks into the effects of distance traveled (not time spent) in a store can have on unplanned spending. Although the research was based on grocery stores, the lessons

learned over the course of their research can easily be applied to other kinds of stores.

Until recently, researchers found it very difficult to collect data conserving the effects of in-store travel distance can have on a consumer's behavior. This is due to the fact that researchers lacked an effective method of tracking large amounts of customers in the store effectively. But thanks to the development of new technology (in this case the radio frequency identification (RFID) tracking system) the authors were able to overcome this issue.

Over the course of their research they were able to find several common patterns about the consumer's behavior. First, when all other factors begin equal (such as time spent in-store), the more distance or aisles a consumer travels, the larger amount of unplanned purchases they'll acquire.

They also discovered that contrary to what many people presume, shoppers do not go through a store aisle by aisle, but instead they tend to circle around the perimeter of the store and only enter an aisle if it has a particular product they are searching for. In other words, when left unguided shoppers would often leave the majority of a store unexplored and several products unseen.

The article mentions a simple strategy to deal with this issue. It is a well-known tactic that involves placing popular products such as milk in strategic locations that would force customers to travel longer distances and through aisles they would normally not enter in order to find the product they are looking for. The idea behind this strategy is to increase the customer's unplanned purchases by increasing in-store travel distance, and by exposing them to products that they would have missed.

While not directly related to the focus of the paper, the authors were able to discover that the shopper's planned budget has a huge effect on planned shopping. The authors have named this as the shoppers "in-store slack", which refers to the amount of money the shoppers have mentally set aside for unplanned purchases. While the data they collected have shown a positive correlation between the amount of unplanned purchases and planned purchases but found that this correlation is reversed when a budget is included in the equation.

In conclusion, this article was able to prove the theory that the distance a customer travels in a store has a positive correlation to the amount of unplanned purchases they make (as opposed to time spent in store). I was also able to learn about new movement patterns that customers typically display and strategies to take advantage of those patterns. I also learned how difficult it can be to accurately collect and interpret a consumer in-store behavior, due to the difficulty of tracking consumers or due to the interference of external factors such as budgets.

D) "The Determination of Standards of Layout for Retail Concerns" by J. F. Pyle

This journal article looks into the types of layout design, what are their functions and how a store can which one is the most suitable for them to use.

There are four major types of layout designs: *Provide spaces for displays* (such as room to set up manikins), *suggest the quality of the merchandise* (this is done by keeping cheap or expensive products next to one another), *reduce the cost of selling* (effectively designed layouts can decrease selling expenses) and finally *aid in securing publicity* (unusual layouts can attract customers by word of mouth).

When designing a layout, there are several key principles that must always be obeyed, and the first is the principle of convenience. Effective store layouts must always make the overall shopping experience convenient to the customer, if it fails to do this then the design of the store layout is flawed. The second is the principle of circulation. Stores must be designed to encourage the customers to circulation between different areas of the store. The third is the principle of coordination. Products in the store must be arranged in a manner which will result in a synergy between them, such as selling DVDs next to a DVD player.

The article then goes on to describe how a store may apply these principles in an effective manner, and gives several examples where the author was to successfully achieve this.

While the article is rather outdated and fairly short compared to other journal articles, the information it contains is incredibly useful for my research. With the knowledge I learnt, I know understand what to look for when identifying effective layout in convenient stores. This will naturally make the researching my paper far more easier than it would have been otherwise.

3. Theoretical framework

This thesis will concentrate on the strategies and theories used when designing a store's layout in Japanese convenient stores. The object is not to create new strategies or more effects layouts, but to give the readers a better understand of what layout strategies are currently used and what are the purpose behind them.

To simplify this, I will divide my research into three fundamental questions:-

- What are the common layout designs currently used in stores?

To achieve this I will go to each of the store I have chosen to research and map the entire store. I will jolt down everything from the placement location of the shelves, the width of the aisles, locations of the door etc.

Once I have gathered the data, I will look for patterns and similarities in the layout of all the stores. This way I would be able to discover the common layouts that convenient stores share.

- What is the purpose/theory behind this layout design?

To answer this question I will need to do a lot of second hand research behind layout designs in general, as well as research on the Japanese consumer behavior as well.

Once I have a possible hypothesis for the purpose behind a layout, I need to test it in order to confirm it. This will require me to observe how customer will react to that design. If the hypothesis passed I'll have my answer, if not I'll start over.

- How effective is it?

This question can simply be answered by observing customers and see how effectively the store design can influence the customer's behavior.



My research is based on the belief that the store layout has the effect on the consumer behavior. By knowing how to properly alter a consumer's behavior in a positive manner can result in increase in sale. This means that by discovering how the store layout effects the consumer, and learning how to properly use it to out advantage, a store can significantly increase its sales by redesigning it's layout.

4. Research Methodology

My research will be based on two forms of data :

- First hand data, this involves the gathering the data of different store design and the consumer behavior of those stores.
- Second hand data; which I will gather from journal articles and books on store layout and design, convenient stores and consumer behavior.

The biggest challenge I will face will be when collecting first hand data of different store design. The problems stems from the fact that I will be trying to identify the strategies that the stores are attempting to influence their consumers shopping behavior through the store layout and design. And unfortunately these designs and the theory behind them may not appear obvious to the untrained eye. They will not be labeled in anyway and they can easily be missed. And it is not as if I am able to simply ask the store clerks (even if I could speak Japanese) on why their stores are designed in a certain way because it is unlikely they would know (as store layout are decided by higher level mangers).

The solution I have found to this problem involves two steps. First gather and read as much as I can on store design and layout strategies as I can. By getting a better understanding of the tactics and theories that are often used in designing the stores, I would increase the likelihood of identifying the strategies the stores are using in their layout.

The second step is to simply gather as much data as I can from the different convenient stores I am researching as possible and compare them. Changing the layout of store is a relatively simple procedure, which means that if one store was able to discover a successful design tactic, it is more than likely that other stores will soon mimic it. So when a shared pattern emerges from the data of the different stores, I would have identified a potential layout strategy which I should research further.

The other form of first hand data that I will collect is observing the shoppers behavior and movement and how the store layout influence them. While this is a far more time consuming

process, it is also a rather simple process. It also has the added benefit of not raising any potential ethical issues.

While I will be observing shoppers without their consent, as this will be nonparticipant observation, all data I collect will be done in a public place and again no personal data will be published as the shoppers will remain anonymous even to me.

This will also apply to the convenient stores that the research will be based on. The names of the stores will not be mentioned at any point during this paper, thus freeing me from any ethical and legal issues that I may face otherwise.

The research questions are:

What are the common layout designs in Japanese convenient stores?

What are the theories or purpose behind those layout designs?

How effective are they?

5. Results

After gathering all my research data for each store and comparing them to each other a certain pattern began to emerge. Despite the fact that each pair of convenient stores were owned and designed by competing companies they all had several similar store layouts and designs in common.

Bellow I have listed the ten common layout designs and the purpose behind them:

Drinks are located at the back of the store

A popular strategy that is employed by many supermarkets around the world is to place milk at the back of the store. The reason why they do so is rather obvious once you spend a moment to think on it. Milk is among the most popular products sold in super markets and is often the one of the reasons their customers go shopping. Thus by placing the milk in the back they are forcing the customers to navigate through the entire store. This forces the customers to walk by dozens of other products in order to reach their goal, the milk. What often happens in such cases is known 'Impulse purchasing'.

Impulse purchase or impulse buying is defined as an unplanned decision to buy a product or service, made just before a purchase (Murcko). Impulse purchasing tends to be responsible for a

large amount of sales for places such as supermarkets or convenient stores. And the best way for stores to increase impulse purchasing is to present to the customer as a wide range of products as possible. This is why it important for stores to place popular items in the back of their stores; it forces shoppers to walk by a wider range of products than they would have if the milk was located in the front of the stores. And if a product they walk past happen to catch their interest, this may result in the shopper purchasing a product that he did not intend to buy.

This same rule applies to convenient stores, except milk is replaced with drinks (cold drinks in particular). Anybody who has ever been to Japan before could not have missed the abundance of vending machines located all over the place, and most of these vending machines tend to sell canned or bottled drinks (such as coffee, water, tea, etc.). Bottled and caned drinks are unbelievably popular here in Japan compared to the rest to the rest of the world.

The data I have collected also support these facts. The most popular product category that a customer will purchase from are beverages. And each and every convenient store was designed with the beverages places in the opposite side of the store from the entrance.

Space effects consumer behavior and traffic flow

The moment first stepped into any of the convenient stores here in Japan, one of the first things I have noticed is a wide and clear aisle leading towards the beverage sections in the back of the store. This occurred without fail in each of the stores I have researched. This pattern is easily explained when you understand one of the basic theories in consumer shopping behavior: wide spaces attract customers.

This theory is supported through both my primary and secondary research. In *Inside the Mind of the Shopper* (Sorensen, 2009), it explains that shoppers are 'attracted' to wide open spaces than small or cluttered spaces. This is why when customers are faced with a choice between to different aisles when shopping they will more often than not, all things being equal, chose the aisle with the most space and least clutter.

And convenient stores are more than happy to take advantage of this fact. This is why stores are designed with a wide aisle leading from the entrance to back of the store, where the beverages tend to be. They are using the width of the aisles as a method to practically 'herd' the customers to where they want them to go. This in combination with the 'beverage' method, has resulted in a highly efficient way of drawing the customers to the back of the store,

It is so effective that during the course of my research, I have found that the first thing that customers tend to do when entering the store is turn and walk towards the back of the store. This occurred so often, that almost each time this did not happen was when the customer would be looking for a particular product and walked towards it instead.

I was also able to confirm that this pattern was not due to 'elephant herd' effect or any other effect. One of the convenient stores I have researched had two main entrances on opposite sides of each other (the store was shaped as a rectangle and both entrances were next to the corners of one of the shorter sides). In this case customers that entered both entrances immediately face the back of the store upon entering (whether the back was towards their left or right made no difference).

But aisle space does not only affect the direction a customer will choose to go but it also influences what they buy as well.

While wide aisles may draw in customers, they also have the tendency to result in 'power walking'. What this means is that the customers tend to ignore their surroundings and concentrate only on their goal. And while this may be a good thing when you want to draw your customers to a particular product or location, it will have a drastically negative effect on impulse purchasing sales.

So how do stores deal with the issue? The solution is simple, have slightly narrower aisles. While wide spaces draw customers in, narrower spaces will force the customers to slow down and examine their surroundings. Now note I said 'narrower' aisles, not narrow aisles. The trick is to find a balance between both. If an aisle is too narrow it would deter customers, but too wide and customers would buy less.

Most convenient stores have a simple solution to this problem. They would design their stores so that the widest aisle is the one leading from the entrance to the back, while the rest of the store's aisles will be comparatively narrower yet still easy to navigate. This method would lead to customers being quickly drawn to the back of the store, and then they would slowly navigate themselves back to the front, picking up random purchases along the way. As I already said it's about balance, stores must design their aisles narrow enough to slow customers down while wide enough to appear inviting.

Now, while wide spaces attract customers and narrow spaces slow them down, clutter drives them away. In terms of attracting customers to certain aisles, there is nothing that would drive a customer away like clutter. Clogged aisles make customers turn around and leave the store, which is why convenient stores always make sure to have their aisles clean of all and any obstructions or messes. There has not even been a single case in my research where a store had so much as a promotion stand in the middle of an aisle. They are well aware of that even the simplest of clutter would do more harm than good.

Elephant Herd Theory

Despite the fact that the Elephant Herd is well established and accepted theory in consumer behavior, my research indicated that it has little to no effect on the customer's movement within the store. Why? I have been able to narrow it down to two main issues.

The first issue is that there are other factors that override the elephant herd effect. As I mentioned above, customers tend to gravitate to the back of the store due to the location of the beverages and the wide aisles, and it does not matter whether the back of the store is to the right or left of their position they would head there first. This and other factors such as the spacing of the aisles tend to override or at least dampen the influence of the customer's instinct to move in a counter-clockwise direction.

The second reason is size. A convenient store is simply too small for the elephant herding effect to take place. Customers tend to see the entirety of the store from where they stand (due to low shelves) and navigate to where they want depending on the location of the product they want and how convenient it is to get there. While I have noticed some tendency for customers to move in clockwise directions, this only occurred in the largest convenient store and its effect was too small to have any real influence. So while a store may benefit from arranging its layout in a clockwise direction, the increase in sales that would result from this would be little to none.

Have only one Entrance

One of the characteristics that all the stores had in common was that, with only one exception, they only had a single entrance (that also doubled as an exit). The sole exception to this rule was a convenient store that was built into the side of a train station, where they had an outdoor entrance to attract customers outside of the station, and an indoor one to attract customers from within the station.

Now while having only a single point of entry to the store may seem like a rather unimportant or a rather simple store design, but in truth it actually serves a multitude of purposes. The first and most obvious reason is in order to save space. Doors take up a lot of space, not only do they take a stretch of wall that could be used to create more shelf space, but doors need to be kept clear of obstruction so that customers may enter or exit with little difficulty. Most convenient

stores are already restricted to a limited amount of space; they can't afford to waste the little they have.

The second reason is that by limiting the store to only one entrance, they would have an easier time predicting the customer's movements and controlling their impressions. Take as an example, the fact that customers tend to link the first thing they see to the overall impression of the store. Grocery stores and supermarkets take advantage of this by placing fresh vegetables or baked goods at their entrances in order to create an image of 'freshness' so that their customers would leave with a favorable impression of their store.

Convenient stores do the same thing, but instead of attempting to create an image of 'freshness', they try to create an impression of spacious. It is not uncommon for people tend to have a negative image of convenient stores as small and crap places. That is why the first thing impression that they want their customer to have when they enter their stores is a wide and open space. And as I mentioned above, cramped and cluttered places tend to scare customers away, so stores will make sure that that is last impression they'd ever give, especially at the store entrance.

I also mentioned that convenient stores tend to design a wide open aisle from the store entrance to the back of the store, and if they have multiple entrances they would have to design multiple wider than normal aisles from them to the back, taking up a lot of unnecessary space. By limiting their store to only one entrance, they would save up a lot of space in their overall store design.

Another advantage to having only one entrance is the ability to combine the store exit and entrance into one. This would naturally save space for the obvious reason of not building a second door for an exit.

Shelf Height

Now this is something that can easily be overlooked when designing a store but the height of the stores shelves can easily have a significant effect on a store's sales.

As I have repeatedly stated, convenient stores are attempting to make themselves appear more spaces from the eyes of the customer. One of the most effect ways of doing so is by making the store shelves short enough that customers are able to look over them.

By doing so customers would be able to look over the entire store no matter where they stand. Now compare this to a store with floor to ceiling shelves (such as a book store) where it is impossible to see the entire store at any one point let alone the next aisle over. It is not difficult to

imagine how cramped and claustrophobic such a store may feel, and while it may have the benefit of holding more merchandise it comes at a price of driving away customers.

From the data I have collect, I have found the most stores have an average shelf height at just under 5 feet (or 150 cm). And since the average height for a Japanese male is 5 feet 7 inches (170 cm) and 5 feet 2 inches for females (158 cm), that would lead to the shelves being between shoulder to eye level for most people.

Now while I'm sure you can see the obvious benefits of having shorter shelves, you may wonder about the drawbacks. After all, while having short shelves may attract more customers; it comes at the price of having fewer products to sell to them. Doesn't the price negate the gain? Not necessary.

Research has shown (Sorensen, 2009) that most customers do not notice products that are at eye level or higher. When a customer scans or browses an aisle or shelf for products they do not scan for products at eye level where you'd instinctively imagine they would, but instead they most commonly look at products located from just below their shoulder height to their waist. This makes a lot of sense if you spend a moment to think on it, after all you wouldn't try to browse a shelf staring straight ahead after all.

This means that by lowering the height of a store shelves would not lead to any significant decrease in sales per customer, since many customers tend to unconsciously ignore most products located in shelves higher than their shoulder, unless they are looking for that particular product.

The added benefit of having shorter shelves is that it allows customers to navigate the store more easily. Leading to a more stress free shopping experience and less time spent getting lost or navigating through the store.

What this means that for convenient stores to maximize their sales they must design their stores to have shelves not taller than eye level but no shorter than shoulder level for the majority of their customers.

Always lead the customer somewhere

One of the universal rules of designing a store is to make sure that all of the paths and aisles lead to somewhere. There is nothing more waste than leading a customer down an aisle only to end up in a dead end such as a back wall or a toilet.

Aisles that end will force the customer to turn around and backtrack in sections of the store they have just been through. This is a wasted opportunity.

If the Aisles instead ended up leading to other aisles or an intersection, customers would spend less time backtracking and more time navigating new sections of the store where hopefully they would pick up a couple of other products along the way.

Every store I have researched has been able to successfully design stores with aisles that continuously lead to other aisles. In theory, a perfectly designed store should be able to allow customers to walk through the entire store without walking through the same aisle twice.

Create Breaks

One of the most glaring differences I observed between convenient stores and supermarkets is the length of their aisles. A supermarket can have aisles dozens of meters long uninterrupted aisles that can stretch to over a dozen in meters in length. Convenient stores on the other hand have comparatively much shorter aisles, usually no longer than eight meters and can be little as three.

Now this may appear to be a contradiction to some of the patterns I have stated above. After all space is a scarce resource for convenient stores and if by having longer aisles (and shelves) would mean that less space is wasted in intersection that a series of short aisles would create. Yet the fact of the matter is that convenient stores have shorter aisles than their larger counterpart. Why is that?

It's due to the customers shopping behavior. Recent studies have shown that shopper can skip up to 20 percent of a store's merchandise (Tice), that's because long and uninterrupted aisles fail to catch people's attention. Customers tend to have short attention spans, and when face with the monotony of a long aisle or shelf, they tend to drift off and pay less attention to their surroundings.

By dividing up their aisles more frequently convenient stores are able to attract and retain their customer's attention more frequently than they would otherwise. While this comes at the cost of less room to showcase products, the benefit of drawing in customers attention to the remaining product more than makes up for it.

While not the true objects but a positive side effect of having shorter aisles is that it gives customers more space and room to maneuver in, allowing customers to have a more pleasant shopping experience which will naturally increase the chances of them returning. And as I have

previously mentioned, convenient stores aim to present an image of spaciousness in their stores, and shorter aisles and plenty of interactions will help create that image.

Checkout counters at the entrance.

The cash register or checkout-counter of each of the convenient store I researched was placed in exactly the same location, right at the entrance.

Now, during my research of convenient stores designs through journal articles and other sources, I have found that the placement of the checkout-counter can often vary. While it is often placed at the entrance, it is not unusual to find it at a different location such as across the room from the entrance or even in a corner. But in Japan the checkout-counter is universally found at the entrance, and that is to serve a key cultural purpose, to greet the customer.

In Japan it is considered important to greet and welcome a customer as he enters a store. This is of course not limited to convenient stores but to all kinds such as restaurants. It is not uncommon for a large store to place an employee at the entrance for the sole purpose of greeting a customer.

By placing the check-out counter at the entrance it enables employees to man the cash register while still allowing them to greet any customers coming in. This is why cashiers are without fail located near the entrance in convenient stores in Japan.

Of course placing the cashier there has other benefits, such as saving space. The area in front of the check-out counter will often need to be cleared to allow customers to line up. By placing it at the entrance which also needs a clear space (as explained above), the store can save room by using the cleared space for both purposes.

And naturally having the check-out counter at the entrance will allow employees watch for theft or shopper lifters more easily (although this does not seem to be a big concern here in Japan).

There is also the added benefit of speeding up the shopping experience of certain types of customers. Some customers come in to only buy a single product such as cigarettes, which are only sold at the checkout counter. By placing the checkout counter at the entrance, these customers would be able to get in and out of the store much more quickly and conveniently than they would otherwise. This would also help reduce the amount of unnecessary store traffic.

Store Shape

All but one of the convenient stores I have researched on shared a common store shape. They tended to be long and narrow, in other words rectangular. At first I attributed this pattern due to lack of space. Japans cities and towns tend to have a highly dense population, leaving a limited amount of room available to construct a store. This would naturally result in stores being forced to be shaped based on the room available, not by design.

Now I would have continued with this assumption if it weren't for a particularly convenient store I was researching. This store, unlike the others, was built on a vacant lot that had several meters of open space around it to expand to. Yet despite it being a larger size compare to other stores, this store was also shaped as a long and arrow rectangle rather than a square or any other shape.

After noticing this I began to research possible reason for this and I believe I have discovered an explanation.

When exploring a store, in particular large one, customers have a tendency of only traveling the perimeter of a store, not the middle. Due to this customers tend to buy products from the middle of a store far less often than they would the edge as they would never travel that area of the store as often.

This can be potentially disastrous, as this means that a large chunk of their store is unable to sell products as efficiently as the rest. And when it comes convenient stores, where they cannot afford to waste space due to their limited size, this problem is only made larger. But fortunately there is a simple solution to this problem. Just remove that area from the store by building it long and rectangular in as opposed to a wide squarish store.

Rectangular shaped stores have a far smaller middle compared to their square shaped counter parts. In fact it is possible to completely eliminate the 'middle' of the store in some cases by only having two long aisles (which was the case in the smallest of the convenient store I researched). When I noticed this possibility I began to compare the only non-rectangular shaped convenient store to the rectangular ones.

After collecting additional data I found that consumers tend to spend less time and purchasing less products from the 'middle' of the non-rectangular convenient store in comparison to the rectangular one. In fact, there was several times where the customer ignored the 'middle' of the store entire and simply stuck to the edge.

While I haven't been able to confirm whether or not convenient stores deliberately build themselves in a rectangular shape or if they were forced to do so due to limited spacing. But no matter what the case may be, it does change the fact that rectangular shaped stores have a more efficient stores design than other shapes.

Keep perishable goods next to popular items.

Japanese convenient stores tend to sell products that would not normally be found in convenient stores from other countries. Products such as bentos (packed lunches) or Onigiri (Japanese rice balls). These products are incredibly popular here in Japan but they also bring along their own share of problems. They are perishable goods, and most tend to expire within two or three days.

Naturally this means that convenient store needs to sell these products as soon as possible, or else they'll expire. Now, what is unique about this situation is that convenient stores have used a simple store design strategy to deal with the problem.

Every convenient I have studied have place these goods in the same location, right next to the beverage section at the back of the store. Now as I have mentioned above, beverages are a very popular product in convenient stores. By placing the perishable goods next to them, they insure that the customers, who come in looking to buy a drink, will have to walk on by them. And as more customer walk past, the higher the likelihood of the perishable products being sold due to impulse purchasing.

In addition, the perishable goods are always placing to the aisle that would lead from the beverage section to the checkout counter, which will also increase the likelihood of customers walking past it.

While this is a relatively simple layout strategy, it is unique in the fact that a solution to a problem was able to be solved by simply altering a store-layout design.

The second most effective place to keep perishable goods are right next to the checkout counter as obviously every customer will eventually end up there. But there are a couple of problems with this solution.

The first is that there is a limited amount of room near the checkout counter, so not many perishable products can be placed there. In addition to the fact that other products such as batteries and gums are equally ideal products to place there, so space is a premium.

The other problem is that too much products near the checkout counter can clog the area, which will lead to customer having difficulty purchasing their products and have trouble getting in (as the checkout counter is always located near the entrance).

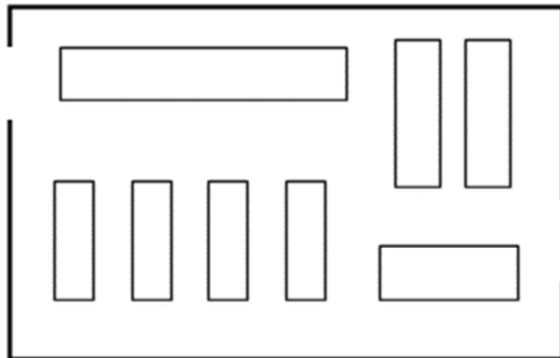
So in the end, the best location for perishable good (or any type of goods that a convenient store needs to sell quickly) would be right next to the beverage section, ideally on the aisle that leads to the checkout counter.

Straight floor plan

All the convenient stores also share a common floor plan design. Generally, floor plan designs can be divided up in three different categories:

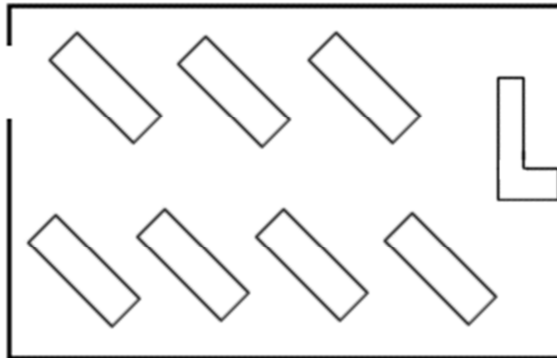
- Straight floor plan:-

This is a design that is most suited for large retails stores although it is an excellent store layout for all kinds for retail store and is among the most common design. It involves setting up the shelves and racks of the store in simple straight lines in order to create a constant traffic flow up and down the aisles. It also makes use of the walls in its design making it the most economical store deigns.



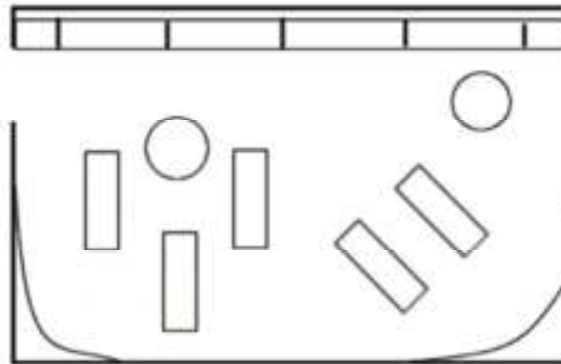
- Diagonal floor plan:-

A design suited for smaller stores, as it allows excellent visibility of the entire store for both the employees and the customers. This layout arrangement creates a feeling of spaciousness and helps to create a smooth traffic flow. The shelves are kept diagonal to one another in this floor plan.



- Mixed floor plan:

This floor plan is simply a mixture of the straight floor plan and the diagonal floor plan, in an attempt to incorporate the best feature of each. This floor plan would lead the traffic flow from the aisles to the walls.



I have found that the straight floor plan is the only type that seems to be used by convenient stores in Japan. This makes sense when you take into consideration that is the most economical in terms of space out of all the floor plan designs, and as I have already mentioned, lack of space is a big issue to Japanese Convenient stores.

6. Summary

I have been able to identify and examine several different layout strategies which I have mentioned above. From the results I am able to successfully answer the questions I set out at the beginning of the thesis.

The main purpose of this study was discover effective layout designs and strategies that could be used by companies planning to open a store in Japan. I believe I have successfully achieved that goal. By using the layout designs mentioned above, and the reasoning behind them, companies will be able to use and adopt these layouts in their own stores.

I was also able to identify the strategies behind the layout used, and whether or not they were effective. All of the layouts that I have stated are simple for any store use. It would only take a little bit of time and planning for a store to incorporate them in their design.

There are however several problems with my research. First is that the scope of my research is fairly limited. It was based on a small sample of stores within the same region so it is entirely possible that other convenient stores have adopted other strategies that are not being used in the store researched.

There is also the matter of limiting the research to such a small kind of stores. Convenient stores will most likely only limit their layout and store designs to designs that are space effective and one that can only be used with limited room. I am certain that there several other popular and effective layout designs that are used that are being used in large stores.

The second problem is that I was unable to experiment with new layout designs. My research was limited to only layouts that are popular and well known in Japan. With proper resources and time, it would have been possible for a researcher to experiment in new designs and layouts not commonly used in Japan to discover new and effects layouts.

Obviously, further research is needed to counter these problems. Yet despite of this, the research I was able to conduct is a good beginning to achieving a better understanding of Japanese store layout and design strategies.

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