Online Food Ordering System - Chon Saan Palace

Gionnan Novelo
Faculty of Management and Social Sciences
University of Belize, Belmopan
gionnannovelo14@gmail.com

Olga Pivaral
Faculty of Management and Social Sciences
University of Belize, Belmopan
2010110761@ubstudents.edu.bz

Neyder Campos
Faculty of Management and Social Sciences
University of Belize, Belmopan
alexcampos20@icould.com

Simona Ico
Faculty of Management and Social Sciences
University of Belize, Belmopan
icosimona@yahoo.com

Karen Pascascio
Faculty of Management and Social Sciences
University of Belize, Belmopan

karenermid@gmail.com

Abstract

Typically in a restaurant food order process involves multiple steps for ordering the food where it all starts by a customer gazing the paper based menu and then inform to the waiter what he or she would like to get. Usually the process requires that the customer has to be seated before starting. An alternative method for the customers is a "Food Pre-Order System using Web Based Application" in which customer can be able to create the order long before they approach the restaurant or to be delivered to their house, using Smartphone. The list of selected pre-ordered items shall be shown on the kitchen screen, and when confirmed, order slip shall be printed for further order processing. This solution provides easy and convenient way to select pre-order transaction form customers. Additionally, the study has shown that customers and the business have an interest in adopting this ordering method due the convenience it provides

Keywords: e-commerce, B2C transaction, accessibility, online ordering, technology acceptance

Introduction

New technologies are being developed at a rapid pace and existing technologies are being implemented in new and creative ways. Belize is no stranger to technology, with internet access being more accessible than ever before from almost any device and progress being made in a variety of industries. Despite this, Belize's progress is slow when compared to more developed countries. E-commerce, the process of having transactions done online, is an example of a technology that has not been fully explored or implemented in the country.

Of particular interest is the implementation of e-commerce in the restaurant industry. This was chosen as it is an area that has not yet been fully explored. In some cases, there have been some semblance of e-commerce being utilized commercially through groups such as Belize Buy and Sell; this however, is not true e-commerce. This is where the design of an online ordering system will be significant as it will be the first of its kind not only to offer a true e-commerce experience, but also e –commerce within the context of a restaurant; and also to introduce this technology to other businesses and the public so that we as a nation become more in-tune with the developing technological world outside of Belize. An added benefit for the nation is that this technology can be adopted by similar businesses. The result of this is that the service sector of the entire nation has the potential to be improved.

For the purposes of the research, Chon Saan Palace was chosen to test the responses of those who will work alongside the ordering system. Chon Saan Palace has been patronized by locals for more than 35 years, first opened in 1970, it has become a staple institution for Chinese cuisine. Despite their popularity and success, they have yet to implement more modern techniques of conducting business. That being said, it is our aim to improve their business model by implementing a system that will benefit both the restaurant and customers alike through the use of online ordering.

With the online food ordering system, food is ordered online and delivered to the customer. This is made possible with the use of electronic payment system .The payment can be done through the customer's credit card or debit card. So, in this following this project we came up with a design system which will allow customers to go online and place order for their food. Due to the escalating growth in the use of internet and the technologies associated with it, multiple opportunities are coming up on the web, so many businesses and companies are now more relieved in undertaking their enterprise because of the internet.

One of the businesses that the internet introduced is an online food ordering system. In today's life many restaurants have focus on fast preparation and speedy delivery of orders rather than offering a rich dining experience. Recently, most of the delivery orders were placed over the phone, for example here in Belmopan where most companies make deliveries, but that system has many drawbacks, such as misheard orders or delivery location. It is possible for everyone to order any goods from anywhere via the internet and have the goods delivered at his/her home. But while trying to discuss the transfer method of the goods and services, attention is focused on the payment method. In other words, how possible is it to pay for goods and services via the internet? This then leads to the exploration of the economic consequences of digital cash. What are the implementations from the view point of economics? Since the world is fast becoming a global village, the necessary tool for this process is communication of which telecommunication is a key component.

A major breakthrough is the wireless telephone system which comes in either fixed wireless telephone lines or the Global System of Mobile communication (GSM), Online ordering system is originally designed for use in college cafeterias, but just as applicable in any food delivery industry. The main advantage of this system is that it greatly simplifies the ordering process for both the customer and the restaurant. By making the entire process of taking orders much more easily and it is where automatically

the load on restaurants ends. Once an order is placed on the webpage that will be designed, it is placed into the database and then retrieved in real-time by a desktop application on the restaurants website. Within this application, all items in the order are displayed, along with their corresponding options and delivery details, in a concise and easy to read manner. This allows the restaurant employees to quickly go through the orders as they are placed and produce the necessary items with minimal delay and confusion. The greatest advantage of this system is its availability and flexibility.

Originality

The research topic arose from the observation of the rapid growth in technology and the creative yet practical uses of new technologies. As more developed countries continuously reinvent ways to conduct business, Belize has lagged behind. In this regard, there is a need to introduce new technologies that deviate from tradition in the country. E-commerce is a technology that has yet to be commonplace in Belize, this is especially true when considering e-commerce in the context of the restaurant industry. This online ordering system will be one of the first, if not the first, of its kind to be implemented within the restaurant industry.

Literature Review

An Information System (IS) is described as a combination of hardware, software, infrastructure and trained personnel organized to facilitate planning, control, coordination and decision making in an organization (Kroenke 2015). Many researchers attempts to identify factors that contributes to the success of IS. William H. Delone and Ephraim R. Mclean wrote three seminal papers that has clarity and conciseness to the success of IS through a comprehensive taxonomy. This taxonomy has six major dimensions which are system quality, information quality, user, user satisfaction, individual impact and organization impact. Using these dimensions which are interrelated and independent which formed the IS success model, Technology Acceptance Model (TAM) was also pointed out.

The TAM model is developed originally by Fred Davis in 1986 is his dissertation and has been widely accepted ever since. TAM uses rigorous and consistent theories that focus on human behaviour. It is being used in IS studies in many different areas. TAM consists of two base elements of perceived usefulness (PU) and perceived ease of use (PEOU) are the components of these users' beliefs.

According to Davis, perceived usefulness is defined as the degree to which an individual believes that using a particular system will enhance the task performance. Perceived ease of use is defined as the degree to which an individual believes that using a particular system is free of physical and mental effort. The attitude toward adoption will decide base on the positive or negative behaviour of the users in the future concerning the new technology. In this study, TAM is used to structure the research paper and evaluate the ability to order and pay for food online.

Deleon and Mclean model and TAM seems to provide a good framework to IS success. Human behaviour plays a vital role in the success of these models. Many researchers have develop there models base on this framework and modifying them for their own purpose. Nevertheless, the model and empirical studies offer concrete dimensions to evaluating IS in different areas.

In today's fast-paced, technology-driven world, many restaurants are using the internet to communicate and sell their goods to customers. People are starting to demand more and more in relation to quality of life and the restaurant industry is now one of the largest industries in the world (Lo, Chun-Ta, Chia-Lung, 2011). Waliaula, a 2011 student from Kabarak University in Kenya, explains that many restaurants have the provision of customers making a call to the restaurant and order their meal ahead of time for it to be ready by the time it is picked up. Many people are presently spending an average of 60 minutes each day to order, select meals and pay (Waliaula, 2011). However, many employees or persons are no longer given or have this amount of time to order a meal, they no longer have the time to stand in long lines and wait for food. This is one of the many reasons restaurants turn to an online food ordering system. A system that allows customers/consumers to quickly and easily manage an online menu which customers can browse and use to place orders with just a few clicks (Patel, 2015). The customer's lives are simplified because they have access to the items and its price without consuming too much time and effort. In today's day and age people order online because it is easier and can reach a larger group of people. Real advertising can be done as of just spreading mouth to mouth and the revenue increased since the start of the online food ordering system (Food Online Ordering Systems, 2015).

Employees tend to work at a faster pace using the online system, especially the persons that deliver the meals. They don't have to wait for cash payment, they only deliver the meal to the address given. Due to online payment, delivery personnel are less vulnerable to theft. Traditional customers that visit restaurants wait for the restaurant staff to tend to them and this could be a problem if the restaurant is busy. People can be left unattended reducing the satisfaction of customers which potentially and ultimately ends in lost business (Oberhammer, 2014).

According to Patel, customers can not only view items and price online but they also have access to online payment and delivery service. Their order will be made directly to their homes without getting out of the house. Reducing the amount of time a customer spends ordering food is only one of the benefits as described by Patel. Other benefits involve minimizing the number of employees at the back of the counter, reduce labor cost involved and probable for less mistakes since it is a machine. The structure used by Patel was divided into three (3) main components: Web Ordering system, Menu management and Order Retrieval System, whose functions are, to provide the functionality for customers to place their order and supply detail, allow restaurant to control what can be ordered by the customers and allow restaurant to keep track of the orders placed by retrieving and displaying the order information, respectively (Patel, 2015). The online food ordering system has been noted by Patel to work fine only for small scale restaurants in this case due to the size of hardware used. The hardware was small and could not perform with heavy traffic. Once the traffic is heavy there are other considerations that are to be considered such as hardware and security vulnerabilities (Patel, 2015).

As described by Oberhammer, trying to develop an easy to use app for mobile devices can be a challenge. However, it is not impossible, it is only a matter of having the proper software's and hardware's in place. According to Ahmad, the Web-based food ordering system that was created needed an operating system and processor, operating system, memory and hard disk. These are some of the software and hardware that other businesses have and or could use. This system not only aids in improving a service but other

ways such as, lower advertisement cost, great customer satisfaction, less time being consumed by customers and employees. (Ahmad)

Methodology

For the past years, due to the improvement and advancement of technology, the lives and demand of individuals have drastically been changed and businesses have the mandatory role of coping with new technologies as a means of surviving in the business world. Among the various technologies that Belize has yet to adopt, one of the technology that we would like to see is e-commerce, specifically the ability to order and pay food online -- which is one of the great ways of exposing business to new customers. As a result, a proposal will be implemented for a system that is intended to do this. It will include the ability to view menu items, place orders for food, view total cost of food that have been order and pay for it through credit or debit card and also a GPS tracking system will be put in place so deliveries can be made with fewer mistakes. The main advantage of the system is that it will significantly streamline the ordering process for the business and its valued customer. In order to find the customers' and employees' intake on the proposed project, a questionnaire was developed and then distributed to the general public and relevant employees where key areas were address such as

1. Perceive usefulness of the system
2. Perceive ease of use
3. Perceive Behavior control
4. Subjective norm
5. Voluntariness
6. Behavior intention

The questionnaire used the Technology Acceptance Model (TAM) as its basis and consisted of several statements under each key area that are meant to be answer on a scale of 1 to 5; with 1 representing 'Strongly Disagree' and 5 representing 'Strongly Agree'. The TAM was chosen because it is widely used an accepted in the field of IS, its reliability and validity has been confirmed by several researchers. Each key area serves a specific purpose in measuring technology acceptance. 'Perceived usefulness of the system' aims to evaluate the degree to which the user, be in external or internal, feels the IS will enhance their objective. 'Perceived ease of use' aims to evaluate how much perceived effort it will take to learn and use the system. 'Subjective norm' aims to measure the degree to which the user believes people around them influence their use of the system. Next, the purpose of 'Voluntariness' is to measure whether the user will be using the system of their own free will or if their use is necessary to their objective. Finally, 'Behavior intention' aims to evaluate the users' frequency of use and intended usage of the IS.

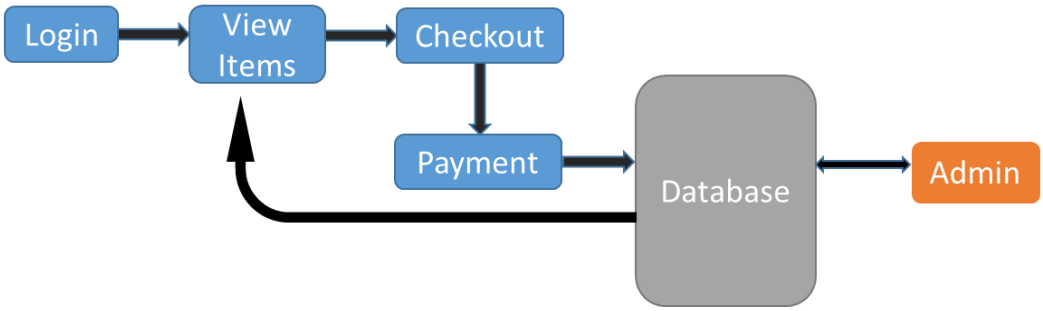
The sample size agreed upon was a combined 50. This represents the sum of participants from both customers and employees. More

Construct Measurement

Table 1. Measurement items used for employee questionnaire	
Construct	**Survey Questions**
Perceived Usefulness of the System	PU1: The online food ordering system will enable me to accomplish tasks more quickly. PU2: The online food ordering system will improve my quality of work PU3: The online food ordering system will make it easier to do my job. PU4: The online food ordering system will improve my productivity. PU5: The online food ordering system will give me greater control over my job. PU6: The online ordering system will enhance my effectiveness on the job.
Perceived Ease of Use	PE1: The online food ordering system will be clear and understandable PE2: The online food ordering system will be easy to use PE3: Mistakes will be less frequent with this new Online Food Ordering system. PE4: It will be easy to learn to operate the online food ordering system. PE5: I will rarely become confused when using the system. PE6: I will rarely get frustrated when using the system.
Perceived Behaviour Control	PBC1: I will be able to use the online food ordering system confidently. PBC2: I have an idea of how to use an online food ordering system. PBC3: I have the resources to use an online food ordering system. PBC4: I have the ability to use the online food ordering system. PBC5: I will have control over using the online food ordering system.
Subjective Norm	SN1: People who influence my behaviour think I should use the online food ordering system. SN2: People who are important in my life think I should use the online food ordering system. SN3: My close friends think I should use the online food ordering system SN4: My peers think I should use the online food ordering system SN5: People whose opinions I value think I should use the online food ordering system in my work.
Voluntariness	V1: I will voluntarily use the online food ordering system V2: My supervisor will require of me to use the online food ordering system. V3: Use of the online food ordering system will be helpful, but not required in my job.
Behaviour Intention	BI1: I intend to use the Online Food Ordering System to perform my job. BI2: I intend to frequently use the Online Food Ordering System to perform my job.

Table 2. Measurement items used for customer questionnaire	
Construct	**Survey Questions**
Perceived Usefulness of the System	PU1: The online food ordering system will enable me to place orders more quickly PU2: The online food ordering system will improve the quality of how I order. PU3: The online food ordering system will make it easier to place orders. PU4: The online food ordering system will improve my productivity online. PU5: The online food ordering system will give me greater control over how I place orders. PU6: The online ordering system will enhance my effectiveness of how I place orders.
Perceived Ease of Use	PE1: The online food ordering system will be clear and understandable PE2: The online food ordering system will be easy to use PE3: Mistakes will be less frequent with this new Online Food Ordering system. PE4: It will be easy to learn to operate the online food ordering system. PE5: I will rarely become confused when using the system. PE6: I will rarely get frustrated when using the system to place orders.
Perceived Behaviour Control	PBC1: I will be able to use the online food ordering system confidently when placing my orders. PBC2: I have an idea of how to use an online food ordering system. PBC3: I have the resources to use an online food ordering system. PBC4: I have the ability to use the online food ordering system. PBC5: I will have control over using the online food ordering system to place my orders
Subjective Norm	SN1: People who influence my behaviour think I should use the online food ordering system to place my orders. SN2: People who are important in my life think I should use the online food ordering system to place my orders. SN3: My close friends think I should use the online food ordering system to place my orders SN4: My peers think I should use the online food ordering system to palce my orders SN5: People whose opinions I value think I should use the online food ordering system to place my orders.
Voluntariness	V1: I will voluntarily use the online food ordering system to place my orders V2: I will be require to use the online food ordering system V3: Use of the online food ordering system will be helpful, but not required to palce my orders.
Behaviour Intention	BI1: I intend to use the Online Food Ordering System to place my orders. BI2: I intend to frequently use the Online Food Ordering System to place my orders.

The Model



The flow diagram describes how the system is intended to function, with 5 components centered on a central database. These components are:

1. Customer Login
2. View Items
3. Checkout
4. Payment
5. Administrator

The customer 'Login' section will allow anyone to create an account, with appropriate authentication and encryption, on the restaurant's website. The goal of this is for the customer to save personalized settings, such as credit card information, favorite menu items, home address, etc...to ensure that customers have a fast and easy time placing their orders. It should be noted that creating an account is not necessary to use the system; the goal is simply to enhance ease-of-use for those who chose to create one. A user can still access the system and place orders without creating an account, but will need to provide necessary information as they move along the system for a one-time transaction.

'View Items' will allow customers to view current menu items and availability of each item, along with a price. This component will get feedback from the central database and update after every transaction to ensure customers are always viewing up-to-date information on the website.

'Checkout' allows customers to review. This is will also include the ability provide a current delivery address via geo-location should they be away from their home address or not registered. Users will use the 'Payment' component to confirm their purchase order; if a user is not registered, they will then need to provide the necessary information at this time.

The 'Admin' are internal users. They are the ones who will work with the IS to fulfill the requests of the customers. Admins will review orders that are being outputted by the database. Another role is to keep the database updated with relevant information. For example if a new menu item is added, it will be included in the database so the external users can see it.

The 'Database' is the key component to this IS. It will store all the information that customers who choose to create an account provide. It will keep track of inventory items, updating itself once a transaction is made and feeding that information to the 'View Items' component. The database also keeps records of orders and outputs that information to admins in a meaningful manner. The database can then provide

admins with other information such as most purchased item, so the business can adjust their operations to better serve their customers.

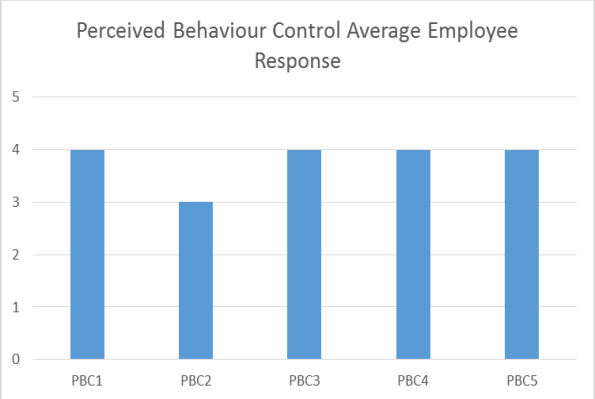
Online food ordering service will eliminate customers of having to wait in line before receiving food after reaching at the restaurant although some restaurant would give customer the option of making phone calls to the restaurant for ordering food but this put the customer at a disadvantage due to the fact that customer don't have the option of selecting from a visual menu and is not aware of the daily menu. Online food ordering will allow the customer to view the daily menu and make selection and having the privilege of paying the food as the price is known.

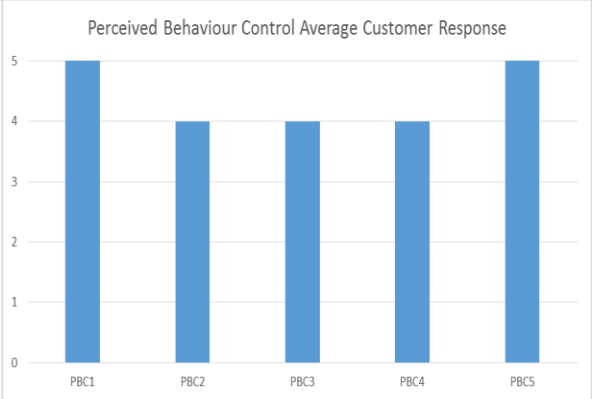
Data Analysis and Discussion

A total of 50 questionnaires were distributed, with all 50 being returned and in a usable condition – a 100% response rate. The breakdown of their responses, using the average of each response for each item as the measurement, is as follows:

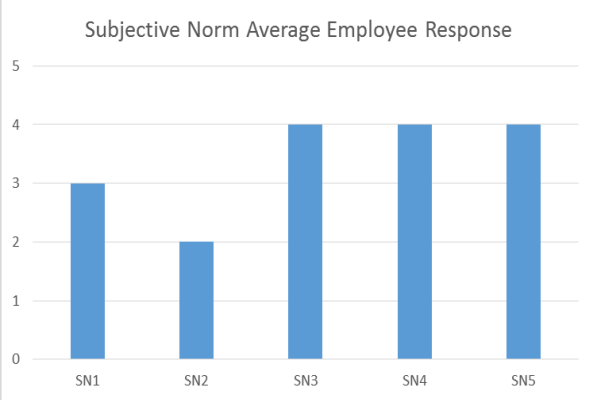
From the first construct of the TAM, customers ranked higher in how much they think the system will be useful to them.

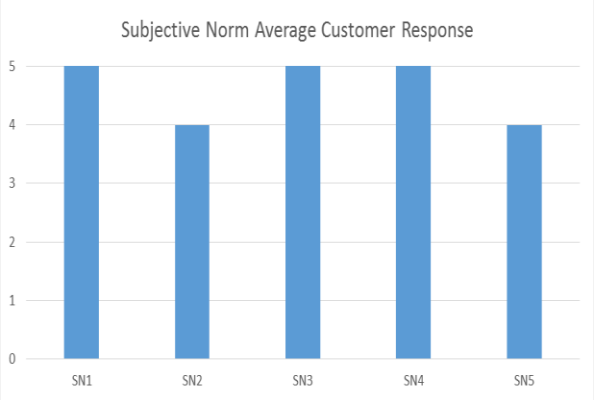
The second contruct, as mentioned earlier, measures how easy users think the system will be to operate; based on their responses, customers ranked their perception comparatively higher than employees.



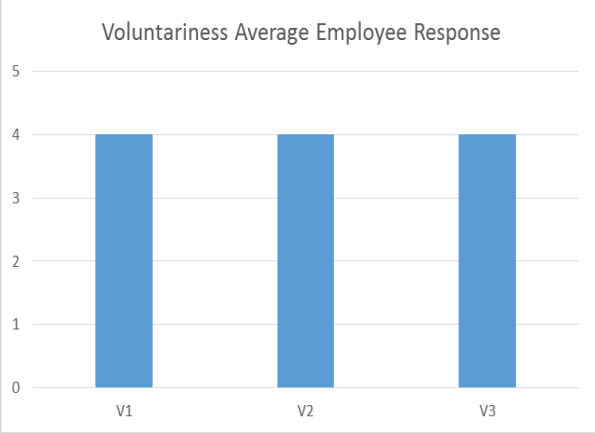


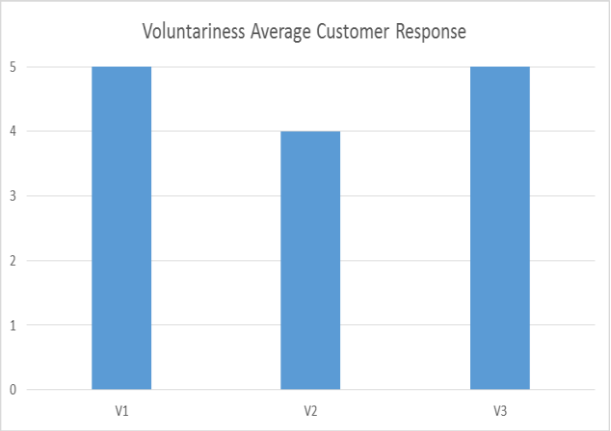
Similarly, for the third construct, customers once again ranked higher. On average, employees never 'strongly agreed' with any item in the construct.



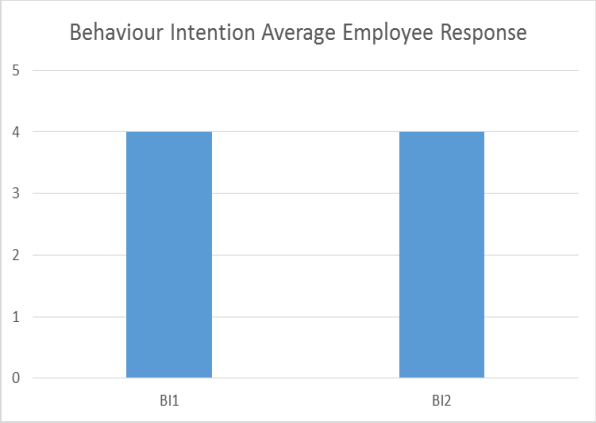


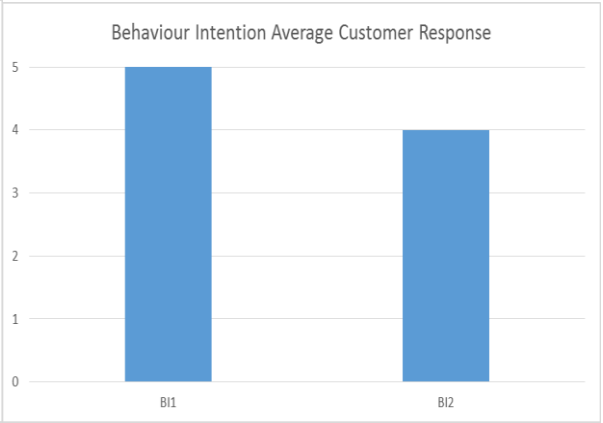
The fourth construct follows a similar fashion to the other three, meaning that employees on average do not rate particularly high on the scale. Customers, on average, feel the subjective norm will play a relatively bigger role in influencing their use of the system.





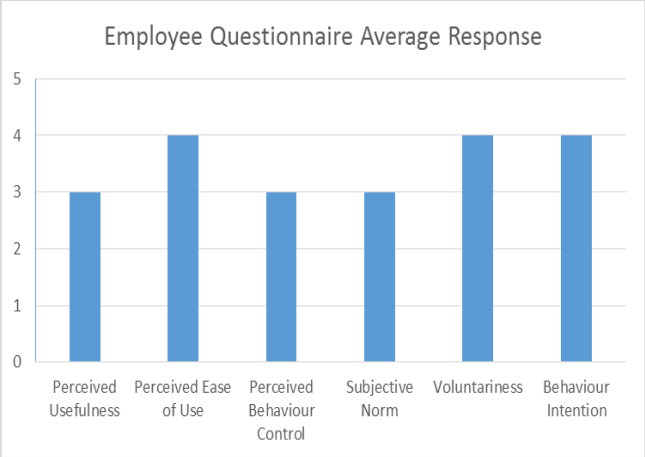
Employee's average response of 4 on the scale ('Agree') for the fifth construct would reflect a willingness to use the system, but a lack of enthusiasm to adopt it. This is in contrast to the customers average response.

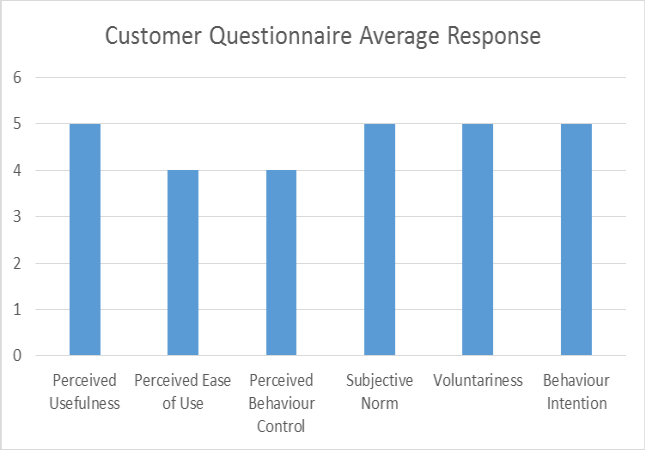




Finally, the last construct is reflective of the same trends that can be seen from the other constructs. Customers consistently ranked higher on the scale in comparison to the employees, implying customers are far more likely to use the system.

To get an overview of how the total responses compare, the total average of each construct can be looked at:





Looking at the average responses from both employees and customers, it is possible to note that customers are comparably more willing to accept this type of technology and use it as their main method of ordering food, with the all of the responses being 'Agree' or 'Strongly Agree'. Employees are seemingly more hesitant to adopt this into their workplace, with most responses being either 'Neutral' or 'Agree'. Again, this may attributed to the aforementioned perceived impact the IS will have on their jobs. To combat this, the most important area that need to be address when developing an online food ordering system is to provide training for the staff that will be responsible for overseeing the data generated by customers.

After reviewing the information system model in conjunction with the responses given from both questionnaires, it has been determined that the model will be mostly beneficial to both internal and external users. In particular, the system will eliminate the many frustrations that users face when ordering using the current method. Namely, confusion about items ordered and delivery location. The new system does this by eliminating the margin of human error that existed before; meaning that the system will control the process of recording and outputting order details.

Additionally, there is an added convenience of making orders quick, accessible, and transparent. External users will be able to place orders as long as they have a device connected to the internet and orders can be

placed with only a few clicks. Moreover, the feature of being able to pay online means that customers will know exactly how much they are to pay and eliminates the need to physically exchange money. Without the need to physically exchange money, the restaurant also benefits since the employees that handle delivery will not have cash on hand, providing more safety while on the job.

For the business, it enhances their B2C relation because it gives the customer more control and options as to how they order. This makes customers feel empowered and as shown under 'Perceived Behavior Control' and 'Perceived Usefulness', this is an important point for external users with the majority of them placing this as a priority. Similarly, employees -- especially managers, suggested that the creation of an online ordering system will give them more power in their positions.

Not surprisingly, however, the ordering system is expected to create some conflict. Through the questionnaire, it is evident that employees recognize the benefits that the system will bring; however, it is also noted that in some cases there is some reluctance in accepting the new technology since it will effectively take over the majority of their job responsibilities. This is particularly true for those in charge of take-out orders, where the main part of their job is receiving orders via phone calls and recording them manually. The new online system will effectively, but not completely, eliminate the need for customers to call.

Developing an online food ordering system will leave few people still going personally to make orders and wait on location to receive food as one of the major setbacks for an online food ordering system will be the requirement to access internet and be computer literate. Many people believe that the system might have a negative impact on employee's interaction with customers because there will be less time for interpersonal communication at the business place.

Conclusion

The overall result of the proposed project will greatly benefit the operations of the business since the manager will not lose any raw materials that is used to prepare food because no wrong orders will be taken. The website will allow customers to place orders online quickly and easily. Potential users of the website will have confidence in using the system as instructions will be clear and understandable which willl give the user power to clarify orders and avoid annoyance. In addition, customers will be able to select what they would want to eat and only an online food ordering system will offer such service and orders will be accurately made and the entire transaction will be done without speaking to an employee of the restaurant. Sample pictures of the food will be posted on the website which would be appealing to the person viewing the website thus increasing sales of the business; and as stated by Daniel Ganem, co-founder and Executive chef at Zuuk Meditteranean kitchen 'I always say that customers don't just buy because of taste they buy with their eyes' (ToastTab 2016).

Moreover, this technology will increase customer satisfaction, since as mentioned before it will be convenient to use. The technology can also be implemented in other restaurants, or perhaps modified to suit other types of service oriented businesses. The overall benefit to the nation is that it will enhance the quality of our service sector.

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