

**ABSTRACT**

Customer satisfaction is one of the main objectives of a hospitality industry and this involves having knowledge of consumers expectation by offering high quality services that touches the level desired by the customer. Food is the basic need of human life. A human or any living thing can live without any luxury of life but cannot survive without food. People are fond of eating in restaurants, fast food chains and other food establishments. With this, the restaurant industry is one of the most recognizable areas of food waste, drawing an increasing attention from both food advocate groups and average diners.

The descriptive study was done to determine the practices to control food wastage among the restaurants in Iloilo City. This study covers the area of operations in the restaurants specifically on purchasing/receiving, storing, preparation/cooking and serving/dish out. The research made questionnaire used in this study was validated by the panel experts. For reliability, the questionnaire was pre-tested among the restaurant managers, kitchen staff and dining staff who did not participate in the final survey. The result of the reliability was .906, thus, it was consider as reliable. Purposive sampling technique was used in choosing the respondents. A total of forty (40) restaurant managers, kitchen and dining staff were chosen as respondents of the study. Different statistical tools were used to analyze the data. From the data gathered the respondents “always practice” the control of food wastage among the restaurants in Iloilo City in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were taken as a whole, and when grouped according to gender, educational attainment, length of operation and type of service.

There is no significant difference on up to what extent of restaurants control food waste when grouped according to gender, educational attainment, type of service and length of operation in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out.

Various recommendations addressed to the restaurants, general public, government agencies and Hotel and Restaurant management curriculum planners were crafted.

***Keywords****: Practices, food wastage, restaurants, Iloilo City*

**INTRODUCTION**

**Background of the Study**

Food is the basic need of human life. A human or any living thing can live without any luxury of life but cannot survive without food*.* Take a moment to think of one occasion, gathering, celebration or holiday that does not involve food in some fundamental way. They live in a food-centric society, a culture so obsessed with eating that we incorporate this behavior in almost every social activity imaginable. But why? For one, food is a form of social currency. They offer others food to show them that they care. Food is versatile gift that everyone can accept, understand and appreciate. When people are gathering, food welcomes and puts people at ease. As well, food is a great distraction and adds a bit of entertainment to any situation.

People are fond of eating food in restaurants, fast food chains and other food establishments. Many cases happened that food turns to garbage at all stages of production and consumption. The restaurant industry is one of the most recognizable areas of food waste, drawing increasing attention from both advocacy groups and average diners. And, this results as the crucial problem of our economy.

It is stated in one of the articles entitled “Food waste harms climate, water, land, and biodiversity- new FAO report” (2013), that the waste of a staggering 1.3 billion tonnes of food per year is not only causing major economic losses but also wreaking significant harm on the natural resources that humanity relies upon to feed itself, says a new FAO report.

Food Wastage Footprint: Impacts on Natural Resources is the first study to analyze the impacts of global food wastage from an environmental perspective, looking specifically at its consequences for the climate, water and land use, and biodiversity.  
 Among its key findings: Each year, food that is produced but not eaten guzzles up a volume of water equivalent to the annual flow of Russia's Volga River and is responsible for adding 3.3 billion tonnes of greenhouse gases to the planet's atmosphere.

And beyond its environmental impacts, the direct economic consequences to producers of food wastage (excluding fish and seafood) run to the tune of $750 billion annually, FAO's report estimates.

"All of us - farmers and fishers; food processors and supermarkets; local and national governments; individual consumers -- must make changes at every link of the human food chain to prevent food wastage from happening in the first place, and re-use or recycle it when we can't," said FAO Director-General José Graziano da Silva.

"We simply cannot allow one-third of all the food we produce to go to waste or be lost because of inappropriate practices, when 870 million people go hungry every day," he added. As a companion to its new study, FAO has also published a comprehensive "tool-kit" that contains recommendations on how food loss and waste can be reduced at every stage of the food chain.

The tool-kit profiles a number of projects around the world that show how national and local governments, farmers, businesses, and individual consumers can take steps to tackle the problem.

Achim Steiner, UN Environment Programme (UNEP) Executive Director, said: "UNEP and FAO have identified food waste and loss --food wastage-- as a major opportunity for economies everywhere to assist in a transition towards a low carbon, resource efficient and inclusive Green Economy. Today's excellent report by FAO underlines the multiple benefits that can be realized-- in many cases through simple and thoughtful measures by for example households, retailers, restaurants, schools and businesses-- that can contribute to environmental sustainability, economic improvements, food security and the realization of the UN Secretary General's Zero Hunger Challenge. We would urge everyone to adopt the motto of our joint campaign: Think Eat Save - Reduce Your Foodprint!".

UNEP and FAO are founding partners of the Think Eat Save - Reduce Your Foodprint campaign that was launched earlier in the year and whose aim is to assist in coordinating worldwide efforts to manage down wastage.

**Where Wastage Happens**

Fifty-four percent of the world's food wastage occurs "upstream" during production, post-harvest handling and storage, according to FAO's study. Forty-six percent of it happens "downstream," at the processing, distribution and consumption stages.

As a general trend, developing countries suffer more food losses during agricultural production, while food waste at the retail and consumer level tends to be higher in middle- and high-income regions -- where it accounts for 31-39 percent of total wastage -- than in low-income regions (4-16 percent).

The later a food product is lost along the chain, the greater the environmental consequences, FAO's report notes, since the environmental costs incurred during processing, transport, storage and cooking must be added to the initial production costs.

**Causes of food wastage - and options for addressing them**

A combination of consumer behavior and lack of communication in the supply chain underlies the higher levels of food waste in affluent societies, according to FAO. Consumers fail to plan their shopping, overpurchase, or over-react to "best-before-dates," while quality and aesthetic standards lead retailers to reject large amounts of perfectly edible food.

In developing countries, significant post-harvest losses in the early part of the supply chain are a key problem, occurring as a result of financial and structural limitations in harvesting techniques and storage and transport infrastructure, combined with climatic conditions favorable to food spoilage.

To tackle the problem, FAO's toolkit details three general levels where action is needed:

High priority should be given to ***reducing food wastage in the first place.*** Beyond improving losses of crops on farms due to poor practices, doing more to better balance production with demand would mean not using natural resources to produce unneeded food in the first place.

In the event of a food surplus, ***re-use within the human food chain--*** finding secondary markets or donating extra food to feed vulnerable members of society-- represents the best option. If the food is not fit for human consumption, the next best option is to divert it for livestock feed, conserving resources that would otherwise be used to produce commercial feedstuff.

Where re-use is not possible, ***recycling and recovery*** should be pursued: by-product recycling, anaerobic digestion, compositing, and incineration with energy recovery allow energy and nutrients to be recovered from food waste, representing a significant advantage over dumping it in landfills. Uneaten food that ends up rotting in landfills is a large producer of methane, a particularly harmful GHG.

**Statement of the Problem**

Since there is no existing study conducted before, the researchers tried to investigate the problem about “Practices to Control Food Wastage among the Restaurants in Iloilo City”. The issue of food waste is integrally connected to world hunger and alters the price of food and natural resources. Food waste negatively affects our environment by creating greenhouse gas emissions and polluting the ground water while rotting in landfills.

Specifically this study sought to answer the following questions:

1. Up to what extent do restaurants control food wastage when taken as a whole in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out?
2. Up to what extent do restaurants control food wastage when grouped according to gender in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out?
3. Up to what extent do restaurants control food wastage when grouped according to educational attainment in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out?
4. Up to what extent do restaurants control food wastage when grouped according to type of restaurant in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out?
5. Up to what extent do restaurants control food wastage when grouped according to length of operation in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out?
6. Is there a significant difference on up to what extent do restaurants control food waste when grouped according to gender, educational attainment, type of restaurant, and length of operation?
7. What are the other factors that contribute to the food wastage among the restaurants in Iloilo City?

**General Objective**

Generally, this study was conducted to determine the level of awareness and degree of practice towards Uncontrolled Food Wastage among the Restaurants in Iloilo City. The management was expected to improve their ways on handling the food. Because food loss occurring during the retail and final consumption stages due to the behavior of retailers and consumers that is, the throwing away of food. And to determine the solutions to reduce food waste, including better methods of food harvest, storage, processing, transport, and retailing; better communication among food chain participants; more conscientious consumption with an emphasis on lowering food waste; and food waste recycling system. The food wastage and the corresponding nutrient losses, when projected which results to the entire population, reveals a considerable negative economic implication.

**Specific Objectives**

1. To determine up to what extent do restaurants control food wastage when taken as a whole in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out.
2. To determine up to what extent do restaurants control food wastage when grouped according to gender in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out.
3. To determine up to what extent do restaurants control food wastage when grouped according to educational attainment in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out.
4. To determine up to what extent do restaurants control food wastage when grouped according to type of restaurant in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out.
5. To determine up to what extent do restaurants control food wastage when grouped according to length of operation in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out.
6. To determine the significant difference on up to what extent do restaurants control food waste when grouped according to gender, educational attainment type of restaurant, and length of operation.
7. To determine the other factors that contributes to the food wastage among the restaurants in Iloilo City.

**Null Hypothesis**

1. There is no significant difference on up to what extent of restaurants control food waste when grouped according to gender, educational attainment, type of restaurant and length of operation.

**Definition of Terms**

The following terms and phrases have been defined for clarification and better understanding of their usage in this study:

**Awareness.** Conceptually, it refers to having knowledge of something, implies vigilance in observing or alertness (Merriam-Webster’s Collegiate Dictionary, 2011).

Operationally, awareness refers to the knowledge facts, information, understanding and skills that person has acquired through experience which specifically refers to the knowledge about food waste among the restaurants in Iloilo City.

**Food.** Conceptually, it refers to any substance which, by a process of metabolism, a living organism that can convert into fresh tissue, energy etc. (Merriam-Webster’s Collegiate Dictionary, 2011).

Operationally, food refers to any substance that can be eaten or drunk used by the restaurants.

**Food Safety.** Conceptually, it refers to the scientific discipline describing handling preparation and storage of food in ways of food borne illness (Alvarez et al., 2010).

Operationally, food safety was used in the restaurant according to their knowledge and concern about the proper handling of food to avoid hazard in preparation and storage.

**Restaurant.** Conceptually, it refers to a place where meals are served, for payment, to members of the public (Merriam-Webster’s Collegiate Dictionary, 2011).

Operationally, restaurant refers to a place where meals can be bought and eaten. It also refers to the establishment in Iloilo City like Nuat Thai, Breakthrough, Tatoy’s, Buto’t Balat, Ocean City and Siam.

**Food Waste.** Conceptually, it refers to all edible food materials produced for human consumption but left uneaten, either lost or discarded throughout the supply chain, from the farm to fork (foodwaste.ch/english-version).

Operationally, food waste refers to food that is discarded from a kitchen or in the dining area of a restaurant.

**Food Wastage.** Conceptually, it refers to loss resulting from breakage, decay, handling, leakage, and shrinkage of goods or materials (www.businessdictionary.com/definition/wastage.html).

Operationally, food wastage refers to loss resulting from uneaten food in any establishments. It can be the mishandling of goods and shrinkage of goods that result to food loss.

**Fast Food.** Also called as quick service restaurants. It refers to the restaurants where the food is paid before service. Guest orders at brightly lighted counters which are color photographs of menu items and prices. Guest may serve themselves drinks and seasoning from a nearby counter and pick up their own food on trays (Walker, J. R., 2011).

Operationally, it refers to food establishment designed for ready availability, use or consumption of foods where the guest serve themselves.

**Fine Dining.** Conceptually it refers to the cuisine and service provided in restaurants where food, drink and service are expensive and usually leisurely (Walker, J. R., 2011).

Operationally, it refers to restaurants that are full service restaurants with specific dedicated meal courses. The menu type is sophisticated and the food portions offered are generally appealing. When going to a fine dining restaurant the guests are required to adhere to certain rules and specifications.

**Fast Casual.** Conceptually it refers to restaurants that are similar to fast-food restaurants, but customers often perceive the food as healthier or of higher quality. The perception of healthier or higher-quality food allows owners of fast-casual restaurants to charge higher prices than fast-food restaurants. Customers usually order their food at the counter and sit down at a table to enjoy their meal ([Fast](http://smallbusiness.chron.com/4-styles-service-restaurant-business-22923.html) casual, 2015).

Operationally, it refers to restaurants that are a full service restaurant similar to fast food but it has a higher quality on food and service. It is similar to fast food that the customer pays upon ordering the food and they’re the ones who brought the food in the table.

**Casual Dining**. Conceptually it refers to restaurants that offer food similar to fast-casual establishments but it is popular because it fits the societal trend of a more relaxed lifestyle. Defining factors include signature food items, creative bar menus or enhance wine service and comfortable, homey décor (Walker, J. R., 2011).

Operationally, it refers to restaurants with the better service than the fast casual and much higher on price but cheaper compared to fine dining.

**Significance of the Study**

The study is significant to the following people:

**Readers.** This study can be a source of information about food wastage which affects the economy of the country.

**Students.** This study provides information to every student making them aware of correct information about awareness, practices and compliance on food control management.

**City of Iloilo**. The result of this study would help the city in controlling and managing properly the supply of food. This study can also help in uplifting the Tourism industry.

**Hospitality Industry.** Findings of this study can be beneficial to the hospitality mainly because it could provide information about practices to control food wastage among the restaurants in Iloilo City.

**Food Planners.** This will set as their guide regarding the proper ways on handling food.

**Future Researchers.** This study will serve as their basis and reference for other similar studies and researches which will be conducted in the future.

**Researchers.** Since it has given them an experience in conducting research as well as it has contributed to the advancement of their knowledge, on how to conduct basic research.

**Scope and Limitations**

This study aimed to determine the Practices to Control Food Wastage among Restaurants in Iloilo City. It focused on presenting and taking some corrective measures regarding the malpractices of the restaurant on food wastage. The survey was conducted in September 2014 to February 2015. The descriptive method of research was used to determine Practices to Control Food Wastage among Restaurants in Iloilo City. The researchers’ money was used in the study since there was no fund provided by the organization. Data gathering instrument used in this study was a researcher-made questionnaire. There were 40 respondents from 20 restaurants. The respondents were either managers, service crew or kitchen staff.

**REVIEW OF RELATED LITERATURE**

**Conceptual Literature**

The following documents were reviewed and considered helpful in understanding the subject matter of this study. In addition, studies which are composed of foreign and local researches are presented here which are relevant to the topic. These literatures were gathered from the researches, journals, book, magazines and internet sources.

According to Lipinski et al., (2013) “**Reducing Food Loss and Waste**” refers to the edible parts of plants and animals produced or harvested for human consumption but not ultimately consumed by people. It represents a decrease in the mass, caloric, and/or nutritional value of edible food intended for human consumption at any stage in the food value chain. Although the terms loss and waste are used in conjunction throughout this working paper, they have distinct drivers and, as a result, distinct solutions. “Food loss” refers to food that spills, spoils, incurs an abnormal reduction in quality such as bruising or wilting, or otherwise gets lost before it reaches the consumer.

Food loss typically occurs at the production, storage, processing and distribution stages of the food value chain, and is the unintended result of agricultural processes or technical limitations in storage, infrastructure, packaging, and/or marketing.

“Food waste” refers to food that is of good quality and fit for human consumption but that does not get consumed because it is discarded—either before or after it spoils. Food waste typically, but not exclusively, occurs at the retail and consumption stages in the food value chain and is the result of negligence or a conscious decision to throw food away.

According to an article entitled “Why does food waste occur?” (foodwaste.ch, 2015). Food wastes occur due to quality standards. At the farm losses take place due to food, especially fruit and vegetables, that isn’t standard form or don’t fit uniform packaging.

Second, legal framework. Losses or waste can occur due to food safety standards. Low quality leads to discards, which is especially relevant when dealing with animal products.

Third, market conditions. Availability, diversity, and freshness affect all steps of the food supply chain with large losses. The objective is to render food more attractive to consumers.

Fourth, human errors. Accidents such as unwary production, poor estimates of demand, faulty product handling, etc. can take place during all steps of the supply chain.

Fifth, technical errors. Problems with machinery occur often, especially during food production. Such problems could be machine failure or lack of technological advancements.

Sixth, logistics incidents. Losses can take place during transport from the farm to processing to final consumption. Most of these losses occur when handling or unloading goods.

Lastly, consumer behaviour. In wealthy societies, consumers are more wasteful and less careful when buying, storing, or cooking food. They also demand high quality standards to supply.

These causes for food losses and waste mostly focus on industrial nations. Nevertheless, many of these reasons are very general and can take various forms. This list is not exhaustive and several other factors may influence actors and processes from production to the consumers, which will eventually result in food waste.

**Consequences of Food Waste**

**Social**. Edible foods are wasted while at the same time almost one billion worldwide people are still undernourished. The increased demand worldwide (due to the overconsumption of food ending uneaten) raises the international prices of staple foods. Equity issues in respect to the access to food are aggravated.

**Environmental**. Households waste between CHF 500 and 1,000 yearly on food. The costs of food waste are accumulated throughout the production process and passed on to the end consumer who pays the price. Apart from these costs, externalized costs to the environment and society are not taken into account. Also, direct costs to the taxpayers, such as agricultural subsidies, are also "lost.

**Financial**. Resources for food production, storage, and transport such as water, energy, fertilizer, and land are wasted. In Switzerland, 31% of the environmental impact is due to food production and consumption. Domestic food waste emits the same amount of CO2 per year as 36% of all cars in Switzerland.

**Possible Causes of Food Waste and Food Loss**

Consumer preferences and attitudes, (including to leftovers, ‘doggy bags’, etc.) errors in food storage, poor food stock management. Hygiene and food safety measures (e.g. food that falls on the floor cannot be sold). The “just in time” principle whereby meals must be delivered on demand without prior knowledge of how many consumers can be expected or their purchasing decisions.

According to an article entitled “Food Waste Procurement Begins” (2011) the process of identifying the contractor who will deliver facilities to treat 20,000 tonnes of food waste collected by Edinburgh and Midlothian Councils is now under way.

A notice has been published in the Official Journal of the European Union (OJEU) announcing that Zero Waste: Edinburgh and Midlothian are seeking to procure anaerobic digestion facilities to treat food waste.

Anaerobic digestion (AD) recovers value from food and similar biodegradable waste through a contained and carefully controlled composting process. It produces a biogas which can be used to generate renewable energy and 'digestate' which can be used as soil improver or fertilizer.

The procurement of the AD facility marks a significant step towards a zero waste future. At the moment the majority of food waste collected in the area is sent to landfill. This is not a sustainable practice as it contributes to climate change and is a waste of a valuable resource.

The facility will enable both Councils to meet the requirements of the Scotland's Zero Waste Plan regarding landfill bans on source-segregated food waste and recyclables that are expected to come into force in 2015. It is expected that the AD contract will be awarded by the end of 2012 and that the facilities would be operational in advance of 2015.

A separate procurement process for additional residual (mixed) waste treatment facilities is likely to commence later in the year in order to be ready in time for a proposed ban on the disposal of biodegradable waste to landfill, planned to be introduced in 2017. 20,000 tons is the quantity of uneaten food and food scraps expected to be collected by the Councils each year. When food waste is buried in a landfill site it produces methane, a greenhouse gas over 20 times more powerful at heating the atmosphere than carbon dioxide. It's now widely accepted that these are the main gases that contribute to climate change.

An article entitled “Food Waste has a Big Impact on Climate, Water, Land and Biodiversity” written by Bill Dibenedetto (2013), stated that in France Food Waste to be converted into methane and Biogas. Wasting 1.3 billion tons of food causes huge economic losses and a lot of needless hunger, but there are climate environmental issues deeply a report from the U.N.S Food Agricultural Organization. Beyond its environmental impacts, the direct economic consequences to procedures of Food Wastage (excluding fish and seafood) run about $750 billion annually. FAO’s 63 pages report estimates. The global volume of food wastage is estimated to be 1.6 billion tons of “Primary Product Equivalents”, while the total wastage for the edible part of food is 1.3 billion tons.

FAO’s proposes several solutions to reduce food waste, including better methods of food harvest, storage, processing, transport, & retailing; better communication among food chain participants; more conscientious consumption, with an emphasis on buying only what is needed and relaxing standards for the cosmetics quality of produce; legislation aimed at lowering food waste; systems that redistribute safe surplus food to those in needed; and food waste recycling systems that use anaerobic digestion to break food down into usable fertilizer and biogas. As a companion to its new study, the FAO has also published a “tool kit” that contains recommendations on how food loss and waste can be reduced at every stage of the food chain.

According to an article entitled Food waste harms climate, water, land and biodiversity,waste not only results to major economic loss but also causes significant harm to the natural’s resources that rely on for food production. And the FAO proposes several solutions to reduce food waste and published a “toll-kit” that contains recommendations on how food loss and waste can be released at every stage of food chain which would be very helpful to our study.

An article entitled “Public Urged to Reduce Food Waste” by Philstar.com, (2013) stated that the government urged the impact by developing habits that reduce the amount of food that goes to waste. Secretary Paje, stressed the need for every citizen to rethink his/her eating habits and be mindful of the way food is-produced and consumed. Whenever possible, we should therefore be more selective in our food choices. People can reduce their so-called ”food print” by patronizing food produced in an environmentally sound manner such as those grown organically or packaged using recycled materials to lessen waste dumped into landfills that generate methane, a relatively potent greenhouse gas. On a daily basis, a seventh of the world’s population: goes to bed hungry”, while more than 20,000 children under the age of five die from hunger.

The government urged the public today to cut down the food waste and its corresponding ecological impact by developing habits that reduce the amount of food that goes to waste. The need for every citizen to rethinks his/ her eating habits and be mindful of the way food is produced and consumed. Their solution for the research problem is to reduce the “footprint” by patronizing food produced in an environmentally sound manner such as those grown organically or packaged using recycled materials to lessen wasted dumped into landfills that generate chemicals to produce greenhouse effect. And the effect of food waste are hunger a seventh of the world’s population “goes to bed hungry” and many children under the age of five die from hungry.

An article by Bizzarri (2013) entitled **“**Reducing Food loss, waste key to fighting hunger, UN official stresses at global forum”. FAO reported on October 21, 2013. The head of the United Nations food and agricultural Organization (FAO) today called for innovative thinking to measure and cut global food loss and waste which he said is essential to advance the fight to eliminate hunger. In Copenhagen that an essential one-third of all food produced for human consumption is lost or wasted-around 1.3 billion tons. This cost around $750 billion annually. FAO noted that most food loss takes place in post-production, harvesting, transportation and storage in developing countries, food waste is mainly related to inadequate infrastructure, while in more developed countries it is largely a problem in the marketing and consumption stages. FAO works on numerous initiatives to reduce the loss of food in the agricultural process and throughout the food system from field to fork.

In the developing world’s that’s 400 to 500 calories per person per day. It’s as much as 1,500 calories per person. About 842 million people today don’t get enough to eat, and 98 percent of them live in developing countries. In developing countries, food is loss on farms or on the way 5o market due to poor infrastructure and storage. In developing countries, food is wasted at the retail level and by consumers. Wasting food also squanders resources like water, energy, fertilizer, and land. All of these things are growing more precious-and expensive. Supermarkets order more food than they can sell; people buy more than they need, often in response to special offers or advertising; and food is thrown away when it’s still good because people misunderstand the “sell by” labels on the packaging. People have the power to send the signals to suppliers by buying smaller quantities at the grocery store, ordering less food in the restaurants, or by consuming less protein, which requires more resources to produce.

This article is related to our study because it denotes that for over-around 1.3 billion tons of food waste and it cost around $750 billion annually it can feed for over 2 billion people. But the food is wasted not only in the consumption period but also in the production stage. Many organizations and private or public sector helps its way on how to reduce the food loss and waste so that it could give an additional food to feed up over billions of people. The FAO noted in this article that food loss takes place in food production, harvesting, transportation and storage. Food waste happens in developing and developed countries. Food wastage is a big problem that needs to solve in order to reduce the continuing number of people suffers without food to eat.

An article entitled “Food Wastage Footprint: Impacts on Natural Resources”byUN News Centre (2013) is the first study to analyze the impacts of global food wastage from an environment perspective, looking specifically at its consequences for the climate, water and land use, and biodiversity, fruit wastage contributes significantly to water waste in Asia, Latin America and Europe, while large volumes of vegetable wastage in industrialized Asia, Europe, and South and South East Asia translates into a large carbon footprint for that sector. Excluding Latin America, high-income regions are responsible for about 67 percent of all meat waste.

UN report: one-third of world’s food wastage annually, at great economic environmental cost.

This article is related to our study because of different food wastage happens on our country that can effect on our economically and environmentally. Each year many of waste were produce by every individual and one of it is the no ending waste on food that we eat every day. This food waste problem happens in developed and developing countries. Food waste is mere problem of every country. Particularly on us we are wasting food that we eat in every year billion of tonnes of food is food that is wasted. Not also in the restaurants buts also in different sectors, establishment, individual consumers and etc.

An article entitled “PH food wastage: Think twice before wasting your meal” by Fritzie Rodriguez updated last March 20, 2014. Among developing countries like the Philippine, food loss occurs even before consumption. Food is already loss during the production and postharvest stages. Manila Philippine- There is enough food in the world for everyone, according to the world food programme. Yet one-third of all food is wasted globally. Food loss impacts not only on food security, but also the country economy and environment. According to FAO, among developing countries like the Philippines, much of the food loss occurs before the consumption stage. More than 40%of food losses occur during the production, postharvest and processing stages. Although hunger and poverty persist in the Philippine, some consumers still take their meals for granted. At the same time, food scavenging is becoming frequent among the poorest. Rice wastage Filipinos may seem ironic since the Philippine is one of the world’s biggest rice consumer and importers.

Among the developing countries like our country, food loss occurs before the consumption is done. This article about Philippine food waste on rice relates our topic on “Practices to control food wastage among the restaurants in Iloilo city.” It is because food losses occur not only when consumption is done but also before production of food postharvest and on the processing of food. It is only related about on how much rice in the country is lost. And what was the effect of these losses on our economic status. Many sacks of rice are exported and imported from the other countries. Food wastage is not only happening on the restaurants but also before it is delivered and it is produce. Rice in the Philippine is now degrading and it is a dilemma for us because we are not very aware that in every single piece of food that we ate in everyday many of it are wasted and not valued.

An article entitled “Food Waste in Restaurants: Out of Home, Out of mind?” by King and Giorgi (2014) revealed that more than a quarter of respondents left food last time they ate out. When asked generally about whether they were concerned about leaving food, close the three fifths said they were concerned. The majority is perfectly good food-and it’s estimated that a third of it comes from diners. Avoidable out of home food waste costs more than $720m a year. Combined with the 4.2 tons of household’s food and drinks thrown away annually. The equivalent of six meals every week for the average UK household. The efforts to influence the people’s eating-out behavior need to be carefully composed, to reflect our complex relationships with food. Many people eat out of the home as a treat, and don’t want to feel guilty about what they’re eating or leaving. Out the 27%who claimed to leave food, 32% said they left chips. Food considered as plate fillers like chips, vegetables, and salads are most likely to remain uneaten. Some also thought of salads garnishes as ornamental, rather than something to eat.

This article is significantly related to this research because it is stated that through the research they did for WRAP, revealed that more than a quarter of respondents left food uneaten but when asked generally about whether they were concerned about leaving food, close to three fifths said they were not concerned. So in this case the issue here is composed of people’s eating behaviour, mix of habits, values, and their social norms.

An article from by DENR (2013) entitled “DENR Urges public to help reduce food waste”, Secretary Ramon J.P Paje is calling on Filipinos to help cut down food waste and its corresponding ecological impact by developing habits that reduce that amount of food that goes to waste. The food from our table have a long journey organic food and locally-produced products require less emissions producing handling, and transport to bring our tables. Food waste is also a health hazard; because of food waste is often detrimental to environment. As we waste food, many children under the age of five die from hunger. The reality for food waste is to keep in mind whenever we see food go to waste in forms in market in kitchens, and on the table.

Some of the Filipinos help cut down food waste and its corresponding ecological impact by developing habits that reduce the amount of food that goes to waste, the food from our table have a long journey “organic food and logically produced products “require less emissions producing handling and transport to bring our tables”. Food waste is also a health hazard, because of food waste, is often detrimental to environment. As we waste food, many children under the age of five die from hunger. The reality for food waste, is to keep in mind whenever we see food go to waste in forms, in market, in kitchens, and on the table.

An article entitled “Cutting Food Loss, wastage” by Ocampo (2013), discloses interesting data on global food production, distribution and consumption and the tremendous amount of food that’s lost and wasted yearly. All this affect the degrees of global mass hunger, poverty, and ecological distribution. On which much begs to be done in terms of adopting appropriate national policies and articles and forging relevant enforceable international accords.

Every year 1.3 billion tons of foods are wasted. One billion of the 7 million word population goes hungry daily, more than 50% of the food lost and wasted in Europe, the United States and all developed nations occur at meals. In developing countries however 2/3 of the food loss-wastage happens at the harvesting and storage of crops. This indicate that rich people in developed nations profligately prepare or order meals more than double what they can consume, and throw away the excess. In developing countries the food loss largely stems from lack of modern harvesting methods and use of poorly built storage facilities. The wastage of food is a mountable issue at international level but has a grave concern. The faster growth rate of population is not responsible for the problem but the root cause lies in India is culture and tradition.

From the table and in our consumption production, distribution, discloses interesting data on global food that lost and wastage yearly. All of these affect the degrees of global mass hunger, poverty and ecological destruction, on which, much begs to be done in terms of adopting appropriate national policies and programs and forging relevant enforceable international accords. From the data on UN food and agriculture organization, there are 1.3 billion of tons of food is wastage every year. There are one billion of the 7 billion world population go hunger daily 20,000 children below 5 years old die daily from hunger most especially in Africa.

An article entitled “Filipinos Waste 14.4 Million worth of Rice Alone a Day” written by Estrella F. Palafox (2015), NAMD-FNRI Nutritional assessment of the FNRI-DOST who conducted the recent food consumption survey found that the largest amount of edible food waste comes from rice and its products at 16 grams or about one-fourth cup of cooked rice per person a day. Food wastage and the corresponding nutrient losses, when projected with the entire population, reveal a corresponding negative economic implication, the FNRI nutrition experts added. Food wastage was also higher among households with larger budget for food, while families who have less food purchasing power cannot afford to waste as much Pinoy’s waste 23 million worth of rice daily. Three kilos of rice are wasted by every Filipino each day because they do not finish their food. To prevent rice wastage, Sen. Bongbong Marcos has field Senate Bill 1863 “Anti-Rice Wastage Act of 2013” that seeks establishments to sell half orders of rice.

In this article, it states that food wastage among Filipinos happens. We are wasting rice of about 14.4 million only in a day. Food in the country is too expensive but there were always food wastage problem that happens. It relates on our topic because of food wastage of rice among Filipinos. Not only are rice wastage in the Philippines but also other kinds of food. And food wastage based on these articles happens as such among households.

According to UNEP (2015)on Food Waste: The Facts, when we scrape off our dishes after a large meal, too full to finish the remaining scraps on our plate, we rarely pause and think about the significance of our action. It seems routine to us: if we have leftover food scraps that are unfit for eating, shouldn’t they be thrown in the garbage? Our routine practices, unfortunately, make it difficult for us to conceptualize the magnitude of global food waste.  The problem is bigger than we think.

According to a recent report by UNEP and the World Resources Institute (WRI), about one-third of all food produced worldwide, worth around US$1 trillion, gets lost or wasted in food production and consumption systems. When this figure is converted to calories, this means that about 1 in 4 calories intended for consumption is never actually eaten. In a world full of hunger, volatile food prices, and social unrest, these statistics are more than just shocking:  they are environmentally, morally and economically outrageous.

Worldwide Food Waste Facts

* Every year, consumers in industrialized countries waste almost as much food as the entire net food production of sub-Saharan Africa (222 million vs. 230 million tons)
* The amount of food lost and wasted every year is equal to more than half of the world’s annual cereals crops (2.3 billion tons in 2009/10)

North American Food Waste Facts

* In the USA, organic waste is the second highest component of landfills, which are the largest source of methane emissions
* In the USA, 30-40% of the food supply is wasted, equaling more than 20 pounds of food per person per month.

Needless to say, the numbers are not promising. But don’t be disheartened! As consumers, we can do a lot to change the situation.

**Think**. Be a smart shopper and think about what you are buying and when it will be eaten. Wasting food is often a subconscious act – become aware of how much food you throw away. Plan meals and use shopping lists. Bring your leftovers home from restaurants in reusable containers.

**Eat.** Become a more mindful eater.  Eyes bigger than your stomach? Request smaller portions and become a leftovers guru.

**Save**. Save your food, save your money and save the environment. Donate to food banks and become a conscious consumer.

According to the article entitled “Waste Is Wanted: Feeding the Hungry Instead of Landfills” (2012), the need for proper nutrition is among the most primal.  Yet in the USA as just one example, one in seven homes and one in five children in the United States are labeled as food insecure.

At the same time, food waste is also epidemic.  According to the U.S. Department of Agriculture, the United States throws out 40 percent of its food every year. This amounts to $165 billion in food waste every year.

Enter Darden Restaurants, which is addressing food insecurity by reducing food waste.  Darden is the world’s largest full-service restaurant company, owning and operating – through subsidiaries – more than 2,000 restaurants.  Through its Darden Harvest Program, Darden is tackling food insecurity by giving away instead of throwing away. Launched in 2004, the Darden Harvest Program teams up with local food banks to provide immediate hunger relief.  This initiative has tangible results for less fortunate families, with Darden donating 10.4 million pounds of food valued at $105 million in 2011 alone, and giving more than 60 million pounds of food to hunger relief agencies since the program’s inception.

The concept of food banks as an instrument to fight food insecurity and at the same time fight food waste was born in the United States in 1967, but grew large in Europe since then as well. The food banks in Europe are represented in the European Federation of Food Banks (FEBA) since its launch in 1986. Bringing together 247 food banks from 21 European countries, FEBA contributes to the implementation of the right to food in Europe. In 2011, the European Food Banks distributed 401,000 tons of food, equivalent to 800 million meals, to 5.2 million people in partnership with 31,000 charitable organizations and social services.

One regional example for the successful work of food banks is the Marche Food Bank ONLUS in Italy. Operating in the Marche Region, the Marche Food Bank recovers food surpluses in order to support needy people. The initiative includes the redistribution of food all over the Region, and the implementation of three pilot projects in the three territorial areas of the region (Pesaro, Ascoli Piceno and San Benedetto del Tronto) for the recovery of fresh food. These experiences are progressively extended to the whole region.

Taking action in the prevention of (food) waste is also one of the main goals of the Pre-waste project. The Good Practices section provided on the Pre-waste website includes detailed factsheets focusing on good practices of (food) waste prevention.

Lastly, the reason behind the looming global problem of food wasting can literally be found inside households, a recent study of a Cornell University department said. Food wasting refers to uneaten and thrown away food.

According to the study, [*Food Waste Paradox: Antecedents of Food Disposal in Low Income Households that Cook from Scratch*](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2563622) by the Cornell Food and Brand Lab and the Getulio Vargas Foundation, large amounts of food waste – especially among low-income households – can be attributed to a family’s own shopping and food habits.

The top causes of food wasting, the study said, are purchasing too much food products, preparing more than what can be eaten, improper food storage, and not consuming leftovers. Conducted among households in two Sao Paulo areas in Brazil, it was determined that the practice that yielded the most wasted food is simply buying too much. The problem arises when these purchased products aren’t consumed adequately. They expire and are put to waste. In addition, buying in bulk and shopping monthly – an act usually done to “save money” – actually contributes more to food wastage.

**Fixing the Problem**

Almost two billion live near or under the poverty line. But still, according to the United Nations Development Program, almost one-third of the food produced globally is wasted. In the Philippines, data from the Philippine Rice Research Institute show that each Filipino wastes an average of 3.29 kilograms of rice annually. Food wastage is sometimes caused by the production process itself, in which case, it is called food loss. It cannot be denied, however, that "irresponsible" food-related habits contribute to the rising global food waste. But these can easily be solved, according to the study. "Fortunately, most of the factors that lead to food waste can be easily remedied by simple changes in food buying, preparing, and storing,” Getulio Vargas Foundation’s Gustavo Porpino said.

The study suggested strategies to reduce food wastage, including properly spacing shopping for food products and preparing the right quantity of food for the family. It added that low-income households should be taught to efficiently cook meals, proper shopping planning strategies and food storage. If permitted, grocery stores should offer “educational sessions” wherein people can learn cooking tips and storing techniques which can “build store loyalty and help consumers waste less.”

“These techniques can have a significant impact on reducing food waste and saving money,” Porpino emphasized.

**Being self-aware**

Parents often remind their children to finish their food since many are going hungry. This is true as latest data from the Food and Agricultural Organization of the UN show that there are more than 700 million people suffering from hunger. The UN’s [Zero Hunger Challenge](http://www.rappler.com/move-ph/issues/hunger/14317-zero-hunger-challenge-is-it-attainable) includes the prevention of food wasting. This goes to show that the simple acts of finishing the content of one’s meal plate and being self-aware about the quantity of purchased and prepared food can contribute to ending food insecurity and eventually hunger ([Gavilan](http://www.rappler.com/authorprofile/jodesz-gavilan), 2015).

**Related Studies**

**Local Studies**

A study of household edible food wastage in four regions of the Philippines” by Mercado-Villavieja G. (2007). Data on edible foods such as plate wastes, foods fed to pets and subsistence animals, pot wastes and spoilage which were not consumed by a person or a family during a three-day food weighing survey were evaluated. Findings revealed awastage of approximately 1.86% (Metropolitan Manila) to 4.93% (Bicol) out of total presumed available food for consumption causating a reduction in the presumed available calories for consumption of about 2.44% to 6.25%. Consequently there were also losses in proteins and other nutrients. Among the factors affecting amount of edible food wastes are household size, presence of pets and subsistence animals, food expense and type of storage facilities. While the study convokes public awareness and sustaining interest for the prevention of household wastages as a means of extending food and nutrient availability, it however assumes the existing alternative of inevitability of wastage. On this assumption, the indicated findings and information present promising hints to more realistic appraisal of food production/supply and requirement goals and provide more simplified food consumption survey procedures through were mathematical application of the estimated percentage losses of wastages

**Foreign Studies**

A study by Papargyropoulou[a](http://www.sciencedirect.com/science/article/pii/S0959652614003680#aff1) et al. (2014) entitled “The food waste hierarchy as a framework for the management of food surplus and food waste” states that the unprecedented scale of food waste in global food supply chains is attracting increasing attention due to its environmental, social and economic impacts. Drawing on interviews with food waste specialists, this study construes the boundaries between food surplus and food waste, avoidable and unavoidable food waste, and between waste prevention and waste management. This study suggests that the first step towards a more sustainable resolution of the food waste issue is to adopt a sustainable production and consumption approach and tackle food surplus and waste throughout the global food supply chain. The authors examine the factors that give rise to food waste throughout the food supply chain, and propose a framework to identify and prioritize the most appropriate options for prevention and management of food waste. The proposed framework interprets and applies the waste hierarchy in the context of food waste. It considers the three dimensions of sustainability (environmental, economic, and social), offering a more holistic approach in addressing food waste. Additionally, it considers the materiality and temporality of food. The food waste hierarchy posits that prevention, through minimization of food surplus and avoidable food waste, is the most attractive option. The second most attractive option involves the distribution of food surplus to groups affected by food poverty, followed by the option of converting food waste to animal feed. Although the proposed food waste hierarchy requires a fundamental re-think of the current practices and systems in place, it has the potential to deliver substantial environmental, social and economic benefits.

In the study entitled “Food waste within food supply chains: quantification and potential for change to 2050” by Parfitt et al., published 16 August (2010). Food waste in the global food supply chain is reviewed in relation to the prospects for feeding a population of nine billion by 2050. Different definitions of food waste with respect to the complexities of food supply chains (FSCs) are discussed. An international literature review found a dearth of data on food waste and estimates varied widely; those for post-harvest losses of grain in developing countries might be overestimated. As much of the post-harvest loss data for developing countries was collected over 30 years ago, current global losses cannot be quantified. A significant gap exists in the understanding of the food waste implications of the rapid development of ‘BRIC’ economies. The limited data suggest that losses are much higher at the immediate post-harvest stages in developing countries and higher for perishable foods across industrialized and developing economies alike. For affluent economies, post-consumer food waste accounts for the greatest overall losses. To supplement the fragmentary picture and to gain a forward view, interviews were conducted with international FSC experts. The analyses highlighted the scale of the problem, the scope for improved system efficiencies and the challenges of affecting behavioral change to reduce post-consumer waste in affluent populations.

Food waste can affect the food flow in food chain. Food waste is basically denotes that there is a need to reduce the fastest growing food wastage in our country. And, by these we have to make standard practices in order to reduce the food wastage in order to help feed up billions of people.

Another Study entitled “Household food waste: the implications of consumer choice in food from purchase to disposal” by Tuckera et al. (2015) states that food and food-related waste is a high priority in terms of waste minimisation in New Zealand. Over the summer of 2012–2013, a survey of 147 participants was conducted on a range of views and practices related to environmental challenges and understandings. The survey, undertaken in Palmerston North, New Zealand, captured a wide socio-demographic. This article focuses on respondents’ food practices from purchase, to plate, to disposal and the environmental implications of these practices. The survey data have allowed an enriched understanding of both individual and structural level challenges as well as incentives towards improving environmental practices in relation to household food waste minimisation. The results indicated that, in keeping with other research in this area, food waste increases according to the number of individuals in a household, and in particular the number of younger people. Also, while the majority of participants were at least “somewhat concerned” about their households’ environmental impact, over three quarters of participant households put food waste into their rubbish bin. Some solutions and directions to further progress research, policy, and practice in this area are offered, and include the need for more direct and personalized communication regarding waste minimization, along with the provision of kerbside food waste collections. It is clear that individual- or household-level changes are important and must be supported systemically by both local body and state level legislation and initiatives, if there is to be any substantial decline in food waste going to landfill.

The study related to the current study is entitled “Global Food Losses and Food Waste” conducted for the International Congress SAVE FOOD at Interpack2011 Düsseldorf, Germany, written by Gustavsson, J. et al., Swedish Institute for Food and Biotechnology (SIK) Gothenburg, Sweden and Robert van Otterdijk, Alexandre MeybeckFAO Rome, Italy. Extent, causes and prevention Food and Agriculture Organization of the United Nations Rome, 2011. The issue of food losses is of high importance in the efforts to combat hunger, raise income and improve food security in the world’s poorest countries. Food losses have an impact on food security for poor people, on food quality and safety, on economic development and on the environment. The exact causes of food losses vary throughout the world and are very much dependent on the specific conditions and local situation in a given country. In broad terms, food losses will be influenced by crop production choices and patterns, internal infrastructure and capacity, marketing chains and channels for distribution, and consumer purchasing and food use practices. Irrespective of the level of economic development and maturity of systems in a country, food losses should be kept to a minimum. Food losses represent a waste of resources used in production such as land, water, energy and inputs. Producing food that will not be consumed leads to unnecessary CO2 emissions in addition to loss of economic value of the food produced. Economically avoidable food losses have a direct and negative impact on the income of both farmers and consumers. Given that many smallholders live on the margins of food insecurity, a reduction in food losses could have an immediate and significant impact on their livelihoods. For poor consumers (food insecure or at-risk households), the priority is clearly to have access to food products that are nutritious, safe and affordable. It is important to note that food insecurity is often more a question of access (purchasing power and prices of food) than a supply problem. Improving the efficiency of the food supply chain could help to bring down the cost of food to the consumer and thus increase access. Given the magnitude of food losses, making profitable investments in reducing losses could be one way of reducing the cost of food. But that would, of course, require that financial gains from reduced losses are not outweighed by their costs.

In this study it initially states here that globally food wastage occurs. Food losses occur when food wastage also occurs. It is a major problem that is being confronted by many people and organizations campaigning for the reduction of food waste.

# Another study from David Evansa (2011) on “Blaming the consumer – once again: the social and material contexts of everyday food waste practices in some English households” states that in public debates about the volume of food that is currently wasted by UK households, there exists a tendency to blame the consumer or individualize responsibilities for affecting change. Drawing on ethnographic examples, this article explores the dynamics of domestic food practices and considers their consequences in terms of waste. Discussions are structured around the following themes: (1) feeding the family; (2) eating ‘properly’; (3) the materiality of ‘proper’ food and its intersections with the socio-temporal demands of everyday life and (4) anxieties surrounding food safety and storage. Particular attention is paid to the role of public health interventions in shaping the contexts through which food is at risk of wastage. Taken together, I argue that household food waste cannot be conceptualized as a problem of individual consumer behaviour and suggest that policies and interventions might usefully be targeted at the social and material conditions in which food is provisioned.

# This study has a connection to the current study. Consumer is one to blame to our everyday food waste, in order to reduce food waste we have to practice proper food wastage starting in our households, with this, we can’t just save financially and save the environment but we can also minimize food wastage in the country.

Another related study by Food Recovery Network. Food Recovery Network (FRN) is a growing movement of college and university students across the United States. Student volunteers are actively working to end hunger and food waste in their communities by recovering surplus perishable food from their campus dining halls and bringing it to community members in need. In its first two years, FRN provided over 190,000 meals to hungry Americans and recovered 250,000 pounds of food. Without FRN that food would have otherwise ended up in a landfill. FRN is a proud participant in the United Nation’s Zero Hunger Challenge, a global initiative to end hunger in our lifetimes. The principles of the Zero Hunger Challenge and its focus on solutions align readily with the work and mission of Food Re­covery Network, specifically the principle of “zero loss or waste of food.” At colleges and universities across the nation, it’s no longer the status quo to toss extra food into the trash at the end of the night. Instead, teams of students swoop in and pack­age up the extra lasagna, soup, taco meat, bread and other delicious and nutritious items and drive, bike or walk the items to shelters, transitional homes, after-school programs and other nonprofits that serve meals to the community. We have a food distribution problem in the United States: 1 in 6 people are unsure where their next meal is coming from while 40% of all food ends up in a landfill. Wasted food drains our resources and causes environmental damage--consider the water used for irrigation, the air pollution created from fossil fuel combustion as food is transported, and the 135 million tons of greenhouse gases emitted by food in landfills every year.

Eliminating food waste and reducing the related environmental impacts will help increase the sustainability of our food sys­tems and alleviate hunger. All FRN chapters not only fight waste and feed people; they also work to raise awareness around topics of food waste, hunger and food justice, reaching a collective 600,000 students and countless faculty, staff and community members. Between September 2011 and December 2013, FRN grew to include 49 colleges and universities. Food Recovery Network’s participation in the Zero Hunger Challenge offers students a chance to be part of yet another exciting and growing move­ment. FRN is committed to solving the heavily intertwined issues of food waste and hunger in the United States.

In this study the growing movements of college and university students are working to end up hunger and the food waste in the food establishment. In order to reduce food waste there should be an awareness and practices in order to minimize the food waste.

Another related study by Pearson et al. (2013) entitled “Food waste in Australian households: Why does it occur?” said that food waste has become a major issue, adding to environmental degradation, economic impoverishment and social tensions around the world. This article examines what is currently known in the literature about why food waste occurs at the household level. After reviewing what is known about the relevant demographic characteristics and broad behavioural drivers, these findings are applied to examine the potential causes of, and solutions to, household food waste in Australia. This research suggests that high levels of food waste may emerge from the interaction of activities associated with planning, shopping, storage, preparation and consumption of food. The literature also indicates the significance of behavioural drivers such as: lack of awareness; lack of negative economic impact; high quality standards; insufficient purchase planning; over-purchasing and cooking; lack of kitchen skills; high sensitivity to food safety; and changing meal plans. Although many of the findings presented have emerged from studies across numerous cultural and economic contexts, and are therefore necessarily general, they provide a valuable indication of some common drivers of household food waste. As such, this article provides a basis for the development of other more context specific investigations and interventions into the prevention of household food waste.

The primary objective of this study is to determine why food waste occurs at the household level, it was determined that the problem emerged from interaction of activities and broad behavioural drivers.

**Theoretical Framework of the Study**

This study anchored on the Law of Diminishing Marginal Utility. This theory states that a person consume more and more his or her marginal utility (MU) will decrease. Means after consuming more and more unit of a commodity decrease the satisfaction level of the consumer. First, it MU becomes zero and then zero converted into negative.

A law of economics stating that as a person increases consumption of a product - while keeping consumption of other products constant - there is a decline in the marginal utility that person derives from consuming each additional unit of that product (Gabay et al., 2012).

This is the premise on which buffet-style restaurants operate. They entice you with "all you can eat," all the while knowing each additional plate of food provides less utility than the one before. And despite their enticement, most people will eat only until the utility they derive from additional food is slightly lower than the original.

For example, say you go to a buffet and the first plate of food you eat is very good. On a scale of ten you would give it a ten. Now your hunger has been somewhat tamed, but you get another full plate of food. Since you're not as hungry, your enjoyment rates at a seven at best. Most people would stop before their utility drops even more, but say you go back to eat a third full plate of food and your utility drops even more to a three. If you kept eating, you would eventually reach a point at which you’re eating makes you sick, providing dissatisfaction, or 'dis-utility'.

This theory supports this study “Practices to control food wastage among the restaurants in Iloilo City” because of the situation of too much consumption of food which results to food wastage. It leads us to study this fact that food wastage occur in many restaurants in the world. In, Iloilo City pursuing this study so that there’s a basis that food wastage occurs. The theory of law of diminishing marginal utility relates to this study due to the more consumption of the consumers on the contrary they were not aware that food wastage is becoming one of the vital economical problem not only in the Philippines but worldwide.

**The Conceptual Framework of the Study**

This study was conducted in order to determine the practices to control food wastage among the restaurants in Iloilo City when taken as a whole and when classified according to gender, educational attainment, length of operation and type of service.

The process variable of the study was to determine the practices to control food wastage among the restaurants in Iloilo city, also to find out the significant difference exist in the respondent’s responses when they are classified according to gender, educational attainment, length of operation and type of service

The independent variables of this study were the gender, educational attainment, type of service and length of operation

The dependent variable of this study is the degree of practice in controlling food waste.

**Research Paradigm**

Independent Variable Dependent Variable

**Gender**

* Male
* Female

**Educational Attainment**

* Tertiary Graduate
* Vocational

**Type of service**

* Fine Dining
* Fast Food
* Casual Dining
* Fast Casual

**Length of Operation**

* 5 years and below
* 6 – 10 years
* 11 years and above

Degree of

Practice in

Controlling

Food Waste

* Purchasing/

Receiving

* Storing
* Preparation/

Cooking

* Serving/Dish out

**Fig. 1: The schematic diagram of the study on practices to control food wastage among restaurant in Iloilo City**

**RESEARCH METHODOLOGY**

**Research Design**

The study adopted a descriptive research that served as a guide in the collection and analysis of data in this study. The design was used to determine the Practices to Control Food Wastage among the Restaurants in Iloilo City. This type of research design was appropriate to the present study conducted because it requires gathering empirical data. The data were used to depict based on the answers of the respondents. As a whole, this method attempts to describe problem, phenomenon, situation, service programs and provide current information.

**Venue of the Study**

The venue of the study was in the City of Iloilo. It focused on up to what extent do restaurants (fine dining, fast food, casual dining and fast casual) control food wastes.

**Sampling Technique**

The researchers used a purposive sampling which is under non-probability sampling**.**

**Respondents of the Study**

The subjects of the study were purposively selected. They were the managers, dining and kitchen staffs of the different restaurants in Iloilo City. They possess knowledge on the phenomenon under investigation based on their daily activity. They were asked questions related to the study and this answers were based on their daily activity.

Results revealed that when respondents profile were grouped according to gender and classified as male got the frequency of 19 while female got the frequency of 21. When grouped according to educational attainment and classified as tertiary graduate got the frequency of 32 while vocational got the frequency of 8. When grouped according to length of operation and classified as 5 years and below got the frequency of 24, 6 to 10 years got the frequency of 12 and 11 years and above got the frequency of 4. When grouped according to type of service and classified as fine dining got the frequency of 10, casual dining got the frequency of 10, fast casual got the frequency of 10 and fast food got the frequency of 10 with a total frequency of 40.

***Table 1. Respondents’ Profile***

|  |  |  |  |
| --- | --- | --- | --- |
| Characteristics of Respondents | | Frequency | Percentage |
| Gender | Male | 19 | 47.5% |
| Female | 21 | 52.5% |
|  | **Total** | **40** | **100%** |
| Educational Attainment | Tertiary Graduate | 32 | 80% |
| Vocational | 8 | 20% |
|  | **Total** | **40** | **100%** |
| Length of Operations | 5 years and below | 24 | 60% |
| 6 to 10 years | 12 | 30% |
| 11 years and above | 4 | 10% |
|  | **Total** | **40** | **100%** |
| Types of Service | Fine Dining | 10 | 25% |
| Casual Dining | 10 | 25% |
| Fast Casual | 10 | 25% |
| Fast Food | 10 | 25% |
|  | **Total** | **40** | **100%** |

**Instrumentation**

The items that were included in the questionnaire were taken from the various articles pertaining to the practices to control food wastage among the restaurants in Iloilo City.

One set of 5-points scale questionnaires was prepared and pre-tested. They aim to measure the degree of practices of the managers and employees of restaurants on food wastage. The mean scores of responses based on the 5-point scale and interpreted as follows**:**

5-Point Scale

**Numerical Value Interpretation**

5 Always Practiced

4 Often Practiced

3 Sometimes Practiced

2 Seldom Practiced

1 Never Practiced

**Validity of the Questionnaire**

Good and Scates criteria for validating instrument was used. The initial copy of the questionnaire was submitted to the adviser for the correction. The copies of the corrected questionnaire were submitted for validation of all comments, correction and recommendations. All suggestions and recommendations were incorporated in the final copy of the questionnaire.

**Reliability of the Questionnaire**

Reliability refers to the consistency of the scores obtained-how consistent they are for each individual from one administration of an instrument to another and from one set of items to another (Fraenkel & Wallen, 2010).

The result of the pre-test survey using the Chronbach’s Alpha was .906. This revealed that the instrument was reliable.

**Data Gathering Procedures**

To be able to start the study, a letter was addressed to the President of St. Therese MTC-Colleges, La Fiesta Site, seeking permission to conduct a survey. After approval, the researchers asked permission to the management of the chosen restaurants here in Iloilo city to conduct the study among the managers, kitchen staff and dining staff about the practices to control food wastage among restaurants in Iloilo city. Upon approval, copies of the questionnaire was personally distributed by the researchers to the identified respondents who was given sample time to completely answer the questionnaire. The questionnaire was gathered, tabulated and analyzed using both descriptive and inferential statistical tools.

**Statistical tools**

This study used the descriptive statistical method to facilitate the presentation, analysis, and explanation of result.

**Descriptive Statistics** – refer to data analysis techniques that enable the researcher to meaningfully describe data with numerical indices or in graphic form.

In the descriptive analysis of the results, frequency, percentage scaling, mean and standard deviation were used. The result revealed the practices to control food wastage among the restaurants in Iloilo city.

**Inferential Statistics** – refer to data analysis techniques for determining how likely it is the results based on a sample or samples are similar to results that would have been obtained for the entire population.

The data gathered were subjected to appropriate statistical treatment using t-test and ANOVA.

**Mean**- it is determining by adding up all of the scores and then adding the sum of the total number of scores (Fraenkel & Wallen, 2010).

In the study, this was used to determine practices to control food wastage among the restaurants in Iloilo city when taken as a whole and when grouped according to classification of restaurants (Fine dining, Fast food, Casual dining and Fast Casual) and length of operation.

**Standard deviation-** the most stable measure of variability; it takes into account each and every score in a distribution (Fraenkel & Wallen, 2010).

In the study, this was used in order to determine the dispersion of data from the mean. The higher the standard deviation the farther it is from the mean.

**T-Test** - refers to a statistical test used to find out if there is a real difference between the means (averages) of two different groups. It is sometimes used to see if there is a significant difference in response to treatment between groups in a clinical trial. For independent means, t-test points to a parametric test of significance used to determine there is a statistically significant difference between the means of two independent samples (Fraenkel & Wallen, 2010).

In the study, this was used to determine whether there is a significant difference on up to what extent do restaurants control food waste when grouped according to gender and educational attainment. In determining the significance of differences in respondents’ practices to control food wastage based on gender and educational attainment, t-test is a proper because only two independent means of respondents are tested.

**Analysis of Variance (ANOVA)** -is a statistical technique for determining the statistical significance of differences among several means. It was to measure mean of more than two groups. This technique was also used to test the hypothesis that the means among two or more groups are equal, considering the assumption that the sampled populations are normally distributed (Fraenkel & Wallen, 2010).

In determining the significance of differences in respondents’ assessment of four categories of practices to control food wastage to be possessed by restaurant’s manager, dining staff and kitchen staff by respondents classified according to length of operation and type of service, the ANOVA test has been utilized primarily because there are more than two variables to be compared.

**PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA**

The main purpose of this study was to determine the level of Practices to Control Food Wastage among the Restaurants in Iloilo City. Specifically this study sought to answer the following questions:

1. Up to what extent do restaurants control food wastage when taken as a whole in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out?
2. Up to what extent do restaurants control food wastage when grouped according to gender in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out?
3. Up to what extent do restaurants control food wastage when grouped according to educational attainment in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out?
4. Up to what extent do restaurants control food wastage when grouped according to type of restaurant in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out?
5. Up to what extent do restaurants control food wastage when grouped according to length of operation in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out?
6. Is there a significant difference on up to what extent do restaurants control food waste when grouped according to gender, educational attainment, type of restaurant and length of operation?
7. What are the other factors that contribute to the food wastage among the restaurants in Iloilo City?

**Practices to Control Food Wastage among the Restaurants in Iloilo City in terms of purchasing/ receiving, storing, preparation/cooking and serving/dish-out when respondents were taken as a whole**

The initial presentation focused on the degree of practices to control food waste of restaurant workers. Table 2 reports the degree of practice to control food waste in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were taken as a whole.

The table indicates that when the respondents’ degree of practice to control food waste was measured in terms of purchasing/receiving, it has a mean of 4.97 interpreted as always practiced. In terms of storing, the restaurant workers always practiced the control of food waste with a mean of 4.99. Still shown in the table the degree of practice in terms of preparation/cooking with a mean of 4.95 and interpreted as always practiced. Lastly, the restaurant workers always practiced the control of food waste in terms of serving/dish out with a mean of 4.97.

As a whole, the restaurant workers always practiced the control of food waste, however, the findings tend to show that their practices on storing is the highest and their practices on preparation/cooking is the lowest.

These findings suggest that the restaurant manager/supervisor must focus on preparation/cooking as an important topic during orientation of the new worker and as an issue to be discussed during their skills enhancement seminar/training (see appendix F for the result per question item).

***Table 2. Practices to Control Food Wastage among the Restaurants in Iloilo City in terms of purchasing/ receiving, storing, preparation/cooking and serving/dish-out when respondents were taken as a whole***

|  |  |  |
| --- | --- | --- |
| **Practices** | **Mean** | **Description** |
| Purchasing / Receiving | 4.97 | Always Practiced |
| Storing | 4.99 | Always Practiced |
| Preparation / Cooking | 4.95 | Always Practiced |
| Serving / Dish-out | 4.97 | Always Practiced |
| Average mean | 4.97 | Always Practiced |

Scale Interpretation

4.21 – 5.00 Always Practiced

3.41 – 4.20 Often Practiced

2.61 – 3.40 Sometimes Practiced

1.81 – 2.60 Seldom Practiced

1.00 – 1.80 Never Practiced

***Practices to Control Food Wastage among the Restaurants in Iloilo City in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were grouped according to gender***

Table 3 reports the degree of practice to control food waste in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were grouped according to gender.

The table indicates the degree of practice to control food waste when respondents’ were classified as male in terms of purchasing/receiving, it has a mean of 4.96 interpreted as always practiced. In terms of storing, the restaurant workers always practiced the control of food waste with a mean of4.99. Still shown in the table the degree of practice in terms of preparation/cooking with a mean of 4.93 and interpreted as always practiced. Lastly, the restaurant workers always practiced the control of food waste in terms of serving/dish-out with a mean of 4.98.

The table indicates the degree of practice to control food waste when respondents’ were classified as female in terms of purchasing/receiving, it has a mean of 4.97 interpreted as always practiced. In terms of storing, the restaurant workers always practiced the control of food waste with a mean of 4.98. Still shown in the table degree of practice in terms of preparation/cooking with a mean of 4.97 and interpreted as always practiced. Lastly, the restaurant workers always practiced the control of food waste in terms of serving/dish-out with a mean of 4.97.

When grouped according to gender, the restaurant workers always practiced the control of food waste, however, the findings tend to show that the degree of practice of male is a little bit higher with just 0.01 compared to female.

***Table 3. Practices to Control Food Wastage among the Restaurants in Iloilo City in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were grouped according to gender***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Male** | | **Female** | |
| **Practices** | **Mean** | **Description** | **Mean** | **Description** |
| Purchasing/Receiving | 4.96 | AP | 4.97 | AP |
| Storing | 4.99 | AP | 4.98 | AP |
| Preparation/Cooking | 4.93 | AP | 4.97 | AP |
| Serving/Dish-out | 4.98 | AP | 4.97 | AP |
| **Average** | 4.98 | AP | 4.97 | AP |

Scale Interpretation

4.21 – 5.00 Always Practiced

3.41 – 4.20 Often Practiced

2.61 – 3.40 Sometimes Practiced

1.81 – 2.60 Seldom Practiced

1.00 – 1.80 Never Practiced

***Practices to Control Food Wastage among the Restaurants in Iloilo City in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were grouped according to educational attainment***

Table 3.A reports the degree of practice to control food waste in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were grouped according to educational attainment.

Shown in the table the degree of practice to control food waste when respondents’ were classified as tertiary graduate (BS Graduate) in terms purchasing/receiving and serving/dish-out got the lowest mean of 4.97 interpreted as always practiced. While in terms of storing and preparation/cooking the restaurant workers always practiced the control of food waste with a mean of 4.98.The average mean is 4.97 with the description of always practiced.

Still shown in the table the degree of practice to control food waste when respondents’ were classified as vocational, all of the areas (purchasing/receiving, storing, preparation/cooking and serving/dish out) has the mean of 5.00. It obtained the average mean of 5.00 with the description of always practiced.

It is surprising to know that the result on the degree of practice to control food waste of vocational graduates is higher than tertiary graduates (BS Graduates) with a margin of 0.03.

***Table 3. A Practices to Control Food Wastage among the Restaurants in Iloilo City in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were grouped according to educational attainment***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Tertiary Graduate** | | **Vocational** | |
| **Practices** | **Mean** | **Description** | **Mean** | **Description** |
| Purchasing/Receiving | 4.97 | AP | 5.00 | AP |
| Storing | 4.98 | AP | 5.00 | AP |
| Preparation/Cooking | 4.98 | AP | 5.00 | AP |
| Serving/Dish-out | 4.97 | AP | 5.00 | AP |
| **Average** | 4.97 | AP | 5.00 | AP |

Scale Interpretation

4.21 – 5.00 Always Practiced

3.41 – 4.20 Often Practiced

2.61 – 3.40 Sometimes Practiced

1.81 – 2.60 Seldom Practiced

1.00 – 1.80 Never Practiced

***Practices to Control Food Wastage among the Restaurants in Iloilo City in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were grouped according to length of operation.***

Table 3.B reports the degree of practice to control food waste in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were grouped according to length of operation.

The result of the study revealed that the degree of practice to control food waste when the respondents’ were classified as 5 years and below in terms of purchasing/receiving, preparation/cooking and serving/dish-out got the lowest mean of 4.97 interpreted as always practiced. While in terms of storing, restaurant workers always practiced the control of food waste with a highest mean of 4.98. It obtained the average mean of 4.97 with the description of always practiced.

The result of the study revealed that the degree of practice to control food waste when respondents’ were classified as 6 to 10 years in terms of purchasing/receiving, it has a mean of 4.96 interpreted as always practiced. In terms of storing, the restaurant workers always practiced the control of food waste with a mean of 4.99. Still shown in the table the degree of practice in terms of preparation/cooking with a mean of 4.90 and interpreted as always practiced. Lastly, the restaurant workers always practiced the control of food waste in terms of serving/dish-out with a mean of 4.97. It obtained the average mean of 4.96 with the description of always practiced.

The result of the study revealed that the degree of practice to control food waste when respondents’ were classified as 11 years and above, all of the areas (purchasing/receiving, storing, preparation/cooking and serving/dish-out) got the mean of 5.00 interpreted as always practiced.

The degree of practice in controlling food waste when grouped according to length of operation, 11 years and above got the highest average mean of 5.00, it simply means that the longer the operation of the restaurant the higher the degree of practice in controlling food waste.

***Table 3.B Practices to Control Food Wastage among the Restaurants in Iloilo City in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were grouped according to length of operation***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **5 years and below** | | **6 to 10 years** | | **11 years and above** | |
| **Practices** | **Mean** | **Description** | **Mean** | **Description** | **Mean** | **Description** |
| Purchasing/Receiving | 4.97 | AP | 4.96 | AP | 5.00 | AP |
| Storing | 4.98 | AP | 4.99 | AP | 5.00 | AP |
| Preparation/Cooking | 4.97 | AP | 4.90 | AP | 5.00 | AP |
| Serving/  Dish-out | 4.97 | AP | 4.97 | AP | 5.00 | AP |
| **Average** | 4.97 | AP | 4.96 | AP | 5.00 | AP |

Scale Interpretation

4.21 – 5.00 Always Practiced

3.41 – 4.20 Often Practiced

2.61 – 3.40 Sometimes Practiced

1.81 – 2.60 Seldom Practiced

1.00 – 1.80 Never Practiced

***Practices to Control Food Wastage among the Restaurants in Iloilo City in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were grouped according to type of service.***

Table 3.C reports the degree of practice to control food waste in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were grouped according to type of service.

The result of the study revealed that the degree of practice to control food waste when respondents’ were classified as fine dining in terms of storing and serving/dish out, got the highest mean of 5.00 interpreted as always practiced. In terms of purchasing/receiving, the restaurant workers always practiced food waste with a mean of 4.98. While in terms of preparation/cooking got the lowest mean of 4.95 and interpreted as always practiced. The average mean is 4.98 with the description of always practiced.

The result of the study revealed that the degree of practice to control food waste when respondents’ were classified as casual dining in terms of storing, got a mean of 4.98 and interpreted as always practiced. In terms of purchasing/receiving, the restaurants workers always practiced the control of food waste with a mean of 4.97. Still shown in the table the degree of practice, in terms of preparation/cooking has the lowest mean of 4.93 and interpreted as always practiced. Lastly the restaurant workers always practiced the control of food waste in terms of serving/dish-out with a mean of 4.97. It obtained the average mean of 4.96 with a description of always practiced.

The results of the study revealed that the degree of practice to control food waste when respondents were classified as fast casual in terms of purchasing/receiving, got the highest mean of 4.98 and interpreted as always practiced. In terms of storing and serving/dish-out, the restaurant workers always practiced the control of food waste with a mean of 4.95. Lastly, the restaurant workers always practiced the control of food waste in terms of preparation/cooking with a lowest mean of 4.93. It obtained the average mean of 4.95 with a description of always practiced.

The results of the study revealed that the degree of practice to control food waste when respondents were classified as fast food in terms storing, the restaurant workers always practiced the control of food waste with the mean of 5.00. While in terms of purchasing/receiving, it has a mean of 4.95 interpreted as always practiced. Still shown in the table the degree of practice in terms of preparation/cooking with a mean of 4.98 and interpreted as always practiced. Lastly, in terms of serving/dish-out has a mean of 4.97. The average mean is 4.98 with a description of always practiced.

Results shows that fine dining and fast food got highest degree of practice in controlling food waste with an average mean of 4.98.

***Table 3.C Practices to Control Food Wastage among the Restaurants in Iloilo City in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were grouped according to type of service***

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Fine Dining** | | **Casual Dining** | | **Fast Casual** | | **Fast Food** | |  |
| **Practices** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **Description** |
| Purchasing/Receiving | 4.98 | 0.16 | 4.97 | 0.17 | 4.98 | 0.16 | 4.95 | 0.22 | AP |
| Storing | 5.00 | 0.00 | 4.98 | .016 | 4.95 | .022 | 5.00 | 0.00 | AP |
| Preparation/Cooking | 4.95 | 0.22 | 4.93 | 0.26 | 4.93 | 0.26 | 4.98 | 0.16 | AP |
| Serving/  Dish-out | 5.00 | 0.00 | 4.97 | 0.17 | 4.95 | 0.22 | 4.97 | 0.17 | AP |
| **Average** | 4.98 | 0.16 | 4.96 | 0.20 | 4.95 | 0.22 | 4.98 | .0.16 | AP |

Scale Interpretation

4.21 – 5.00 Always Practiced

3.41 – 4.20 Often Practiced

2.61 – 3.40 Sometimes Practiced

1.81 – 2.60 Seldom Practiced

1.00 – 1.80 Never Practiced

***T-test Results for Significant Difference on the Extent of Practices to Control Food Waste in Terms of Purchasing/Receiving, Storing, Preparation/Cooking and Serving/Dish-out when grouped According to Gender***

To find out whether there exist significant differences on the extent of practices to control food waste among the restaurant workers in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out, the t-test for means was applied and the results are presented in Table 4.

Table 4 presents that the there is no significant difference in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out when respondents were grouped according to their gender. This implies that the null hypothesis was accepted.

It shows that there are no significant differences on the practices to control food wastage assessed by the restaurant managers, dining staffs and kitchen staffs when categorized according to gender. Findings indicated a t-value of -0.128, with a corresponding p-value of 0.899, which is higher than 0.05 alpha, meaning that there are no significant differences on the extent/degree of practice in controlling food wastage among the restaurants in Iloilo City when respondents were grouped according to their gender. The decision was to accept the null hypothesis.

***Table 4. T-Test results on the significant differences in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out when respondents were grouped according to their gender***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **t-value** | **df** | **Sig (2-tailed)** | **Decision** | **Interpretation** |
| Male – Female | -0.128 | 36.674 | 0.899 | Accept H₀ | Not Significant |

***T-test results for significant Difference on the Extent of Practices to Control Food Waste in Terms of Purchasing/Receiving, Storing, Preparation/Cooking and Serving/Dish-out when grouped According to Educational Attainment***

To find out whether there exist significant differences on the extent of practices to control food waste among the restaurant workers in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out, the t-test for means was applied and the results are presented in Table 5.

Table 5 presents that the there is no significant difference in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out when respondents were grouped according to their educational attainment. This implies that the null hypothesis was accepted.

It shows that there are no significant differences on the practices to control food wastage assessed by the restaurant managers, dining staffs and kitchen staffs when categorized according to educational attainment. Findings indicated a t-value of -0.124, with a corresponding p-value of 0.268, which is higher than 0.05 alpha, meaning that there are no significant differences on the extent/degree of practice in controlling food waste among the restaurants in Iloilo City when respondents were grouped according to their educational attainment. The decision was to accept the null hypothesis.

***Table 5. T-test results on the significant differences in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out when respondents were grouped according to their educational attainment***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **t-value** | **Df** | **Sig (2-tailed)** | **Decision** | **Interpretation** |
| Tertiary Graduate - Vocational | -0.124 | 38 | .268 | Accept H₀ | Not Significant |

**The significant differences in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out when respondents were grouped according to their length of operation**

To find out whether there exist significant differences on the extent of practices to control food waste among the restaurant workers in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out, the ANOVA for means was applied and the results are presented in Table 5.

Table 6 presents that the there is no significant difference in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out when respondents were grouped according to their length of operation. This implies that the null hypothesis was accepted.

It shows that there are no significant differences on the practices to control food wastage assessed by the restaurant managers, dining staffs and kitchen staffs when categorized according to length of operation. Findings indicated an F-value of .407, with a corresponding P-value of .669, which is higher than 0.05 alpha, meaning that there are no significant differences on the degree of practice in controlling food waste among the restaurants in Iloilo City, when respondents were grouped according to their length of operation.

***Table 6. ANOVA results on the significant differences in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out when respondents were grouped according to their length of operation***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Sum of Squares** | **df** | **Mean Square** | **F** | **Sig.** | **Decision** | **Interpretation** |
| Between groups | 0.06 | 2 | .003 | .407 | .669 | H₀ | Not Significant |
| Within Groups | .287 | 37 | .008 |  |  |  |  |
| **Total** | .294 | 39 |  |  |  |  |  |

***The significant differences in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out when respondents were grouped according to their type of service***

To find out whether there exist significant differences on the extent of practices to control food waste among the restaurant workers in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out, the ANOVA for means was applied and the results are presented in Table 7.

Table 7 presents that the there is no significant difference in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out when respondents were grouped according to their type of service. This implies that the null hypothesis was accepted.

It shows that there are no significant differences on the practices to control food wastage assessed by the restaurant managers, dining staffs and kitchen staffs when categorized according to type of service. Findings indicated an F-value of .198, with a corresponding P-value of .897, which is higher than 0.05 alpha, meaning that there are no significant differences on the degree of practice in controlling food waste among the restaurants in Iloilo City, when respondents were groups according to type of service. The decision was to accept the null hypothesis.

***Table 7. ANOVA results on the significant differences in terms of purchasing/receiving, storing, preparation/cooking and serving/dish-out when respondents were grouped according to their type of service***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Sum of Squares** | **df** | **Mean Square** | **F** | **Sig.** | **Decision** | **Interpretation** |
| Between groups | 0.05 | 3 | .002 | .198 | .897 | H₀ | Not Significant |
| Within Groups | .289 | 36 | .008 |  |  |  |  |
| **Total** | .294 | 39 |  |  |  |  |  |

***Other Factors that Contribute to Food Wastage Among the Restaurants in Iloilo City***

In conducting the pretest and final survey, a face to face interview with different restaurant managers in Iloilo city was undertaken by the researchers. Aside from the items stated in the questionnaire, the respondents were asked about their practices related to food waste. In an interview with the manager, Ms. Ma.Jora Ann Madamag of Floyd’s Atrium branch, she said that they automatically change the food especially when customer complains but this food is not directly thrown out but instead it is being transferred to our commissary or Quality Control Office for investigation.

During the interview with the manager of Orange Panda Jaro branch, she stated that the other factors that contribute to food wastage were wrong coding of products, accepting commissary excess products, and wrong forecasting of product ordered and also she said that food wastage occurs only because of the customers left-over but not because of the restaurants operation.

The manager of Freska Hometown Buffet, Sir Carlo stated that belonging in the hospitality industry, they should offer good service and customer satisfaction so they refrain from telling the customers that they should finish all their food so that there will be no leftovers because customer is paying for them. In their restaurant they offer a buffet service and they cannot control the customer on how much food that they’re going to put in their plates. That is the reason why there are lots of left-over. This is supported by the manager of Kataw Seafood. According to her, one of the contributors of food wastage is the left-over of the customer which is automatically discarded to the garbage without separating them. In the same way, the manager of Jones Café she said that aside from food spillage in the kitchen that is automatically thrown in the waste bin, other factors that contribute to food wastage is their customers because they keep on ordering large quantity of food without knowing the serving of the food, the reason why there is left-over.

The owner of Annie’s Seafood and Manokan Restaurant she said that during rainy seasons or there is an unexpected typhoon they don’t have customers and with that it affects the operation of the restaurant and the products that had a low shelf life happens to be thrown out to the garbage. Also the other factor is their customer because they keep on ordering without finishing their food. And the left over are automatically thrown out in the garbage.

Lastly, the manager of Pizza Hut stated that wrong forecasting of inventory and customers demand for the day and customers left over are the reasons why food wastage occurs.

In general, majority of the respondents’ answers regarding the other factors that contribute to food wastage were the customers. It is because the restaurants has no control on how much food they keep on ordering and most of them happened to be that they cannot finish their food and the restaurant workers automatically throw it in the waste bin.

**SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

**Summary of the Study**

The main objective of this study was to determine the practices to control food wastage among the restaurants in Iloilo City. Specifically, this study aimed to determine the practices to control food wastage among the restaurants in Iloilo City in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when respondents were taken as a whole, grouped according to gender, educational attainment, length of operation and type of service. It also aimed to determine whether there is a significant difference on up to what extent do restaurants control food waste when grouped according to gender, educational attainment, length of operation and type of service.

This descriptive survey research only covered the degree/extent of practices to control food wastage among the restaurants in Iloilo City. The data gathering instrument used in this study was a researchers’ made questionnaire. The pretest survey was done on November 20, 2014 until December 2, 2014. The final survey was conducted on December 16, 2014 until January 13, 2015 the results were tabulated by the school’s statistician. Both the descriptive and inferential statistical tools were used in the analysis of data for this study.

**Summary of Findings**

The following were the findings of the study.

1. The result of the study revealed that the practices to control food wastage among the restaurants in Iloilo City when taken as a whole, in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out was determined to be always practiced.
2. The result of the study revealed that the practices to control food wastage among the restaurants in Iloilo City when grouped according to gender, both male and female, purchasing/receiving, storing, preparation/cooking and serving/dish out were determined to be always practiced.
3. The results of the study revealed that the practices to control food wastage among the restaurants in Iloilo City when grouped according to educational attainment, results revealed that both tertiary and vocational graduates always practiced the control of food wastage, in terms of purchasing/receiving, storing, preparation/cooking, and serving/dish. .
4. The results of the study revealed that the practices to control food wastage among the restaurants in Iloilo city when grouped according to length of operation, those restaurants which operated for 5 years and below, 6 to 10 years and 11 years and above, in terms of purchasing/receiving, storing, preparation/cooking, and serving/dish out, was determined to be always practiced.
5. The degree of practice to control food waste among the restaurant workers did not vary as to the type of restaurant where they are working. In terms of purchasing/receiving, storing, preparation/cooking and serving dish-out, they always practiced the control of food wastage.

6. The results of the study revealed that there is no significant difference on up to what extent do restaurants control food waste when grouped according to gender, educational attainment, type of restaurant, and length of operation.

7. The results of the study further specified that aside from the practices mentioned in our questionnaire the restaurants managers, dining staff and kitchen staff were making sure that they automatically change the food especially when customer complains but, this food is not directly thrown out but instead it is being transferred to their commissary or quality control office for investigation.

**Conclusion**

Based on the findings of the study the researchers arrived to the following conclusions.

1. The practices to control food wastage among the restaurants in Iloilo City in terms of purchasing/receiving, storing, preparation/cooking and serving/dish out when taken as a whole and grouped according to their gender, educational attainment, length of operation and type of service was determined to be always practiced.
2. The Null Hypothesis which states that there is no significant difference on the extent do restaurants control food wastage when grouped according to gender, educational attainment, type of restaurant and length of operation was accepted.
3. Aside from the practices mentioned in our questionnaire the restaurants managers, dining staff and kitchen staff were making sure that they automatically change the food especially when customer complains but, this food is not directly thrown out but instead it is being transferred to their commissary or quality control office for investigation. And that they also maintain the standard and estimated daily consumption of customers. But according to them food waste mostly came from the customers, the left-over foods that are automatically thrown on the waste bin.

**Recommendations**

Based on the conclusions derived from the hypothesis and the pertinent findings, the following are the recommendations:

*First, strengthen and broaden the practices to control food wastage among the restaurants in Iloilo City.* Since all the restaurants operating in Iloilo City mostly preferred skilled restaurant managers, dining staff and kitchen staff they should be aware of and responsive to the result so that they can give emphasis to the practices to control food wastage included within this cluster. They should continue practice proper handling of food in order for them to prevent from an alarming issue on food wastage. Also, they should always be aware of the changes happening in restaurants since these could affect it, when they are recruiting new applicants.

*Second, inform the curriculum developers and implementers regarding these findings.* The curriculum developers in college should be informed regarding the study findings so that they can improve on all the skills and experiences they are presently exposing their students to. They should undertake a self-evaluation of the present curriculum, and consider the result of the study for a possible inclusion therein. They should reexamine the curricular contents pertaining to practices to control food wastage, and restaurants’ standard operating procedures.

*Third, call on school administrators of HRM schools to take action on practices to control food wastage among the restaurants*. The school administrators should be aware of the nature and changes evolving in the practices to control within the restaurant industry. They should closely monitor the teaching strategies of the instructors so that they can be dovetailed to the practices considered effective and relevant. In addition, they should encourage the teachers to have more updated and effective teaching strategies and methods, so that students could learn to know the areas which need improvement.

*Fourth, general public should be aware of proper amount of food consumption.* The general public should ask on the serving size of every restaurant and as much as possible they should consume every purchased food so that there will be no left overs to be thrown out in the waste bin.

*Lastly, explore the hospitality field as the focus area for research.* For future researchers in the specific fields of hotel and restaurants, and the hospitality industry in general, by using this study as bases for an in depth study about practices to control food wastage among the restaurants in Iloilo City. They can expand the areas of investigation by including bars and hotels as their respondents, and probably enrich the coverage of the study by adding more variables in line with the burgeoning hospitality industry in more global perspectives.

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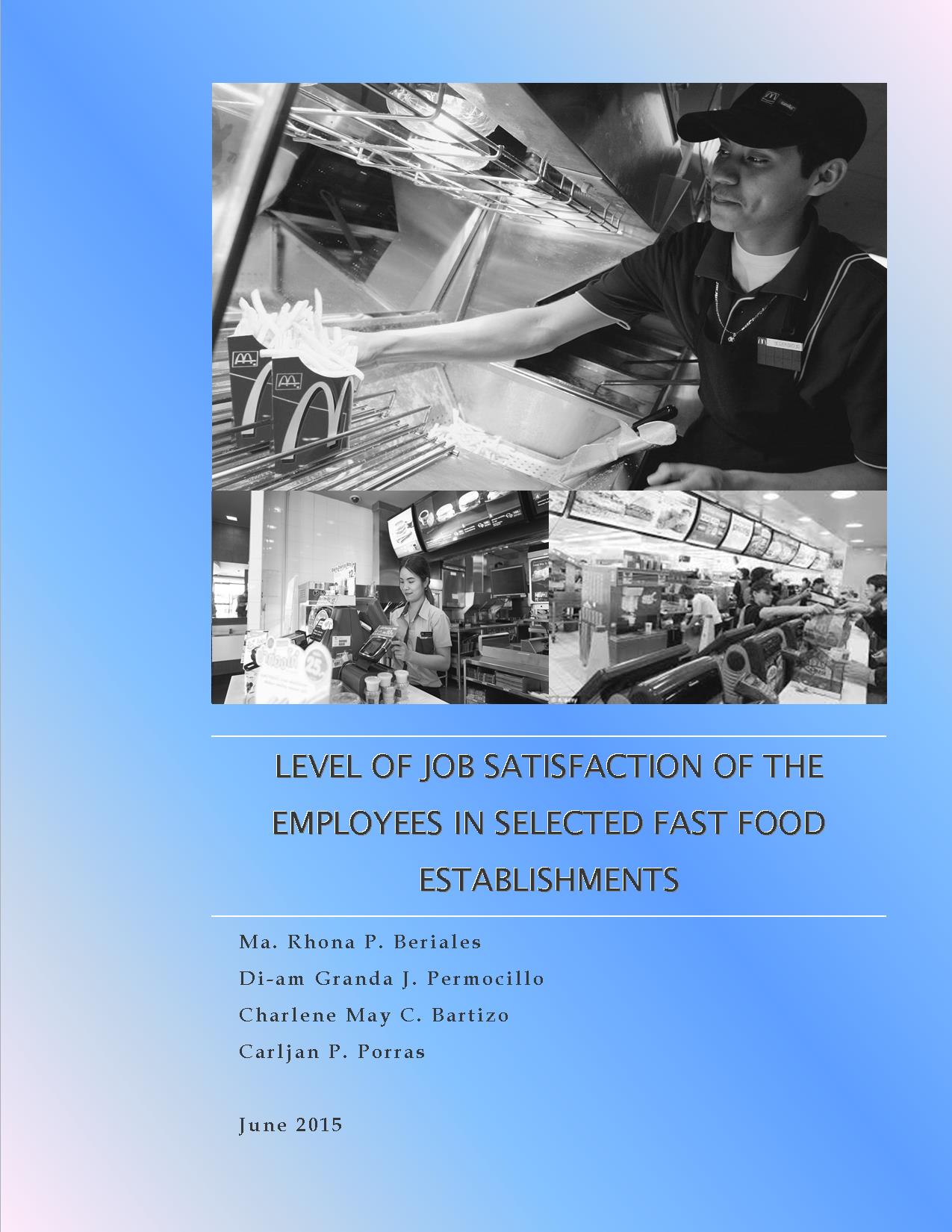
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Insert questionnaire

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**ABSTRACT**

Job satisfaction refers to the degree to which an individual feels positive or negative about his job. Most of the successful organizations have highly satisfied employees. Job satisfaction is something that is often expressed in either formal or informal conversations within and outside the organization. The level of job satisfaction can be measured using various criteria considering that there are many factors that affect someone’s feelings towards job.

The objective of this study was to determine the level of job satisfaction among employees in selected fast food establishments in Iloilo City in terms of working condition, pay and promotion, use of skills and abilities and work activities.

The findings revealed that the respondents were satisfied with their job when taken as a whole group.

In the same way, when they are grouped according to age, gender, and employment status and employment position.

The test for significant differences in the level of job satisfaction among employees revealed that there was no significant difference in the level of job satisfaction when grouped according to age, gender, employment status and establishment.

Based from the findings it is recommended that the management of the fast food establishments should look into making improvements on some factors specifically those which have the lowest cluster mean among the four areas. It is further recommended to the future researchers to include additional factors affecting the level of satisfaction.

**Keywords:** *Job satisfaction, fast food establishment, employee’s satisfaction*

**INTRODUCTION**

**Background of the Study**

Job satisfaction is the level of contentment a person feels regarding his or her job. This feeling is mainly based on an individual's [perception](https://www.boundless.com/definition/perception/) of satisfaction. Job satisfaction can be influenced by a person's ability to complete required tasks, the level of communication in an organization, and the way management treats employees. Employee satisfaction is essential to the success of any business. Thus, keeping employees satisfied with their careers should be a major priority of the employer. While this is a well-known fact in management practice, economic downturns seem to cause employers to ignore it. There are numerous reasons why employees can become discouraged with their jobs and resign, including high stress, lack of communication within the company, lack of recognition, or limited opportunity for growth.

The term fast food establishmentswas defined by Cariño and Beltran (2013) as quick service restaurants that serve food with little or no waiting.

One of the most important aspects of an individual's work in a modern organization concerns the management of demands. Demands can be characterized as a communication load, which refers to "the rate and complexity of communication [inputs](https://www.boundless.com/definition/input/) an individual must process in a particular time frame”. According to the ideas of communication overload and under load, if an individual receives too many messages simultaneously, or does not receive enough input on the job or is unsuccessful in processing these inputs, the individual is more likely to become dissatisfied, aggravated, and unhappy with their work which leads to a low level of job satisfaction.

**Statement of the Problem**

Nowadays, the number of employees who resigned is getting higher because of some possible reasons. Some of the reasons of employees is on the job dissatisfaction like employment conditions, lack of interest, they want to get experience; they don’t want to adapt the new environment, behaviour etc. The high turn-over rate among the employees is prevalent in fast food establishments. The study was conducted to determine the level of satisfaction of the employees who are working in the fast food establishments which in turn predict future employee turn-over.

Specifically, this study sought to answer the following questions:

1. What is the level of job satisfaction among employees in selected fast food establishments when taken as a whole and when grouped according to age, gender, employment status and establishment?
2. Is there a significant difference in the level of job satisfaction among employees when categorized according to age, gender, and employment?
3. Is there a significant difference in the level of job satisfaction among the employees of the two fast food establishments?

**Objectives of the Study**

This study aimed to find out the factors that can affect the quality work life of employee.

Specifically this study addresses the following:

1. To determine the level of job satisfaction among employees in selected fast food establishments.
2. To determine if there is a significant difference among employees in selected fast food establishments when categorized according to age, gender, and employment position.
3. To determine if there is a significant difference in the level of job satisfaction between the two fast food establishments?

**Null Hypothesis**

There is no significant difference in the level of job satisfaction among employees in selected fast food establishments when they group according to age, gender and employment position.

There is no significant difference in the level of job satisfaction between the two fast food establishments.

**Definition of Terms**

**Behaviour.** Refer to the range of actions and mannerisms made by [organisms](http://www.ask.com/wiki/Organism?qsrc=3044), [systems](http://www.ask.com/wiki/Systems?qsrc=3044), or [artificial entities](http://www.ask.com/wiki/Artificial_Intelligence?qsrc=3044) in conjunction with themselves or their environment, which includes the other systems or organisms around as well as the (inanimate) physical environment. It is the response of the system or organism to various stimuli or inputs, whether [internal](http://www.ask.com/wiki/Wikt:internal?qsrc=3044) or [external](http://www.ask.com/wiki/External?qsrc=3044), [conscious](http://www.ask.com/wiki/Conscious?qsrc=3044) or [subconscious](http://www.ask.com/wiki/Subconscious?qsrc=3044), overt or [covert](http://www.ask.com/wiki/Covert?qsrc=3044), and [voluntary](http://www.ask.com/wiki/Voluntary_action?qsrc=3044) or [involuntary](http://www.ask.com/wiki/Volition_(psychology)?qsrc=3044)(Gregory, A., 2015).

In this study, behaviour refers to the action and mannerisms of the employees in fast food chains in response to various stimuli or inputs.

**Behavioural bias.** It refers to **t**he narrow viewpoint of some people that emphasizes satisfying worker experience while overlooking the broader system of the organization in relation to all its publics *(Robbins, 2001).*

In this study, behavioural bias refers to narrow viewpoint or the unequal treatment of the supervisors/managers to their employees which can result to dissatisfaction.

**Employee.** According to an internet article to employee (2012) refers to an individual who works part- time or full- time under a contract of employment, whether oral or written, express or implied, and has recognized rights and duties.

In this study, employee refers to the person who is working in fast food establishments who is the respondent in our survey.

**Fast food establishments.** These are quick service restaurants consist of diverse operation facilities whose slogan is “quick food”; these establishments are those that serve food for which there is little or no waiting *(Cariňo& Beltran, 2013).*

In this study, fast food establishments refers to the quick service restaurants that serve food for which there is little or no waiting; it also refers to the establishments where the respondents of the study are employed.

**Gender.** According to an internet article to gender (2010)refer to the sex of a person or organism, or of a whole category of people or organisms (often euphemistic to avoid the word “sex”).

In this study “gender” is referred as the classification of the customers whether male or female.

**Job satisfaction.** The set of favourable or unfavourable feelings and attitudes with which workers view their work*; an affective attitude – a feeling of relative like or dislike towards work (Newstrom, 2011).*

In this study job satisfaction refers to the level to which employee’s expectation to the work environment, equitable wages, and relationship towards the staff are achieved.

**Motivational factors.** The conditions that tend to motivate workers to perform well *(Robbins, 2001).*

In this study, motivational factors refers to the incentives from the establishment give to employees to motivate them.

**Significance of the Study**

The descriptive study determined the level of job satisfaction of fast food establishments employees in Iloilo City.

The study will be beneficial to the following:

**Food Service Crew.** This study would be beneficial to them for them to know the job-related factors that give them the greatest or least satisfaction.

**Fast food Establishments.** This study would provide information for them to know the job-related factors that give the employees the greatest or least satisfaction. With this, they can find ways on how to manipulate these factors in order to encourage the employees to perform well in their job.

**College Students.** This study would be beneficial to them because they could get idea about the factors that may influence their level of satisfaction when theywork in a similar field.

**Future Researchers.** Results of this study would be an additional source of information about the factors that could influence the level of job satisfaction of the fast food establishments employees. This study can be a basis of also be used future research with the same topic.

**Scope and Limitation of the Study**

This study focused on the level of job satisfaction among employees in two fast food establishments in Iloilo City. There were 50 employees selected in this study using the purposive-convenience sampling method. The data gathering instrument used for this study was a researcher-made questionnaire. The survey was conducted within December 2014 to January 2015.

**REVIEW OF RELATED LITERATURE**

**Conceptual Literature**

To prevent job withdrawal, the organization must promote job satisfaction. According to Noe et al (2010), job satisfaction refers to a pleasant feeling resulting from the perception that one’s job fulfils or allows for the fulfilment of one’s important job values. Job satisfaction is related to a person’s values, defined as “what a person consciously or unconsciously desire to obtain.” Values, perceptions, and ideas of what is important are the three components of job satisfaction. People will be satisfied with their jobs as long as they perceive that their jobs meet their important values.

At the individual level, the evidence suggests the reverse to be more accurate-that productivity is likely to lead to satisfaction. When satisfaction and productivity data are gathered for the organization as a whole, rather than at the individual level, we found out that organizations with more satisfied employees tend to be more effective than organizations with less satisfied employees (Robbins, 2001).

Job satisfaction is a set of favourable or unfavourable feelings and emotions with which employees view their work. Job satisfaction is an effective attitude-a feeling of relative like or dislike towards something. The important aspects of job satisfaction include pay, one’s supervisor, the nature of tasks performed, an employee’s co-workers or team and the immediate working condition. Job satisfaction is dynamic, for it can decline even more quickly than it develops. Managers cannot establish the conditions leading to high satisfaction now and later neglect it, for employee needs and viewpoints may fluctuate suddenly.

The level of job satisfaction across groups is not always the same but it is related to a number of variables. Analysis of these relat5ionships allows managers to predict which groups are more likely to exhibit the problem behaviours associated with dissatisfaction. The key variables revolve around age, occupational level and organization size.

As workers grow older, they initially tend to be slightly more satisfied with their jobs. Apparently, they lower their expectations to more realistic levels and adjust themselves better to their work situations, later, their satisfaction may suffer as promotions are less frequent and they face the realities of retirement. Predictably too, people with higher level occupations tend to be more satisfied with their jobs. They are usually better paid, have better working conditions, and hold jobs that make fuller use of their abilities. Finally, evidence suggests that levels of job satisfaction are higher in smaller organization units, such as a branch plant or a small enterprise. Larger organizations tend to overwhelm people, disrupt supportive processes, and limit the amounts of personal closeness, friendship and small-group teamwork that are important aspects of job satisfaction among many people (Newstrom, 2011).

**Causes Job satisfaction**

Of the major-satisfaction facets (work itself, pay, advancement opportunities, supervision, co-workers), enjoying the work is almost always the one most strongly correlated with high levels of overall job satisfaction. Interesting jobs that provide training, variety, independence, and control satisfy most employees. In other words, most people prefer work that is challenging and stimulating over work that is predictable and routine. You’ve probably noticed that pay comes up often when people discuss job satisfaction. There is an interesting relationship between salary and job satisfaction, for people who are poor (for example, living below the poverty line) or who live in poor countries, pay does correlate with job satisfaction and with overall happiness. Jobs that are compensated handsomely have average job satisfaction level no higher than those that are pain much less. Job satisfaction is not just about job conditions. Personality also plays a role. People who are less positive about themselves are less likely to like their jobs research has shown that people who have positive **core self-evaluations-**who believe in their inner worth and basic competence-are more satisfied with their jobs than those with negative core self-evaluations. Not only do they see their work as more fulfilling and challenging, they are more likely to gravitate toward challenging jobs in the first place. Those with negative core self-evaluation set less ambitious goals and are more likely to give up when confronting difficulties. Thus, they’re more likely to be stuck in boring, repetitive jobs than those with positive core self-evaluations (Judge, 2009).

According to Robbins (2001), there arefour factors conductive to high levels of employee jobs satisfaction: mentally challenging work, equitable rewards, supportive working conditions, and supportive colleagues. Management is able to control each of these factors:

**Mentally challenging work**- Generally, people prefer jobs that give them opportunities to use their skills and abilities and offer a variety of tasks, freedom, and feedback on how well they’re doing. These characteristic make work mentally challenging.

**Equitable rewards-** Employees want pay systems that they perceive as just, unambiguous, and in line with their expectations. When pay is seen as fair-based on job demands, individual skill level, and community pay standards-satisfaction is likely to result.

**Supportive working conditions-** Employees want their work environment both to be safe and personally comfortable and to facilitate their doing a good job. In addition, most prefer working relatively close to home, in clean and relatively modern facilities, with adequate tools and equipment.

**Supportive colleagues-** People get more out of work than merely money and other tangible achievements for most employees; work also fulfils the need for social interaction. Not surprisingly, therefore, having friendly and supportive co-workers leads to increased job satisfaction. The boss’s behaviour is also a major determinant of satisfaction. Studies find that employees’ satisfaction is increased when the immediate good performance, listens to employees’ opinions, and shows personal interest in employees.

According to Robbins (2001), the employee’s occupation which is in line with his personality results to satisfaction. People with personality types congruent with their chosen vocations should find that they have the right talents and abilities to meet the demands of their jobs. Thus, they are more successful on those jobs and, because of this success, have a greater probability of achieving high satisfaction from their work.

In addition, the genes of the worker determine his satisfaction. As much as 30 percent of an individual’s satisfaction can be explained by heredity. Analysis of satisfaction data for a selected sample of individuals over 50-year period found that individual results were consistently stable over time, even when these people changed the employer for whom they worked and their occupation. This and other research suggests that a significant portion of some people’s satisfaction is genetically determined. That is, the individual’s disposition toward life-positive or negative-is established by his or her genetic make-up, holds over time, and carries overinto his or her disposition toward work. Given this evidence, it may well be that, at least for some employees, there isn’t much managers can do to influence employee satisfaction. Manipulating job characteristics, working conditions, rewards, and the job fit may have little effect. This suggests managers should focus attention on employee’s selection: If you want satisfied workers, make sure you screen out the negative, maladjusted, trouble-making fault-finders who derive little satisfaction in anything about their work.

**Measuring Job Satisfaction**

Job satisfaction defined as an individual’s general attitude towards his or her jobs. Jobs require interaction with co-workers and bosses, following organizational rules and policies, meeting performance standards, living with working conditions that are often less than ideal, and the like. This means that an employee’s assessment or how satisfied or dissatisfied he or she is with his or her job is a complex summation of a number or discrete job elements. How, then, do we measure that concept? Then two most widely used approaches are a single global rating and a summation score made up of a number or job facets. The single global rating methodis nothing more than asking individuals to respond to one question, such as “All things considered, how satisfied are you with your job?” Respondents then replay by circling a number between 1 and 5 that corresponds to answers from “Highly satisfied” to “Highly dissatisfied.” The other approach-a summation of job facets- is more sophisticated. It identifies key elements in a job and asks for the employee’s feelings about each. Typical factors that would be included are the nature of work, supervision, present pay, promotion opportunities, and relations with co-workers. These factors are rated on a standardized scale and then added up to create an overall job satisfaction score (Robbins, 2001).

**Worker Performance**

The performance level of a worker is measured by the quality of output considering time and cost. The satisfaction performance relationship is more complex than the simple path of “satisfaction leads to performance”.

It is inferred that a more accurate statement of the relationship is that high performance contributes to high job satisfaction. This result leads to higher economic and psychological rewards. If these rewards and other benefits are seen as fair and equitable, then improved satisfaction develops (Robbins, 2001).

Job satisfaction is something that is often expressed in conversations; it is something that managers often draw assumptions about for persons under their supervision; and, it is an attitude that often gets measured through some form of questionnaire. These surveys usually probe beyond the more global questions of Job satisfaction-yes or no? And make specific inquiries into just what aspects of a person’s work are satisfying or not.

Two of the historically popular instruments that still underlie much of job satisfaction research are the Minnesota Satisfaction Questionnaire (MSQ) and the Job Descriptive Index (JDI). They measure various facets of job satisfaction that give rise to positive or negative attitudes. Presumably, managers can use the results of such surveys to take actions that increase levels of satisfaction. The following are among the job satisfaction facets commonly measured (Schermerhorn, 2010): work itself, quality of supervision, co-workers, opportunities, pay, work conditions and security.

**Fast Food Industry**

You likely know more about the fast food industry than you realize. It’s everywhere. Off of every exit on the highway, and at every rest stop. In the food court at the mall, and on the commercial strips on the outskirts of town.In cities and at airports.Consumers of fast food focus on taste, price and quality - in that order. While the food is often highly processed and prepared in an assembly line, these restaurants focus on consistency of experience, affordability, and you guessed it - speed.

The restaurants themselves are known to have a consistent and simple look. Customers typically order and pay at a counter or window, and then take food out or grab a tray to sit and eat. Meals are short, there is no table service and condiments are usually centrally located rather than table top.

Menus are also the same from location to location, and consumers enjoy a recognizable, familiar experience no matter where they are, with a dependable level of quality. Meal choices are inexpensive, with options, with combo meal packages combining “signature” mains with sides and a drink (Fast Food Industry Analysis, 2016).

Nearly three-quarters (73%) of enrolments in America’s major public benefit programs are from working families. Low wages paid by employers in the fast-food industry create especially acute problems for the families of workers in the industry. Benefits are also scarce for front-line-food workers (Alegretto et al, 2013).

According to an article posted in Washington Post by Chen (2015), fast food was indeed and adolescent gig in the 1950s and 1960s. But today, labor data shows that 70 percent of the fast-food workforce is at least 20 old. The typical burger-flipper is an independent adult of about 29 years old. According to the researchers at the University of California at Berkeley, about half of the families of front-line fast-food workers depend on public programs. About 87 percent of fast-food workers lack employer health benefits, compared with 40 percent of the general workforce. And roughly one-fifth of worker’s families are below the poverty line.

Flipping burgers is not an easy job. Some people believe at the idea of “unskilled” fast-food workers meriting a wage more suited to a “hig-skilled” job. Not only does this ignore the fact that this work requires skills-from managing inventory to training and supervising other employees, it also disregards the day-to-day challenges workers navigate on the job. Fast-food workers have also complained of racial discrimination, sexual harassment and retaliatory punishment by management. Others clamor for unpaid overtime.

**Related Studies**

**Local Studies**

A study by de Guzman et al (2014) entitled **“The Mediating Effect of Happiness on the Job Satisfaction of Aging Filipino Workers: A Structural Equation Model (SEM)”** utilized SEM for its data analysis to test what impact happiness on job satisfaction. Three hundred aging Filipino workers, both from public and private organizations in the Philippines, took part in the study. The SEM revealed that physical and mental well-being and employee recognition significantly affect-and are predictors-of happiness. Moreover, it was found that happiness has an impact on the job satisfaction of older workers. Findings generated in this study cater relevant ideas in developing programs and practices for the aging workforce in the field of Human Resource Management.

Another study conducted by Lomoya et al (2015) entitled **“Antecedents of Job Satisfaction and Organizational Citizenship Behaviors Among Agency-Hired Blue Collar Contractual Workers in the Philippines”** examined job characteristics, rewards and recognition, and training and development as predictors of job satisfaction and organizational citizenship behaviours (OCB) among 159 agency-hired blue collar contractual workers within metro Manila. The results revealed that although the antecedent variables were found to be correlated with both job satisfactions and OCBs, only job characteristics and training and development emerged as strong predictors of job satisfaction while job characteristics as well as job satisfaction predicted OCBs.

The study of Umali et al (2013) entitled **“Incentives and Motivation of Employees in Selected Fast Food Chains in Lipa City, Philippines”** soughtto determine incentives and motivation of employees in selected fast food restaurants in Lipa City. Specifically, it presented the profile opf the respondents in terms of the establishments they are connected with, gender, age, civil status, educational attainment and, status of employment; determine the benefits or incentives that the establishments offer; determine if there was a significant relationship among the demographic profiles; find out the impact of incentives to employees; and, come up with a plan that can benefit both the employees and the establishments. The results revealed that out of the 75 respondents, there were 40 males and 35 female respondents. Most of the respondents are in the range of 15-24 years old with a frequency of 67. Respondents whose ages range from 25-34 with a frequency of eight follow it. 71 respondents are single and only 4 are married. 66.7 percent are in college level and 17.3 percent are high school graduates. 16 percent are college graduate. There are 37 respondents that are contractual, 22 respondents are working students and only 16 respondents equivalent to 21.3% are regular. In terms of mandatory benefits, the employees receive Social Security System (SSS) Philippine Health Insurance (PhilHealth) and Housing benefit through PAG-IBIG as well as meal and rest periods. In non-mandatory benefits, the employees receive purchase discount. Most of the employees strongly agreed that incentives can greatly improve their work performance. The mandatory benefits have a significant relationship to the demographic profile of the respondents. Non-mandatory benefits also have significant relationship to the demographic profile except gender.

Another study conducted by Gazzoli and Hancer (2010) entitled “**The Role and Effect of Job Satisfaction and Empowerment on Customers’ Perception of Service Quality: a Study in the Restaurant Industry**”. Empowerment, job satisfaction, and customer’s perception of service quality have been extensively researched in a multitude of industries. Although the service quality literature points out the importance of managing service quality from both customers’ and employees’ views, only a few studies have jointly considered an employee—customer research design. This study examined the answers from 474 restaurant contact employees and their 1,259 customers to determine the effects of empowerment and job satisfaction on customers’ perception of service quality. The uniqueness of this study is in its service quality variable used in the structural model. Whereas previous research based the service quality variable on the SERVQUAL conceptualization and measurement, this study conceptualized customers’ perceived service quality variable according to the “hierarchical approach” model and used the performance-only index for its measurement. Findings suggest that empowerment and job satisfaction have a significant impact on customers’ perception of service quality.

Lastly, the study of Sabio (2013), entitled “The Level of Job Satisfaction and Competencies of Jollibee managers in Selected Branches in the National Capital Region: A Proposed Managerial Intervention” found out that the managers in Jollibee food stores in the National Capital Region belong to 23-29 years old with a mean age of 29. Majority are female, single and almost all obtained a baccalaureate degree. Majority of the managers have served for at least 7 months.

The results further revealed that there is no significant difference on the level of job satisfaction of Jollibee store managers in NCR when classified according to age, gender and cluster areas in NCR. However, there is a significant difference on the level of job satisfaction when classified according to civil status and length of service. Married respondents have higher level of job satisfaction compared to single respondents. Accordingly, managers with more than 10 years of length of service have higher level of job satisfaction.

This study confirms that indeed age, civil status and length of service affects the level of satisfaction.

**Foreign Studies**

The researchers explored the available foreign studies in order to identify the variables affecting job satisfaction.

According to the study of Chamundeswari (2013) in the study entitled **“Job Satisfaction and Performance of School Teachers”,** the ultimate process of education could be simplified as a meaningful interaction between the teacher and the taught. The teacher thus plays a direct and crucial role in moulding a pupil towards education. Since a teacher is a role model for the students, job satisfaction and eventually performance of teachers become very vital in the fields of education. Thus the researcher felt the need to investigate the job satisfaction and performance of teachers in different categories of schools following different systems of education. From the total population, a sample of 196 teachers from state board schools, 198 teachers from matriculation board schools and 194 teachers from central board schools were drawn. The results of the study indicated that teachers in central board schools were significantly better in their job satisfaction and performance compared to their counterparts in matriculation and state board schools. This may be attributed to the fact that central board school teachers enjoy better infrastructure facilities and congenial working environment than the matriculation and state board teachers. It is for the school authorities, policy makers and society at large to ensure factors contributing to job

A study conducted by Tlaiss (2013) looked into “**Job Satisfaction of Women Managers in Lebanon**”. This study examined the association between selected organizational factors and job satisfaction dimensions. The study sample consisted of 346 women managers working in the services industry in Lebanon. These study findings indicated that managerial rank, monthly salary, and the size of the organization have a statistically significant effect on the job satisfaction of Lebanese women managers. Overall, the data revealed that women managers in the services industry were satisfied with their careers, despite their dissatisfaction with pay, fringe benefits, and promotions. The findings present implications for business management processes, human resource practices, and government-led initiatives in Lebanon and in the Arab Middle East.

It is stated in the study conducted by Sageer et al (2012) entitled “**Identification of Variables Affecting Employee Satisfaction and their Impact on the Organization**” that employee satisfaction is the terminology used to describe whether employees are happy, contended and fulfilling their desires and needs at work. Many measures support that employee satisfaction is a factor in employee motivation, employee goal achievement and positive employee morale in the work place. Basically employee satisfaction is a measure of how happy workers are with their job and working environment. In this paper various variables responsible for employee satisfaction has been discussed such as organization development factors, job security factors, work task factors, policies of compensation and benefit factors, promotion and development and opportunities which give satisfaction to employees such as promotion and career development also has been described.

In addition, the study of Hong, Hamid and Salleh (2013) entitled **“A Study on the Factors Affecting Job Satisfaction Amongst Employees of a Factory in Seremban, Malaysia”** identified the level of satisfaction of the non-administrative employees toward their job in Seremban. Thirty-five (35) respondents were involved in the survey and the results revealed that work environment, pay and salary and promotion criteria have significant impact on employees’ level of job satisfaction whereas fairness of the company do not have a significant impact towards employees’ level of satisfaction.

Similarly, Ukando and Ukpere (2014), in their study entitled **“Factors Affecting Job satisfaction of Employees in the Fast Food Industry in Cape Town”**, looked into the factors impacting the job satisfaction of employees within the fast food industry in order to proffer ways of improving the level of job satisfaction of fast food employees, in order to achieve a high level of employee and organizational performance. A survey among 123 operational workers, administration, cashier and managers with at least 6 months experience was conducted. Results revealed that the rate of personal growth of the employees in their workplace was not satisfactory. The flexible time plan was not very satisfactory to the workers since they were given a flexible time sometimes during busy periods. In addition, the employees were not allowed to participate in decisions that affect them. It is thus proposed that fast food employees should be empowered through effective participation in decision making. Moreover, the employee skills should be improved through coaching and feedback system.

**Theoretical Framework**

This study is anchored on the Two Factor Theory also called Motivation Hygiene Theory of Psychologist Frederick Herzberg.

The two-factor theory of Herzberg was developed from a pattern discovered in almost 4000 interviews. When asked what “turned them out” about their work, respondents talked mostly about things relating to the nature of the job itself. Herzberg calls these satisfier factors. When asked what “turned them off,” they talked more about things relating to the work setting. Herzberg calls these hygiene factors. The two-factor theory links poor hygiene factors with job dissatisfaction (Schermerhorn, 2010).

Individual’s relation to work is basic and that one’s attitude towards work can very well determined success or failure. There are certain factors that tend to be consistently related to job satisfaction and others to job dissatisfaction. Intrinsic factors such as advancement, recognition, responsibility, and achievement seem to be related to job satisfaction on the other hand, dissatisfied respondents tended to cite extrinsic factors, such as supervision, pay, company policies, and working conditions. Frederick Herzberg and his colleagues identified two distinct factors that influenced motivation. These are:

1. Hygiene or maintenance factors. These constitute the condition in work, salary, quality of supervision, organizational policies, that make employees satisfied but not necessarily motivated. Absence of relationship with peers, status and security these factors will lead to dissatisfaction. Continually increasing the hygiene factor may not motivate the workers once it has become adequate. It will only keep the workers from becoming dissatisfied.
2. Motivational or job content factors these are the real motivators: achievement, responsibility and recognition. If continuously paid attention to, then naturally, these factors will lead to the motivation of the workers.

According to Herzberg, the motivational are the job factors that are intrinsically motivating the employees that constitute the most enduring sources of motivation in the work environment (Newstrom,2011).

Similarly, according to Medina (2011), improving any of the hygiene factors will not make the employees satisfied with their work; it will only prevent them from being dissatisfied.

**Conceptual Framework**

This study aimed to determine the level of job satisfaction among employees in selected fast food establishments in Iloilo City. The independent variables of the study were age, gender, marital status and employment position. The moderating variables are the hygiene or maintenance factors and motivational or job content factors. The dependent variable is the level of job satisfaction which is categorized into very dissatisfied, dissatisfied, neutral, satisfied and very satisfied.

**Employee’s Profile That May Affect Performance and Satisfaction**

Various references pre3sented presented the factors that may affect job satisfaction. Robbins (2001) explained the bearing of age, gender and tenure on job satisfaction.

**Age**-they see a number of positive qualities that older workers bring to their jobs: specifically, experience, judgment, a strong work ethic, and commitment to quality. But older workers are also perceived as lacking flexibility and as being resistant to new technology. The older you get, the less likely you are to quit your job. As workers get older, they have fewer alternative job opportunities. In addition, older workers are less likely to resign than are younger workers because their long tenure tends to provide them with higher wage rates, longer paid vacations, and more attractive pension benefits.

**Gender**- the evidence suggests that the best place to begin is with the recognition that there are few, if any, important differences between men and women that will affect their job performance. There are, for instance, no consistent male-female differences in problem-solving ability, analytical skills, competitive drive, motivation, sociability, or learning ability. Psychological studies have found that women are more willing to conform to authority and those men are more aggressive and more likely than women to have expectations of success, but those differences are minor. Similarly, there are no evidence indicating that an employee’s gender affects job satisfaction.

**Tenure**. If we define seniority as time on a particular job, we can say that the most recent evidence demonstrates a positive relationship between seniority and job productivity. So tenure, expressed as work experienced, appears to be a good predictor of employee productivity. Tenure is also a potent variable in explaining turnover. “Tenure has consistently been found to be negatively related to turnover and has been suggested as one of the single best predictors of turnover.” The evidence indicates that tenure and satisfaction are positively related (Robins, 2001).

**Paradigm of the Study**

**Independent Process Dependent**

**Variable Variable Variable**

Level of Job Satisfaction in terms of

A. Hygiene or Maintenance Factors

* Working Condition
* Pay and Promotion Potential

B. Motivational or Job Content Factors

* Use of Skills and Abilities
* Work Activities

Identification of the level of satisfaction of employees in terms of the following:

A. Hygiene or Maintenance Factors

* Working Condition
* Pay and Promotion Potential

B. Motivational or Job Content Factors

* Use of Skills and Abilities
* Work Activities

Determination if there are significant differences on the level of satisfaction of employees when grouped according to their profile.

Employee’s Profile

Age

* 18-22 years old
* 23 years old & above

Gender

* Male
* Female

Employment Status

* Regular
* Probationary

**Figure 1.*Schematic representation of the employee characteristics in relation to hygiene and motivational factors that leads to his level of job satisfaction***

**METHODOLOGY**

**The Research Design**

This survey on job satisfaction among the employees in selected fast food establishments made use of the descriptive-survey method. Descriptive studies describe a given state of affairs as fully and carefully as possible. In educational research, the most common descriptive methodology is the survey, as when researchers summarize the characteristics (abilities, preferences, behaviors, and so on) of individuals or groups or (sometimes) physical environments (Fraenkel & Wallen, 2010).

Since the study describe about the Level of job satisfaction among the employees in selected fast food establishments in Iloilo City the descriptive-survey method is the most appropriate to use. Through this research, the factors which have an effect on the job satisfaction of the employees can be determined with the aim of improving the satisfaction of employees for them to be more effective and efficient.

**Respondents of the Study**

Fifty (50) employees from the two fast food establishments were purposively chosen as respondents of this study. The characteristics of employees are shown in Table 1

**Table 1.Respondents’ Profile**

|  |  |  |
| --- | --- | --- |
| **CHARACTERISTICS** | **FREQUENCY** | **PERCENTAGE** |
| Age   * 18-22 yrs. old * 23 years old and above | 26  24 | 52%  48% |
| Gender   * Male * Female | 22  28 | 44%  56% |
| Employment Status   * Regular * Probationary | 10  40 | 20%  80% |
| Employment Position   * Service Crew * Others(Kitchen Personnel, Cashier, Production, Security Guard, Stockman and Delivery) | 31  19 | 62%  38% |

**Research Instrument**

The researchers used a questionnaire-checklist, a survey form which required selection and check responses from the respondents. The questions contained in this questionnaire-checklist were thoroughly formulated, and checked for the respondents to understand well.

The questionnaire-checklist was used in gathering data has two parts: Part I – General Information which includes the respondents’ name, age, gender, position, and name of establishment. Part II comprises there rating for job satisfaction such as Hygiene Factors and Motivation Factors. Each answer correspond the level of agreement using the scale: 5 – Highly Satisfied, 4 – Satisfied, 3 – Neutral, 2 – Dissatisfied, 1 – Highly Satisfied.

**Validity**

A copy of the questionnaire was submitted to the research adviser for corrections. Copies of the corrected questionnaire were again submitted to three experts in research for content validation using the Eight-point criteria by Good and Scates. The three experts gave their comments. All comments, corrections and recommendations were incorporated in the final copy of the questionnaire. The final copy of the questionnaire was approved by the three experts. With that, it was considered valid.

**Reliability**

The questionnaire was pre-tested among 10 employees of the two fast food establishments in Iloilo city who were not part of the final survey. After encoding and statistical analysis, it was found out that the Cronbach’s Alpha was 0.801.

According to Fraenkel & Wallen (2010), if the Cronbach’s Alpha result is greater than .70, the instrument is considered reliable.

Thus, the instrument was considered reliable.

**Data Gathering Procedure**

To successfully conduct the study, the researchers made a questionnaire-checklist. This was used as a survey form which requires selection and responses from the respondents who were the employees of selected Fast Food Establishments in Iloilo City, these questionnaires were checked by the evaluators for the validation.

The researchers wrote letter asking permission from the College Dean to conduct the survey. The researchers also wrote a letter to the managers of the two fast food establishments in Iloilo City to allow them to conduct the survey. After the two letters were approved, the researchers conducted the survey in the two fast food establishments.

**Statistical Tools**

The analyses of data made for this study were both descriptive and inferential

Descriptive statistics involved the use of frequency counts, percentage, mean and standard deviation.

**Frequency** – refers to the number of measurements in an interval of a frequency distribution. It indicates the ratio of the number of times an event occurs a series of trials of a chance experiment to the number of trials of the experiment performed.

In this study, frequency was used to present the profile of the respondents where the data shows the number of time a certain characteristics is possessed by the respondent.

**Percentage** – means a fraction or ratio with 100 understood as the denominator. For example, 0.98 is equal to a percentage of 98. It shows the result obtained by multiplying a quantity by a percent.

In this study, percentage was used to present the respondents profile and what part of the whole group possessed a certain characteristics.

**Mean** – refers to the average value of all the number of scores in a distribution, and is determined by adding up all the scores and then dividing this sum by the total number of scores.

The mean obtained was used to describe the level of job satisfaction of employees in the two fast food establishments.

The formula for the weighted mean is as follows:

Xw =

Where:

Xw = weighted mean

Σ*fx =* sum of all the products of *f* and *x*; where *f* is the frequency of each weight and *x* is the weight.

Σf = sum of all the respondents

**Standard deviation** – means a measure of the dispersion of a collection of numbers. It can apply to a probability distribution, a random variable, a population or a data set.

In this study, standard deviation was used to show the dispersion of the responses from the mean.

**T-test**- an inferential statistical tool used to determine significant differences in the level of job satisfaction of employees in selected fast food establishments among respondents when grouped according to gender, age, employment position, and establishment.

The formula for the t-test is as follows:

t = N (X1— X2)

√NΣ D2

N—1

where: t = ratio

N = the number of items

X1 and X2 = the mean of variables 1 and 2

D = the difference between means

**PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA**

This study dealt with determination of the level of job satisfaction of fast food establishment employees. Performance and the perceived low level of satisfaction of employees were some of the problems among the fast food establishments in Iloilo City.

Specifically, this study sought answers to the following questions:

1. What is the level of job satisfaction among fast food employees when taken as a whole and when grouped according to age, gender and employment status?
2. Is there a significant difference in the level of job satisfaction among employees when categorized according to age, gender and employment status?
3. Is there a significant difference in the level of job satisfaction among the employees of the two fast food establishments?

**Job satisfaction of employees when taken as a whole**

The Table showed that in Item A. (Hygiene Factors) under the Category Working Condition, “Safety” was the highest mean of 4.30 interpreted as highly satisfied under Pay and Promotion Potential Category; “Job Security” got the highest mean of 4.16 interpreted as satisfied.

In Item B. (Motivational Factors), Opportunity to learn new skills has the highest mean of 4.44 interpreted as highly satisfied, followed by “Flexibility in Scheduling” with a mean of 4.20 interpreted as satisfied under Work Activities.

The overall mean of 4.00 indicated that the employees of the two fast food establishments when taken as a whole grouped were satisfied.

***Table 2.Job satisfaction of employees when taken as a whole***

|  |  |  |  |
| --- | --- | --- | --- |
| **ITEM** | **MEAN** | **SD** | **QUALITATIVE INTERPRETATION** |
| 1. **Hygiene Factors** |  |  |  |
| **A. Working Condition** |  |  |  |
| 1. Location of work | 4.18 | 0.69 | Satisfied |
| 2. Safety | 4.30 | 0.71 | Highly Satisfied |
| 3. Hours work each week | 3.64 | 1.1 | Satisfied |
| 4. Amount of paid vacation time/sick leave offered | 3.48 | 1.15 | Satisfied |
| **Cluster Mean** | 3.90 |  | Satisfied |
| **B. Pay and promotion Potential** |  |  |  |
| 1. Salary | 3.62 | 0.78 | Satisfied |
| 2. Opportunities for promotion | 3.50 | 0.95 | Satisfied |
| 3. Benefits | 3.84 | 0.93 | Satisfied |
| 4. Job Securities | 4.16 | 0.71 | Satisfied |
| **Cluster Mean** | **3.78** |  | **Satisfied** |
| 1. **Motivational Factors** |  |  |  |
| **A. Use of Skills and Abilities** |  |  |  |
| 1. Opportunity to learn new skills | 4.44 | 0.7 | Highly Satisfied |
| 2. Opportunity to utilize your skills & talents | 4.32 | 0.79 | Highly Satisfied |
| 3. Opportunity for advancement | 4.18 | 0.8 | Satisfied |
| 4. Support for additional training | 4.04 | 0.95 | Satisfied |
| **Cluster Mean** | **4.24** |  | **Satisfied** |
| **B. Work Activities** |  |  |  |
| 1. Flexibility in scheduling | 4.20 | 0.7 | Satisfied |
| 2. Variety of job responsibilities | 4.10 | 0.81 | Satisfied |
| 3. Degree of independence associated with your work roles | 4.06 | 0.68 | Satisfied |
| 4. Adequate opportunity for periodic changes in duties | 3.96 | 0.78 | Satisfied |
| **Cluster Mean** | **4.08** |  | **Satisfied** |
| **COMPOSITE MEAN** | **4.00** |  | **Satisfied** |

**Mean Scale Description**

4.21-5.00 Highly Satisfied

3.41-4.20 Satisfied

2.61-3.40 Neutral

1.81-2.60 Dissatisfied

1.00-1.80 Highly Dissatisfied

**Job satisfaction of employees when grouped according to age**

When grouped according to age, the employees’ job satisfaction showed that ages between 18-22 years had a higher mean of 4.07 interpreted as satisfied compared to employees between 23years old and above who obtained a mean of 3.96 interpreted as satisfied. It simply shows that the fast food establishments are ideal for younger age. This can attributed to its fast paced operation and of being highly competitive.

**Age 18-22**

Interpretation of table 3 of job satisfaction of employee for ages 18-22 years old the table showed that the employees between 18-22 years old for the highest mean under the Working Condition category which were on “Safety” with a mean of 4.31 interpreted as highly satisfied under Pay and Promotion Potential “Job Securities” with a mean of 4.15, interpreted as satisfied for Item B. (Motivational Factors) “Opportunity to learn new Skills” for a mean of 4.62 interpreted as highly satisfied, under the Use of Skills and Abilities category while under the Work Activities “Variety of Job Responsibilities” Got the highest mean of 4.15 interpreted as satisfied.

**Ages 23 above**

The analysis showed that in Item A. (Hygiene Factors) under the category Working Condition, “Safety” for the highest mean of 4.29 interpreted as highly satisfied. For Item B. (Motivational Factors). “Opportunity to learn new Skills” got the highest mean of 4.25, interpreted as highly satisfied under Use of Skills and Abilities category “Flexibility in Scheduling” followed with a mean of 4.29 interpreted a highly satisfied, under Work Activities category.

***Table 3.Job satisfaction of employees when categorized according to Age***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ITEM** | **AGE: (18-22)** | | | **AGE: (23-ABOVE)** | | |
| **MEAN** | **SD** | **QUALITATIVE**  **INTERPRETATION** | **MEAN** | **SD** | **QUALITATIVE**  **INTERPRETATION** |
| I. **Hygiene Factors** |  |  |  |  |  |  |
| A. **Working Condition** |  |  |  |  |  |  |
| 1. Location of work | 4.23 | 0.71 | Highly Satisfied | 4.13 | 0.68 | Satisfied |
| 2. Safety | 4.31 | 0.74 | Highly Satisfied | 4.29 | 0.69 | Highly Satisfied |
| 3. Hours work each week | 3.58 | 1.03 | Satisfied | 3.71 | 1.20 | Satisfied |
| 4. Amount of paid vacation time/sick leave offered | 3.58 | 0.95 | Satisfied | 3.38 | 1.35 | Neutral |
| Cluster Mean | 3.96 |  | Satisfied | 3.88 |  | Satisfied |
| **B. Pay and promotion Potential** |  |  |  |  |  |  |
| 1. Salary | 3.58 | 0.90 | Satisfied | 3.67 | 0.64 | Satisfied |
| 2. Opportunities for promotion | 3.50 | 0.81 | Satisfied | 3.50 | 1.10 | Satisfied |
| 3. Benefits | 3.88 | 0.95 | Satisfied | 3.79 | 0.93 | Satisfied |
| 4. Job Securities | 4.15 | 0.73 | Satisfied | 4.17 | 0.70 | Satisfied |
| **Cluster Mean** | **3.78** |  | **Satisfied** | **3.78** |  | **Satisfied** |
| **II. Motivational Factors** |  |  |  |  |  |  |
| **A. Use of Skills and Abilities** |  |  |  |  |  |  |
| 1. Opportunity to learn new skills | 4.62 | 0.64 | Highly Satisfied | 4.25 | 0.74 | Highly Satisfied |
| 2. Opportunity to utilize your skills & talents | 4.42 | 0.81 | Highly Satisfied | 4.21 | 0.78 | Highly Satisfied |
| 3. Opportunity for advancement | 4.23 | 0.82 | Highly Satisfied | 4.13 | 0.80 | Satisfied |
| 4. Support for additional training | 4.19 | 0.90 | Satisfied | 3.88 | 0.99 | Satisfied |
| **Cluster Mean** | **4.42** |  | **Satisfied** | **4.12** |  | **Satisfied** |
| **B. Work Activities** |  |  |  |  |  |  |
| 1. Flexibility in scheduling | 4.12 | 0.77 | Satisfied | 4.29 | 0.62 | Highly Satisfied |
| 2.Variety of job responsibilities | 4.15 | 0.88 | Satisfied | 4.04 | 0.75 | Satisfied |
| 3. Degree of independence associated with your work roles | 4.12 | 0.71 | Satisfied | 4.00 | 0.66 | Satisfied |
| 4. Adequate opportunity for periodic changes in duties | 4.04 | 0.82 | Satisfied | 3.88 | 0.74 | Satisfied |
| **Cluster Mean** | **4.11** |  | **Satisfied** | **4.05** |  | **Satisfied** |
| **COMPOSITE MEAN** | **4.07** |  | **Satisfied** | **3.96** |  | **Satisfied** |

**Mean Scale Description**

4.21-5.00 Highly Satisfied

3.41-4.20 Satisfied

2.61-3.40 Neutral

1.81-2.60 Dissatisfied

1.00-1.80 Highly Dissatisfied

***Job satisfaction of employees when grouped according to gender***

When grouped according to gender, findings revealed that the males that the higher was 4.27 compared to females who had a mean of 3.91 the table showed that both mean were interpreted as satisfied.

Interpretation for table 4. Job Satisfaction of male employee when grouped according to gender.

**Male**

The analysis showed that for Item A. (Hygiene Factors), “Safety” has the highest mean of 4.41, interpreted as highly satisfied under Working Condition category, “Opportunities for Promotion” that the highest mean of 4.55 interpreted as highly satisfied, under Pay and Promotion Potential. For Item B. (Motivational Factors), “Opportunity to learn new Skills” that the highest mean of 4.73, interpreted as highly satisfied under Use of Skills and Abilities category.Followed by Variety of Job Responsibilities with a mean of 4.31, interpreted as highly satisfied under the Work Activities category.

**Female**

Analysis showed that for Item A. (Hygiene Factors), “Safety” has the highest mean of 4.21, interpreted as highly satisfied, Under Working Condition category. For Pay and Promotion Potential “Job Securities” that the highest mean of 4.11 interpreted as satisfied.

For Item B. (Motivational Factors), under the Use of Skills and Abilities, “Opportunity to learn new Skills” got the highest mean of 4.21, interpreted as highly satisfied. “Flexibility in Scheduling” followed with of 4.14 interpreted as satisfied under Work Activities Category.

Male are highly satisfied with a mean of 4.27 as compared to female who are just satisfied with a mean of 3.91. The result simply states that if the fast food establishments will hire male employees, it could not be difficult to motivate them since there is a high tendency that they will be satisfied with their job.

***Table 4.Job satisfaction of employees when categorized according to Gender***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ITEM** | **MALE** | | | **FEMALE** | | |
| **MEAN** | **SD** | **Q.I.** | **MEAN** | **SD** | **Q.I.** |
| **I. Hygiene Factors** |  |  |  |  |  |  |
| A. **Working Condition** |  |  |  |  |  |  |
| 1. Location of work | 4.36 | 0.66 | Highly Satisfied | 4.04 | 0.69 | Satisfied |
| 2. Safety | 4.41 | 0.59 | Highly Satisfied | 4.21 | 0.71 | Highly Satisfied |
| 3. Hours work each week | 3.36 | 1.14 | Neutral | 3.86 | 1.04 | Satisfied |
| 4. Amount of paid vacation time/sick leave offered | 3.55 | 1.22 | Satisfied | 3.43 | 1.10 | Satisfied |
| **Cluster Mean** | **3.92** |  | **Satisfied** | **3.89** |  | **Satisfied** |
| **B. Pay and promotion Potential** |  |  |  |  |  |  |
| 1. Salary | 4.45 | 0.91 | Highly Satisfied | 3.75 | 0.65 | Satisfied |
| 2. Opportunities for promotion | 4.55 | 0.80 | Highly Satisfied | 3.46 | 1.07 | Satisfied |
| 3. Benefits | 4.50 | 0.93 | Satisfied | 3.71 | 0.94 | Satisfied |
| 4. Job Securities | 4.23 | 0.75 | Highly Satisfied | 4.11 | 0.69 | Satisfied |
| **Cluster Mean** | 4.43 |  | Satisfied | 3.76 |  | Satisfied |
| **II. Motivational Factors** |  |  |  |  |  |  |
| **A. Use of Skills and Abilities** |  |  |  |  |  |  |
| 1. Opportunity to learn new skills | 4.73 | 0.55 | Highly Satisfied | 4.21 | 0.74 | Highly Satisfied |
| 2. Opportunity to utilize your skills & talents | 4.50 | 0.80 | Highly Satisfied | 4.18 | 0.77 | Satisfied |
| 3. Opportunity for advancement | 4.41 | 0.80 | Highly Satisfied | 4.00 | 0.77 | Satisfied |
| 4. Support for additional training | 4.27 | 0.94 | Highly Satisfied | 3.86 | 0.93 | Satisfied |
| **Cluster Mean** | **4.48** |  | **satisfied** | **4.06** |  | **Satisfied** |
| **B. Work Activities** |  |  |  |  |  |  |
| 1. Flexibility in scheduling | 4.27 | 0.63 | Highly Satisfied | 4.14 | 0.76 | Satisfied |
| 2. Variety of job responsibilities | 4.41 | 0.67 | Highly Satisfied | 3.86 | 0.85 | Satisfied |
| 3. Degree of independence associated with your work roles | 4.27 | 0.77 | Highly Satisfied | 3.89 | 0.57 | Satisfied |
| 4. Adequate opportunity for periodic changes in duties | 4.09 | 0.87 | Satisfied | 3.86 | 0.71 | Satisfied |
| **Cluster Mean** | **4.26** |  | **Highly Satisfied** | **3.94** |  | **Satisfied** |
| **COMPOSITE MEAN** | **4.27** |  | **Highly Satisfied** | **3.91** |  | **Satisfied** |

QI - Qualitative Interpretation

**Mean Scale Description**

4.21-5.00 Highly Satisfied

3.41-4.20 Satisfied

2.61-3.40 Neutral

1.81-2.60 Dissatisfied

1.00-1.80 Highly Dissatisfied

***Job Satisfaction of Probationary Employees when grouped according to employment status***

**Probationary**

The table showed that for Item A. (Hygiene Factors), “Safety” has the highest mean of 4.35, interpreted as highly satisfied under Pay and Promotion Potential category, “Job Securities” has the highest mean of 4.20 interpreted as satisfied.

For Item B. (Motivational Factors), under the Use of Skills and Abilities category, “Opportunity to lean New Skills” got the highest mean of 4.60, interpreted as highly satisfied “Flexibility in Scheduling” has a mean of 4.25 interpreted as highly satisfied under Work Activities category.

**Regular**

The table showed that under the Working Condition category for Item A. (Hygiene Factors), “Hours work each week” got the highest mean of 4.40, interpreted as highly satisfied. “Job Securities” under Pay and Promotion Potential got a mean of 4.00, interpreted as satisfied.

***Table 5.Job satisfaction of employees when categorized according to Employment Status***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ITEM** | **PROBATIONARY** | | | **REGULAR** | | |
| **MEAN** | **SD** | **Q.I.** | **MEAN** | **SD** | **Q.I.** |
| **I. Hygiene Factors** |  |  |  |  |  |  |
| A. **Working Condition** |  |  |  |  |  |  |
| 1. Location of work | 4.25 | 0.67 | Highly Satisfied | 3.90 | 0.74 | Satisfied |
| 2. Safety | 4.35 | 0.70 | Highly Satisfied | 4.10 | 0.74 | Satisfied |
| 3. Hours work each week | 3.45 | 1.11 | Satisfied | 4.40 | 0.70 | Highly Satisfied |
| 4. Amount of paid vacation time/sick leave offered | 3.40 | 0.17 | Satisfied | 3.80 | 1.03 | Satisfied |
| Cluster Mean | 3.86 |  | Satisfied | 4.05 |  | Satisfied |
| **B. Pay and promotion Potential** |  |  |  |  |  |  |
| 1. Salary | 3.55 | 0.81 | Satisfied | 3.90 | 0.57 | Satisfied |
| 2. Opportunities for promotion | 3.45 | 0.96 | Satisfied | 3.70 | 0.95 | Satisfied |
| 3. Benefits | 3.88 | 0.97 | Satisfied | 3.70 | 0.82 | Satisfied |
| 4. Job Securities | 4.20 | 0.73 | Satisfied | 4.00 | 0.67 | Satisfied |
| **Cluster Mean** | **3.77** |  | **Satisfied** | **3.83** |  | **Satisfied** |
| **II. Motivational Factors** |  |  |  |  |  |  |
| **A. Use of Skills and Abilities** |  |  |  |  |  |  |
| 1. Opportunity to learn new skills | 4.60 | 0.63 | Highly Satisfied | 3.80 | 0.63 | Satisfied |
| 2. Opportunity to utilize your skills & talents | 4.48 | 0.72 | Highly Satisfied | 3.70 | 0.82 | Satisfied |
| 3. Opportunity for advancement | 4.30 | 0.76 | Highly Satisfied | 3.70 | 0.82 | Satisfied |
| 4. Support for additional training | 4.25 | 0.84 | Highly Satisfied | 3.20 | 0.92 | Neutral |
| **Cluster Mean** | **4.41** |  | **Highly Satisfied** | **3.60** |  | **Satisfied** |
| **B. Work Activities** |  |  |  |  |  |  |
| 1. Flexibility in scheduling | 4.25 | 0.71 | Highly Satisfied | 4.00 | 0.67 | Satisfied |
| 2. Variety of job responsibilities | 4.23 | 0.80 | Highly Satisfied | 3.60 | 0.70 | Satisfied |
| 3. Degree of independence associated with your work roles | 4.13 | 0.69 | Satisfied | 3.80 | 0.63 | Satisfied |
| 4. Adequate opportunity for periodic changes in duties | 4.05 | 0.75 | Satisfied | 3.60 | 0.84 | Satisfied |
| **Cluster Mean** | **4.17** |  | **Satisfied** | **3.75** |  | **Satisfied** |
| **COMPOSITE MEAN** | **4.05** |  | **Satisfied** | **3.81** |  | **Satisfied** |

QI - Qualitative Interpretation

**Mean Scale Description**

4.21-5.00 Highly Satisfied

3.41-4.20 Satisfied

2.61-3.40 Neutral

1.81-2.60 Dissatisfied

1.00-1.80 Highly Dissatisfied

***The Level of Satisfaction of the Employees in Fast Food Chain 1 as Compared to fast Food Chain 2***

**Fast Food Establishments I**

Analysis of individual items revealed that the highest mean in the Hygiene Factors under the Working Condition was on “Safety” and “Location of work” both with a mean of 4.31 interpreted as highly satisfied. In Pay and Promotion Potential the highest mean was on “Job Security” with a mean of 4.08 interpreted satisfied. For Motivational Factors under the Use of skills and abilities the highest mean was on “Opportunity to learn new skills” with a mean of 4.54 interpreted as highly satisfied. This was followed by “Flexibility in Scheduling” and “Variety of Responsibilities” under the Work Activities both with a mean of 4.15, interpreted as satisfied.

Interpretation Table 6 – Job Satisfied of Employees in Fast Food Establishments II when categorized According to Establishment.

**Fast Food Establishments II**

Analysis of individual items revealed that among the employees in the fast food establishments II, the highest mean in the Hygiene Factors under the Working Condition was on “Safety” and “Hours work each week” both with a mean of 4.29, interpreted as highly satisfied. In Pay and Promotion Potential the highest mean was on “Job Security” with a mean of 4.25, interpreted as highly satisfied. For Motivational Factors the highest mean in the Use of Skills and Abilities was on “Opportunity to learn new skills” with a mean of 4.33, interpreted as highly satisfied. In the Work Activities the highest mean was the “Flexibility in Scheduling” with a mean of 4.25, interpreted as highly satisfied.

***Table 6.Job satisfaction of employees when categorized according to Establishment***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ITEM** | **FAST FOOD ESTABLISHMENTS I** | | | **FAST FOOD ESTABLISHMENTS II** | | |
| **MEAN** | **SD** | **Q.I.** | **MEAN** | **SD** | **Q.I.** |
| **I. HYGIENE FACTORS** |  |  |  |  |  |  |
| 1. **WORKING CONDITION** |  |  |  |  |  |  |
| 1.Location of work | 4.31 | 0.68 | Highly Satisfied | 4.04 | 0.69 | Satisfied |
| 2. Safety | 4.31 | 0.68 | Highly Satisfied | 4.29 | 0.75 | Highly Satisfied |
| 3. Hours work each week | 3.04 | 1.08 | Neutral | 4.29 | 0.69 | Highly Satisfied |
| 4. Amount of paid vacation time/sick leave offered | 3.27 | 1.12 | Neutral | 3.71 | 1.16 | Satisfied |
| Cluster Mean | 3.73 |  | Satisfied | 4.08 |  | Satisfied |
| PAY AND PROMOTIONAL POTENTIAL |  |  |  |  |  |  |
| 1. Salary | 3.46 | 0.86 | Satisfied | 3.79 | 0.66 | Satisfied |
| 2. Opportunity for promotion | 3.38 | 1.02 | Neutral | 3.63 | 0.88 | Satisfied |
| 3. Benefits | 3.69 | 0.97 | Satisfied | 4.00 | 0.88 | Satisfied |
| 4. Job security | 4.08 | 0.74 | Satisfied | 4.25 | 0.68 | Highly Satisfied |
| **Cluster Mean** | **3.65** |  | **Satisfied** | **3.92** |  | **Satisfied** |
| **II. MOTIVATIONAL FACTORS** |  |  |  |  |  |  |
| **A. USE OF SKILLS AND ABILITIES** |  |  |  |  |  |  |
| 1. Opportunity to learn new skills | 4.54 | 0.71 | Highly Satisfied | 4.33 | 0.70 | Highly Satisfied |
| 2. Opportunity to utilize your skills and talents | 4.38 | 0.80 | Highly Satisfied | 4.25 | 0.79 | Highly Satisfied |
| 3. Opportunity for advancement | 4.27 | 0.78 | Highly Satisfied | 4.08 | 0.83 | Satisfied |
| 4. Support for additional training | 4.15 | 0.83 | Satisfied | 3.92 | 1.06 | Satisfied |
| **Cluster Mean** | **4.34** |  | **Highly Satisfied** | **4.15** |  | **Satisfied** |
| 1. WORK ACTIVITIES |  |  |  |  |  |  |
| 1. Flexibility and scheduling | 4.15 | 0.78 | Satisfied | 4.25 | 0.61 | Highly Satisfied |
| 2. Variety of responsibilities | 4.15 | 0.83 | Satisfied | 4.04 | 0.81 | Satisfied |
| 3.Degree of independence associated with your work rules | 4.08 | 0.69 | Satisfied | 4.04 | 0.69 | Satisfied |
| 4.Adequate opportunity for periodic changes in duties | 3.85 | 0.78 | Satisfied | 4.08 | 0.78 | Satisfied |
| **Cluster Mean** | **4.06** |  | **Satisfied** | **4.10** |  | **Satisfied** |
| **COMPOSITE MEAN** | **3.95** |  | **Satisfied** | **4.06** |  | **Satisfied** |

QI - Qualitative Interpretation

**Mean Scale Description**

4.21-5.00 Highly Satisfied

3.41-4.20 Satisfied

2.61-3.40 Neutral

1.81-2.60 Dissatisfied

1.00-1.80 Highly Dissatisfied

T-test results shows that the computed value of .554 is greater than 0.05 level of significance, so the null hypothesis is accepted. Thus, there is no significant difference in the level of job satisfaction of employees in selected fast food establishments in terms of working condition, pay and promotion potential, use of skills and abilities and work activities when grouped according to Age.

When grouped according to gender, T-test results shows that the computed value of .163 is greater than 0.05 level of significance, so the null hypothesis is accepted. Thus, there is no significant difference in the level of job satisfaction of employees in selected fast food establishments in terms of working condition, pay and promotion potential, use of skills and abilities and work activities.

When grouped according to employment status, T-test results showed that the computed value of .218 is greater than 0.05 level of significance, so the null hypothesis is accepted. Thus, there is no significant difference in the level of job satisfaction of employees in selected fast food establishments in terms of working condition, pay and promotion potential, use of skills and abilities and work activities.

Lastly, T-test results shows that the computed value of .433 is greater than 0.05 level of significance, so the null hypothesis is accepted. Thus, there is no significant difference in the level of job satisfaction of employees in selected fast food establishments in terms of working condition, pay and promotion potential, use of skills and abilities and work activities when grouped according to Establishment.

**Table 7.T-test Results for Significant Differences in the Level of Job Satisfaction of Employees when grouped according to Age, Gender, Employment Status and Establishment**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **T** | **Df** | **Sig**  **(2-tailed)** | **Decision** | **Interpretation** |
| AGE | .596 | 47.950 | .554 | Accept HO | Not significant |
| GENDER | 1.417 | 46.968 | .163 | Accept HO | Not significant |
| EMPLOYMENT STATUS | 1.294 | 13.400 | .218 | Accept HO | Not significant |
| ESTABLISHMENT | -.790 | 47.047 | .433 | Accept HO | Not significant |

\*Significant @ = 0.05

**SUMMARY, CONCLUSION AND RECOMMENDATION**

**Summary of the Study**

This study was conducted in order to determine the level of job satisfaction among employees in selected fast food establishments in Iloilo city in terms of working condition, pay and promotion potential, use of skills and abilities and work activities. Specifically, it sought to determine the level of job satisfaction among employees in selected fast food establishments in terms of working condition, pay and promotion potential, use of skills and abilities and work activities when taken as a whole when and group according to age, gender, employment status, and employment position. It also sought to determine whether there was significant difference in the level of job satisfaction among employees in selected fast food establishments in Iloilo city in terms of working condition, pay and promotion potential, use of skills and abilities and work activities when group according to age, gender and employment status. It sought to determine the other factor to satisfy the employee’s and other factors need to be improved.

It was hypothesized that there was no significant difference in the level of job satisfaction among employees in selected fast food establishments in Iloilo city in terms of working condition, pay and promotion potential, use of skills and abilities and work activities when group according to age, gender, employment status, and employment position.

The data needed for this study were gathered through the use of researchers’ made checklist questionnaire, which were validated and reliability tested. This descriptive study used purposive-convenience sampling and surveyed 50 employees who worked in selected fast food establishments in Iloilo City.

**Summary of Findings**

The following were the findings of the study:

1. The respondents were satisfied with their job in both fast food establishments, when taken as a whole group.

2. The respondents were also satisfied with their job in both fast food establishments, when grouped according to age, gender and employment status

3. In terms of working condition, pay and promotion, use of skills and abilities and working activities the respondents were satisfied when taken as a whole.

4. The respondents were satisfied with their Working Condition, Pay and Promotion, Use of Skills and Abilities and Working Activities, when grouped according to age, gender and employment status.

5. The test for significant differences in the level of job satisfaction among employees revealed that there were no significant differences in the level of job satisfaction when grouped according to age, gender and employment status.

**Conclusion**

Based on the findings of this study, therefore we conclude that the respondents in both Fast Food establishments where satisfied with their job when taken as a whole and when categorized according to age, gender and employment status.

Also, the respondents in both Fast Food Establishments found satisfaction in terms of Working Conditions, Pay and Promotion, Use of Skills and Abilities, and Working Position both when taken as a whole and categorized according to age, gender and employment status.

The findings further showed that there was no significant difference in the level of satisfaction when grouped according to age, gender and employment status.

**Recommendation**

Based from the findings and conclusion, the following recommendations are hereby presented.

1. It is recommended that both management of the two fast food establishments look into making improvements with regards to the pay and promotion potential of employee since this was the lowest cluster mean satisfaction to motivate employees and this will increase the level of performance of employees and discourage them to leave their job.

2. Management should give vacation and sick-leave benefits to their employees.

3. It is also recommended that the management of Fast Food Establishments 1 to have feedback and recognition are both important – developmental feedback helps employees make corrections to their behaviour and recognition or positive feedback provides recognition and supports positive affect.

4. For the management of Fast Food Establishments 2 it is recommended that they should give incentives to their employees to give their best efforts to their work.

5. It is also recommended that part of the training of personnel should include on personality development, especially in customer relations so that pleasant attitudes could be portrayed in dealing with customer.

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**Level of Job Satisfaction of the Employees in Selected Fast Food Establishments**

**St. Therese MTC-Colleges, La Fiesta Site**

**PART I**

**GENERAL INFORMATION**

Name (Optional): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of Establishment: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Age: 18-22 ( ) 23 above ( )

Gender: F ( ) M ( )

Employment Status:

Probationary: ( ) Regular: ( )

**PART II**

**RATING YOUR JOB SATISFACTION**

Please indicate your level of agreement with each of the following. Check the corresponding box of your answer.

**Scale** **Description**

5 Highly satisfied

4 Satisfied

3 Neutral

2 Dissatisfied

1 Highly dissatisfied

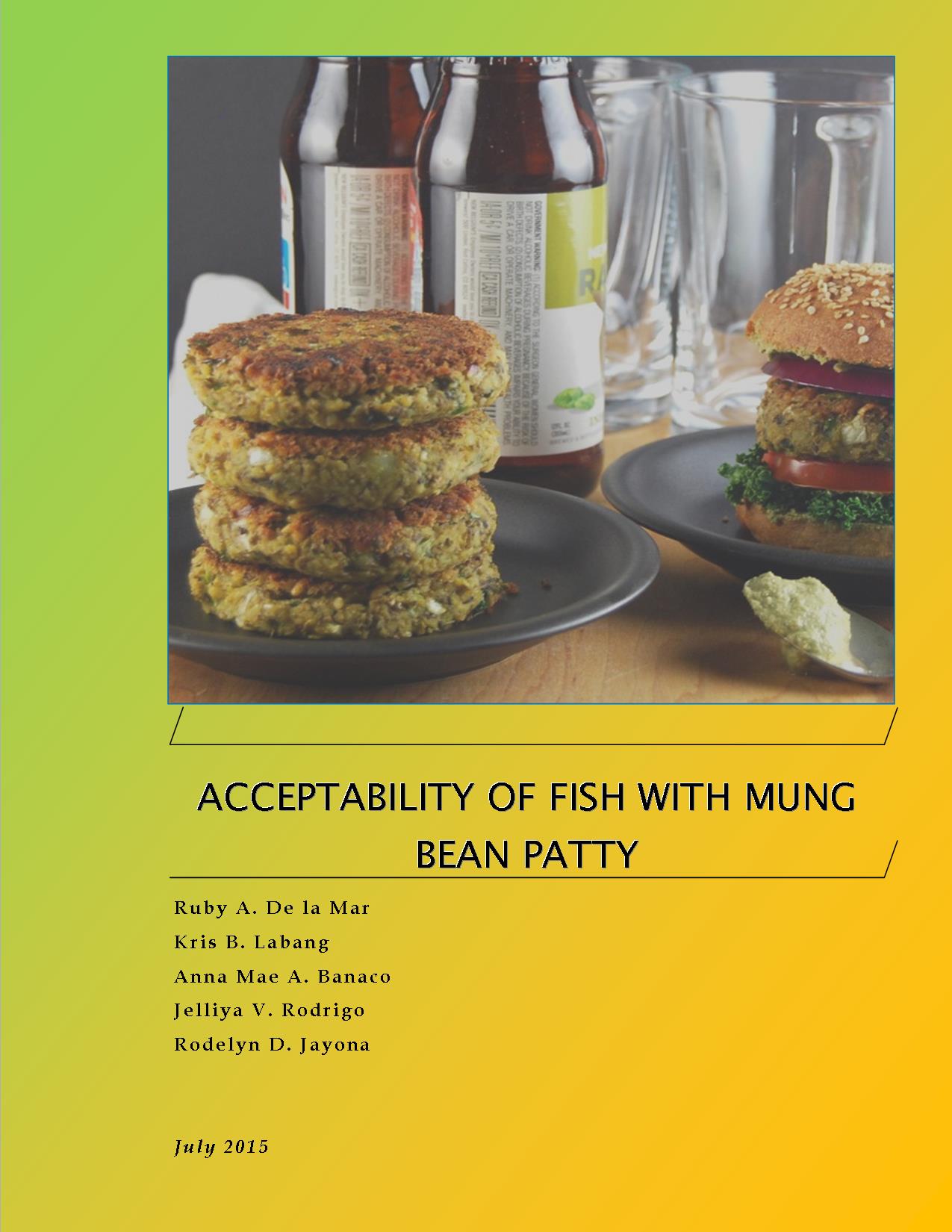
A. HYGIENE FACTORS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **I. Working Conditions** | **5** | **4** | **3** | **2** | **1** |
| 1.Location of work |  |  |  |  |  |
| 2. Safe |  |  |  |  |  |
| 3.Hours work each week |  |  |  |  |  |
| 4.Amount of paid vacation time/sick leave offered |  |  |  |  |  |
| **II. Pay and Promotion Potential** |  |  |  |  |  |
| 1.Salary |  |  |  |  |  |
| 2.Opportunities for promotion |  |  |  |  |  |
| 3. Benefits (heath insurance, life insurance, etc.) |  |  |  |  |  |
| 4.Job security |  |  |  |  |  |

B. MOTIVATIONAL FACTORS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **I. Use of Skills and Abilities** | **5** | **4** | **3** | **2** | **1** |
| 1. Opportunity to learn new skills |  |  |  |  |  |
| 2. Opportunity to utilize your skills and talents |  |  |  |  |  |
| 3. Opportunity for advancement |  |  |  |  |  |
| 4. Support for additional training |  |  |  |  |  |
| **II. Work Activities** |  |  |  |  |  |
| 1. Flexibility in scheduling |  |  |  |  |  |
| 2. Variety of job responsibilities |  |  |  |  |  |
| 3. Degree of independence associated with your work roles |  |  |  |  |  |
| 4. Adequate opportunity for periodic changes in duties |  |  |  |  |  |

THANK YOU!

****

**ABSTRACT**

The study develops an alternative to commercial patty using fish and mung bean (monggo) as a substitute to beef as the main ingredient. The study evaluated also the acceptability of fish with Mung bean patty among culinary students and culinary instructors, TLE and HE teachers and burger stand owners and employees in terms of flavor, texture, aroma and appearance. Experimental research design use cream dory fish and mung bean in different measurements as treatment variables. Purposive sampling method was used and determined thirty (30) respondents which includes eight (8) culinary students, three (3) culinary instructors, ten (10) HE and TLE teachers, nine (9) burger stands owners and employees. The study requires three (3) replications in order to determine the cause of difference. Data was gathered by providing the respondents a checklist and sample products to be evaluated during pre-test survey and final survey. Results shows that among three (3) patties composed of fish with mung bean (monggo): All of them were highly accepted by the respondents in terms of flavor, texture, aroma and appearance. Thus, it showed that using fish with mung bean (monggo) in making patty was accepted by the respondents in terms of flavor, texture, aroma and appearance. Lastly, results of wilcoxon rank-signed test revealed that there exist a significant difference in the level of acceptability between the beef patty and fish with mung bean patty specifically in terms of flavor, texture, aroma and appearance of treatment A, flavor and aroma of treatment B when compared to the beef patty (treatment D) which is the control whereas Treatment C is the only treatment that is comparable to the control and accepts the null hypothesis which states that there is no significant difference exist in the level of acceptability when compared to treatment D which is the control variable .

**INTRODUCTION**

**Background of the Study**

At the heart of every hamburger is the patty. Most people always think of a hamburger patty as a pure beef. But they were wrong, patty can be any meat mixed with other ingredients and form into a round shape meat.

Hamburger has two basic ingredients, beef and the bread. Beef is grounded and is formed into a short cylindrical shape seasoned with condiments to add flavour, called beef patty. But red meat (beef, pork and lamb) have more cholesterol and saturated fat than chicken, fish and vegetables proteins such as beans (http://bbq.about.com/od/hamburgers/a/aa050298.htm).

Cholesterol and saturated fat can raise the blood pressure and can worsen heart diseases. Chicken and fish have less saturated fat than most red meat, the saturated fatty fish such as salmon actually have health benefits like omega-3 fatty acids found from fish and some plants source, may reduce the risk of cardio-vascular diseases.

**What is Mung bean?**

Mung bean can also help reducing unhealthy saturated fat and cholesterol. It provides dietary fiber which lower cholesterol level in the blood. Mung bean also provides phytosterols, which is another plant nutrient that may lower cholesterol levels.

Since mung bean lowers cholesterol, it is good to many diseases like blood pressure and diabetes. (www.yourhealthybody.jillianmicheals.com/health-benefits-mung-beans-3533.html)

Fish also contains low fat, low calories source of protein which is ideal in calorie controlled diet. It contains calcium for healthier bones and for proper cellular reaction. (www.3fatchicks.com/5-health-benefits-of-mung-beans)

Combining fish and mung bean produces healthier food compared to any combination of food. It could be substituted to ingredients to make the food more nutritious.

In this study the researcher wants to create a healthier and more nutritious patty as a substitute to the beef patty by combining the fish with mung bean. Preferably the parent would choose this type of patty because it is healthy for their kids. This can be easily prepared, low cost and the ingredients can be easily bought in the market.

**Statement of the Problem**

The problem of this study is the increasing number of the individual buying burger with beef patty which causes heart problems due to high cholesterol content and saturated fat. Most of the time the children want to buy burger in fast food chains and some students used to eat burgers during break times and sometimes as substitute to lunch and dinner.

It was ideal for the people, especially the children, that they should not always buy burgers because they have high cholesterol and unhealthy fats that could trigger cardio-vascular diseases. People should be health conscious due to the prevalent illness caused by their diet on the food we eat.

Commercialized burgers and patties have artificial flavour and preservatives to prolong the life span of the food.

Nowadays fast food chains and burger stands are rapidly increasing in number. Almost everywhere, you could find a stand that sells burgers. Malls have stores that specialized in making burger and all of these food chains and stands that sell burger uses beef patties which contain high cholesterol and unhealthy fats that could trigger cardiovascular diseases. As a result, the researcher would like to find an alternative to the beef patties used in burgers among Culinary Instructor and students, HE and TLE Teachers and burger stands owners and employees by innovation of the fish patty using mung bean as one of the main ingredient. This study aims to minimize the consumption of unhealthy food products especially the beef patty through creating an alternative patty using fish with mung bean to improve the nutritional value. There is no existing document stating the acceptability of the said product.

**Specific Problems**

Specifically this study attempts to answer the following question:

1. What is the acceptability level of fish with mung bean patty when proportioned to (A)125 grams cream dory fish, 375 grams mung bean; (B)250 grams cream dory fish, 250 grams mung bean; (C)375 grams cream dory fish, 125 grams mung bean compared to the (D) 500 grams beef patty in terms of flavor, aroma, texture and appearance per replication?
2. What is the general acceptability of fish with mung bean patty when proportioned to(A)125 grams cream dory fish, 375 grams mung bean; (B)250 grams cream dory fish, 250 grams mung bean; (C)375 grams cream dory fish, 125 grams mung bean compared to the (D) 500 grams beef patty when taken per replication and in terms of flavor, aroma, texture and appearance?
3. Is there significant difference in the acceptability level between the (D) 500 grams beef patty and fish with mung bean patty when proportioned to (A) 125 grams cream dory fish, 375 grams mung bean; (B) 250 grams cream dory fish, 250 grams mung bean; (C) 375 grams cream dory fish, 125 grams mung bean in terms of flavor, aroma, texture and appearance?
4. Is there significant difference in the acceptability level between (D) 500 grams beef patty and fish with mung bean patty when proportioned to (A) 125 grams cream dory fish, 375 grams mung bean; (B) 250 grams cream dory fish, 250 grams mung bean; (C) 375 grams cream dory fish, 125 grams mung bean when compared to each other?

**Objectives of the Study**

This study will be conducted to determine the level of acceptability of different proportion of fish with mung bean patty in terms of flavor, aroma, texture and appearance.

**Specific Objectives**

This study aims to:

1. Determine the acceptability level of fish with mung bean patty when proportioned to (A)125 grams cream dory fish, 375 grams mung bean; (B)250 grams cream dory fish, 250 grams mung bean; (C)375 grams cream dory fish, 125 grams mung bean compared to the (D) 500 grams beef patty in terms of flavor, aroma, texture and appearance per replication.
2. Determine the general acceptability of fish with mung bean patty when proportioned to(A)125 grams cream dory fish, 375 grams mung bean; (B)250 grams cream dory fish, 250 grams mung bean; (C)375 grams cream dory fish, 125 grams mung bean and (D) 500 grams beef patty when taken per replication and in terms of flavor, aroma, texture and appearance.
3. Determine the significant difference in the acceptability level between the (D) 500 grams beef patty and fish with mung bean patty when proportioned to (A) 125 grams cream dory fish, 375 grams mung bean; (B) 250 grams cream dory fish, 250 grams mung bean; (C) 375 grams cream dory fish, 125 grams mung bean in terms of flavor, aroma, texture and appearance.
4. Determine the significant difference in the acceptability level between (D) 500 grams beef patty and fish with mung bean patty when proportioned to (A) 125 grams cream dory fish, 375 grams mung bean; (B) 250 grams cream dory fish, 250 grams mung bean; (C) 375 grams cream dory fish, 125 grams mung bean when compared to each other.

**Null Hypothesis**

There is no significant difference in the acceptability level between the (D) 500 grams beef patty of fish with mung bean patty when proportioned to (A) 125 grams cream dory fish, 375 grams mung bean; (B)250 grams cream dory fish, 250 grams mung bean; (C) 375 grams cream dory fish, 125 grams mung bean in terms of flavor, aroma, texture and appearance.

**Definition of Terms**

The following terms are defined nominally and operationally.

**Patty**

Nominally, patty is a small flat cake of chopped food (as ground meat) (Merriam-Webster’s Collegiate Dictionary 11th Edition, 2011).

In this study, patty is a small flat cake of grinded fish with mung bean in order to improve its nutritional value that will minimize the consumption of the market form of patty.

**Mung Bean (Mongo)**

Nominally, mung bean is an erect or bushy annual bean that is probably native in India, is widely cultivated in warm regions for its edible usu., green or yellow seeds, for green manure or for forage and is the chief source of the bean sprout used in Chinese cooking, also so called green gram (Merriam-Webster’s Collegiate Dictionary 11th Edition, 2011).

In this study, Mung bean refers to an erect bushy annual bean which will be used as one of the main ingredients or raw material in making patty.

**Pangasius (cream dory)**

Nominally, Pangasius (cream dory) is a term used for a special variety of imported freshwater fish that have become the tenth most popular seafood product eaten in the United States (http://seafoodhealthfacts.org/seafood\_choices/pangasius.php).

In this study, pangasius is a kind of fish that will be used as one of the main ingredients in making fish with mung bean patty.

**Beef**

Nominally, beef is the flesh of an adult domestic bovine (as a steer or cow) used as food (http://www.merriam-webster.com/dictionary/beef).

In this study, beef is the flesh of an adult domestic cow, ground and then season to make the control variable which is the beef patty.

**Burger**

Nominally, burger is a sandwich with a filling consisting of hamburger patty topped with a food (Merriam-Webster’s Collegiate Dictionary 11th Edition, 2011).

In this study, burger is a sandwich with a filling consisting of patty made of ground fish with mung bean and beef.

**Acceptability**

Nominally, acceptability is the quality of being accepted (Merriam-Webster’s Collegiate Dictionary 11th Edition, 2011).

In this study, acceptability refers to the approval by the respondents to the taste, aroma, texture and appearance of the fish with mung bean patty.

**Flavor**

Nominally, taste is special sense that identifies sweet, sour, bitter, or salty qualities (Merriam-Webster’s Collegiate Dictionary 11th Edition, 2011).

In this study, flavor refers to the quality of the patty, especially its distinctive flavor using mung bean and fish as the main ingredient that should be tasted by the respondents.

**Aroma**

Nominally, aroma is a distinctive pleasing odor (Merriam-Webster’s Collegiate Dictionary 11th Edition, 2011).

In this study, aroma is a distinctive pleasing odor of the patty when served to the respondents.

**Texture**

Nominally, texture is a feel and appearance of something (Merriam-Webster’s Collegiate Dictionary 11th Edition, 2011).

In this study, texture is the feel and appearance of the patty.

**Appearance**

Nominally, appearance is a sense impression or aspect of a thing (Merriam-Webster’s Collegiate Dictionary 11th Edition, 2011).

In this study, appearance is the impression of the respondents towards the outer look of the patty.

**General Acceptability**

Nominally, it is the unqualified acceptance. (Merriam-webster.com/dictionary)

In this study, general acceptability is the mean of the sum total of the four variables namely flavor, texture, aroma, and appearance.

**Significance of the Study**

This study will be beneficial to the following:

**HRM Students.** The result of the study can help college students especially HRM Students to strengthen their own study similar to this. This study can help them to be more knowledgeable about patties and can help them create and develop more varieties of patties with high nutritional value that is acceptable to the society.

**Entrepreneurs.** This study will be beneficial to entrepreneurs on whom it will serve as information to them that there are health benefits we could get from fish with mung bean patty. They will have the opportunity to produce this kind of patty and can be introduced to the society.

**Parents.** This study is beneficial to the parents, who are responsible for the food intake of their children. As we see today, some children eat foods that are innutritious so parents will have information on what are the nutritional values brought by the fish with mung bean patty and will give them awareness and security on the product introduce to the society.

**Fast Food Chain Owners.** The result of the study will give fast food chain owners to have ample information especially hamburger serving fast food chains that there are nutritional value we could get from fish with mung bean patty and can be added to their menu. They will have also lesser expense in terms of buying the ingredients.

**Fishermen.** The result of the study will be beneficial to the fishermen since fish is one of the main ingredients in making the fish with mung bean patty. Fishermen will have an increase in income because they are the source of ingredient in the study.

**Farmers.** The findings of study will help the farmers to have their additional income since mung bean (mongo) is one of the main ingredients too. They will plant more and more mung bean (mongo) and other root crops to support their own families.

**Future Researchers.** The result of the study may serve as reference to future researchers having related study and will guide them on doing further study about different varieties of patty.

**Scope and Limitations**

This study is focused on the acceptability level of fish with mung bean in making patty among the culinary instructor and students, HE and TLE teachers and burger stand owners and employees. The researcher used the ingredients such as cream dory and mung bean in order to know the acceptability level of fish with mung bean patty in terms of flavor, aroma, texture and appearance. The above mentioned ingredients would be boiled which removed the foul odor of the fish and to soften the mung bean and then grind to make patty. The control variable is the commercialized beef patty. But due to financial constraints the researcher gave a burger without dressing as the sample product to the respondents of this study.

The researchers used the Quasi-Experimental Research; the respondents identified by Purposive Sampling. The sample size was 30 and the respondents are the culinary instructors and students with culinary subject of St. Therese-MTC Colleges, La Fiesta Site, HE and TLE teachers of Oton National High School, employees and/or employees of Angel’s Hamburger and Big Mac, Minute Burger, and Franks n’ Burger. A questionnaire was used in evaluating the food products with a Likert scale attached in the score sheet. Due to money constraints, the researchers gave a mini-burger as the sample product for this study.

The duration of the study began from August 2013 to April 2014 including the pre-test and the final survey.

**REVIEW OF RELATED LITERATURE**

**Conceptual Literature**

**Cream dory**

Cream dory (Pangasius) is a term used for a special variety of imported freshwater fish that have become the tenth most popular seafood product eaten in the United States. Consumers are eating about 6 ounces of Cream Dory (Pangasius) per year and demand for this moderately priced selection is expected to continue to increase. It is a primary example of the increasing demand and dependence on aquaculture or farm raised seafood products.

Pangasius is the scientific family name for certain types of freshwater catfish primarily found in Vietnam, Cambodia and neighboring nations. Like the U.S. catfish industry, aquaculture production techniques have been applied to these species, and the number of fish being raised in cages and ponds in the Mekong River Delta region of Vietnam has increased rapidly. The demand for these fish is driving an expansion of farming operations in other nations including China, Cambodia, Laos and Thailand. All of the species being raised in these countries are Asian catfish.

Confusion about the variety of different catfish species produced in many different countries has created problems for buyers trying to distinguish product attributes and price. The nomenclature is complicated by similar names for different fish species and by the production of the same fish species in different locations.

Pangasius or Cream Dory is an important fish food, farmed extensively in many parts of the world. The Department of Trade and Industry (DTI) is pushing for the development of the cream dory or Pangasius fish industry in the country because of its high market demand to local and foreign restaurants particularly in Europe. It is locally known as “kanduling-itim” and is a relative of the hito and the kanduli. But whereas the kanduli is silver, the cream dory is silver and black.

Pangasius or Cream Dory is now slowly being accepted in local markets as consumers enjoy its neutral taste, flavor, texture and low price. Pangasius is rich in protein and Omega 3, an ingredient that is good for the heart. The meat can also be suited to less discriminating taste. It can be processed into varied menus and value-added products such as breaded nuggets, sticks, fish balls, fish rolls, strips, and such. Any which way the pangasius is cut or cooked, it is a big winner and the market price is at par with that of imported fillet.Pangasius is available in public markets, supermarkets, restaurants and food outlets(<http://seafoodhealthfacts.org/seafood_choices/pangasius.php>).

Cream dory known as pangasius, this meaty and succulent fish is one of the most sought after white fish fillets by fine dining restaurants worldwide today. Its light taste and fine texture makes it excellent whether steamed or baked, grilled or barbecued, or just plain battered and fried. Available in different shades of skinless fillets, and as skin–on steak cuts (http://www.saranganibay.com/our-catch-imported.php)

**Hamburger**

The hamburger most likely first appeared in the 19th or early 20th centuries. The modern hamburger was a product of the culinary needs of a society that was rapidly changing due to industrialization, and therefore, people had less time to prepare as well as to consume meals.

Most typically people think of a hamburger patty as beef. Americans contend that they were the first to combine two slices of bread and a steak of ground beef into a “hamburger sandwich”. Part of the controversy over the origin of the hamburger is because the two basic ingredients, bread and beef, were prepared and consumed separately for many years before their combination. Shortly after its creation, the hamburger was prepared with all of the now typically characteristic trimmings, including onions, lettuce, and sliced pickles.

The burger is now readily identified with the United States, and a particular style of cuisine, namely fast food. Along with fried chicken and apple pie, the hamburger has become a culinary icon in the United States.

This idea was first imagined in the 1990’s by white castle restaurant chain and its visionary Edgar Waldo “Billy” Ingram, and was refined by McDonald’s in the 1940’s. This global expansion has provided comparative economics such as the Big Mac Index, which allows for the comparison of the purchasing power of different countries where the Big Mac hamburger is sold. (www.bbq.about.com/od/hammburgers/a/aa050298.htm)

## Mung-bean

The mungbean, *Vignaradiata* (L.)Wilczek has been grown in India since ancient times. It is still widely grown in South East Asia, Africa, South America and Australia. It was apparently grown in the United States as early as 1835 as the Chickasaw pea. It is also referred to as green gram, golden gram and chopsuey bean. Mungbeans are grown widely for use as a human food (as dry beans or fresh sprouts), but can be used as a green manure crop and as forage for livestock. Virtually all the domestic production of mungbean is in Oklahoma. Fifteen to twenty million pounds of mungbean are consumed annually in the United States and nearly 75 percent of this is imported.

Mungbean seeds are sprouted for fresh use or canned for shipment to restaurants. Sprouts are high in protein (21%–28%), calcium, phosphorus and certain vitamins. Because they are easily digested they replace scarce animal protein in human diets in tropical areas of the world. Because of their major use as sprouts, a high quality seed with excellent germination is required. The food industry likes to obtain about 9 or 10 grams of fresh sprouts for each gram of seed. Larger seed with a glassy, green color seems to be preferred.

## Growth Habits

Mungbeans are in the Legume family of plants and are closely related to adzuki and cowpea (in the same genus but different species). They are warm season annuals, highly branched and having trifoliate leaves like the other legumes. Both upright and vine types of growth habit occur in mungbean, with plants varying from one to five feet in length. The pale yellow flowers are borne in clusters of 12–15 near the top of the plant. Mature pods are variable in color (yellowish-brown to black), about five inches long, and contain 10 to 15 seeds. Self pollination occurs so insect and wind is not required. Mature seed colors can be yellow, brown, mottled black or green, depending upon variety. These rounds to oblong seeds vary in size from 6,000 to over 12,000 per pound, depending upon variety. Germination is epigeal with the cotyledons and stem emerging from the seedbed.

## Environment Requirements

### A. Climate

Mungbeans are a warm season crop requiring 90–120 days of frost free conditions from planting to maturity (depends on variety). Adequate rainfall is required from flowering to late pod fill in order to ensure good yield. Late plantings which result in flowering during the high temperature-low moisture period in July and August will reduce yield. High humidity and excess rainfall late in the season can result in disease problems and harvesting losses due to delayed maturity.

Mungbeans (if proper varieties are used) are adapted to the same climatic areas as soybean, drybean and cowpea. Mungbeans are responsive to length of daylight so short days hasten flowering and long days delay it. Varieties differ in their photoperiod response (<http://www.hort.purdue.edu/newcrop/afcm/mungbean.html>).

**The Nutritional Content of Mung-bean**

It will be noted that the number of calories per serving (1 cup or 100 grams) can vary significantly from one variety to another. All beans contain some fat, including saturated fat, but the percentage of the latter is generally very low, and beans are a good choice for any fat-restricted diet. For persons watching their cholesterol intake, beans are an excellent food choice, as the percentage of cholesterol per serving is normally 0%. Sugars are also at or near the zero mark. With beans, nutrition is greatest as in the percentage of recommended daily requirement for protein, dietary fiber, and carbohydrates. Percentage values for calcium and iron can vary quite a bit, but are quite significant for many of the varieties. In spite of the high amounts of protein present in almost every variety of beans, this protein generally does not contain all the amino acids our body needs. Therefore, some meat products are needed for a balanced diet, though for vegetarians, whole grains or corn will make up the difference.

**Weight Control**

Mung beans are a low calorie-dense, with about 30 calories per cup, and only about 120 calories in an entire 12-oz. package. Low-calorie-dense foods have a small number of calories compared to their serving size. If you are trying to lose weight, low-calorie dense foods such as mung beans, are a good choice to satisfy hunger without adding too many calories to your meal or snack.

## Vegetable Serving

Most Americans do not eat enough vegetables, and mung beans can help you meet the 2 1/2 cups of vegetable servings daily as set forth in the 2010 Dietary Guidelines from the USDA and the Department of Health and Human Services. You can add mung beans to stir fries, chicken, tofu or shrimp dishes. You may also add them to salads or sandwiches in place of higher-calorie toppings. A diet full of vegetables may reduce your risk for heart disease, according to the Linus Pauling Institute's Micronutrient Information Center.

## Heart Health

Mung beans will not raise your cholesterol levels because they have no unhealthy saturated fat or cholesterol. Each serving provides 1.9 g dietary fiber, which lowers cholesterol levels in your blood. Mung beans also provide phytosterols, which is another plant nutrient that may lower cholesterol levels. They have 13 mg vitamin C in each cup. Vitamin C is an antioxidant that may lower the risk for coronary heart disease or stroke, according to the Linus Pauling Institute.

## Control Blood Pressure

High blood pressure can increase your risk for heart disease, stroke and kidney disease. A high-sodium diet can lead to high blood pressure over time, and the 2010 Dietary Guidelines suggest reducing processed foods to reduce your sodium intake. Mung beans are nearly sodium-free. Potassium in your diet can help you control blood pressure, and each cup of raw mung beans has 155 mg potassium (<http://yourhealthybody.jillianmichaels.com/health-benefits-mung-beans-3533.html>).

**Cholesterol**

If you have high cholesterol you may benefit from eating mung beans daily. Mung beans are low in cholesterol and high in soluble dietary fibers. Dietary fiber refers to certain food particles that cannot be digested. Dietary fiber comes in two forms: soluble and insoluble. Insoluble fiber aids in normalizing bowl movements, but it does not do much for lowering blood pressure. Soluble fiber when mixed with water in the digestive tract will form a gel-like material, which in turn aids in supporting essential bodily functions.

Foods rich in soluble dietary fibers are shown to help lower LDL cholesterol (bad cholesterol)

## Breast Cancer

Mung and other type of beans contain protease inhibitors. Protease inhibitors slow the replication of certain cancer cells including those found in breast cancer. Protease inhibitors are known to block and prevent formation of tumor cells.

## Post-Menopause

Beans such as the mung bean variety contain isoflavone nutrients. Isoflavones help regulate hormonal activity. Isoflavones are a class of phytoestrogen, making mung beans estrogenic in nature. Mung beans contain about 495.1 µg of phytoestrogen content, making mung beans a good source of phytoestrogen.

In a 12-week trial, phytoestrogen was shown to relieve hot flashes that are often disruptive and unpleasant. Potentially taking 90 mg per day of phytoestrogens may benefit post-menopausal women in preventing the often devastating effects of osteoporosis by stimulating bone formation.

## Diabetes

Mung beans are a low glycemic index food, which means the beans are a diabetic friendly food. Low glycemic foods promote healthy blood sugar levels. People who eat foods that have a low glycemic index tend to have lower total body fat levels as opposed to those who consume high-glycemic foods, such as white bread and soft drinks. In recent studies, mung beans have shown promise in reducing blood glucose, plasma C-peptide, glucagon and blood urea nitrogen levels in non-human type-2 diabetic subjects. In the study, mung bean sprouts and mung bean seed coats were consumed for a total of five weeks before reaching a conclusion.

**Protein**

Mung beans contain approximately 3.16 g of protein per cup. While meat is still one of the best sources of protein at 7 g per ounce, mung beans and vegetable based foods have far less saturated fat and cholesterol than certain meats (<http://www.3fatchicks.com/5-health-benefits-of-mung-beans/>).

**Related studies**

**Local Studies**

The study of Capospos et al., (2012) entitled **“Banana Blossom Patty Enhancement”** said that this research study focused on finding the acceptability level of the banana burger patty in terms of flavour, aroma, texture, juiciness and appearance. This research study answered the question on whether the banana blossom patty is an ideal replacement to the usual burger patty. This research study also answered whether the banana blossom patty is economical for the small time entrepreneurs who want to market the said recipe.

The Null Hypothesis stated that “there is no significant difference between 100%, 75% and 50% proportion of banana blossom to ground pork compared to the patty made of 100% ground pork in terms of taste, aroma, texture and appearance” was accepted in terms of appearance, but was rejected in terms of taste, aroma, texture and juiciness.

The results reported the comparison of Banana Blossom Patty products prepared using treatments B, C and D, and products made from treatment A which was a 100% ground pork revealed that respondents generally preferred the banana 50% blossom patty over the control made entirely of ground pork and treatment A and B, a proportion of ground pork and banana blossom.

In the study stated above, it is focused in creating new product which is a healthy and nutritional patty which can be substituted to the 100% beef patty. In this study, the researchers want to create a new patty, healthier and with more nutritional value than the market form of patty which is composed of 100% beef.

The study of De Jesus et al., (2012) entitled “**Development of a Sugar free Chewy Candy utilizing Pili Pilp Flour and Oil”** states that the development of a sugar free chewy candy is formulated as an additional product of pili utilizing the pili pulp oil and flour. This is considered to be a non-caloric food since no sugar was added to the product, but aspartame was used instead. A total of 20 panelists evaluated the sample using a 9 Hedonic scale method. Two trials were made, one with the addition of sugar syrup which is termed as low calorie and the other is without the addition of sugar syrup thus termed as a sugar free chewy candy. Comparative test result revealed that the former was rated as like slightly and the later as like moderately. Nutrition information was computed based on the nutritional content of the raw materials used, and the following were obtained at 50g per serving or approximately 10 pieces of the product. Calories 80, calories from fat 15, total fat 1.4g with daily value of 2%, transfat 0g, saturated fat 1g with 5% DV, cholesterol 13.6g with 5% DV, sodium 94 mg with 4%DV. The total carbohydrates is 10g, 4%DV, dietary fiber is 0, sugar 0, protein 7.5g. Others were Vitamin A 1%,Vitamin C 2%, Calcium 25% and Iron 1%.

According to the study of Azzurro et al., (2011) entitled “**Tracking Signals of Change in Mediterranean Fish Diversity Based on Local Ecological Knowledge”,** one of the expected effects of global change is increased variability in the abundance and distribution of living organisms, but information at the appropriate temporal and geographical scales is often lacking to observe these patterns. Here we use local knowledge as an alternative information source to study some emerging changes in Mediterranean fish diversity. A pilot study of thirty-two fishermen was conducted in 2009 from four Mediterranean locations along a south-north gradient. Semi-quantitative survey information on changes in species abundance was recorded by year and suggests that 59 fish species belonging to 35 families have experienced changes in their abundance. We distinguished species that increased from species that decreased or fluctuated. Multivariate analysis revealed significant differences between these three groups of species, as well as significant variation between the study locations. A trend for thermophilic taxa to increase was recorded at all the study locations. The Carangidae and the Sphyraenidae families typically were found to increase over time, while Scombridae and Clupeidae were generally identified as decreasing and Fistularidae and Scaridae appeared to fluctuate in abundance. Our initial findings strongly suggest the northward expansion of termophilic species whose occurrence in the northern Mediterranean has only been noted previously by occasional records in the scientific literature.

The study of Mesa et al., (2008) entitled **“Food Preference of Students at the canteen of the St. Therese MTC Colleges”** aims to determine the food preference of the students at the St. Therese MTC Colleges Canteen.

This descriptive study attempts to survey and give details about the kinds of food which are preferred by the students in the canteen during breakfast, snack time and lunch breaks. A null hypothesis was developed.

Results revealed that the highly preferred food for breakfast was rice and pork giniling which was followed by rice and fried siomai with regards to lunch menus the highly preferred food was rice with pork chop followed by rice with vegetables and rice with chicken adobo. In terms of snacks the highly preferred food of the students was Bihon Guisado followed by Siopao. For the beverages, the top choice was orange juice followed by softdrinks. Results also showed that there were significant difference in food preferred by students when grouped according to year level and gender. There is no significant difference in preferred foods by the students when groups according to age.

It is recommended in the study that STMTCC canteen should prepare more foods which are preferred by the students in order to maximize the number of students they could serve, canteen personnel should improve the quality of the list preferred food since the quality of food was one of the factors that could influence food preference.

According to the study of Contreras et al., (2014) entitled “**Acceptability of Native Darag Chicken Menu Variations**” states that traditional native chicken delicacies like lechon and adobo are very common dishes in a rural Filipino folks’ dining table.  As the family economic standing improves, meat becomes a main item in a family diet, dishes like fried chicken and chicken nuggets have also become part of the family choices of chicken dishes in their meal. Intensification of the production of native Darag chicken would lead to optimization of food technological output for the university which will hopefully be a potential one town-one product (OTOP) of the municipality.

**Foreign Studies**

The study of Chien et al., (2009) entitled “**Fish bone-related intra-abdominal abscess in an elderly patient”** states that foreign body ingestion is not an uncommon problem encountered in clinical practice. The accidental ingestion of fish bones may sometimes lead to penetration injuries with complicating abscess formation. The ingestion of foreign bodies results in gastrointestinal perforation in about 1% of patients. Fish bones are the most commonly seen objects leading to bowel perforation. Fish bones are usually invisible on plain films. A computed tomography (CT) scan of the abdomen is helpful to determine the cause of unexplained and persistent abdominal pain. If encapsulated abscess formation cannot be completely resolved by CT-guided drainage, surgical intervention should proceed to prevent profound sepsis. We present the case of a 75-year-old man who had fever and left lower abdominal pain. CT showed a hypodense lesion with a linear foreign body in the abdomen. An intra-abdominal abscess was diagnosed and after surgical intervention, a foreign body, which proved to be a fish bone, was removed. The man could not remember swallowing this bone.

The study of Brahmachary et al., (2010) entitled “**Comparative studies on physicochemical and biochemical characteristics of scented and non- scented strains of mung beans (vignaradiata) of indian origin”** stated that mung bean is a widely consumed legume of India as well as of Asia. In India, two varieties of this bean, scented and non-scented, are available. The scented variety produces a beautiful aroma when fried, boiled or cooked. This study was carried out for comparison of the physicochemical and biochemical characteristics of these two varieties. The inter-varietals variation in moisture, sugar, lipid, phospholipids, protein and lipid composition as well as fatty acid composition of the triglyceride oil was investigated in this study. Characterization of sterols was also made by GC. Detailed study of amino acid composition of the two variant was also reported. The study of ultra-structure of the scented and non-scented mung bean was done by Scanning Electron Microscopy. Except the physical structure and ultra-structure, no appreciable differences were found between the strains though the difference in aroma composition was already established.

According to the study of Estévez et al., (2010) entitled “**Characterization of selected wild Mediterranean fruits and comparative efficacy as inhibitors of oxidative reactions in emulsified raw pork burger patties”** stated that water, ethanolic, and methanolic extracts from seven selected wild fruits originally from the Mediterranean area, namely, strawberry tree ( Arbutus unedo L., AU), azarole ( Crataegusazarolus L., CA), common hawthorn ( Crataegusmonogyna L., CM), blackthorn ( Prunusspinosa L., PS), dog rose ( Rosa canina L., RC), elm-leaf blackberry ( Rubusulmifolius Schott, RU), and rowan ( Sorbusaucuparia L., SA), were analyzed for the total amount and profile of phenolic compounds and for the in vitro antioxidant activity against the DPPH and ABTS radicals (study 1). The seven fruits showed different chemical compositions, which consequently led to different antioxidant potentials. Among the seven fruits initially analyzed, AU, CM, RC, and RU had the highest amount of phenolic compounds and displayed the greatest antioxidant activity in vitro. Extracts from these four fruits were tested as inhibitors of lipid oxidation in raw pork burger patties subjected to refrigerated storage at 2 degrees C for 12 days (study 2). The quantitative measurements of thiobarbituric acid reactive substances (TBA-RS), hexanal content, and color stability were used as indicators of oxidative reactions. The four selected fruits displayed intense antioxidant activity against lipid oxidation, which highlights the potential usage of these fruits as ingredients for the manufacture of healthy meat products. Among them, RC and AU were particularly efficient as their protective effect against lipid oxidation was more intense than that displayed by quercetin (230 mg/kg of burger patty) (PMID: 20681673 [PubMed - indexed for MEDLINE).

The study of Murwani et al.**,** (2009) entitled “**Effect of Mung bean as Local Feed Ingredients to Substitute Soybean Meal in the Diet on the Performance of Broilers”** stated that in response to feed antibiotics ban and feed security, a research was carried out to study the effect of local feed ingredients in the diet based on corn or sorghum in combination with soybean meal or mung beans on broilers performance. A completely randomized design with 4 treatments and 5 replicates was employed. Each replicates consisted of twelve birds. Two hundred and forty day old broiler chicks with initial body weight of 45. 85 ± 3.01 gr were randomly assigned into four treatment diets i.e. D-1 (diet based on corn and soybean meal), D-2 (diet based on corn and mung bean), D-3 (diet based on sorghum and soybean meal), D-4 (diet based on sorghum and mung bean). Isoenergy and isoprotein diet and water were given ad libitum. Body weight, feed consumption, feed conversion ratio, apparent metabolizable energy (AME), protein digestibility, and protein efficiency ratio were measured and determined on day 35. All data were analyzed by ANOVA, and Duncan’s multiple range test was conducted when means were significantly different (p<0.05). The results showed that local feed ingredients in the diet affect significantly all performance parameters of broilers except for protein digestibility. Diet-1 had the highest body weight and AME. Diet 2 and 4 had similar AME and lower than Diet 1 and 3. Diet-1, 2, and 4 had similar feed conversion ratio. Diet-3 had the lowest consumption and feed conversion ratio and the highest protein efficiency ratio. However, considering the ability of mung bean to substitute imported soybean meal, it can be concluded that Diet-2 or Diet-4 with similar feed conversion to Diet-1 can be used as local feed ingredients to substitute imported soybean meal. Further research is needed to optimize these local feed ingredients to support broiler performance. Keywords: local feed, sorghum, mung beans, soybean meal, broiler, performance.

According to the study of Li et al., (2011) entitled “**Effect of heat-moisture treatment on the formation and physicochemical properties of resistant starch from mung bean (Phaseolusradiatus) starch”,** Mung bean starch was subjected to a range of heat-moisture treatments (HMT) based on different moisture contents (15%, 20%, 25%, 30%, and 35%) all heated at 120 °C for 12 h. The impact on the yields of resistant starch (RS), and the microstructure, physicochemical and functional properties of RS was investigated. Compared to raw starch, the RS content of HMT starch increased significantly, with the starch treated at 20% moisture having the highest RS content. After HMT, birefringence remained at the periphery of the granules and was absent at the center of some granules. The shape and integrity of HMT starch granules did not change but concavity was observed under scanning electronic microscopy. Apparent amylose contents of HMT starch increased and the HMT starch was dominated by high molecular weight fraction. Both the native and HMT starches showed A-type X-ray diffraction pattern. Relative crystallinity increased after HMT. The gelatinization temperatures (To, Tp, and Tc), gelatinization temperature range (Tc–To) and enthalpies of gelatinization (ΔH) increased significantly in HMT starch compared to native starch. The solubility increased but swelling power decreased in HMT starches. This study clearly shows that the HMT exhibited thermal stability and resistance to enzymatic hydrolysis owing to stronger interactions of starch chains in granule.

**Theoretical Framework**

The Utility Theory of Bentham and Mills states that the opportunity to maximize our satisfaction by continuously consuming more units of a certain good until our satisfaction falls down to zero. Thus, we can say that we have already reached the peak of our satisfaction if our marginal utility is already zero.

It simplifies to explain how our satisfaction or utility as consumer decline when we try to consume more and more of the same good at a particular point in time.

Two important concepts need to be explained before we totally understand the Utility Theory. There are: the marginal utility and total utility concepts.

Marginal Utility is defined as the extra satisfaction a person receives over a given period by consuming one extra unit of a good. Marginal means “additional” or “extra”. Marginal utility derives when a consumer receives additional satisfaction from a service or good she receives. The increases in utility vary with the amount of any good consumed is likely to follow a similar pattern for all consumers.

Total Utility, on the other hand, received from a goodness the total satisfaction enjoyed from consuming any given quantity. It is the total satisfaction from consuming any given quantity or commodity.

In this study, the researcher aims to satisfy the consumers through consumption of additional units of nutrients from fish and mung bean patty. Satisfaction is the main goal of this study and the utility theory as well. It is very important to the researcher to achieve the satisfaction of its respondents by creating a patty which is delicious while being healthy and nutritious (Hyman, 1994).

**Conceptual Framework**

Since the research design is experimental in nature, the dependent variable is divided into two groups. The control group consisting of respondents using (D) 500 grams beef patty, and the experimental group involving three categories having different measurement of mung bean (mongo) and cream dory fish at these proportion: (A) 125 grams cream dory fish, 375 grams mung bean; (B) 250 grams cream dory fish, 250 grams mung bean; (C) 375 grams cream dory fish, 125 grams mung bean.

The dependent variable consists of the acceptability of fish and mung bean patty develops as new product in terms of flavor, aroma texture and appearance.

The process variables are utilized for the manipulation or treatment of independents variables using different measurements and variety of cream dory and mung bean, especially the measurements of acceptability of new and healthy patty products at 125 grams cream dory fish 375 grams mung bean, 250 grams cream dory fish 250 grams mung bean, 375 grams cream dory fish 125 grams mung bean. In terms of taste, aroma, texture and appearance, comparison of products resulting from different measurement and variety of ingredients with those made from the commercialized beef patty and, measurement of significant difference in levels of acceptability of fish and mung bean patty in terms of flavor, aroma, texture and appearance.

**Research Paradigm**

Dependent Variable

Process Variable

Independent Variable

Acceptability level of the Fish with Mung Bean Patty in terms of:

Flavor

Aroma

Texture

Appearance

Manipulation of different measurement of mung bean mixed in cream dory fish to make patty

Measurement level of the acceptability of Fish with Mung Bean Patty in terms of flavor, aroma, texture, and appearance.

Measurement of significant difference of the level of acceptability of Fish with Mung Bean Patty in terms of flavor, aroma, texture, and appearance

Control Group

500 grams beef

Experimental Group

1. 125 grams cream dory Fish

375 grams Mung Bean

1. 250 grams cream dory fish

250 grams Mung Bean

1. 375 grams cream dory Fish

125 grams Mung Bean

**Figure 1. Schematic presentation of the Acceptability of fish with Mung Bean patty**

**METHODOLOGY**

**Nature of Research Design**

This Quasi-experimental study aimed to determine the level of acceptability of Fish with Mung Bean in making Patty among the Culinary Instructors and Students of St. Therese MTC-Colleges, La Fiesta Site, HE/TLE teachers of Oton National High School and Iloilo City National High School, employees and/or owner of Angel’s Hamburger, Frank’s n’ Burger, Minute Burger and Big Mac in terms of flavor, aroma, texture, and appearance.

In this study, the Quasi-Experimental design was used by the researchers because this study was focused on the experimentation of different measurements of cream dory fish mixed with boiled and then ground mung bean in preparing patty. Due to the financial constraints, the researcher had a mini burger as the sample product in this study. The researchers let the respondents tried the new products where they determined the acceptability of the Fish with Mung Bean in making Patty, after which the researcher analysed the results. Quasi-experimental design do not include the use of randomize assignment. Researchers who employ this design rely instead on other techniques to control threats to internal validity (How to Design and Evaluate Research in Education, Seventh Edition, 2010)

Since the study is an experimental type of research, gathering of information is by providing sample product and instrument, which is the Fish with Mung Bean Patty if acceptable to the respondents in terms of flavor, aroma, texture, and appearance.

**Respondents of the Study**

In this study, the identified respondents are the culinary instructor and students of St. Therese MTC-Colleges, La fiesta site, HE and TLE Teachers of Oton National High School, Owners/Employees of Angel’s Hamburger, Minute Burger, Frank’s n’ Burger and Big Mac Burger Stands. Non-Random Purposive sampling was used in selecting the respondents on the said study. They are chosen as respondents because they are knowledgeable enough to evaluate the objectives and can give accurate information they need in this study.

***Table 1. Distribution of Respondents***

|  |  |  |
| --- | --- | --- |
| Category  Sex  Male  Female  Total | Population  10  20  30 | Percentage  33%  67%  100% |
| Type of Respondents  Culinary Instructor  Culinary student  HE and TLE Teachers  Burger Stand Owners and Employees  Total | 3  8  10  9  30 | 10%  27%  33%  30%  100% |

**Sampling Technique**

The sampling technique chosen by the researchers for this study was Non Random-Purposive sampling technique. In this method, the researchers used a specific criterion in selecting a sample. The respondents of this study are Culinary Instructors and Students of St. Therese MTC-Colleges La Fiesta Site, HE/TLE Instructor of Oton National High School, owners and employees of Big Mac, and Angels Hamburger Stands, Minute Burger and Franks n’ Burger, Oton, Iloilo because they have the knowledge about the preparation and qualities of patties.

**Data Gathering Instrument**

The researchers made a sensory evaluation sheet with an attached Likert scale. The sheet was used as the instrument to evaluate and gather data for the acceptability of Fish with Mung bean patty with different composition and measurement in terms of flavor, aroma, texture and appearance.

The instrument has two parts; the first part is the respondents’ profile where name (optional), sex, and types of respondents are being asked. The second part is the evaluation of different products presented, in this part the Likert scale is place together with the criteria of an ideal patty, its flavor, texture, aroma and appearance, a check list for each treatment is also place in the second part with 3 open ended question.

**Validity of the Questionnaire**

In order to ensure the questionnaire’s validity, the researcher sent the criteria for content validity formulated by Good and Scates to the panel of validators who are recognized expert in research and culinary.

All suggestions, recommendations and comments from the known validators were incorporated in the final copy of the questionnaire.

**Reliability of the Questionnaire**

The validated questionnaire made by the researcher was pre-tested to 10 respondents who are not in the final list of the final survey. After being analyzed through Cronbach Alpha, result shows the 0.86 reliability which was interpreted that the questionnaire was reliable.

**Ingredients and mixture of the control and the independent variable**

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**Preparing Sample Products**

Before proceeding to the final survey, the researcher first prepared the sample product. The experiment was divided into four phases.

**Phase 1- Preparation of Materials**

The utensils and equipments needed in the preparation includes non-stick pan, stockpot, spoon, fork, wooden ladle, bowl, strainer, knife, chopping board, plate, o-ring, mixing bowl, grater, weighing scale, freezer and burner.

**Phase 2- Preparation of ground fish, and boiled mung bean**

The following are the steps in preparing the ground fish, and boiled mung bean:

1. Cleaning- the fish and mung bean has to be washed to remove dirt.
2. Simmering- the fish is put in the stock pot with garlic, ginger, little amount of salt and water until simmer.
3. Boiling- in a separate stock pot, mung bean and water is bring into boil until well done.
4. Draining- the simmered fish and boiled bean is drained to remove excess water
5. Grinding- the simmered fish and boiled bean were ground separately.

**Phase 3- Processing of fish with mung bean patty**

Prepare the materials in place. There will be four treatments to be done. The mixture includes (A) 125 grams cream dory with 375 grams mung bean, (B) 250 grams cream dory with 250 grams mung bean, (C) 375 grams cream dory with 125 grams mung bean, (D) beef patty. Cooking will be done separately.

1. 125 grams Fish with 375 grams mung bean

Ingredients

125 grams fish fillets, cooked and crumbled

375 grams mung bean

½ cup finely chopped onion

1 pieces egg (beaten)

1/8cup cream

3 tablespoons flour

3 teaspoon salt

2 teaspoon pepper

¼ cup cooking oil

Procedure

1. In a large bowl, mix all ingredients except oil.
2. In a large frying pan heat oil on medium heat.
3. Shape the mixtures into patties.
4. Fry patties until lightly brown on both sides.
5. 250 grams Fish with 250 grams mung bean

Ingredients:

250 grams fish fillets, cooked and crumbled

250 grams mung bean

½ cup finely chopped onion

1 pieces egg (beaten)

1/8 cup cream

3 tablespoons flour

3 teaspoon salt

2 teaspoon pepper

¼ cup cooking oil

Procedure

1. In a large bowl, mix all ingredients except oil.
2. In a large frying pan heat oil on medium heat.
3. Shape the mixtures into patties.
4. Fry patties until lightly brown on both sides.
5. 375 grams Fish with 125mung be grams mung bean

Ingredients

375 grams fish fillets, cooked and crumbled

125 grams mung bean

½ cup finely chopped onion

1pieces egg (beaten)

1/8 cup cream

3 tablespoons flour

3 teaspoon salt

2 teaspoon pepper

¼ cup cooking oil

Procedure

1. In a large bowl, mix all ingredients except oil.
2. In a large frying pan heat oil on medium heat.
3. Shape the mixtures into patties.
4. Fry patties until lightly brown on both sides.
5. Beef patty

Ingredients

500 grams beef, cooked and crumbled

½ cup finely chopped onion

1 pieces egg (beaten)

1/8 cup cream

3 tablespoons flour

3 teaspoon salt

2 teaspoon pepper

¼ cup cooking oil

Procedure

1. In a large bowl, mix all ingredients except oil.
2. In a large frying pan heat oil on medium heat.
3. Shape the mixtures into patties.
4. Fry patties until lightly brown on both sides.

In this study, first the researchers planned to use cod or whitebait fish but because of its seasonality and availability, the researchers chose Cream dory or Pangasius fish even though it is expensive.

During the first trial of sample products, it was a bit salty because the researchers didn’t follow the exact conversion of the ingredients on the recipe. In the second trial, the researchers find another recipe to make the sample product more presentable and be easily converted and the second recipe was followed.

The researchers followed the second recipe during the pre-test survey and final survey where the desired size and flavor was achieved.

**Data Gathering Procedure**

In gathering data, the researchers asked first the permission of the President of St. Therese-MTC Colleges by sending her a letter to permit the researcher gather information needed in the study; secondly the researcher then sent the signed paper to the college of hospitality management so that the dean would sign it for approval. After obtaining the permission, the researcher called the attention of the respondents, the researcher then let the respondents tasted the different experiments and the control and let them answer the questionnaire. After which, the researcher collected it personally and tabulated, analyzed and interpreted the result and then put the answered questionnaire and the tabulation sheet as well as the analyzed and interpreted data to folder and label it “R1”. The next day, the researcher called again the presence of the respondents and repeated the data collection process, and then the researchers collected, tabulated, analyzed and interpreted the data collected. The researchers provided another folder with the label “R2”. The questionnaire collected then put in the said folder together with the tabulation sheet as well as the analyzed and interpreted data. The researcher repeats again the process for the third time the next day and label the folder “R3”.

**Statistical Tools**

**Mean** - is the average of all the scores in a distribution. It is determined by adding up all the scores and then dividing this sum by the total number of scores (Frankel & Wallen, 2010).

In analyzing and interpreting the retrieve responses, the researcher set the assigned weight for each option and the Likert scale that determines the aggregate response as follow.

**Weight Scale Verbal Interpretation**

5 4.21-5.00 Very Highly Acceptable

4 3.41-4.20 Highly Acceptable

3 2.61-3.40 Moderately Acceptable

2 1.81-2.60 Less Acceptable

1 1.00-1.80 Least Acceptable

**Standard Deviation** - It is a single number that represents the spread of a distribution (How to design and evaluate research in education 7th edition, Frankel &Wallen).

**Wilcoxon signed rank test** - nonparametric equivalent of the T- test for dependent samples. It is appropriate for studies comparing pre-test and post-test in analyzing the before and the after outcome in experiments where respondents underwent two different condition (Abao, 2009)

**Analysis of Variance (ANOVA)** - is a collection of methods that compare the extent of variability due to various sources in order to perform hypothesis tests for complex situation. ANOVA provides a general framework for statistical hypothesis testing based on careful examination of the different sources of variability in a complex situation. (Martin, 1999)

**PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA**

This Chapter includes Data analysis and Interpretation. It presents the findings of the investigation. This study attempts to find out the level of acceptability of fish with mung bean in making patty.

This study attempts to answer the following questions:

1. What is the acceptability level of fish with mung bean patty when proportioned to (A)125 grams cream dory fish, 375 grams mung bean; (B)250 grams cream dory fish, 250 grams mung bean; (C)375 grams cream dory fish, 125 grams mung bean compared to the (D) 500 grams beef patty in terms of flavor, aroma, texture and appearance?
2. What is the general acceptability level of fish with mung bean patty when proportioned to(A)125 grams cream dory fish, 375 grams mung bean; (B)250 grams cream dory fish, 250 grams mung bean; (C)375 grams cream dory fish, 125 grams mung bean compared to the (D) 500 grams beef patty when taken per trial?
3. Is there significant difference in the acceptability level between the 500 grams beef patty of fish with mung bean patty when proportioned to (A) 125 grams cream dory fish, 375 grams mung bean; (B) 250 grams cream dory fish, 250 grams mung bean; (C) 375 grams cream dory fish, 125 grams mung bean in terms of flavor, aroma, texture and appearance?
4. Is there significant difference in the acceptability level between (D) 500 grams beef patty and fish with mung bean patty when proportioned to (A) 125 grams cream dory fish, 375 grams mung bean; (B) 250 grams cream dory fish, 250 grams mung bean; (C) 375 grams cream dory fish, 125 grams mung bean when compared to each other?

***Table 2 overall shows the acceptability of fish with mung bean patty when compared to the control in terms of flavor, aroma, texture and appearance.***

In terms of flavor, treatment A and treatment B with the mean of 3.811 and 3.989 respectively are far lesser than the treatment D with the mean 4.27 thus the variable is not comparable with the control. On the other hand, treatment C with the mean 4.178 is comparable to the control even though it has lesser value than treatment D.

In terms of texture, treatment A with the mean of 3.800 is not comparable to the control with the mean 4.11 while treatment B and treatment C with the mean of 4.022 and 4.156 respectively is comparable to treatment D. Treatment C got the highest mean than the 3 other variables.

In terms of aroma, treatment A and treatment B with the mean of 3.867 and 3.833 respectively are lesser then the control while treatment C with the mean of 4.044 is comparable to treatment D with the mean of 4.14.

In terms of appearance, treatment A is not comparable to the control with the mean of 3.811 while treatment B and treatment C with mean of 4.044 and 4.067 respectively is comparable to the control with the mean of 4.12.

Base on the table, when compared to the control, treatment A is not comparable to the control and treatment C is comparable in terms of flavor, texture, aroma, appearance.

***Table 2. Overall shows the acceptability of fish with mung bean patty when compared to the control in terms of flavor, aroma, texture and appearance.***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Independent Variables** | | **Criteria** | **Mean** | **Interpretation** |
| Control variable | Treatment D | Flavor | 4.27 | Very Highly Acceptable |
| Treatment variable | Treatment A | 3.811 | Highly Acceptable |
| Treatment B | 3.989 | Highly Acceptable |
| Treatment C | 4.178 | Highly Acceptable |
| Control variable | Treatment D | Texture | 4.11 | Highly Acceptable |
| Treatment variable | Treatment A | 3.800 | Highly Acceptable |
| Treatment B | 4.022 | Highly Acceptable |
| Treatment C | 4.156 | Highly Acceptable |
| Control variable | Treatment D | Aroma | 4.14 | Highly Acceptable |
| Treatment variable | Treatment A | 3.867 | Highly Acceptable |
| Treatment B | 3.833 | Highly Acceptable |
| Treatment C | 4.044 | Highly Acceptable |
| Control variable | Treatment D | Appearance | 4.12 | Highly Acceptable |
| Treatment variable | Treatment A | 3.811 | Highly Acceptable |
| Treatment B | 4.044 | Highly Acceptable |
| Treatment C | 4.067 | Highly Acceptable |

**Weight Scale Verbal Interpretation**

5 4.21-5.00 Very Highly Acceptable

4 3.41-4.20 Highly Acceptable

3 2.61-3.40 Moderately Acceptable

2 1.81-2.60 Less Acceptable

1 1.00-1.80 Least Acceptable

***The acceptability of fish with mung bean patty when compared to the control in terms of flavor, aroma, texture and appearance (1st Replication).***

The table shows the acceptability of fish with mung bean patty in different measurements as compared to the beef patty, in terms of flavor, texture, aroma and appearance.

In terms of flavor, treatments A, B and C are comparable with the control with the mean of 3.90, 3.90 and 3.83 respectively.

In terms of Texture, treatment B and treatment C is higher than the control with the mean of 4.00 and 4.00 respectively. Treatment A with the mean of 3.80 is equal to the control with the mean of 3.80. Thus, all the treatments are comparable to the control.

In terms Of aroma, treatment A and treatment B are higher than the control with the mean of 4.00 and 4.00 respectively while treatment C with the mean of 3.76 is comparable to the control with the mean of 3.83 which means that treatment A, B and C are comparable to the control.

In terms of Appearance, treatment A, B and C are comparable to the control with the mean of 3.76. Treatment B and C are higher than treatment D with the mean of 3.93 and 3.80 respectively.

The table shows that all treatment is comparable with control. Treatment B got the higher mean in terms of texture, aroma and appearance.

***Table 2.1. The acceptability of fish with mung bean patty when compared to the control in terms of flavor, aroma, texture and appearance (1st Replication).***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Independent Variables** | | **Criteria** | **Mean** | **Interpretation** |
| Control variable | Treatment D | Flavor | 4.00 | Highly Acceptable |
| Treatment variable | Treatment A | 3.90 | Highly Acceptable |
| Treatment B | 3.90 | Highly Acceptable |
| Treatment C | 3.83 | Highly Acceptable |
| Control variable | Treatment D | Texture | 3.80 | Highly Acceptable |
| Treatment variable | Treatment A | 3.80 | Highly Acceptable |
| Treatment B | 4.00 | Highly Acceptable |
| Treatment C | 4.00 | Highly Acceptable |
| Control variable | Treatment D | Aroma | 3.83 | Highly Acceptable |
| Treatment variable | Treatment A | 4.00 | Highly Acceptable |
| Treatment B | 4.00 | Highly Acceptable |
| Treatment C | 3.76 | Highly Acceptable |
| Control variable | Treatment D | Appearance | 3.76 | Highly Acceptable |
| Treatment variable | Treatment A | 3.73 | Highly Acceptable |
| Treatment B | 3.93 | Highly Acceptable |
| Treatment C | 3.80 | Highly Acceptable |

**Weight Scale Verbal Interpretation**

5 4.21-5.00 Very Highly Acceptable

4 3.41-4.20 Highly Acceptable

3 2.61-3.40 Moderately Acceptable

2 1.81-2.60 Less Acceptable

1 1.00-1.80 Least Acceptable

***The acceptability of fish with mung bean patty when compared to the control in terms of flavor, aroma, texture and appearance (2nd Replication).***

The table shows the Acceptability of Fish with Mung Bean in different measurements as compared to the Beef Patty, in terms of Flavor, Texture, Aroma and Appearance.

In term of Flavor, treatment A with the mean of 3.70 is not comparable to the control with the mean of 4.30 while treatment B and treatment C with the mean of 4.06 and 4.36 is comparable to the control. Treatment C got a higher mean than the control.

In terms of Texture, treatment A and treatment B got a lesser mean than the control with the mean of 4.13. Treatment A got 3.80 and treatment B got 3.80. Thus, both treatments are not comparable to the control. While treatment C got 4.03 thus, even though it got a lower mean it is comparable to the control.

In terms of Aroma, treatment C with the mean 3.90 is the only one which is comparable to the control with the mean of 4.06 while treatment A and Treatment B is not comparable to the control with the mean of 3.50 and 3.46 respectively.

In terms of Appearance, treatment A with the mean of 3.80 is lesser than the control with the mean 4.20, treatment B and treatment C with the mean of 4.00 and 4.20 comparable to the control.

The respondents preferred the treatment C for it is comparable to the control in terms of flavor, texture, aroma and appearance.

***Table 2.2. The acceptability of fish with mung bean patty when compared to the control in terms of flavor, aroma, texture and appearance (2nd Replication).***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Independent Variables** | | **Criteria** | **Mean** | **Interpretation** |
| Control variable | Treatment D | Flavor | 4.30 | Very Highly Acceptable |
| Treatment variable | Treatment A | 3.70 | Highly Acceptable |
| Treatment B | 4.06 | Highly Acceptable |
| Treatment C | 4.36 | Very Highly Acceptable |
| Control variable | Treatment D | Texture | 4.13 | Highly Acceptable |
| Treatment variable | Treatment A | 3.80 | Highly Acceptable |
| Treatment B | 3.80 | Highly Acceptable |
| Treatment C | 4.03 | Highly Acceptable |
| Control variable | Treatment D | Aroma | 4.06 | Highly Acceptable |
| Treatment variable | Treatment A | 3.50 | Highly Acceptable |
| Treatment B | 3.46 | Highly Acceptable |
| Treatment C | 3.90 | Highly Acceptable |
| Control variable | Treatment D | Appearance | 4.20 | Highly Acceptable |
| Treatment variable | Treatment A | 3.80 | Highly Acceptable |
| Treatment B | 4.00 | Highly Acceptable |
| Treatment C | 4.20 | Highly Acceptable |

**Weight Scale Verbal Interpretation**

5 4.21-5.00 Very Highly Acceptable

4 3.41-4.20 Highly Acceptable

3 2.61-3.40 Moderately Acceptable

2 1.81-2.60 Less Acceptable

1 1.00-1.80 Least Acceptable

***The acceptability of fish with mung bean patty when compared to the control in terms of flavor, aroma, texture and appearance (3rd Replication).***

The table shows the acceptability of fish with mung bean in different measurements as compared to the beef patty in terms of flavor, texture, aroma, and appearance.

In terms of flavor, only treatment C with the mean of 4.23 is comparable to the control with the mean of 4.30 while treatment A and treatment B is much lesser than the control with the mean 3.70 and 3.86 respectively. Thus treatment A and B is not comparable to the control.

In terms of texture, treatment C got a higher mean of 4.26 than the control with the mean of 4.20, so treatment C is comparable to the control. Treatment A and treatment B is not comparable to the control for it got lesser value than the control with the mean of 3.66 and 3.93 respectively.

In terms of aroma, treatment A and treatment B with the mean of 3.86 and 3.86 respectively is not comparable to the control with the mean of 4.36 while treatment C with the mean of 4.30 is comparable to the control since the value is closer to treatment D.

In terms of appearance, treatment A got the mean of 3.80 is not comparable to the control with the mean of 4.26 while treatment B and treatment C with the mean of 4.03 and 4.06 respectively is comparable even though it is lower than the to the control.

Base on the table, treatment A is not comparable to the control in four criteria since the mean is not closer to the control.

***Table 2.3. The acceptability of fish with mung bean patty when compared to the control in terms of flavor, aroma, texture and appearance (3rd Replication).***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Independent Variables** | | **Criteria** | **Mean** | **Interpretation** |
| Control variable | Treatment D | Flavor | 4.30 | Very Highly Acceptable |
| Treatment variable | Treatment A | 3.70 | Highly Acceptable |
| Treatment B | 3.86 | Highly Acceptable |
| Treatment C | 4.23 | Very Highly Acceptable |
| Control variable | Treatment D | Texture | 4.20 | Highly Acceptable |
| Treatment variable | Treatment A | 3.66 | Highly Acceptable |
| Treatment B | 3.93 | Highly Acceptable |
| Treatment C | 4.26 | Very Highly Acceptable |
| Control variable | Treatment D | Aroma | 4.36 | Very Highly Acceptable |
| Treatment variable | Treatment A | 3.86 | Highly Acceptable |
| Treatment B | 3.86 | Highly Acceptable |
| Treatment C | 4.30 | Very Highly Acceptable |
| Control variable | Treatment D | Appearance | 4.26 | Very Highly Acceptable |
| Treatment variable | Treatment A | 3.80 | Highly Acceptable |
| Treatment B | 4.03 | Highly Acceptable |
| Treatment C | 4.06 | Highly Acceptable |

**Weight Scale Verbal Interpretation**

5 4.21-5.00 Very Highly Acceptable

4 3.41-4.20 Highly Acceptable

3 2.61-3.40 Moderately Acceptable

2 1.81-2.60 Less Acceptable

1 1.00-1.80 Least Acceptable

***The over-all level of acceptability of the different proportions of fish with mung bean patty compared to the control per replication in terms of flavor, aroma, texture and appearance.***

The Table 2.4 shows the over-all level of acceptability of the different proportions of fish with mung bean patty when taken per trial.

In replication 1, in terms of flavor, Treatment D got the highest mean of 4.00 interpreted as Highly Acceptable while Treatment C with the mean of 3.83 interpreted as Highly Acceptable is the lowest. In terms of aroma, both Treatment A and B got the highest mean of 4.00 interpreted as Highly Acceptable while Treatment C with the mean of 3.76 interpreted as Highly Acceptable is the lowest. In terms of texture, Treatment B and C got the highest mean of 4.00 interpreted as Highly Acceptable while Treatment A and D with the mean of 3.80 interpreted as Highly Acceptable are the lowest. And in terms of appearance, Treatment B got the highest mean of 3.93 interpreted as Highly Acceptable while Treatment A with the mean of 3.73 interpreted as Highly Acceptable is the lowest.

In replication 2, in terms of flavor, Treatment C got the highest mean of 4.36 interpreted as Very Highly Acceptable while Treatment A with the mean of 3.70 interpreted as Highly Acceptable is the lowest. In terms of aroma, Treatment D got the highest mean of 4.20 interpreted as Highly Acceptable while Treatment B with the mean of 3.46 interpreted as Highly Acceptable is the lowest. In terms of texture, Treatment D got the highest mean of 4.13 interpreted as Highly Acceptable while Treatment A and B with the mean of 3.80 interpreted as Highly Acceptable are the lowest. And in terms of appearance, Treatment C and D got the highest mean of 4.20 interpreted as Highly Acceptable while Treatment A with the mean of 3.80 is the lowest.

In replication 3, in terms of flavor, Treatment D got the highest mean of 4.30 interpreted as Very Highly Acceptable while Treatment A with the mean of 3.70 interpreted as Highly Acceptable is the lowest. In terms of aroma, Treatment D got the highest mean of 4.36 interpreted as Very Highly Acceptable while Treatment A and B with the mean of 3.86 interpreted as Highly Acceptable are the lowest. In terms of texture, Treatment C got the highest mean of 4.26 interpreted as Very Highly Acceptable while Treatment A with the mean of 3.66 interpreted as Highly Acceptable is the lowest. And in terms of appearance, Treatment D got the highest mean of 4.26 interpreted as Very Highly Acceptable while Treatment A with the mean of 3.80 interpreted as Highly Acceptable is the lowest.

***Table 2.4. The over-all level of acceptability of the different proportions of fish with mung bean patty compared to the control per replication in terms of flavor, aroma, texture and appearance.***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **R1** | | **R2** | | **R3** | | **Average** | **Interpretation** |
| **Flavor** | **Mean** | **Interpretation** | **Mean** | **Interpretation** | **Mean** | **Interpretation** |  |  |
| T A | 3.90 | Highly Acceptable | 3.70 | Highly Acceptable | 3.70 | Highly Acceptable | 3.77 | Highly Acceptable |
| T B | 3.90 | Highly Acceptable | 4.06 | Highly Acceptable | 3.86 | Highly Acceptable | 3.94 | Highly Acceptable |
| T C | 3.83 | Highly Acceptable | 4.36 | Very Highly Acceptable | 4.23 | Very Highly Acceptable | 4.14 | Highly Acceptable |
| T D | 4.00 | Highly Acceptable | 4.30 | Very Highly Acceptable | 4.30 | Very Highly Acceptable | 4.20 | Highly Acceptable |
| **Aroma** |  |  |  |  |  |  |  |  |
| T A | 4.00 | Highly Acceptable | 3.50 | Highly Acceptable | 3.86 | Highly Acceptable | 3.79 | Highly Acceptable |
| T B | 4.00 | Highly Acceptable | 3.46 | Highly Acceptable | 3.86 | Highly Acceptable | 3.77 | Highly Acceptable |
| T C | 3.76 | Highly Acceptable | 3.90 | Highly Acceptable | 4.30 | Very Highly Acceptable | 3.99 | Highly Acceptable |
| T D | 3.83 | Highly Acceptable | 4.20 | Highly Acceptable | 4.36 | Very Highly Acceptable | 4.13 | Highly Acceptable |
| **Texture** |  |  |  |  |  |  |  |  |
| T A | 3.80 | Highly Acceptable | 3.80 | Highly Acceptable | 3.66 | Highly Acceptable | 3.75 | Highly Acceptable |
| T B | 4.00 | Highly Acceptable | 3.80 | Highly Acceptable | 3.93 | Highly Acceptable | 3.91 | Highly Acceptable |
| T C | 4.00 | Highly Acceptable | 4.03 | Highly Acceptable | 4.26 | Very Highly Acceptable | 4.10 | Highly Acceptable |
| T D | 3.80 | Highly Acceptable | 4.13 | Highly Acceptable | 4.20 | Highly Acceptable | 4.04 | Highly Acceptable |
| **Appearance** |  |  |  |  |  |  |  |  |
| T A | 3.73 | Highly Acceptable | 3.80 | Highly Acceptable | 3.80 | Highly Acceptable | 3.78 | Highly Acceptable |
| T B | 3.93 | Highly Acceptable | 4.00 | Highly Acceptable | 4.03 | Highly Acceptable | 3.99 | Highly Acceptable |
| T C | 3.80 | Highly Acceptable | 4.20 | Highly Acceptable | 4.06 | Highly Acceptable | 4.02 | Highly Acceptable |
| T D | 3.76 | Highly Acceptable | 4.20 | Highly Acceptable | 4.26 | Very Highly Acceptable | 4.07 | Highly Acceptable |

***The general acceptability of fish with mung bean patty and the beef patty per replication.***

The Table 3.1 shows the general acceptability of fish with mung bean patty when taken per trial.

In replication 1, Treatment B got the highest mean of 3.96 interpreted as Highly Acceptable while Treatments C and D with the mean of 3.85 interpreted as Highly Acceptable are the lowest.

In replication 2, Treatment D got the highest mean of 4.17 interpreted as Highly Acceptable while Treatment A with the mean of 3.71 interpreted as Highly Acceptable is the lowest.

In replication 3, Treatment D got the highest mean of 4.29 interpreted as Very Highly Acceptable while Treatment A with the mean of 3.76 interpreted as Highly Acceptable is the lowest.

As an overall, treatment D got the highest mean of 4.10 interpreted as highly acceptable while treatment A got the lowest overall score of 3.78 interpreted as highly acceptable.

Based on the answers of the respondents, even though most of the treatments are Highly Acceptable and some are Very Highly Acceptable, they prefer Treatment D over 3 other Treatments for the highest mean in 2 Trials and even interpreted as Very Highly Acceptable in the Trial 3.

***Table 3.1. The General Acceptability of fish with mung bean patty and beef patty per replication***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Treatments** | **Replication 1** | | **Replication 2** | | **Replication 3** | | **Overall** | |
| **Mean** | **Interpretation** | **Mean** | **Interpretation** | **Mean** | **Interpretation** | **Mean** | **Interpretation** |
| Treatment A | 3.86 | Highly Acceptable | 3.71 | Highly Acceptable | 3.76 | Highly Acceptable | 3.78 | Highly Acceptable |
| Treatment B | 3.96 | Highly Acceptable | 3.84 | Highly Acceptable | 3.92 | Highly Acceptable | 3.90 | Highly Acceptable |
| Treatment C | 3.85 | Highly Acceptable | 4.12 | Highly Acceptable | 4.21 | Very Highly Acceptable | 4.06 | Highly Acceptable |
| Treatment D | 3.85 | Highly Acceptable | 4.17 | Highly Acceptable | 4.29 | Very Highly Acceptable | 4.10 | Highly Acceptable |

**Weight Scale Verbal Interpretation**

5 4.21-5.00 Very Highly Acceptable

4 3.41-4.20 Highly Acceptable

3 2.61-3.40 Moderately Acceptable

2 1.81-2.60 Less Acceptable

1 1.00-1.80 Least Acceptable

**The general acceptability of the different proportions of fish with mung bean patty compared to the control in terms of flavor, aroma, texture and appearance.**

Table 3.2 shows the general acceptability of the different proportions of fish with mung bean patty compared to the control in terms of flavor, aroma, texture and appearance.

In terms of flavor, Treatment D got the highest mean of 4.20 while Treatment A is the lowest with the mean of 3.77.

In terms of aroma, Treatment D got the highest mean of 4.13 while Treatment B is the lowest with the mean of 3.77.

In terms of texture, Treatment C got the highest mean of 4.10 while Treatment A is the lowest with the mean of 3.75.

In terms of appearance, Treatment D got the highest mean of 4.20 while Treatment A is the lowest with the mean of 3.78.

In general, treatment D got the highest mean of 4.11 interpreted as highly acceptable while treatment A got the lowest overall score of 3.77 but also interpreted as highly acceptable.

***Table 3.2. The general acceptability of the different proportions of fish with mung bean patty compared to the control in terms of flavor, aroma, texture and appearance.***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **T A** | **T B** | **T C** | **T D** |
| Flavor | 3.77 | 3.94 | 4.14 | 4.20 |
| Aroma | 3.79 | 3.77 | 3.99 | 4.13 |
| Texture | 3.75 | 3.91 | 4.10 | 4.04 |
| Appearance | 3.78 | 3.99 | 4.02 | 4.07 |
| **Over-all Mean** | **3.77** | **3.90** | **4.06** | **4.11** |

***The significant difference in the level of acceptability of fish with mung bean patty compared to the beef patty***

The table shows the significant difference in the level of acceptability of fish with mung bean patty in different measurements compared to the beef patty in terms of flavor, texture, aroma and appearance.

Base on Wilcoxon signed Rank Test, when the significance is more than 0.05 it would mean that the findings are not significant and when the significance is less than 0.05, it shows that there is significant difference that exists between the two variables.

In terms of their flavor, treatment C is comparable to treatment D with the significance of 0.355 interpreted as not significant when based on the scale p<0.05 interpreted as significant in which decided to accept the null hypothesis while treatment A and treatment B with the p-value of 0.000 and 0.005 interpreted as significant which rejects the null hypothesis.

In terms of texture, treatment A in not comparable to the control with the p-value of 0.002 interpreted as significant. Treatment B and treatment C with the significance of 0.407 and 0.649 interpreted as not significant accepts the null hypothesis is comparable to the control.

In terms of aroma, treatment A and treatment B with the significance of 0.015 and 0.006 interpreted as significant and not comparable to the control rejects the null hypothesis while treatment C accepts the null hypothesis and is comparable to the control has a p-value of 0.274 interpreted as not significant.

In terms of appearance, treatment B and treatment C interpreted as not significant has p-value of 0.422 and 0.538 which means that it is comparable to the control while treatment A is not with the significance of 0.002 interpreted as significant and rejects the null hypothesis that states that there is no significant difference between the control and the treatment variable.

As based on the table, when compared to the Treatment D, Treatment A has a significant difference in terms of flavor, texture, aroma and appearance, while Treatment C has no significant difference in terms of flavor, texture, aroma and appearance. Thus treatment A is not comparable to the control and rejects the null hypothesis while treatment C is comparable and accepts the null hypothesis.

***Table 4. The significant difference in the level of acceptability of fish with mung bean patty compared to the beef patty.***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Independent Variables** | **Mean** | **Criteria** | **p-value** | **Interpretation** | **Decision** |
| Treatment A vs Treatment D | 3.81 | Flavor | 0.000 | Significant | Reject |
| 4.27 |
| Treatment B vs Treatment D | 3.99 | 0.005 | Significant | Reject |
| 4.27 |
| Treatment C vs Treatment D | 4.18 | 0.355 | Not Significant | Accept |
| 4.27 |
| Treatment A vs Treatment D | 3.80 | Texture | 0.002 | Significant | Reject |
| 4.11 |
| Treatment B vs Treatment D | 4.02 | 0.407 | Not Significant | Accept |
| 4.11 |
| Treatment C vs Treatment D | 4.16 | 0.649 | Not Significant | Accept |
| 4.11 |
| Treatment A vs Treatment D | 3.87 | Aroma | 0.015 | Significant | Reject |
| 4.14 |
| Treatment B vs Treatment D | 3.83 | 0.006 | Significant | Reject |
| 4.14 |
| Treatment C vs Treatment D | 4.04 | 0.274 | Not Significant | Accept |
| 4.14 |
| Treatment A vs Treatment D | 3.81 | Appearance | 0.002 | Significant | Reject |
| 4.12 |
| Treatment B vs Treatment D | 4.04 | 0.422 | Not Significant | Accept |
| 4.12 |
| Treatment C vs Treatment D | 4.07 |  | 0.538 | Not Significant | Accept |
| 4.12 |

P>0.05 = Not Significant

P<0.05 = Significant

**The Significant Difference in the Level of Acceptability of Fish with Mung Bean Patty and Beef Patty when compared to each other.**

The table shows the significant difference in the level of acceptability of fish with mung bean patty in different measurements and beef patty when compared to each other.

Base on one-way ANOVA, when the significance is more than 0.05 it would mean that the findings are not significant and when the significance is less than 0.05, it shows that there is significant difference that exists between the two variables.

When treatment A is the control, treatment B with the significance of .340 interpreted as not significant is comparable to the control while treatment C and treatment D is not comparable to the control with the p-value of .010 and .002 respectively interpreted as significant is not comparable to treatment A.

When treatment B as the control, all of the treatments is comparable with the p-value of treatment A=.340, treatment B=.447 and treatment C=.177 interpreted as not significant.

When treatment C as the control, only treatment A with the p-value of .010 interpreted as significant is not comparable to the control. On the other hand, treatment B and treatment D is comparable to treatment C interpreted as not significant with the p-value of .447 and .944 respectively.

When treatment D as the control, treatment B and C is comparable to the control with the significance of .177 and .944 respectively and interpreted as not significant. Treatment A with the p-value =.002 interpreted as significant is not comparable to the control.

***Table 5. The significant difference in the level of acceptability of fish with mung bean patty and beef patty when compared to each other.***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **(I)TREATCOD** | **(J)TREATCOD** | **Mean Difference (I-J)** | **Std. Error** | **Sig** | **95% confidence Interval** | |
| **Lower bound** | **Upper bound** |
| **Treat-A** | Treat-B | -.15133 | .09015 | .340 | -.3863 | .0837 |
| Treat-C | -.28567 | .09015 | .010 | -.5207 | -.0507 |
| Treat-D | -.33600 | .09015 | .002 | -.5710 | -.1010 |
| **Treat-B** | Treat-A | .15133 | .09015 | .340 | -.0837 | .3863 |
| Treat-C | -.13433 | .09015 | .477 | -.3693 | .1007 |
| Treat-D | -.18467 | .09015 | .177 | -.4197 | .0503 |
| **Treat-C** | Treat-A | .28567 | .09015 | .010 | .0507 | .5207 |
| Treat-B | .13433 | .09015 | .477 | -.1007 | .3693 |
| Treat-D | -.05033 | .09015 | .944 | -.2853 | .1847 |
| **Treat-D** | Treat-A | .33600 | .09015 | .002 | .1010 | .5710 |
| Treat-B | .18467 | .09015 | .177 | -.0503 | .4197 |
| Treat-C | .05033 | .09015 | .944 | -.1847 | .2853 |

P>0.05 = Not Significant

P<0.05 = Significant

**SUMMARY, CONCLUSION AND RECOMMENDATION**

**Summary of the Study**

This study aims to minimize the consumption of unhealthy food products especially the beef patty through creating an alternative patty using fish with mung bean to improve the nutritional value and the acceptability of the culinary students and Instructors, HE teachers and burger stand employees in terms of flavor, texture, aroma and appearance of the fish with mung bean patty.

Specifically, the study attempts to (1) Determine the acceptability level of fish with mung bean patty when proportioned to (A)125 grams cream dory fish, 375 grams mung bean; (B)250 grams cream dory fish, 250 grams mung bean; (C)375 grams cream dory fish, 125 grams mung bean compared to the (D) 500 grams beef patty in terms of flavor, aroma, texture and appearance. (2) Determine the total acceptability level of fish with mung bean patty when proportioned to (A)125 grams cream dory fish, 375 grams mung bean; (B)250 grams cream dory fish, 250 grams mung bean; (C)375 grams cream dory fish, 125 grams mung bean compared to the (D)500 grams beef patty in terms of flavor, aroma, texture and appearance. (3) Determine the significant difference in the acceptability level of fish with mung bean patty when proportioned to (A) 125 grams cream dory fish, 375 grams mung bean; (B) 250 grams cream dory fish, 250 grams mung bean; (C) 375 grams cream dory fish, 125 grams mung bean compared to the (D)500 grams beef patty in terms of flavor, aroma, texture and appearance. (4) Determine the significant difference in the acceptability level between (D) 500 grams beef patty and fish with mung bean patty when proportioned to (A) 125 grams cream dory fish, 375 grams mung bean; (B) 250 grams cream dory fish, 250 grams mung bean; (C) 375 grams cream dory fish, 125 grams mung bean when compared to each other.

The result of the study was gathered using different statistical tools. For the descriptive statistics, the mean with the mean scale and corresponding description as to the basis was being used while Wilcoxon and One-way ANOVA were being utilized for the inferential statistics.

**Findings**

Based on the result of the study, the following was found out:

In terms of flavor, only treatment C is comparable to the control with the mean of 4.178 and has a significance of 0.355 interpreted as not significant and accepts the null hypothesis. On the other hand, since treatment A and treatment B with the mean of 3.811 and 3.989 and with the p-value of 0.000 and 0.005 respectively, thus interpreted as not comparable.

In terms of texture, treatment B and treatment C is comparable to the control with the mean of 4.156 and 4.022 respectively with the p-value of 0.407 and 0.649 respectively interpreted as not significant while treatment A with the mean of 3.800 and a significance of 0.002 interpreted as significant is not comparable to the control and rejects the null hypothesis.

In terms of aroma, when measured to its acceptability, treatment C is comparable to the control with mean of 4.04 while treatment A with the mean of 3.87 and treatment B with the mean of 3.83 is not comparable because there mean is much lesser compared to the control. When measured to its significance, treatment C with the p-value of 0.274 interpreted as not significant is comparable to the control while treatment A and treatment B with the significance of 0.015 and 0.006 rejects the null hypothesis and are not comparable to the control.

In terms of appearance, treatment B and treatment C is comparable to the control, accepts the null hypothesis and interpreted as not significant with mean of 4.04 and 4.067 and p-value of 0.422 and 0.538 respectively. Treatment A with the mean of 3.81 is not comparable to the control and rejects the null hypothesis with the p-value 0.002 interpreted as significant.

**Conclusion**

Base on the findings of the study, Treatment C which was composed of 375 grams cream dory fish, 125 grams mung bean was considered as Highly Acceptable among the respondents based on its flavor and there is no significant difference exist when compared to the control variable. Thus, the null hypothesis which states that there is no significant difference in the acceptability level of fish with mung bean patty when proportioned to (A) 125 grams cream dory fish, 375 grams mung bean;(B) 250 grams cream dory fish, 250 grams mung bean; (C) 375 grams cream dory fish, 125 grams mung bean compared to the (D) 500 grams beef patty in terms of taste, aroma, texture and appearance was accepted. In terms of flavor, both Treatment A and Treatment B with p-value=.000 and p-value=0.05 respectively; there is significant difference exist based on the scale p<0.05 interpreted as significant. Although in terms of its texture and appearance, Treatment A has the lowest mean among the four (4) variables which the respondents have evaluated, results shows that it is still Highly Acceptable based on its calculated mean. However, Treatment B was rated by the respondents as the most preferred patty in terms of texture, aroma and appearance in 1st Replication. Therefore, the null hypothesis which states that there is no significant difference in the acceptability level of fish with mung bean when proportioned to (A) 125 grams cream dory fish, 375 grams mung bean; (B) 250 grams cream dory fish, 250 grams mung bean; (C) 375 grams cream dory, 125 grams mung bean when compared to the (D) 500 grams beef patty in terms of flavor, aroma, texture and appearance was rejected.

**Recommendations**

Based on the findings of the study, the following are recommended:

Using fish with mung bean in making patty will not make big difference to its flavor, texture, aroma and appearance because as based in the result of this study, there may exist some difference but still their means varied only slightly from each other.

For the entrepreneurs, it is recommended for the marketability of the patty; make it more appealing to the eye by putting appropriate sauce and bigger than the mini patty this research used.

For the parents, it is recommended that using fish with mung bean in making patty will result to a healthy food and sick-free household since fish and mung bean were identified to lessen the probability of having illnesses, such as heart problems and high blood pressure.

For the fast food chain owners, they must include the fish with mung bean patty in any measurements in their menu for it is still acceptable to the consumers.

For the farmers and fishermen, it is recommended to propagate more mung bean and cream dory fish or any fish similar to pangasuis for patty made with this combination is highly acceptable to the consumers.

For the future researcher, it is recommended to utilize different kind of fish in the proportion of treatment C in order to know if the result of this study will be applicable in any fish available in the community.

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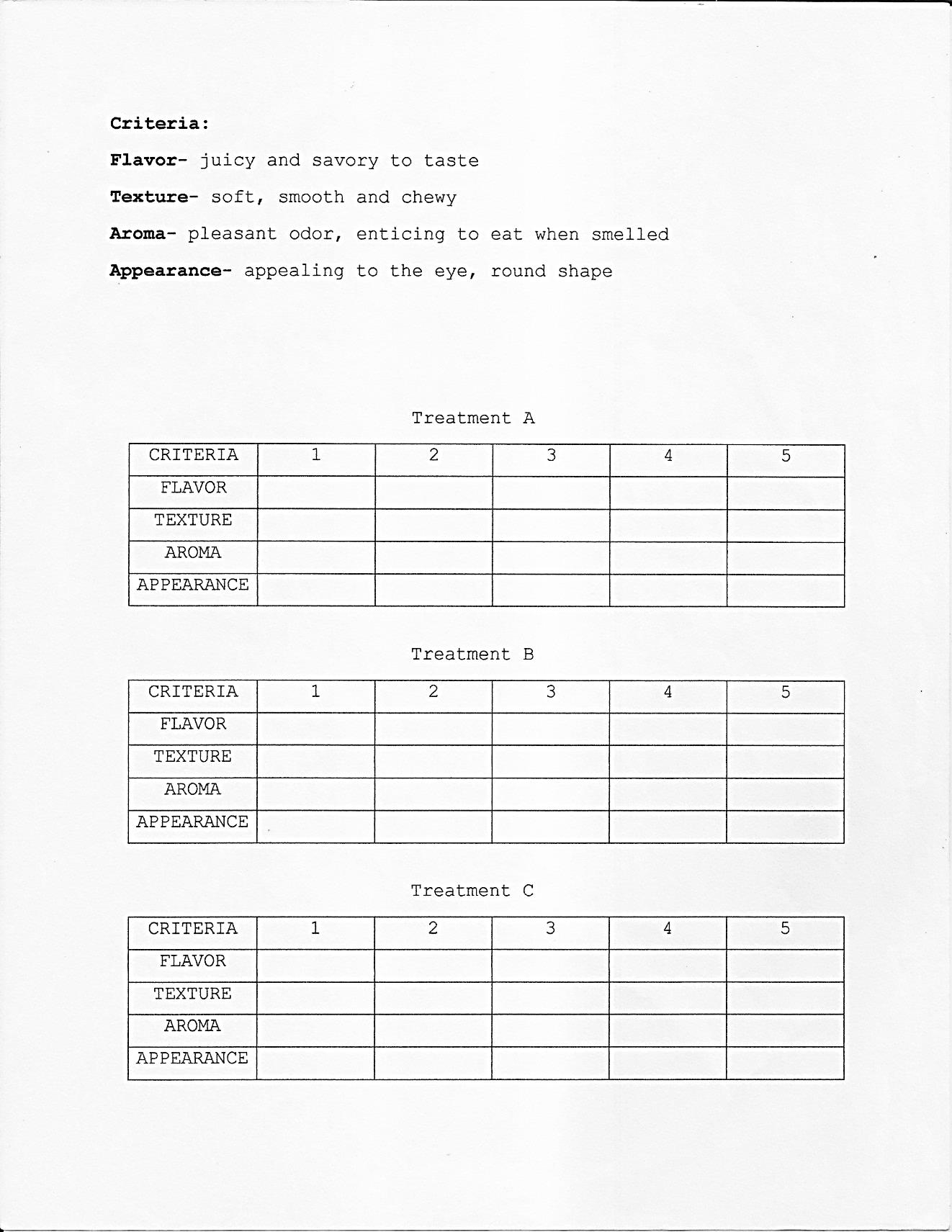
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**Research Instrument**

