

# Food Technology Management Practices and Clientele Satisfaction of Food Establishments in Surigao City

Quintina D. Gono

Surigao State College of Technology (SSCT) Surigao City Campus, Philippines

**Abstract:-** The study concentrated on determining the extent of food technology management practices and the levels of clientele satisfaction among food establishments in Surigao City. It examined the presence or absence of significant differences among these practices and clientele satisfactions, as well as the presence or absence of significant relationship between them. The formulation of the Technology Management Philosophy and the development of educational program were also pursued. The respondents were the management personnel and customers of the respective food establishments. They were made to answer the researcher-made instruments which content were based on the variables of interest. The gathered data were statistically analyzed using the frequency, ordinal rank, mean, correlated and repeated ANOVA, Scheffé posteriori test, Pearson r correlation, and t-test. The hypotheses were tested at 5% margin of error. The study disclosed the findings that the food establishment in Surigao City were practicing always most of the technology management operations and their customers were much satisfied only on food preparation, safety, and safety. There were significant difference in the extents of their practices and the levels of their clientele satisfaction. Each of these management practices and satisfaction differed among the food establishments, while there was the significant relationship between the practice in recruitment and hiring of personnel and the clientele satisfaction on food preparation and safety. Moreover, the technology management philosophy that “people in the organization creates the quality of business technology management operations” was formulated. With these findings, the teacher education program was designed and proposed for implementation.

**Keywords:-** Food Technology; Management Practices; Clientele Satisfaction; Food Establishments; Surigao City.

## I. INTRODUCTION

Food is a basic necessity. The industry, which deals with preparing food items/products, belongs to the food service industry. The food service industry is and will always remain to be in a high demand because of its genre. This industry includes among others the restaurants, fast foods, school and hospital cafeterias, catering operations, food carts and food trucks. Restaurants and fast foods centers mainly contribute to the food service industry.

Fast food generally refers to the type of restaurants that sell quick, inexpensive take-out food. During a relatively brief period of time, the fast food industry has helped to transform diet, but also landscape, economy, workforce, and popular culture. The extraordinary growth of the fast food industry has been obsessed by fundamental changes in society. The whole experience of buying fast food has become so habitual, that it is now taken for granted, like brushing your teeth or stopping for a red light (Vasconcellos, 2013).

Attracting a huge crowd to restaurants or fast foods require more than just good food. Though important, good food is only a part of the total dining experience. Equally important is believed to be the way people feel while in the restaurant. This physical and emotional response is a result of the atmosphere, the total environment to which customers are exposed. The proper atmosphere can make the food, service and whole dining experience seem better. For that reason a restaurant or a fast food must take care of the following to please its customers. This includes checking the cleanliness of the place and freshness of the food, guarded premises, parking area where people can park, ambiance and landscaping, building design, lighting, and even music (Nestle, 2013).

Food establishments in Surigao del Norte face dilemmas in providing quality services to the consumers when it comes to the length of time the food is serve. Furthermore, sanitation is also an issue. In some cases cockroaches and flies are found on their cooking area and worst in the foods being served. Some workers may don't have any hair restraints while working in the kitchen leading to food contamination.

## II. FOOD TECHNOLOGY

A branch of food science that deals with the production processes that make foods. Early scientific research into food technology concentrated on food preservation. Nicolas Appert's development in 1810 of the canning process was a decisive event. The process wasn't called canning then and Appert did not really know the principle on which his process worked, but canning has had a major impact on food preservation techniques. Developments in food technology have contributed greatly to the food supply and have changed our world (Holmes, 2010).

In the past, consumer attitude towards food technologies was not common talk and was not important in food development. Nowadays the food chain is long and

complicated, foods and food technologies are diverse; consequently the consumers are uncertain about the food quality and safety and find it difficult to orient themselves to the subject. That is why consumer acceptance of food technologies is an important question. However, in these days acceptance of food products very often depends on potential benefits and risks associated with the food. This also includes the technology the food is processed with. Attributes like uncertain, unknown or unfamiliar are associated with risk perception of customers and consumer very likely will reject products linked to these attributes. Especially innovative food processing technologies are connected to these characteristics and are perceived as risky by consumers (Anne-Mette, 2010).

In this study, food technology focuses only on management practices employed by food establishments in Surigao City. It covers from the recruitment of employees, food selection, food preparation, cooking, and serving and up to sanitary and safety practices.

#### ➤ *Food Service Industry*

Food Service Industry applies to all establishments where food is regularly served outside the home such establishment includes formal restaurants and fast-food outlets. Foodservices that operate in school, colleges, and universities; hospitals, nursing homes and other health care settings; recreational facilities; transportation companies; the military; correctional facilities; office buildings and plants; convenience stores, supermarkets, service delis, and department stores; and community centers and retirement residences is also included (Palacio & Theis, 2016).

#### ➤ *Types of Food Service*

Morris (2013) presented the typology of food services available in the Philippines. These are the independent, chain, franchise, quick service, etc.

**Independent.** One-branch restaurant concept that's often home grown and starts with limited staff and marketing efforts. Independent players, most of which have outlets in standalone locations, dominate the foodservice industry in the Philippines.

**Chain.** An independent restaurant with one or more branches. The owner has full control of the operations of each branch in one holding company. Among chain players, local operator Jollibee Foods Corporation leads through its wide portfolio of leading fast food brands. Other important players include Golden Arches Dev. Corp (with the McDonald's brand), Ramcar Inc. (Mister Donut and KFC) and Philippine Seven Corp (7-Eleven). These are the types of foodservice where available in the Philippines (Morris, 2013)

**Franchise.** A mother company (international or local) that shares branding, marketing efforts, operational systems, and supplies with multiple independent business owners in exchange for royalties and monthly commissions. Can be a

street stall/kiosk or fast food outlets.

**Quick Service.** Known for quick food production, serving food in about 10 minutes, these Restaurants pre-cook food that can be heated and served quickly when ordered.

**Fast Casual/Fast Food.** More creative in menu items, boasting of signature food and specialties, and a relaxed ambiance.

**Fine Dining.** Leisure dining with pricier cuisine and longer service, usually patronized for special occasions and business functions. Usually located in high-end hotels and resorts.

This typology of food services presented by Morris is a big assistance to the researcher in order for her to classify and identify the type of food establishments located in Surigao del Norte.

#### ➤ *Food Technology Management*

According to The National Institute of Food Technology Entrepreneurship and Management (NIFTEM) it is the application of food science to the selection, preservation, processing, packaging, distribution, and use of safe food. Related fields include analytical chemistry, biotechnology, engineering, nutrition, quality control, and food safety management.

Food technology management practices are manifested in terms of recruitment and hiring of personnel; food selection, food preparation, cooking, serving, and halls.

**1. Recruitment and Hiring of Personnel.** Organizational behavior and human resource management are fundamental aspects in the profitability of any foodservice business. Human Resources in the Foodservice Industry: Organizational Behavior Management Approaches examines the latest research critical in understanding individual behavior and group dynamics. This resource provides researchers and practitioners with a clear view of human capital in a competitive global marketplace with various possible managerial solutions to increase efficiency, employee and consumer satisfaction, and organizational success.

Human resource responsibilities can be far-reaching in the food industry. Its personnel typically oversee job descriptions, compensation and health and retirement benefits. Risk management is a priority for human resources, monitoring work-related injuries and mitigating their cost to your business. Also critical is the ability to work effectively and fairly with both union and non-union employees. Moreover, staff members create opportunities for advancement for your employees and ensure your food-related business is fully staffed at all times with the most qualified people.

This is one of the aspects of the study on account that an efficient and effective recruitment and hiring practices will ensure that the foods and services rendered are excellent. This is to say that the failure of this process is putting the establishment in the trial and error condition, and that the risk of the business is likely to happen.

**2. Food Selection.** According to Galef BG Jr. (1996) food selection will require considerably more than reductionist analyses of the internal workings of individual animals. To understand food choice we will have to examine not only the physiology and behavior of individuals, but also the biological and social environments within which individuals select items to ingest. The biological environment determines patterns of food availability and, over evolutionary time, provides selective pressures which shape sensory-affective responses to flavors, making them adaptive with respect to local conditions. Direct experience of the consequences of ingesting potential foods and interaction with conspecifics that have eaten various foods both affect food choices. These multiple influences, acting at different levels of organization, can bias food selection by individuals in either adaptive or maladaptive directions, depending on the characteristics of the environment in which feeding occurs. The need to understand the relationship between internal organizations, individual and social experience and ecological demands may make food choice the most difficult of the core aspects of feeding behavior to analyze satisfactorily.

**3. Food Preparation.** According to Lundberg, it is preparing food for eating, generally requires selection, measurement and combination of ingredients in an ordered procedure so as to achieve desired results. Food preparation includes but is not limited to cooking.

This component is included in the study for the purposes of determining the kind of food prepared for the target customers. This aspect is important for a food establishment as it requires a critical analysis of the kind of food that the customer need at any time of the day.

**4. Cooking.** Food analysts and chefs says cooking is a critical control point, or a point at which reaching proper internal temperatures can help ensure that a food is safe to eat. Cooks must know the proper temperatures for cooking food, monitor internal cooking temperatures, and record cooking temperatures. It can prevent many foodborne illnesses that would otherwise occur if the food is eaten raw. When heat is used in the preparation of food, it can kill or inactivate harmful organisms, such as bacteria and viruses. It is one of the important practices in food technology because it serves as the core of all the practices.

The researcher is interested to go deeper through this study how the foods are cooked. This investigates the factors on sanitation and cleanliness of the entire area of the business. Hygiene is one of the most important management elements of

food establishment. This considers from the examining the quantity of materials and facilities used for cooking and their storage practices.

**5. Serving.** Even a meal served for one, when someone is serving it to you, can be forever satisfying. Such skills could be applied to serving food, an ancient ritual in all cultural traditions. The notion of being in service to someone is held in high regard, with initiations and teachings maintained as a special privilege until perfected.

The study included this aspects based on the idea that the customers will also appreciate the food establishment based on how satisfying the foods are and how they are being served. This is tantamount to the personalities of the establishment in terms of their behavioral manifestations with the clientele, as well as the time spent waiting for the food to served. Modern food technology and food processing has allowed for the development of a safer, more plentiful, and more sustainable food supply than ever before, and both fresh and processed foods can be safe, nutritious, and environmentally responsible choices. However, foods that are "processed" have been criticized in the media, and some opinion leaders have advised consumers to limit or avoid these foods. A lack of understanding of food technology contributes to this negative attitude and frequently heightened safety concerns as well. Becoming familiar with modern processes and agricultural practices can help shed light on the risks and benefits of utilizing available technologies.

**6. Sanitary and Safety Practices.** Food sanitation is more than just cleanliness. It included all practices involved in protecting food from risk of contamination, harmful bacteria, poisons and foreign bodies, preventing any bacteria from multiplying to an extent which could result in an illness of consumers, and destroying any harmful bacteria in the food by thorough cooking processing.

The study also included this aspect as it examines how the food business establishment addresses the quality of health assurance set by the higher authorities. The study looks into the practices of the food establishment in terms of maintaining the health safety of the customers, their security from any harmful elements in the area, and other preventive and safety measures in times of untoward incidents.

**7. Restoration of Kitchen Utensils and Facilities.** After the use of kitchen utensils. Workers are required to wash it at the designated sink and by letting it air dry. Through the use of dishwashing pastes and liquids, utensils are washed thoroughly. And by the help of air ventilations and air condition, utensils are air dried properly. This also included the restoration of the venue in terms of equipment's and facilities.

The interest of the study focuses as well this aspect of food establishment in terms of how the used kitchen utensils and facilities are being cleaned and kept and ready for the succeeding business operation. This examines the practices employed in ensuring a pleasant ambiance of the area, and the cleanliness of environment and facilities is worth coming back by the customers. Notably, the first sight of the customers on the ambiance of the surroundings is the primary step in attracting into the business services.

**8. Ambiance.** Dustin heap (2014) there are many factors that impact whether or not a restaurant is profitable. These include everything from the demand of the cuisine offered in the local area, food and other variable costs, marketing efforts, management and much more. While these are all obvious factors, one that is often overlooked in its importance as a contributing factor to long term profitability is the ambiance of the restaurant itself.

Studies have shown ambiance can affect everything from perceptions on responsiveness and reliability, how much and how fast customers eat, how much they spend, how long they stay in the restaurant, if they decide to return and more. A good experience also generates word of mouth marketing on behalf of your restaurants. Word of mouth has proven to be one of the most powerful and trusted forms of marketing that a company can have working in its favor. Though often unquantifiable, word of mouth referrals undoubtedly have a positive long term impact on a restaurant's profitability. Alternatively, if you don't provide the best atmosphere for your type of restaurant, your results will suffer. You won't retain customers nor get referrals. Both of these results will assuredly prove difficult to overcome in the long term and should be avoided at all costs.

Providing a complete and memorable dining experience is what helps your restaurant achieve an ambiance enjoyed by customers. When you appeal to a diner's senses — sight, smell and hearing — they enjoy being at your restaurant. So if you're looking to create or improve your restaurant's ambiance, look to these three categories to help you achieve the perfect atmosphere that will be a critical factor in your attempt to be profitable long term.

#### ➤ *Clientele Satisfaction and the Reasons*

The sustainability of any technology management in any business is to set the mark of excellence in its products and services to the target customers.

**Clientele Satisfaction.** In business marketing, it measures how products or services supplied by a company meet or surpass a customer's expectation. Customer satisfaction is important because it provides marketers and business owners with a metric that they can use to manage and improve their businesses. Customer satisfaction is a marketing term that measures how products or services supplied by a company meet or surpass a customer's expectation. This is

important in business management because it provides marketers and business owners with a metric that they can use to manage and improve their businesses.

**Reasons.** Here are the top six reasons why customer satisfaction is so important in business enterprise:

- A leading indicator of consumer repurchase intentions and loyalty
- A point of differentiation
- It reduces customer churn
- It increases customer lifetime value
- It reduces negative word of mouth
- It is cheaper to retain customers than acquire new ones

A satisfied customer is likely to send more business back to the company while an unsatisfied customer may be more apt to prevent the business from soaring. Negative reviews from customers can have more of an impact on a business than owners may think. While the customer may not always be right, they need to be satisfied to the best ability of every company. When it comes to advertisement, word of mouth can be the best kind. Companies spend a lot of money on advertisement and good customer satisfaction guarantees free advertisement. When a customer is satisfied with a product or service, she is likely to spread the word and help increase profits of the company. There are several methods of to help customer satisfaction. Owners should offer all customers the opportunity to fill out a survey and closely evaluate what is being said. In addition, owners should respond to all customer complaints and handle them in a timely fashion.

#### ➤ *Theoretical Model*

The present study underscores the combined technology and food management theories that produce the formulation of the model of its interest. These theories guide the researcher in the restructuring of existing concepts and formulation of problems of the present study.

Food Technology Management is one of the entrepreneurial systems that involves people and production of goods (food) and services. On this, people are the most important aspect or element in the organization, and that every human element has to be understood to bring a common direction and uniform focus of mind and action towards organizational goals and objectives. In this investigation, the researcher has interwoven the Theories X and Y of Douglas McGregor (Robins & Judge, 2014) and Z of William Ouchi, the Hierarchy of Needs of Abraham Maslow, the Hawthorne Effect of Elton Mayo, and the Equity Theory of John Stacey Adams (1969), as shown in Figure 1.

**Theory X and Y.** According to the models of Douglas McGregor (2013), the two opposing sets of general assumptions of how workers are motivated form the basis for two different managerial styles. Theory X stresses the importance of strict supervision, external rewards, and

penalties. Moreover, Theory X is based on pessimistic assumptions of the average worker. This management style supposes that the average employee has little to no ambition, shies away from work or responsibilities, and is individual-goal oriented. Generally, Theory X style managers believe their employees are less intelligent than the managers are,

lazier than the managers are, or work solely for a sustainable income. Due to these assumptions, Theory X concludes the average workforce is more efficient under "hands-on" approach to management. It has the relevant connects to the present study as it prods to find out how top management sees and values the existence of their workers.

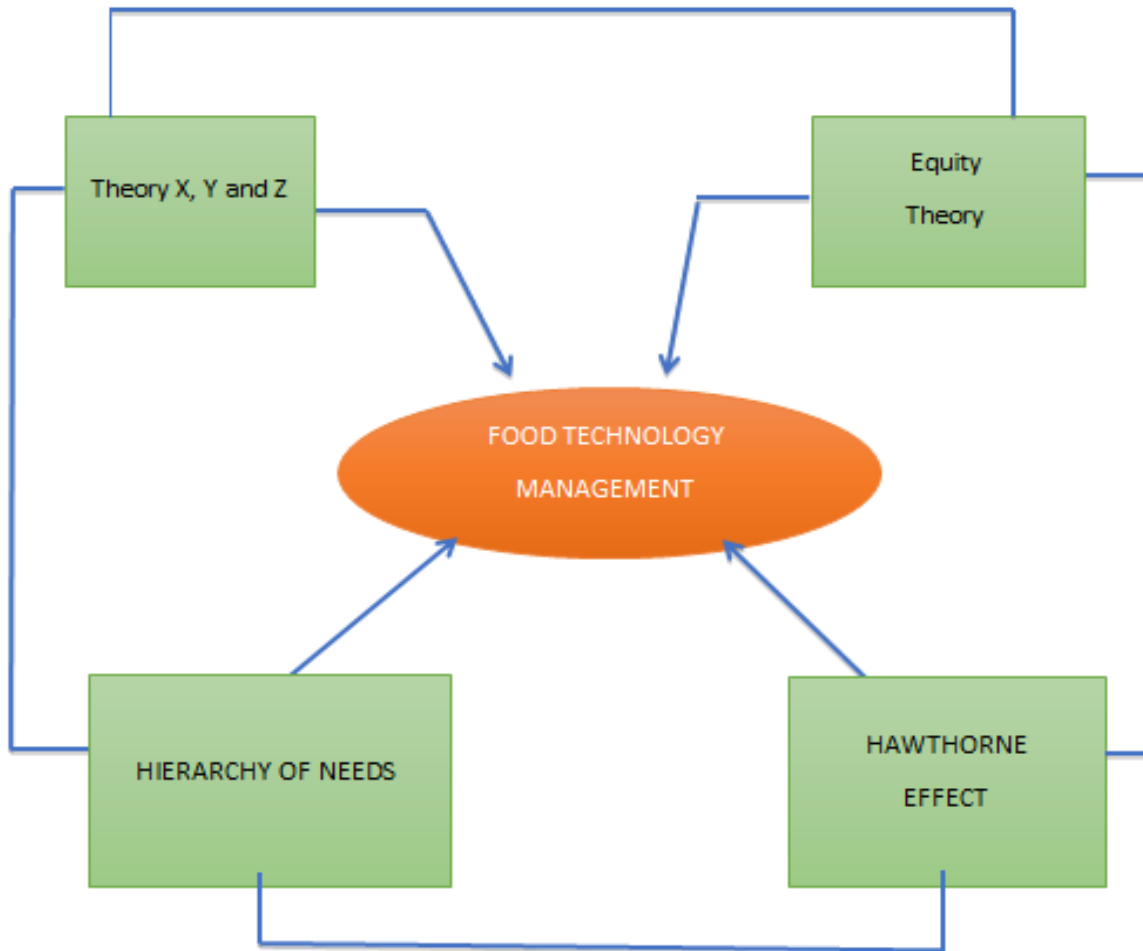


Fig 1:- Theoretical Model

The theory also helps the researcher to discover how the top management applies the theory resulting to the kind of performance of the workers. Hence, through the theory, the study may be able to determine the practices prevailing in the management and the impact to the retention of workers as well as their customer satisfaction.

In contrast, Theory Y highlights the motivating role of job satisfaction and encourages workers to approach tasks without direct supervision while "Theory Y is almost in complete contrast to that of Theory X". Theory Y managers make assumptions that people in the work force are internally motivated, enjoy their labor in the company, and work to better themselves without a direct "reward" in return. Theory Y employees are considered to be one of the most valuable assets to the company, and truly drive the internal workings of

the corporation. Also, Theory Y states that these particular employees thrive on challenges that they may face, and relish on bettering their personal performance. Workers additionally tend to take full responsibility for their work and do not require the need of constant supervision in order to create a quality and higher standard product.

This theory aids the researcher in assessing how well motivated are the workers in their job that they don't even need supervision from the top management to be efficient in their job. This also helps the researcher to assess how top management on food establishments sees their workers and motivates them on striving more by not seeing themselves as workers but a valuable asset to the company.

Theory X, Y and Z all play a role in how a company should manage successfully. Douglas McGregor, a social psychologist who is believed to be a key element in the area of management theory, wrote both Theory X and Theory Y. In his book "The Human Side of Enterprise" (1960), he describes Theory X and Theory Y based upon Maslow's hierarchy of needs, where McGregor grouped the hierarchy into a lower order (Theory X) needs and a higher order (Theory Y) needs. McGregor suggested that management could use either set of needs to motivate employees, but better results could be gained by the use of Theory Y, rather than Theory X (Heil, Bennis, & Stephens, 2000).

In addition, **Theory Z** of William Ouchi(2014) advances that an employee is encouraged to perform work when allowed to join a group work or any social interaction while at work. This theory provides that nature of work does not make the work motivation but rather a work with the kind of people to work with.

This theory aids the present study in evaluating how top management encourages their workers to interact and build rapport to their fellow workers and sees how it motivates them to work eagerly. The study looks into how the workers are assigned to their works in consideration with the kind of persons they like to work with most of the times. This assumes the concept that the work performance of a person is greatly influenced by the kind of people around his work.

**Maslow's Hierarchy of Needs** This theory of Abraham Maslow helps the manager to understand what motivates an employee. By understanding what needs must be met in order for an employee to achieve the highest-level of motivation, managers are then able to get the most out of production.

Maslow's theory serves an aid to the researcher in knowing how managers are well knowledgeable on their employees. By knowing what motivates their employees, what keeps them more enthusiastic in order for them to be more efficient and productive on their job.

**Hawthorne Effect.** Parsons defines the **Hawthorne effect** as "the confounding that occurs if experimenters fail to realize how the consequences of subjects' performance affect what subjects do" [i.e. learning effects, both permanent skill improvement and feedback-enabled adjustments to suit current goals]. His key argument is that in the studies where workers dropped their finished goods down chutes, the participants had access to the counters of their work rate. Richard Nisbett has described the Hawthorne effect as 'a glorified anecdote', saying that 'once you have got the anecdote, you can throw away the data.

Parson's Hawthorne effect enables the researcher to find out how outcomes of workers' performance affects what they do. By using this theory the researcher is able to adjust the possible outcomes and make certain improvements on it.

**Equity Theory.** Adams' Equity Theory is named for John Stacey Adams, a workplace and behavioral psychologist, who developed his job motivation theory in 1963. Much like many of the more prevalent theories of motivation (such as Maslow's Hierarchy of Needs Add to My Personal Learning Plan and Herzberg's Two-Factor Theory Add to My Personal Learning Plan), Adams' Equity Theory acknowledges that subtle and variable factors affect an employee's assessment and perception of their relationship with their work and their employer. This theory acknowledges that subtle and variable factors affect each individual's assessment and perception of their relationship with their work, and thereby their employer. However, awareness and cognizance of the wider situation - and crucially comparison. When people feel fairly or advantageously treated they are more likely to be motivated; when they feel unfairly treated they are highly prone to feelings of disaffection and demotivation.

The Equity Theory of Stacey Adams helps the researcher to further analyze the motivational factors that affects the employees' performance. Although this theory is more likely with Maslow's Hierarchy of needs but through this theory the motivational factors can be further explained. Like on how employees perceived the fair treatment of the top management and how it affects their performance on their job. Or how well, they are demotivated if they are treated unfairly by the top management and how it affects their performance.

Much like the five levels of needs determined by Maslow and the two factors of motivation as classified by Herzberg (intrinsic and extrinsic), the Adams' Equity Theory of motivation states that positive outcomes and high levels of motivation can be expected only when employees perceive their treatment to be fair. An employee's perception of this may include many factors (see outputs above). The idea behind Adams' Equity Theory is to strike a healthy balance here, with outputs on one side of the scale; inputs on the other – both weighing in a way that seems reasonably equal.

If the balance lies too far in favor of the employer, some employees may work to bring balance between inputs and outputs on their own, by asking for more compensation or recognition. Others will be demotivated, and still others will seek alternative employment.

Each of the theories plays a significant role in the study. The researcher used these theories to perceive such ideas to further explain the study. The quality of service in establishments is second in importance only to the quality of food you serve. Your employees also are your greatest opportunity to improve the guest experiences.

**III. CONCEPTUAL FRAMEWORK**

The conceptual operation of the study was tagged along by the combined forces coherent of the foregoing theories. The

dictates of the said theories put emphasis on the interconnections between the management practices and the clientele satisfaction among food establishments in Surigao City, as shown in Figure 2.

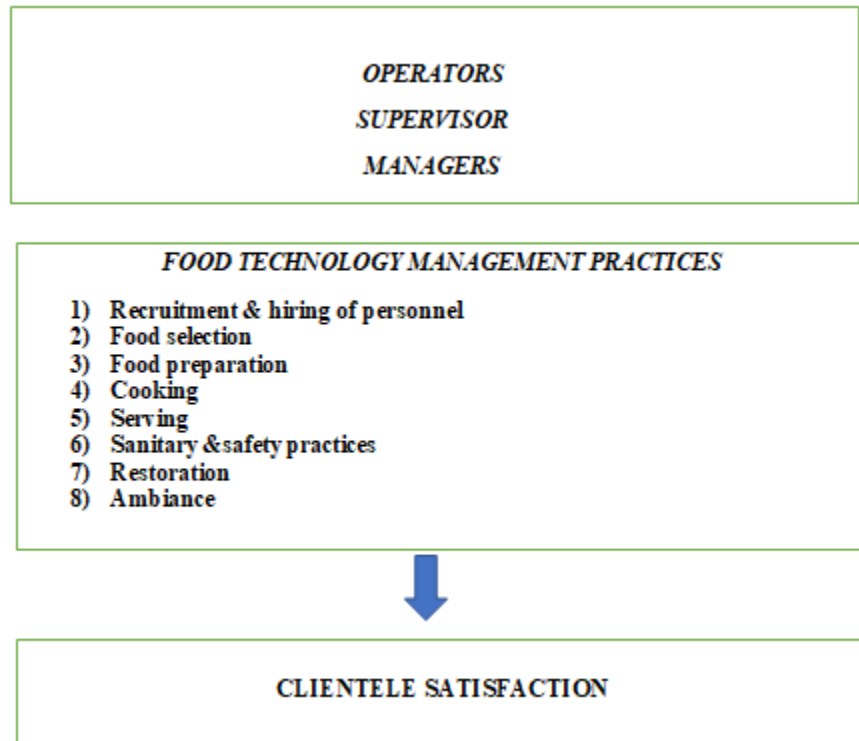


Fig 2:- Research Paradigm

On the surface, an advanced Table Tracker solution can speed up food delivery in several ways: Ordering is quicker and food is delivered fresher because guests order instantly as they enter the restaurant and runners no longer wander around looking for table tent numbers. After a while, a sea of actual data can be analyzed to help optimize the floor plan or improve the staffing levels, among other things.

Underneath all that, the Hawthorne Effect will be at work. Your employees will know they’re on the clock – literally – from the moment an order is placed until it is served hot on the table. And if Dr. Mayo was correct, the staff will be working harder than ever to improve the guest experience, because they know performance is being tracked on site and compared to benchmarked times.

The researcher anchored the concepts drawn from different theories on technology and operations management such as, the Theory of X & Y of Douglas McGregor, Theory Z of William Ouchi, Hierarchy of Needs of Abraham Maslow, Hawthorne Effect Theory of Elton Mayo and Equity Theory of John Stacey Adams. By the help of these theories the researcher was able to identify different ways of managements focusing on food technology practices.

The structuring concepts of this study are depicted in figure 2 based on the subject-factor variable flow design. The figure presents three frames of concepts that show the interconnecting forces revolving around the food technology management practices. The first frame deals with the group of subject respondent as categorized into food establishment operators, supervisors, managers, workers, and clientele.

The respondents in this frame are the sources of information that are reflective of the factors cited in the second concept frame. The second depicts the food technology management practices that food establishment in Surigao City employ. These practices in terms of recruitment and hiring of personnel, food selection, food preparation, cooking, serving and sanitary and safety practices.

The ratings that respondents on these aspects will serve as the reflection how the targeted food establishment in the area are operating in the community they serve. The analysis of these data may project somehow the applied management theories and thus lead to the development of the technology management philosophy.

The last or the bottom frame illustrates the formulation of a technology management philosophy. The philosophy will serve as power to generate new management paradigms peculiar of the specific organization and its entrepreneurial goals. This philosophy will serve as the overarching power of manager in the operation of foods technology.

➤ *Statement of the Problem*

The study will assess and evaluate the management practices of all food establishments in Surigao City in terms of selection, preparation, cooking, serving, sanitation and safety as well as recruitment and hiring of workers. Specifically, the study will seek the answers to the following problems:

1. To what extent do the food establishments practice their management in terms of:

- 1.1 Recruitment and Hiring of personnel,
- 1.2 Food Selection,
- 1.3 Food Preparation,
- 1.4 Cooking,
- 1.5 Serving,
- 1.6 Safety,
- 1.7 Sanitation, and
- 1.8 Restoration?

2. To what extent the clientele are satisfied with the following food business operations?

- 1.1 Food Preparation
- 1.2 Food Service
- 1.3 Sanitation
- 1.4 Safety
- 1.5 Ambiance;

3. Is there a significant difference among:

- 3.1 extents of food technology management practices cited in the Problem 1, and
- 3.2 levels of clientele satisfaction as cited in the problem 2?

4. Is there a significant difference in the ratings on the Food Technology management practices when grouped by food establishments?

5. Is there a significant difference in the satisfaction levels of the clientele when grouped by food establishments?

6. Is there a significant relationship between the extent of food technology management practices and the level of clientele satisfaction?

7. On the basis of the findings of the study, what Technology Management Philosophy may be formulated and program development may be proposed?

➤ *Hypothesis*

The researcher formulated null hypothesis based on problems 3, 4, 5, and 6 and were tested it at a 5% margin of error:

**Ho1.** There is no significant differences among the extents of food technology management practices.

**Ho2.** There is no significant difference among the levels of clientele satisfaction of food establishment operations.

**Ho3.** There is no significant difference in the extents of food technology management practices among food establishments.

**Ho4.** There is no significant difference in the levels of clientele satisfaction among food establishments.

**Ho5.** There is no significant relationship between the extent of food technology management practices and the levels of clientele satisfaction among food establishments in Surigao City.

➤ *Scope and Limitation*

The researcher put up the consideration of the barriers in facilitating the limitation in understanding the purpose and content of this study, the following limits are specified.

**Focus.** This study focuses on the Food technology Management practices employed or practiced by food establishments in Surigao City. In terms only in selection, preparation, cooking, sanitation and safety, serving and also recruitment and hiring of personnel.

**Factors.** The researcher limits the factors of this study only to management personnel and workers of food establishments, of which include managers, supervisors, operators; and clienteles. These factors are termed by the researcher as independent factors of the study. While the dependent factors of the study where limited only to the food technology management practices used by food establishments in terms of selection, preparation, cooking, sanitation and safety, serving and also recruitment and hiring of personnel.

**Respondents.** The respondents of the study were the management personnel and workers of food establishments, which includes managers, supervisors, operators; and clienteles of food establishments found in the areas of Surigao City.

**Place and Time.** The researcher will conduct the study in all of the food establishments in the areas of Surigao City during the second semester of academic year 2016-2017.



#### IV. SIGNIFICANCE OF THE STUDY

After the conduct of this study, several results will be gathered and these results would be of great help to the following persons and as groups:

**Entrepreneurs.** The findings of this study may serve as a basis for all aspiring and young entrepreneurs in this line of business in developing and conceptualizing appropriate Food Technology Management practices to meet the demands of the customers as well as gaining higher revenues.

**Workers.** The results of this study may help them improve their level of delivery service, facilitate learning from their mistakes, improve the practices which they think they are slow or behind on that aspect.

**Food Establishments.** Findings of this study may serve as a guide to them on how they can uplift their level of management knowledge in food technology. Enhance their skill on that aspect and correct their mistakes on all of the management practices in terms of selection, preparation, cooking, sanitation and safety, serving and also recruitment and hiring of personnel in which they think they are lacking and affects the performance of the business.

**Students.** The findings of this study may open their minds and may provide self-awareness on their acquired skills through which, they can pursue studying while earning. Furthermore, this can also be a great help on them when it comes to their paper works or even thesis as a reference only related to this topic.

**Researchers.** This study gave them insights and encouragement to make and conduct more researches on other areas wherein food technology practices is applied.

##### ➤ *Definition of Terms*

This study contains terms which are new to those who don't have the knowledge in food technology. For easy verification and understanding the researcher, defined conceptually and operationally the following key terms:

**Ambiance.** The mood or setting of a place. You might like the ambiance of a certain restaurant because the lighting and decor makes you feel comfortable and happy.

**Clientele.** Is the recipient of a good or a service, or a product, or an idea, obtained from a seller, vendor, or supplier via a financial transaction or exchange for money or some other valuable consideration. Etymologically, a client is someone merely inclined to do business, whereas a purchaser procures goods or services on occasion but a customer customarily or habitually engages in transactions.

**Cooking.** Are the art, technology and craft of preparing food for consumption with the use of heat? Cooking

techniques and ingredients vary widely across the world, from grilling food over an open fire to using electric stoves, to baking in various types of ovens, reflecting unique environmental, economic and cultural traditions and trends.

**Food Preparation.** It is the art of modifying, processing, arranging, or decorating food to enhance its aesthetic appeal? The visual presentation of foods is often considered by chefs at many different stages of food preparation, from the manner of tying or sewing meats, to the type of cut used in chopping and slicing meats or vegetables, to the style of mold used in a poured dish.

**Foods Selection.** It investigates how people select the food they eat. An interdisciplinary topic, food choice comprises psychological and sociological aspects (including food politics and phenomena such as vegetarianism or religious dietary laws), economic issues (for instance, how food prices or marketing campaigns influence choice) and sensory aspects (such as the study of the organoleptic qualities of food).

**Food Technology.** The term means as; a branch of food science that deals with the production processes that make foods. Developments in food technology have contributed greatly to the food supply and have changed our world.

**Franchise.** Is defined as a mother company (international or local) that shares branding, marketing efforts, operational systems, and supplies with multiple independent business owners in exchange for royalties and monthly commissions. Can be a street stall/kiosk or fast food outlets.

**Fast Casual/Fast Food.** More creative in menu items, boasting of signature food and specialties, and a relaxed ambiance.

**Fine Dining.** Leisure dining with pricier cuisine and longer service, usually patronized for special occasions and business functions. Usually located in high-end hotels and resorts.

**Hygiene Sanitation.** The hygienic means of promoting health through prevention of human contact with the hazards of wastes as well as the treatment and proper disposal of sewage or wastewater. Hazards can be either physical, microbiological, biological or chemical agents of disease. Wastes that can cause health problems include human and animal excreta, solid wastes, domestic wastewater (sewage or grey water) industrial wastes and agricultural wastes. Hygienic means of prevention can be by using engineering solutions (e.g., sanitary sewers, sewage treatment, surface runoff management, solid waste management, excreta management), simple technologies (e.g., pit latrines, dry toilets, urine-diverting dry toilets, septic tanks), or even simply by behavior changes in personal hygiene practices, such as hand washing with soap.

**Quick Service.** Known for quick food production, serving food in about 10 minutes, these restaurants pre-cook food that can be heated and served quickly when ordered.

**Recruitment and Hiring.** Is a core function of human resource management? Recruitment refers to the overall process of attracting, selecting and appointing suitable candidates for jobs (either permanent or temporary) within an organization. Recruitment can also refer to processes involved in choosing individuals for unpaid positions, such as voluntary roles or unpaid trainee roles.

**Restoration measures.** The addition of a nutrient to a food in order to restore the original nutrient content. Enrichments the addition of nutrients to foods in accordance with a standard of identity as defined by food regulations. Both restoration and enrichment programmed usually involve the addition of nutrients that are naturally available or present in the food product.

**Sanitary and Safety.** It included all practices involved in protecting food from risk of contamination, harmful bacteria, poisons and foreign bodies, preventing any bacteria from multiplying to an extent which could result in an illness of consumers, and destroying any harmful bacteria in the food by thorough cooking processing.

**Service.** The performance of duties or the duties performed as or by a waiter or servant; occupation or employment as a waiter or servant.

**Serving.** A helping of food or drink

**Technology Management Philosophy.** It refers to the guiding principle of every individual in the completion of their operational tasks to attain desired goals. It specifically deals with the grandstanding reasons in running the operation of income generating program for service and for profit.

## V. METHODS AND MATERIALS

The chapter presents the research design, the research environment, the research instrument, the respondents, data gathering procedure and the data analysis of the study.

### ➤ *Research Design*

The researcher will employed the combination of descriptive and inferential research design in the study. The descriptive design will be used to determine the extent of food establishments' practices and in the aspects specifically in recruitment and hiring of personnel, food selection, food preparation, cooking, serving and sanitary and safety practices.

The inferential design employing differential method will be used to determine the presence or absence of significant difference in the ratings of the various groups of respondents and among the assessment or ratings of

respondents in the food technology management purposes. Furthermore, in this design the differential method was used to determine the presence and absence of the significant difference among recruited and hired personnel.

### ➤ *Research Environment*

This study was conducted at the areas inside Surigao City, Province of Surigao City, Caraga Region wherein food establishments are located who practices such food technology management practices.

**Surigao City.** The City of Surigao nestles along the northernmost tip of the Province of Surigao del Norte where mountains and hills are prominent indentions throughout the coast. It is bounded on the north and east by the Hinatuan Passage, on the west by the Surigao Strait, and on the south by Tagana-an. The city has a land area of 245.34 square kilometers and a population of 35,855 inhabitants in 1970. According to the 2015 census, it has a population of 154,137 with an annual growth rate of 1.77% over the period 2010-2015. It has an ideal port which is shielded by the Nonoc Islands. It is also connected with good roads to Butuan City in Agusan del Norte, and Lianga in Surigao del Sur. Legendarily, the town of Surigao was a thriving settlement ruled by Chief Solibao. When the Spaniards came, they called the place "Surigao", but during the arrival of early Christian missionaries in the province, it was better known as "Caraga," from the name of its inhabitants – the "Caragas" of the Visayan stock – warlike, brave and ferocious. Surigao City is noted for its proximity to the almost fathomless underwater gorge, the "Philippine Deep", which is one of the deepest portions in the Pacific Ocean, including all other oceans in the world.

Shown in plate 1, Surigao City is is a group of islands at the rim of the Asian continental shelf.

It is one of the four provinces of the newly created Caraga Region 13. The province is blessed with long stretches of white sand beaches, enchanting rock formations, mysterious caves, and vast mangrove forests. The strong waves in Siargao Island has made the province the Surfing Capital of the Philippines. Once a quiet and pristine place, Surigao Del Norte's rural charm now caught the fancy of local and foreign tourists who frequent the province's numerous islands. Over the years, Surigao Del Norte has indeed become a shangri-la for visitors from all over the world, especially for surfers and body boarders. Surigao Del Norte is located at the northeastern part of Mindanao between 125°15' to 126 ° 15' east longitudes and 9°18' to 10°30' north latitude. It is bounded on the north and east by the Pacific Ocean, on the south by the provinces of Agusan Del Norte and Surigao Del Sur, and on the west by the Surigao Strait. It is one of the four provinces of the Caraga Region.

Population wise, as per NSO Survey, the province's total population is 481,416 with an annual average growth rate of

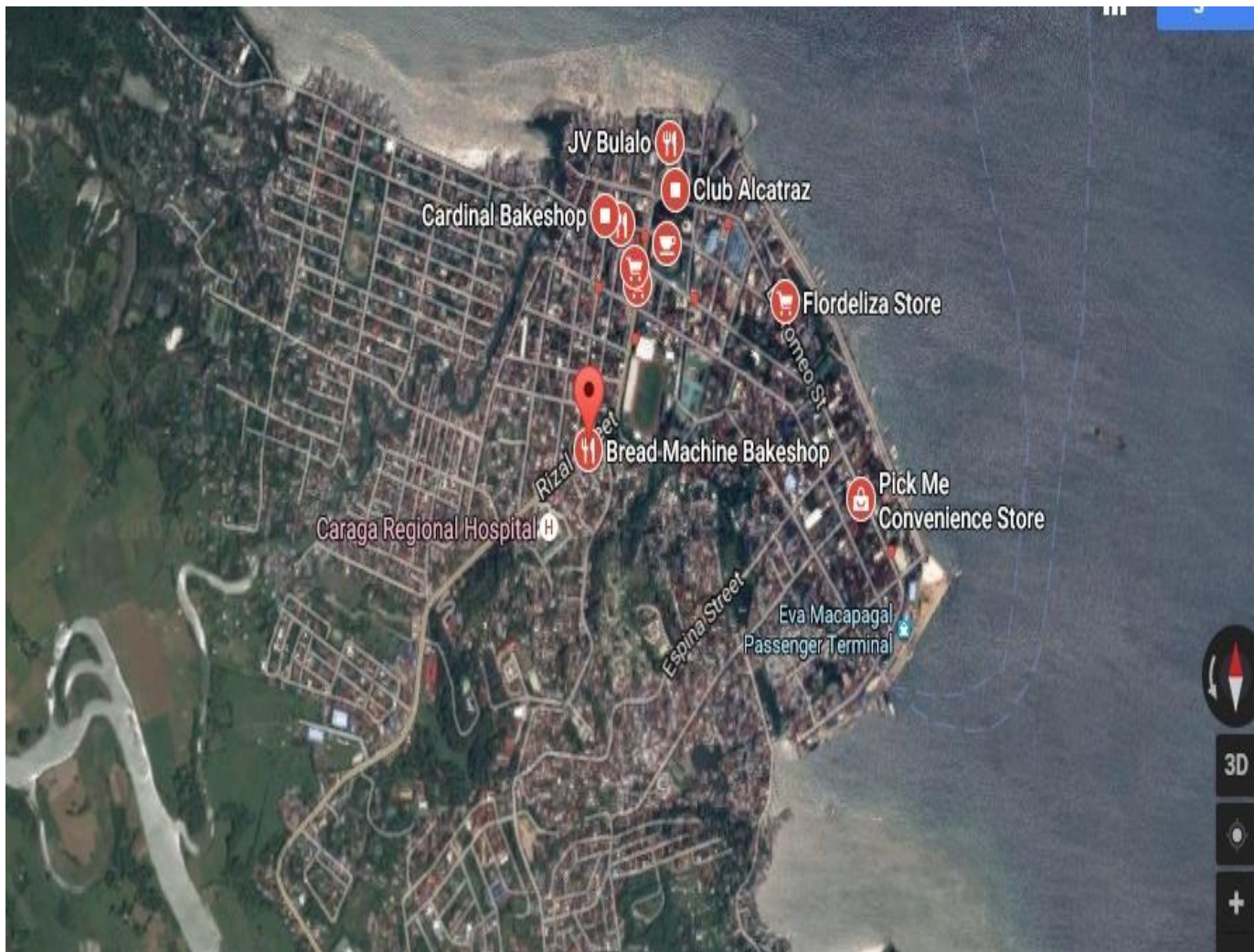
1.71%. Population density is 175 persons per square kilometer.

The people in the province are mostly speaking a dialect of Surigaonon, Cebuano, Boholano, Tagalog, and English are the major dialects and languages spoken in the province.

The province falls under the type II climate characterized by no pronounced dry season but with a very pronounced maximum period from November to January. It has a total

annual rainfall of 3,949.43 mm. Temperature ranges from a low of 21.1°C to a high of 35°C in June.

There are six mining companies operating in the province. Majority of the stakeholders are Filipinos. Manila Mining Corporation has the widest mining area, at 6,426 hectares, followed by Taganito Mining Company, at 4,966 hectares. Others include the Hinatuan Mining Corporation (1,230 ha.), Pacific Cement Company (1.063 ha.), Cagdianao Mining Corporation (697 ha.), and Krominco Inc. (729 ha.).



**Plate 1.** Location Map of Surigao City

#### ➤ *Research Instruments*

The study used researcher-completed instruments and subject-completed instruments. The researcher used researcher-completed instruments through giving rating scales to the customers regarding to the degree of satisfaction they received from the service employed by the food establishment's workers and management. Moreover, rating the food establishment's sanitary and safety measures securing the customer's welfare and comfort.

And for subject-completed instruments the study used survey questionnaires as an instrument given to the customers evaluating how employees interact with them from the time they enter the place to the time they are finished eating. Specifically, the employees' attitude, how customers perceived the selection of food, the length of time they waited before the food is served and how safe they feel about the establishment's security and cleanliness.

Lastly, separate questionnaires were given to the establishment’s supervisors, workers, and managers answering how they practice their food technology management in terms of recruitment and hiring of personnel, food selection, food preparation, cooking, serving and sanitary and safety practices. Each of these roles shall contain no less than three items. The items to contain shall be based on the reviews made from various literatures. Prior to the final conduct of the study, this instrument shall undergo establishing the validity and reliability to ensure the objective results.

**Validity.** The research instrument had undergone the process of validation involving the collection and analyzing data to assess the accuracy of an instrument by presenting a draft of the instrument to a panel of researchers who are experts in constructing survey instruments using a focused group discussion. The suggestions made for improvements were followed and a series of pilot tests of the instrument were done among the selected groups of respondents. The positive feedback from the pilot testing is where the reliability test of the instrument was made.

**Reliability.** The researcher has done the process of reliability after the content validity is established and conducted. In this process, the researcher employed the test-retest reliability method where same questionnaires were given to the same respondents after five to ten minutes. This method was used considering that there is no right and wrong responses. The responses from this double conduct of research instruments were statistically treated using the Spearman’s Rank Correlation Coefficient. The reliability level of the results for the last two parts of the instruments shall be analyzed and tabulated as bases for the final conduct of the study.

➤ *Respondents*

The respondents used in this study were the management personnel such as; supervisors and managers, workers and customers of the food establishments in Surigao City.

The researcher has determined the sample size of the respondents by using the Slovin’s Formula. A combination of

| Scale | Parameter | Verbal Description  |
|-------|-----------|---------------------|
| 4     | 3.50-4.0  | Strongly Agree (SA) |
| 3     | 3.0-3.49  | Agree               |
| 2     | 1.50-2.59 | Disagree            |
| 1     | 1.0-1.49  | Strongly Disagree   |

**Ordinal Rank.** This tool was used to determine the assessment of the respondents in the Food Management Technology practices. The ranks shall be based on the frequencies obtained. This tool will help aid the analysis and interpretation of data.

purposive and stratified sampling method was used for this purpose. Through this the researcher gathered random numbers in the selection of the respondents from the population, except for the management personnel and workers.

**Ethics and Data Gathering Procedures**

In order for the researcher to proceed from all of the process. The researcher must practice proper etiquette in data gathering procedures. A formal letter of request asking permission to administer the survey research instrument to the target respondents was personally handed by the researcher to the managers, supervisors, workers and customers. This letter was duly attested by the adviser and noted by the Chair of the Graduate School. This formal letter of request enclosed the processes involving the establishment of the validity, reliability and final conduct of research instrument of the study.

After the letter of request was approved, the researcher personally distributed copies of research survey instruments to the respondents coupled with the explanation as to the purpose of the research study. Retrieval, collection, tallying, interpretation and analysis of data gathered were immediately done after the respondents answered the survey instruments.

➤ *Data Analysis*

The data gathered from the respondents were analyzed and interpreted using the following statistical tools or methods.

**Frequency.** This tool was used to determine the totals of respondents who answered the research survey instruments regarding all the aspects stated in the statement of the problem about food management technology of food establishments.

**Weighted Mean.** This is a preliminary descriptive statistical tool used prior to the application of inferential statistics on Kruskal-Wallis Test and Friedman Rank Test. This tool was used to determine the significant difference in the assessment of respondents in food technology management practices. In order to be able to determine it, the researcher used the following scale:

**One-Way Correlated ANOVA.** This statistic tool was used to determine the presence of difference among the technology management in each group of respondents.

**Scheffe Post Hoc Analysis.** This tool was used to specifically determine the location of the significant difference among paired variables in the ANOVA. This was used when

there were more than two variables differentiated and the significance existed.

## VI. RESULTS AND DISCUSSIONS

In this study data were analyzed, and interpreted to answer those identified problems. The presentation is in accordance with the order of the problems as stated.

### ➤ *Extent of Technology Management Practices in Foods Establishments*

The data and discussion to answer the problem on the extent of technology management practices among the food establishments in Surigao City in terms of recruitment and hiring, food selection, food preparation, cooking, serving, safety, sanitation, and restoration are presented in this section.

These practices were rated by the management personnel and workers.

### ➤ *Recruitment and Hiring Practices*

The data in Table 2 disclosed that the highest practices on recruitment and hiring were on items that “workers undergo series of interview and written exams” and “workers are properly oriented before the start of the actual work” that obtained the equal means of 3.65 and both were claimed **always** observed. These items were followed by their option “workers undergo proper training before the start of the actual work” with the mean of 3.64 to stand the mark of **always** observed as well. The lowest rating was on item “workers are directly hired by the company from any recruitment agency” that got the mean of 2.94 to indicate being **often** observed.

| <i>Recruitment Practices</i>  | $\bar{X}$   | Evaluation | Rank |
|---|-------------|------------|------|
| 1. Workers are directly hired by the company from any recruitment agency. | 2.94        | Often      | 5    |
| 2. Workers hired are at least high school graduate.                       | 3.32        | Often      | 4    |
| 3. Workers undergo series of interview and written exams.                 | 3.65        | Always     | 1.5  |
| 4. Workers are properly oriented before the start of the actual work.     | 3.65        | Always     | 1.5  |
| 5. Workers undergo proper training before the start of the actual work.   | 3.64        | Always     | 3    |
| <b>Overall Mean</b>   | <b>3.44</b> | Often      | -    |

Table 2:- Extent of Foods Technology Management Practices as to Recruitment and Hiring

The overall mean of 3.44 stressed that the food establishments in Surigao City **often** observed generally any of these recruitment and hiring practices. This finding implies that there are still inappropriateness to the procedure in looking for the best employees and inadequate development programs for their development as food related workers in these establishments.

individual behavior and group dynamics. This resource provides researchers and practitioners with a clear view of human capital in a competitive global marketplace with various possible managerial solutions to increase efficiency, employee and consumer satisfaction, and organizational success.

According to Human Resources in the Foodservice Industry: Organizational Behavior Management Approaches examines the latest research critical in understanding

### ➤ *Food Selection Practices*

The technology management practices of the food establishments on food selection are shown in Table 3.

| <i>Food Selection Practices</i>                          | $\bar{X}$   | Evaluation | Rank |
|--|-------------|------------|------|
| 1. The food ingredients are fresh.                       | 3.69        | Always     | 1    |
| 2. The food ingredients used are of the best quality.    | 3.51        | Always     | 3    |
| 3. The raw materials used are properly selected.         | 3.55        | Always     | 2    |
| 4. The food ingredients are marketed every day.          | 3.43        | Often      | 4    |
| 5. Food ingredients are directly acquired from the farm. | 3.10        | Often      | 5    |
| <b>Overall Mean</b>                                      | <b>3.46</b> | Often      | -    |

Table 3:- Extent of Foods Technology Management Practices as to Food Selection

The data in food selection practices shows the highest and **always** observed in item “the food ingredients are fresh” with the mean of 3.69, and seconded by the item “the raw

materials used are properly selected” to indicate **always** observed as well. Their lowest and **often** observed was the item “food ingredients are directly acquired from the farm” as

marked by the mean of 3.10. The overall mean of 3.46 signals the food management **often** observed any of these food selection practices.

The finding implies that the management was particular with the freshness of the food ingredients with overall mean of 3.69 followed by raw materials are used and properly selected. Overall mean of 3.46 “often observed” that some of the food establishment was not being observed with the food selection.

According to Galef (1996) food selection will require considerably more than reductionist analyses of the internal workings of individual animals. To understand food choice we will have to examine not only the physiology and behavior of individuals, but also the biological and social environments within which individuals select items to ingest. The biological environment determines patterns of food availability and, over evolutionary time, provides selective pressures which shape

sensory-affective responses to flavors, making them adaptive with respect to local conditions. Direct experience of the consequences of ingesting potential foods and interaction with conspecifics that have eaten various foods both affect food choices. These multiple influences, acting at different levels of organization, can bias food selection by individuals in either adaptive or maladaptive directions, depending on the characteristics of the environment in which feeding occurs. The need to understand the relationship between internal organization, individual social experience, and ecological demands may make food choice the most difficult of the core aspects of feeding behavior to analyze satisfactorily.

➤ *Food Preparation Practices*

The data on the practices of food establishments in Surigao City in terms of food preparation are introduced in Table 4.

| <i>Food Preparation Practices</i>  | $\bar{X}$   | <b>Evaluation</b> | <b>Rank</b> |
|--|-------------|-------------------|-------------|
| 1. Food ingredients in the kitchen are well arranged for faster food preparation | 3.67        | Always            | 1           |
| 2. There is a time bracket limit for the preparation of certain menu             | 3.46        | Often             | 3           |
| 3. All ingredient for cooking are cut uniformly                                  | 3.26        | Often             | 4           |
| 4. The chopping board used for cutting are color coded                           | 3.02        | Often             | 5           |
| 5. The kitchen utensils are well arranged for quicker cooking                    | 3.58        | Always            | 2           |
| <b>Overall Mean</b>  | <b>3.40</b> | Often             |             |

Table 4:- Extent of Foods Technology Management Practices as to Food Preparation

Food stuff in the kitchen are well organized for faster preparation of 3.67 while the kitchen utensils are well arrange was “much observed” it indicates that the food establishment in Surigao City needs to practice in food preparation based on the demand and uniformity. This was followed by the “much observed” item “the kitchen utensils are well arranged for quicker cooking” that got the mean of 3.58, while the lowest and the lowest is the “chopping board used for cutting are color coded” for on 3.02.

The finding is in line with Lundberg saying that preparing food for eating, generally requires selection, measurement and combination of ingredients in an ordered procedure so as to achieve desired results. Food preparation includes but is not limited to cooking.

➤ *Food Cooking Practices*

The practices of food establishments on food cooking are reflected in the data of Table 5.

| <i>Cooking Practices</i>  | $\bar{X}$   | <b>Evaluation</b> | <b>Rank</b> |
|---|-------------|-------------------|-------------|
| 1. All cooked foods must satisfy the customer needs               | 3.61        | Always            | 2           |
| 2. The foods are properly/well cooked                             | 3.66        | Always            | 1           |
| 3. There is a standard time for cooking of food                   | 3.37        | Often             | 5           |
| 4. Cooks are provided with proper attire and sanitary accessories | 3.57        | Always            | 4           |
| 5. Use a teaspoon for food tasting                                | 3.60        | Always            | 3           |
| <b>Overall Mean</b>   | <b>3.56</b> | Always            | -           |

Table 5:- Extent of Foods Technology Management Practices as to Cooking

The data disclosed the highest and always observed was in item “the foods are properly/well cooked” with the mean of 3.66 and which was followed by mean of 3.61 to mark the

**always** observe the item “all cooked foods must satisfy the customer needs”. Their lowest and **often** observed was the practice that “there is a standard time for cooking of food”.

The overall mean of 3.56 was **always** observed in cooking in the food establishment in Surigao City.

The finding suggest that the cuisine should properly cooked and means that food establishment should watch and check the foods they're going to serve to their customer. Cooking time was not prioritize by the establishment in Surigao City and it should be changed by management to gain more customer without sacrificing the food.

Food analysts and chefs say that cooking is a critical control point, or a point at which reaching proper internal temperatures can help ensure that a food is safe to eat. Cooks

must know the proper temperatures for cooking food, monitor internal cooking temperatures, and record cooking temperatures. It can prevent many foodborne illnesses that would otherwise occur if the food is eaten raw. When heat is used in the preparation of food, it can kill or inactivate harmful organisms, such as bacteria and viruses. It is one of the important practices in food technology because it serves as the core of all the practices in the food quality and taste.

#### ➤ *Serving Practices*

Table 6 displays the data on the extent of serving practices of food establishments in Surigao City.

| <i>Serving Practices</i>   | $\bar{X}$   | <b>Evaluation</b> | <b>Rank</b> |
|--|-------------|-------------------|-------------|
| 1. There is a time requirement in serving the food                               | 3.51        | Always            | 4           |
| 2. All foods are served at the left and beverages at the right side of the guest | 3.50        | Always            | 5           |
| 3. There is a proper dress for servers in serving the food                       | 3.55        | Always            | 3           |
| 4. There is a proper training for servers in serving the food                    | 3.58        | Always            | 2           |
| 5. Foods are served hot and tasty  | 3.74        | Always            | 1           |
| <b>Overall Mean</b>  | <b>3.57</b> | Always            | -           |

Table 6:- Extent of Foods Technology Management Practices as to Serving

The data revealed their highest and **always** practiced the item “foods are served hot and tasty” that pegged the mean of 3.74, and which was followed by the **always** practiced item on “there is a proper training for servers in serving the food” as marked by the obtained mean of 3.58. They claimed the lowest, though still **always** practiced, the item on “all foods are served at the left and beverages at the right side of the guest” that got a mean of 3.50.

The data shows that food serving in terms of any of these practices were found **always** observed as marked by the overall mean of 3.57. On this findings, food arrangement in the table is also a factor on how you serve the clientele it also shows how the management trains their staff. This is tantamount to the personalities of the establishment in terms of their behavioral manifestations with the clientele, as well as the time spent waiting for the food to served. Thus, study included this aspects based on the idea that the customers will

also appreciate the food establishment based on how satisfying the foods are and how they are being served.

#### **Safety Practices**

The technology management practices of the food establishments on safety are shown in Table 7. The Table revealed that the highest and **always** claimed was on item “the kitchen must have proper exhaustion of smoke for proper ventilation and free from odor” that obtained the mean of 3.75. This item was followed by their option “all kitchen personnel must wear flat, close and comfortable shoes” with the mean of 3.73 to stand the mark **always** observed also. The lowest rating was on item “all cooking equipment must be provided with automatic ignition” that got the mean of 3.52 to indicate being **always** observed. The obtained overall mean of 3.67 indicates the always observed safety practices in food technology management.

| <i>Safety Practices</i>   | $\bar{X}$   | <b>Evaluation</b> | <b>Rank</b> |
|---|-------------|-------------------|-------------|
| 1. All kitchen personnel must wear flat, close and comfortable shoes                          | 3.73        | Much Observed     | 2           |
| 2. The kitchen must have proper exhaustion of smoke for proper ventilation and free from odor | 3.75        | Much Observed     | 1           |
| 3. All cooking equipment must be provided with automatic ignition                             | 3.52        | Much Observed     | 5           |
| 4. There is a proper fire exist for employees   | 3.65        | Much Observed     | 4           |
| 5. Safety equipment like fire extinguisher are available.                                     | 3.68        | Much Observed     | 3           |
| <b>Overall Mean</b>   | <b>3.67</b> | Much Observed     |             |

Table 7:- Extent of Foods Technology Management Practices as to Safety

The finding implies that safety and ease of employees in the kitchen are factors for the food not to be compromised during preparation. Modern food technology and food processing has allowed for the development of a safer, more plentiful, and more sustainable food supply than ever before, and both fresh and processed foods can be safe, nutritious, and environmentally responsible choices. However, foods that are "processed" have been criticized in the media, and some opinion leaders have advised consumers to limit or avoid these

foods. A lack of understanding of food technology contributes to this negative attitude and frequently heightened safety concerns as well. Becoming familiar with modern processes and agricultural practices can help shed light on the risks and benefits of utilizing available technologies.

### Food Sanitation Practices

The technology management practices of the food establishments on food sanitation are shown in Table 8.

| <i>Sanitation Practices</i>  | $\bar{X}$   | <b>Evaluation</b> | <b>Rank</b> |
|--|-------------|-------------------|-------------|
| 1. Employees/workers are provided with sanitary accessories like hairnets, apron, and mask | 3.65        | Much Observed     | 5           |
| 2. The server has proper hygiene, e.g. nails are cut short                                 | 3.77        | Much Observed     | 1.5         |
| 3. There is proper waste disposal management, e.g. bins, drainage, ventilation             | 3.74        | Much Observed     | 3           |
| 4. Cockroaches, flies, ants, and rodents are eradicated always                             | 3.73        | Much Observed     | 4           |
| 5. All food trays are cleaned every after use.   | 3.77        | Much Observed     | 1.5         |
| <b>Overall Mean</b>  | <b>3.73</b> | Much Observed     | -           |

Table 8:- Extent of Foods Technology Management Practices as to Sanitation

The Table revealed that the highest and **always** observed were on the items "the server has proper hygiene, e.g. nails are cut short" and "all food trays are cleaned every after use" both with equal means of 3.77. The item "there is proper waste disposal management, e.g. bins, drainage, ventilation" got the third rank with the mean of 3.74 to also indicate **always** practiced. The lowest rating was on item "employees/workers are provided with sanitary accessories like hairnets, apron, and mask" that got the mean of 3.65 to indicate always practiced as well.

The obtained overall mean of 3.73 indicates the always observed practices of food management practices as to sanitation. This connotes that proper sanitation must start with the employees' proper hygiene practices and on the media food is served. This further invokes the concept that foodservice operators should have a training program that teaches employees to follow certain practices and use specific tools — gloves, wipes, chemicals — when doing so. But the message

needs to go beyond the training. Put up a job aid that reminds them what they are doing and why. By the sinks, you put up that hand washing protocol and make sure the area is properly stocked with soap, towels, etc. Make the job aids fun, seasonal, etc. to keep it top of mind.

### Restoration Practices

The technology management practices of the food establishments on restoration are shown in Table 9. The Table revealed that the highest claim was on item "all cleaning materials and supplies are properly kept away from the foods in place" that obtained the mean of 3.79 and claimed as **always** practiced. This item was followed by their option "the used dining tables and chairs are properly cleaned and arranged" with the mean of 3.78 to stand the mark of **always** practices as well. The lowest rating was on item "the used equipment are kept in the cabinet clean and dry" that got the mean of 3.69 to indicate being **always** observed.

| <i>Restoration Practices</i>  | $\bar{X}$   | <b>Evaluation</b> | <b>Rank</b> |
|---|-------------|-------------------|-------------|
| 1. The utensils and equipment are always placed in a clean and sanitized cabinet      | 3.76        | Much Observed     | 3           |
| 2. The order of washing the used dining utensils is strictly implemented              | 3.75        | Much Observed     | 4           |
| 3. The used equipment are kept in the cabinet clean and dry                           | 3.69        | Much Observed     | 5           |
| 4. The used dining tables and chairs are properly cleaned and arranged                | 3.78        | Much Observed     | 2           |
| 5. All cleaning materials and supplies are properly kept away from the foods in place | 3.79        | Much Observed     | 1           |
| <b>Overall Mean</b>   | <b>3.75</b> | Much Observed     | -           |

Table 9:- Extent of Foods Technology Management Practices as to Restoration



The obtained overall mean of 3.73 indicates that the practices in any of these items on restoration in food technology management was always observed. This finding disclosed that proper arrangement of cleaning materials, dining tables and chairs are observed for an ease if its being re-used and avoiding spoilage.

The interest of the study focuses as well this aspect of food establishment in terms of how the used kitchen utensils and facilities are being cleaned and kept and ready for the succeeding business operation. This examines the practices

employed in ensuring a pleasant ambiance of the area, and the cleanliness of environment and facilities is worth coming back by the customers. Notably, the first sight of the customers on the ambiance of the surroundings is the primary step in attracting into the business services.

In synthesis, the data in Table 10 reflects the overall picture of the interest of the study on the extent the food establishments employed the technology management practices.

| <i>Foods Technology Management Practices</i> | $\bar{X}$   | Evaluation | Rank |
|--|-------------|------------|------|
| 1. Recruitment and Hiring                    | 3.44        | Often      | 7    |
| 2. Food Selection                            | 3.46        | Often      | 6    |
| 3. Food Preparation                          | 3.40        | Often      | 8    |
| 4. Cooking                                   | 3.56        | Always     | 5    |
| 5. Serving                                   | 3.57        | Always     | 4    |
| 6. Sanitation                                | 3.67        | Always     | 3    |
| 7. Safety                                    | 3.73        | Always     | 2    |
| 8. Restoration                               | 3.75        | Always     | 1    |
| <b>Overall Mean</b>                          | <b>3.57</b> | Always     | -    |

Table 10:- Summary Data on the Extent of Foods Technology Management Practices

The Table unfolded their highest claim on “restoration” as marked by the mean of 3.75 marked **always** practiced, and which was followed by the practices on “safety” and “sanitation” that recorded the respective means of 3.73 and 3.67 and labeled also **always** practiced. The lowest three practices were on the “food selection”, “recruitment and hiring”, and “food preparation” that obtained the respective means of 3.46, 3.44, and 3.40 to mark their responses as **often** observed.

The finding of the study is imperative of the challenge to the management of food establishments to improve their practices in the seeking for more applicants and hire the best for their food business interests. They are also endeared to include in their management the development training for their employees. They are likewise to review their practices in the

food selection and food preparation to ensure that the same assures the best quality of food served to their customers. With all these given the full attention, they may ascertain the full food service satisfaction their clientele.

#### **Extent of Clientele Satisfaction of Food Management Practices**

This section will present the data and discussion on the extent the clientele are satisfied as to food preparation and cooking, serving, sanitation, safety, and ambiance among food establishments in Surigao City.

#### **Food Preparation and Cooking Satisfaction**

The data in Table 11 unveiled the extent to which the clientele as satisfied on the food preparation and cooking of food establishment.

| <i>Satisfaction on Food Preparation and Cooking</i>                    | $\bar{X}$   | Evaluation     | Rank |
|--|-------------|----------------|------|
| 1. The food is served hot and fresh                                    | 3.41        | Satisfied      |      |
| 2. The menu has an excellent selection for food items                  | 3.49        | Satisfied      |      |
| 3. The quality of food is excellent                                    | 3.66        | Much Satisfied |      |
| 4. The food is very tasty and flavorful                                | 3.69        | Much Satisfied |      |
| 5. The availability of condiments, napkins and utensils are sufficient | 3.63        | Much Satisfied |      |
| <b>Overall Mean</b>  | <b>3.58</b> | Much Satisfied |      |

Table 11:- Extent of Clientele Satisfaction of Food Management Practices as to Food Preparation and Cooking

The data in Table 11 disclosed that the highest clientele satisfaction was on item that “the food is very tasty and flavorful” that obtained the mean of 3.69 and both were claimed **much satisfied**. These items were followed by their option “the quality of food is excellent” with the mean of 3.66 to stand the mark of **much satisfied** as well. The lowest rating was on item “the food is served hot and fresh” that got the mean of 3.41 to indicate being **satisfied**.

The obtained overall mean of 3.58 indicates the “much satisfied” on extent of clientele satisfaction of food management practices as to food preparation and cooking. This disclosed that the taste and quality of foods, freshness and proper selection of ingredients is a primary factor that affects customer satisfaction on the food.

➤ *Food Serving Satisfaction*

The data in Table 12 connotes the extent to which the clientele as satisfied on the serving of food establishment.

| <i>Satisfaction on Serving</i>   | $\bar{X}$   | <b>Evaluation</b> | <b>Rank</b> |
|--|-------------|-------------------|-------------|
| 1. The servers are courteous and professional                            | 3.64        | Much Satisfied    |             |
| 2. The servers are friendly and patient when taking orders               | 3.51        | Much Satisfied    |             |
| 3. The servers are able to explain the menu items and options thoroughly | 3.53        | Much Satisfied    |             |
| 4. The servers are able to deliver the orders on time                    | 3.42        | Satisfied         |             |
| 5. The servers are able to serve the correct orders to customers         | 3.28        | Satisfied         |             |
| <b>Overall Mean</b>  | <b>3.48</b> | Satisfied         |             |

Table 12:- Extent of Clientele Satisfaction of Food Management Practices as to Serving

The Table disclosed that the highest clientele satisfaction was on item that “the servers are courteous and professional” that obtained the mean of 3.64 and was claimed **much satisfied**. This item was followed by their option “the servers are able to explain the menu items and options thoroughly” with the mean of 3.53 to get the mark of **much satisfied** as well. The lowest rating was on item “the servers are able to serve the correct orders to customers” that got the mean of 3.28 to indicate that the clientele were **satisfied**.

satisfaction.

**Sanitation Satisfaction**

The data in Table 13 reflects the extent to which the clientele as satisfied on the sanitation of food establishment.

The obtained overall mean of 3.48 indicates the “satisfied on extent of clientele satisfaction of food management practices as to serving. This disclosed that proper approach on customers, customer sensitivity and providing all their orders in pleasing manner is an ace to get good customer

The Table disclosed that the highest clientele satisfaction was on item that “the servers are properly dressed and groomed” that obtained the mean of 3.61 and was claimed **much satisfied**. It was seconded by their option “the cleanliness and orderliness of the restaurant are inviting to the customers” with the mean of 3.60 to stand the mark of **much satisfied** as well. The lowest rating was on item “the floors are clean of debris and food crumbs” that got the mean of 3.25 to indicate being marked **satisfied**.

| <i>Satisfaction on Sanitation</i>  | $\bar{X}$   | <b>Evaluation</b> | <b>Rank</b> |
|--|-------------|-------------------|-------------|
| 1. The cleanliness and orderliness of the restaurant are inviting to the customers | 3.60        | Much Satisfied    | 2           |
| 2. The tables and chairs are well clean and well arranged                          | 3.39        | Satisfied         | 3           |
| 3. The floors are clean of debris and food crumbs                                  | 3.25        | Satisfied         | 5           |
| 4. The rest rooms are clean and sanitized  | 3.32        | Satisfied         | 4           |
| 5. The servers are properly dressed and groomed                                    | 3.61        | Much Satisfied    | 1           |
| <b>Overall Mean</b>  | <b>3.43</b> | Satisfied         |             |

Table 13:- Extent of Clientele Satisfaction of Food Management Practices as to Sanitation

The obtained overall mean of 3.43 indicates the clientele were **satisfied** on extent the management have sanitation practices in the food establishment. This connotes that when it comes to sanitary measures, the customers are more precise on the appearance of the servers and the cleanliness of the

surroundings or how well things are arranged.

➤ *Safety Practices*

The data in Table 14 connotes the extent to which the clientele as satisfied on the safety of food establishment.

| <i>Satisfaction on Safety</i>   | $\bar{X}$   | <b>Evaluation</b> | <b>Rank</b> |
|---|-------------|-------------------|-------------|
| 1. The fire extinguisher is visible for emergency use                                     | 3.73        | Much Satisfied    | 1           |
| 2. The restaurant has visible first aid kit   | 3.62        | Much Satisfied    | 2           |
| 3. There is available fire exit sign  | 3.49        | Satisfied         | 5           |
| 4. The employees are able to respond urgent personal needs of the customers               | 3.56        | Much Satisfied    | 3           |
| 5. Toiletries and hand washing supplies are available in hand washing area for urgent use | 3.54        | Much Satisfied    | 4           |
| <b>Overall Mean</b>   | <b>3.59</b> | Much Satisfied    | 1           |

Table 14:- Extent of Clientele Satisfaction of Food Management Practices as to Safety

The Table unfolded the highest clientele satisfaction on item that “the fire extinguisher is visible for emergency use” with obtained mean of 3.73, labeled as **much satisfied**. This items was followed by their satisfaction on “the restaurant has visible first aid kit” with the mean of 3.62 to stand the mark of **much satisfied** as well. The lowest rating was on item “there is available fire exit sign” that got the mean of 3.49 to indicate an opinion **satisfied**.

The obtained overall mean of 3.59 indicates the “much satisfied” on extent of clientele satisfaction of food management practices as to safety. This implies that as to safety visibility of emergency tools, kits and even exits affects customers' satisfaction. These leads to more strict compliance on safety measures imposed by government bureaus.

#### ➤ *Ambiance Satisfaction*

The data in Table 15 connotes the extent to which the clientele as satisfied on the ambiance of food establishment.

| <i>Satisfaction on Ambiance</i>  | $\bar{X}$   | <b>Evaluation</b> | <b>Rank</b> |
|--|-------------|-------------------|-------------|
| 1. The place is relaxing and suitable for dining                       | 3.48        | Satisfied         | 5           |
| 2. The place is free from air and noise pollutants                     | 3.60        | Much Satisfied    | 2           |
| 3. The place is well ventilated and well lighted                       | 3.52        | Much Satisfied    | 3           |
| 4. The place is accentuated with comforting and refreshing decorations | 3.51        | Much Satisfied    | 4           |
| 5. The place is accessible and easily reached                          | 3.74        | Much Satisfied    | 1           |
| <b>Overall Mean</b>  | <b>3.57</b> | Much Satisfied    | -           |

Table 15:- Extent of Clientele Satisfaction of Food Management Practices as to Ambiance

The data reflected the highest clientele satisfaction on item “the place is accessible and easily reached” that obtained the mean of 3.74 and was tagged **much satisfied**. This items was seconded by their choice that “the place is free from air and noise pollutants” with the mean of 3.60 to stand the mark of **much satisfied** as well. The lowest rating was on item “the place is relaxing and suitable for dining” that got the mean of 3.48 to indicate their being **satisfied**.

The clientele satisfaction of the practices of food establishments on ambiance was at satisfactory level as supported by the obtained overall mean of 3.57. The finding

lift the concept that that accessibility of the establishment to clienteles should be cushy, an environment where they can breathe fresh air free from urban pollution and a quiet atmosphere are to be considered.

In **synthesis**, the data in Table 16 reflects the overall picture of the interest of the study on the extent of clientele satisfaction of food management practices. It shows the state of the extent of the satisfaction of the clientele across all the food establishments in Surigao City, as ranked from highest to lowest.

| <i>Safety Practices</i>         | $\bar{X}$   | <b>Evaluation</b> | <b>Rank</b> |
|---------------------------------|-------------|-------------------|-------------|
| 1. Food Preparation and Cooking | 3.58        | Much Satisfied    | 2           |
| 2. Serving                      | 3.48        | Satisfied         | 4           |
| 3. Sanitation                   | 3.43        | Satisfied         | 5           |
| 4. Safety                       | 3.59        | Much Satisfied    | 1           |
| 5. Ambiance                     | 3.57        | Much Satisfied    | 3           |
| <b>Overall Mean</b>             | <b>3.53</b> | Much Satisfied    |             |

Table 16:- Summary Data on Extent of Clientele Satisfaction of Food Management Practices

The Table unfolded their highest claim on “safety” as marked by the mean of 3.59 marked **much satisfied** and which was followed by the practices on “food preparation and cooking” and “ambiance” that recorded the respective means of 3.58 and 3.57 and labeled **much satisfied** as well. The lowest two practices were on the “serving” and “sanitation” that obtained the respective means of 3.48 and 3.43 to mark their responses to **satisfied**.

The finding of the study is imperative of the challenge to the management of food establishments to improve their practices in good sanitary measures and superior service in terms of serving for their food business interests.

➤ *Difference among the Extents Technology Management Practices and among Levels of Clientele Satisfaction in Food Establishments*

The answers to the query on whether or not there exists a significant difference: 1) among the technology management practices, and 2) among clientele satisfactions, in food establishments in Surigao City are presented and discussed in this section. The data are introduced in Table 17 for analysis.

| <b>Among Factors</b>   | <b>F-value</b> | <b>Decision on Ho</b> | <b>Conclusion</b>  |
|--|----------------|-----------------------|--------------------|
| <b>1. Management Practices</b><br>( $df = 7/1330$ & $F_{.05} = 2.01$ )   | <b>64.73</b>   | <b>Rejected</b>       | <b>Significant</b> |
| <b>2. Clientele Satisfactions</b><br>( $df = 4/784$ & $F_{.05} = 2.38$ ) | <b>21.80</b>   | <b>Rejected</b>       | <b>Significant</b> |

Table 17:- Difference among the Technology Management Practices and among Clientele Satisfactions in Food Establishments

➤ *Among Technology Management Practices*

The data in Table 17 show the bases to determine the presence or absence of significant difference among the technology management in food establishments in Surigao City. The Table disclosed the F-value of 64.73 that exceeded the required critical F.05-value of 2.01 at 7/1330 degrees of freedom. The null hypothesis was rejected on this basis. Hence, there was a significant difference among the eight variables included in the technology management practices in food establishments.

The researcher opted to adopt the Scheffé post hoc analysis and the result is shown in Table 18. This analysis is to spot where the significant difference exists among contrasted variables of the technology management practices.

| Contrasted Variables                         |                                      | F-value | Decision on Ho  | Conclusion         |
|--|--------------------------------------|---------|-----------------|--------------------|
| Recruitment & Hiring<br>( $\bar{X} = 3.44$ ) | Food Selection ( $\bar{X} = 3.46$ )  | 0.49    | Accepted        | Not Significant    |
|  | Food Preparation( $\bar{X} = 3.40$ ) | 3.06    | Accepted        | Not Significant    |
|  | Cooking ( $\bar{X} = 3.46$ )         | 25.74   | <b>Rejected</b> | <b>Significant</b> |
|  | Serving ( $\bar{X} = 3.57$ )         | 31.84   | <b>Rejected</b> | <b>Significant</b> |
|  | Sanitation ( $\bar{X} = 3.67$ )      | 90.92   | <b>Rejected</b> | <b>Significant</b> |
|  | Safety ( $\bar{X} = 3.73$ )          | 149.98  | <b>Rejected</b> | <b>Significant</b> |
|  | Restoration ( $\bar{X} = 3.75$ )     | 173.32  | <b>Rejected</b> | <b>Significant</b> |
| Food Selection<br>( $\bar{X} = 3.46$ )       | Food Preparation( $\bar{X} = 3.40$ ) | 6.00    | Accepted        | Not Significant    |
|  | Cooking ( $\bar{X} = 3.46$ )         | 19.13   | <b>Rejected</b> | <b>Significant</b> |
|  | Serving ( $\bar{X} = 3.57$ )         | 24.43   | <b>Rejected</b> | <b>Significant</b> |
|  | Sanitation ( $\bar{X} = 3.67$ )      | 78.06   | <b>Rejected</b> | <b>Significant</b> |
|  | Safety ( $\bar{X} = 3.73$ )          | 133.33  | <b>Rejected</b> | <b>Significant</b> |
| Food Preparation<br>( $\bar{X} = 3.40$ )     | Restoration ( $\bar{X} = 3.75$ )     | 155.39  | <b>Rejected</b> | <b>Significant</b> |
|  | Cooking ( $\bar{X} = 3.46$ )         | 46.56   | <b>Rejected</b> | <b>Significant</b> |
|  | Serving ( $\bar{X} = 3.57$ )         | 54.64   | <b>Rejected</b> | <b>Significant</b> |
|  | Sanitation ( $\bar{X} = 3.67$ )      | 127.34  | <b>Rejected</b> | <b>Significant</b> |
|  | Safety ( $\bar{X} = 3.73$ )          | 195.90  | <b>Rejected</b> | <b>Significant</b> |
| Cooking<br>( $\bar{X} = 3.46$ )              | Restoration ( $\bar{X} = 3.75$ )     | 222.45  | <b>Rejected</b> | <b>Significant</b> |
|  | Serving ( $\bar{X} = 3.57$ )         | 0.32    | Accepted        | Not Significant    |
|  | Sanitation ( $\bar{X} = 3.67$ )      | 19.90   | <b>Rejected</b> | <b>Significant</b> |
|  | Safety ( $\bar{X} = 3.73$ )          | 51.45   | <b>Rejected</b> | <b>Significant</b> |
| Serving ( $\bar{X} = 3.57$ )                 | Restoration ( $\bar{X} = 3.75$ )     | 65.47   | <b>Rejected</b> | <b>Significant</b> |
|  | Sanitation ( $\bar{X} = 3.67$ )      | 15.15   | <b>Rejected</b> | <b>Significant</b> |
|  | Safety ( $\bar{X} = 3.73$ )          | 43.62   | <b>Rejected</b> | <b>Significant</b> |
| Sanitation ( $\bar{X} = 3.67$ )              | Restoration ( $\bar{X} = 3.75$ )     | 56.60   | <b>Rejected</b> | <b>Significant</b> |
|  | Safety ( $\bar{X} = 3.73$ )          | 7.35    | Accepted        | Not Significant    |
| Safety ( $\bar{X} = 3.73$ )                  | Restoration ( $\bar{X} = 3.75$ )     | 13.18   | <b>Rejected</b> | <b>Significant</b> |
| Safety ( $\bar{X} = 3.73$ )                  | Restoration ( $\bar{X} = 3.75$ )     | 0.84    | Accepted        | Not Significant    |

Table 18:- Scheffé Data on Significant Difference among Technology Management Practices in Food Establishments ( $F'_{.05} = 14.07$ )

The post hoc analysis disclosed that the significant difference among the technology management practices of the food establishments were spotted between the “recruitment and hiring practices” and cooking, serving, sanitation, safety, and restoration; between “food selection” and cooking, serving, sanitation, safety, and restoration; “between food preparation” and cooking, serving, sanitation, safety, and restoration; between “cooking” and sanitation, safety, and restoration; between “serving” and sanitation, safety, and restoration; and between “sanitation” and safety, and restoration.

The corresponding null hypotheses in each of these contrasted variables were all rejected as evidenced by the obtained estimate F’-values that exceeded the required estimate F’<sub>.05</sub>-value of 14.07. Therefore, there was no sufficient ground to say the the practices of the food establishments in all these measured components in technology management are equally given importance.

The study invokes the idea that there are aspects on the part of the management of food business establishment that need to be given special attention to assure its sustainability in operation. If the management personnel will endeavor to add strength to their kind of food business, they shall concentrate more on the items that were found to have lesser extent of practice.

**Among Clientele Satisfaction**

The same data in Table 17 unfolded that there was a significant difference among the clientele satisfactions in food establishments. This is grounded on the obtained F-value of 21.80 that went beyond the critical F<sub>.05</sub>-value of 2.38 at 4/784 degrees of freedom, and that led to the rejection of the null hypothesis.

Noting the presence of significant difference, the researcher employed the Scheffé posteriori analysis to specifically locate which of the paired variables the significance exist. The data are introduced in Table 19 for in-depth analysis.

| Contrasted Variables                            |                                 | F-value | Decision on Ho  | Conclusion         |
|---|---------------------------------|---------|-----------------|--------------------|
| Food Preparation & Cooking ( $\bar{X} = 3.58$ ) | Serving ( $\bar{X} = 3.48$ )    | 24.00   | <i>Rejected</i> | <i>Significant</i> |
|   | Sanitation ( $\bar{X} = 3.43$ ) | 46.77   | <i>Rejected</i> | <i>Significant</i> |
|   | Safety ( $\bar{X} = 3.59$ )     | 0.19    | Accepted        | Not Significant    |
|   | Ambiance ( $\bar{X} = 3.57$ )   | 0.19    | Accepted        | Not Significant    |
| Serving ( $\bar{X} = 3.48$ )                    | Sanitation ( $\bar{X} = 3.43$ ) | 3.76    | Accepted        | Not Significant    |
|   | Safety ( $\bar{X} = 3.59$ )     | 28.46   | <i>Rejected</i> | <i>Significant</i> |
|   | Ambiance ( $\bar{X} = 3.57$ )   | 19.91   | <i>Rejected</i> | <i>Significant</i> |
| Sanitation ( $\bar{X} = 3.43$ )                 | Safety ( $\bar{X} = 3.59$ )     | 52.93   | <i>Rejected</i> | <i>Significant</i> |
|   | Ambiance ( $\bar{X} = 3.57$ )   | 40.99   | <i>Rejected</i> | <i>Significant</i> |
| Safety ( $\bar{X} = 3.59$ )                     | Ambiance ( $\bar{X} = 3.57$ )   | 0.76    | Accepted        | Not Significant    |

Table 19:- Scheffé Data on Significant Difference among Clientele Satisfaction in Food Establishments ( $F'.05 = 9.52$ )

The data revealed the existence of the significant differences in the levels of clientele satisfaction between the “food preparation and cooking” and the serving and sanitation, between “serving” and the safety and ambiance, and between “sanitation” and the safety and ambiance. In these paired variables, the significance were based on the estimate F’ values went beyond the required estimate F’.05-value of 9.52, sufficient to reject their corresponding null hypotheses. Observably, the data also posited the information that the levels of clientele satisfaction along with the food preparation

and cooking, safety, and ambiance were likely the same.

The study further points out the necessary steps that the food establishment shall take in improving the levels of their clientele satisfaction. They have to exercise more prudence on the way they serve foods to the customers in terms of the looks and interpersonal relations accorded to their customers. They also have to examine further the effect to their customers on sanitation to ensure the increased level of clientele satisfaction in terms of sanitation.

➤ *Difference in the Extents of Food Management Practices among Food Establishment*

The data that serve as bases in answering the problem on the existence or non-existence of significant differences in the

technology management practices of the foods establishments in Surigao City are shown in Table 20.

| Factors                   | F-value | Decision on Ho  | Conclusion         |
|---------------------------|---------|-----------------|--------------------|
| 1. Recruitment and Hiring | 4.29    | <i>Rejected</i> | <i>Significant</i> |
| 2. Food Selection         | 7.88    | <i>Rejected</i> | <i>Significant</i> |
| 3. Food Preparation       | 5.83    | <i>Rejected</i> | <i>Significant</i> |
| 4. Cooking                | 9.54    | <i>Rejected</i> | <i>Significant</i> |
| 5. Serving                | 10.30   | <i>Rejected</i> | <i>Significant</i> |
| 6. Sanitation             | 12.45   | <i>Rejected</i> | <i>Significant</i> |
| 7. Safety                 | 14.66   | <i>Rejected</i> | <i>Significant</i> |
| 8. Restoration            | 14.30   | <i>Rejected</i> | <i>Significant</i> |

Table 20:- Difference in the Technology Management Practices in Food Establishments ( $df = 11/1179, F.05 = 1.84$ )

The Table reflects the presence of significant differences in all variables included in the technology management practices. All the computed F-values exceeded the required critical F.05-value of 1.84 at 11/1179 degrees of freedom, and which suffice the rejection of all corresponding null hypothesis. This invokes the knowledge that all food establishments in Surigao City significantly differed in their food technology management practices. It appeared that different food establishments have their own different styles in handling the business. Thus, one food establishment has its own brand and quality in terms of making their business alluring to their target customer.

In securing the existence of significant difference between contrasted establishments, the researcher resorted to the Scheffé posteriori analysis. Under ethical considerations, the identity of each food establishment shall be kept strictly confidential and thus the same are represented by letters only. The data for this purpose are shown in Appendices F to M.

**Difference in Recruitment and Hiring.** In Appendix F, the data for post hoc Scheffé disclosed the existence of significant difference in the recruitment and hiring practices in foods technology management of foods establishments in Surigao City. It revealed the significant difference between the Tavern and Miners where the computed F-value exceeded

the required estimated critical  $F_{.05}$ -value of 20.24.

The Scheffé data pointed out that the significant different in the technology management practice in recruitment and hiring was between the Almont and Miners. It got the estimated  $F'$ -value of 29.43 which went beyond the required estimate  $F'_{.05}$ -value of 20.24. The attached null hypothesis was rejected.

The finding implies that the Almont exercised significantly higher in this aspect than their counterparts. It also emphasizes that there are aspects in Almont that is distinct from Miners that makes them different.

The data also unfolded that the other food establishments observed similarly in this management practice on recruitment and hiring as grounded that no significant difference was found between and among the other establishments as can be examined from the Tavern down to Le Chard as the data continued.

**Difference in Food Selection.** The Scheffe data in Appendix G are the bases to determine the specific paired food establishments where the significant difference are situated.

The data in Appendix G showed the significant differences in the food selection practices were located between “Tavern” and Tourist Inn and Miners, where the former has the highest mean of the three. It stresses that the other two establishments with lower means are not giving serious practice in the food selection process. This significance was also found between the “Tourist Inn” and the Grande and Parkway, where the former marked the significantly lowest mean. This suggests the Tourist Inn is not thorough in practicing food selection. Moreover, the significant difference was also spotted between the “Miners” and the Grande and Parkway, where the former landed the significantly lowest mean of them. It signals the idea that Miners has not fully observed the best practice in food selection.

**Difference in Food Preparation.** From the Appendix H, the data presented that the significant difference in the practices was found between “Tavern” and the Tourist Inn and Miners, where the former marked the highest mean; and between “Miners” and Grande, where the latter establishment got the higher mean. The data suggests that the Tavern and

Grande food establishments are giving the most of their practices that ensure the better quality of foods the serve to their customers.

**Difference in Cooking.** Analysis of the data in Appendix H revealed the existence of significant difference between the “Almont” and Miners, where the former scored the lower mean. It implies that the former gave lesser premium on the cooking practices than the Miner food establishment.

**Difference in Serving.** From Appendix I, the data disclosed the presence of significant difference between the “Almont” and Miners, where the former marked the higher mean. This indicates that Almont is giving more premium in the way their serving crew deal with their customers.

**Difference in Sanitation.** The data in Appendix J disclosed the significant difference in sanitation practices between the “Almont” and Miners, where the former got the higher mean. This finding implies that the former is serious in their practices in ensuring that their surroundings and kitchen environment are free from bacteria causing materials and objects.

**Difference in Safety.** The data in Appendix K disclosed the existence of significant difference in the safety practices between the “Almont” and Miners, where the former marked the significantly higher mean. It stresses the notion that the Almont is in keeping with the practice of securing the safe environment of some intruders or anything that hinders accessibility in guests and personnel in times of emergency.

**Difference in Restoration.** From the same Appendix L, the data displayed the presence of significant difference in the restoration practices between the “Almont” and Miners, where the former scored the significantly higher mean. This finding invokes the notion that the Almont is in keeping with the practices of immediately securing the place and facilities, including the kitchen utensils back to their usual place and keeping everything in order.

**Difference in the Levels of Clientele Satisfaction among Food Establishment**

This portion presents the data and interpretation that answer the problem on the presence or absence of significant difference in the food satisfaction of clientele among food establishments in Surigao City. The data are shown in Table 21.

| Factors                         | F-value | Decision on Ho  | Conclusion         |
|---------------------------------|---------|-----------------|--------------------|
| 1. Food Preparation and Cooking | 8.84    | <i>Rejected</i> | <i>Significant</i> |
| 2. Serving                      | 6.61    | <i>Rejected</i> | <i>Significant</i> |
| 3. Sanitation                   | 9.77    | <i>Rejected</i> | <i>Significant</i> |
| 4. Safety                       | 3.97    | <i>Rejected</i> | <i>Significant</i> |
| 5. Ambience                     | 8.65    | <i>Rejected</i> | <i>Significant</i> |

Table 21:- Difference in the Food Satisfaction of Clientele in Food Establishments ( $df = 11/185, F_{.05} = 1.84$ )

The data disclosed that the food services in terms of food preparation and cooking, serving, sanitation, safety, and ambience marked the F-values that exceeded the required critical F-value of 1.84 at 11/185 degrees of freedom. The null hypotheses were rejected, thus, there existed the significant difference in each of the factors included in clientele food satisfaction.

The researcher proceeded to applying the Scheffé posteriori analysis to definitely spot where the significant difference exist among paired food establishments with respect to the variables in food satisfaction. The data are introduced in Appendices M to Q. The difference existed where the computed F'-values exceeded the critical F'.05-value of 20.24.

**Difference in Food Preparation and Cooking Satisfaction.** From Appendix M, the data disclosed the presence of significant difference in the clientele satisfaction on food preparation and cooking service between the clientele in Tavern and those in Miners, Grande, and Parkway. The corresponding estimated F'-values exceeded the required estimated critical F'.05-value of 20.24, thus led to the rejection of the null hypotheses in these contrasts. The same existence of significant differences were also found between the clientele in Almont and those in Destajo, Miners, Grande, and Parkway; and also between the Miami and those in Miners, Grande, and Parkway.

Analysis of the obtained means, those in the former establishments marked the remarkably higher level of satisfaction than those in the latter food establishments. This indicates the idea that the latter establishments have yet to exert more efforts in observing the standard principles and management in the food preparation and cooking to ensure an improved level of clientele satisfaction.

**Difference in Serving Satisfaction.** The data in Appendix N revealed the presence of significant difference in the clientele satisfaction on serving between the "Tavern" and Magarabon, Grande, and Parkway. The former establishment came out with the significantly highest mean among the latter establishments. The finding provides the concept that Tavern keeps their guests properly attended to and responds immediately to their needs of whatever is to be served.

**Difference in Sanitation Satisfaction.** From Appendix O, the data revealed the existence of significant difference in

the clientele satisfaction on sanitation between the "Tavern" and Gateway, Miners, Grande, and Parkway where the former got the remarkably higher mean among those of the others. It denotes the idea that the Tavern is ensuring the satisfaction of their meal guests to find everything they see not infested with some disease causing elements.

**Difference in Safety Satisfaction.** The data in Appendix P revealed the existence of significant difference in the clientele satisfaction on safety between "Tavern" and Miners, Grande, and Parkway. The obtained mean of Tavern was significantly highest among those of other establishments. This finding puts emphasis on the measures adopted by the Tavern to keep everything in the kitchen and dining place safe, as well as free from obstructive materials in times of emergency.

**Difference in Ambience Satisfaction.** From Appendix Q, the data points to the presence of significant difference in the clientele satisfaction on ambience of the establishment between the "Tavern" and Gateway, Miners, Grande, and Parkway where the Tavern score the remarkably highest mean. This finding marks the notion that the Tavern to keep everything in their environment comforting in terms of whatever comes to their senses while engaging their meal services.

#### **Relationship between the Technology Management Practices and Clientele Satisfaction**

This part is the penultimate part of this investigation toward the formulation of technology management philosophy and development of proposed program. It embraces the answer to the problem on determining the presence of significant relationship between the extent of technological management practices and the level of clientele satisfaction among food establishments in Surigao City. The data are shown in Table 22 to determine the presence or absence of significant relationship between two major factors under study.

Examination of the data in the Table revealed the existence of significant relationship between the recruitment and hiring practices and the clientele satisfaction on food preparation and safety. The arrived t-values of 2.26 and 2.33 far exceeded the required critical t.05-value or 2.23 at 10 degrees of freedom. The corresponding null hypotheses for each paired variables were rejected.



| Contrasted Variables   |                  |       | t-value | Decision on Ho  | Conclusion         |
|------------------------|------------------|-------|---------|-----------------|--------------------|
| Recruitment and Hiring | Food Preparation | 0.58  | 2.26    | <i>Rejected</i> | <i>Significant</i> |
|                        | Serving          | 0.36  | 1.21    | Accepted        | Not Significant    |
|                        | Sanitation       | 0.35  | 1.18    | Accepted        | Not Significant    |
|                        | Safety           | 0.59  | 2.33    | <i>Rejected</i> | <i>Significant</i> |
| Food Selection         | Ambiance         | 0.40  | 1.37    | Accepted        | Not Significant    |
|                        | Food Preparation | -0.10 | -0.33   | Accepted        | Not Significant    |
|                        | Serving          | -0.02 | -0.07   | Accepted        | Not Significant    |
|                        | Sanitation       | -0.14 | -0.44   | Accepted        | Not Significant    |
| Food Preparation       | Safety           | 0.14  | 0.46    | Accepted        | Not Significant    |
|                        | Ambiance         | -0.14 | -0.44   | Accepted        | Not Significant    |
|                        | Food Preparation | -0.23 | -0.73   | Accepted        | Not Significant    |
|                        | Serving          | -0.24 | -0.78   | Accepted        | Not Significant    |
| Cooking                | Sanitation       | -0.23 | -0.74   | Accepted        | Not Significant    |
|                        | Safety           | -0.05 | -0.15   | Accepted        | Not Significant    |
|                        | Ambiance         | -0.26 | -0.84   | Accepted        | Not Significant    |
|                        | Food Preparation | -0.24 | -0.77   | Accepted        | Not Significant    |
| Serving                | Serving          | -0.04 | -0.14   | Accepted        | Not Significant    |
|                        | Sanitation       | -0.10 | -0.32   | Accepted        | Not Significant    |
|                        | Safety           | -0.03 | -0.10   | Accepted        | Not Significant    |
|                        | Ambiance         | -0.12 | -0.39   | Accepted        | Not Significant    |
| Safety                 | Food Preparation | 0.02  | 0.08    | Accepted        | Not Significant    |
|                        | Serving          | 0.11  | 0.35    | Accepted        | Not Significant    |
|                        | Sanitation       | 0.06  | 0.18    | Accepted        | Not Significant    |
|                        | Safety           | 0.23  | 0.75    | Accepted        | Not Significant    |
| Sanitation             | Ambiance         | 0.06  | 0.18    | Accepted        | Not Significant    |
|                        | Food Preparation | 0.34  | 1.14    | Accepted        | Not Significant    |
|                        | Serving          | 0.26  | 0.84    | Accepted        | Not Significant    |
|                        | Sanitation       | 0.20  | 0.66    | Accepted        | Not Significant    |
| Restoration            | Safety           | 0.43  | 1.52    | Accepted        | Not Significant    |
|                        | Ambiance         | 0.24  | 0.77    | Accepted        | Not Significant    |
|                        | Food Preparation | 0.43  | 1.53    | Accepted        | Not Significant    |
|                        | Serving          | 0.35  | 1.19    | Accepted        | Not Significant    |
| Sanitation             | Sanitation       | 0.29  | 0.95    | Accepted        | Not Significant    |
|                        | Safety           | 0.47  | 1.74    | Accepted        | Not Significant    |
|                        | Ambiance         | 0.28  | 0.93    | Accepted        | Not Significant    |
|                        | Food Preparation | 0.42  | 1.46    | Accepted        | Not Significant    |
| Restoration            | Serving          | 0.35  | 1.20    | Accepted        | Not Significant    |
|                        | Sanitation       | 0.29  | 0.98    | Accepted        | Not Significant    |
|                        | Safety           | 0.48  | 1.73    | Accepted        | Not Significant    |
|                        | Ambiance         | 0.30  | 1.00    | Accepted        | Not Significant    |

Table 22:- Relationship between Technology Management Practices and Cleintele Satisfaction (df = 10 & t.<sub>05</sub> = 2.23)

The finding invokes the technological concept that the quality of the food preparation and safety in food establishments largely depends on the importance given in their recruitment and hiring practices of their personnel. It further implies that when the management is not thorough in ensuring that they are able to get the best employees to the right job, they will likely end up having the dissatisfied customers. Thus, in food related business, the management has to set the criteria for a system of getting the personnel involved in the food preparation and safety.

The Table also disclosed no significant relationship among all other management practices and the satisfaction of their clientele. It clearly puts premium only on the recruitment and hiring practices. Hence, prudence in recruitment and hiring is the most important step towards the desirable satisfaction of customers, and sustainable business.

➤ Management Philosophy in Foods Technology

The researcher formulate the management philosophy on Foods Technology based on the findings and the underpinning essence of the theories and concepts drawn from the preceding

sections of this study. The formulated technology management philosophy puts premium that “satisfaction reflects management”, as illustrated in Figure 3.

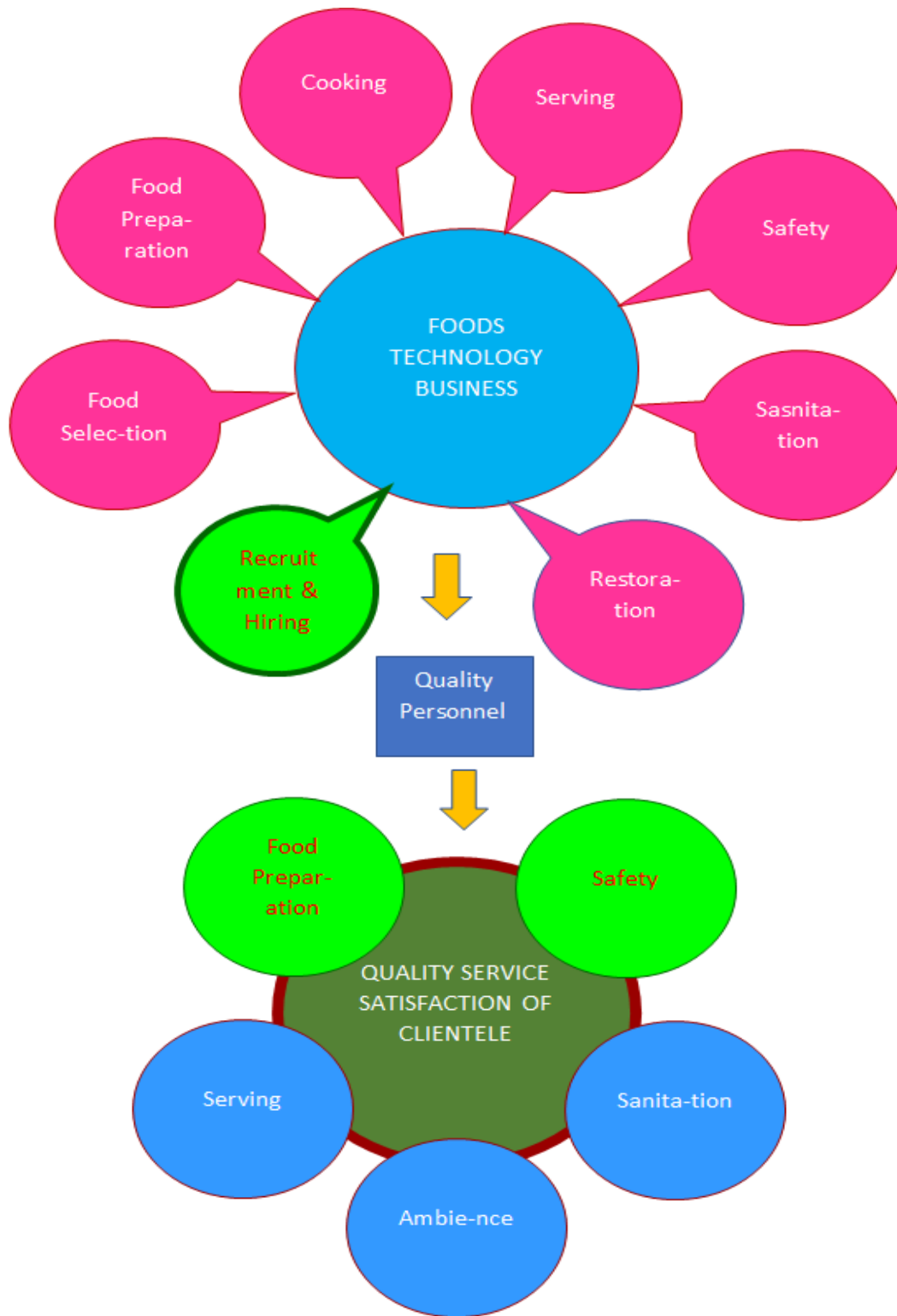


Fig 3:- Philosophical Model

The philosophy explains that the quality of the management practices in any business shadows the satisfaction level of the customers, and that quality begins from the recruitment and hiring practices. The philosophical model figured that engaging into the food related business demands the high quality of management practices in terms of recruitment and hiring of personnel, food selection, food preparation, cooking, serving, safety, sanitation, and restoration. It underscores the concept that safety and food preparation are the priorities of customers in getting into the establishment.

People is the most important resource in any organization. With this in mind, the processes involved in getting the most and the best to the desired job shall be the most priority of all business operations. Nobody fits to everything, one has the best asset for a definite niche in the business. Noting that recruitment and hiring of personnel greatly affects the satisfaction of the target clientele, it is fitting to zero-in the most of it the share in the management. If the food business management is able to hold the best employees, all other attributes in the operations follows.

In furtherance, the philosophy is emphatic that the best composite of workers are in the food technology business projects the best service satisfaction the community gets. Conclusively of the foregoing analysis, this philosophy is best said as: “People in the organization creates the quality of business technology management operations”.

#### ➤ *Proposed Foods Technology Program*

The researcher proposed the Foods Technology curriculum based on the findings of the study, to be known as Bachelor in Foods Technology and Management Education. This curriculum shall include among other areas on entrepreneurial operation management putting more emphasis on recruitment and hiring of business personnel.

The present Philippine educational system is giving more focus on the basic education under K to 12 curriculum. One of its major goals and objectives is to ensure that at early stage of education, the youth are able to acquire technical-vocational skills for employment. The educational system, therefore, demands trainers and educators who are professionally equipped with sufficient knowledge and skills that hone the youth for global employment.

Food technology is a practical subject providing opportunities for all learners to make healthy and good quality meals. Food technology sessions should develop an understanding of where food comes from, whether a simple back garden vegetable or long distance import. Teaching should promote initiatives that support sustainable living and equality such as organic and fair-trade produce. Food technology sessions should promote knowledge and understanding of the importance of health and hygiene in a meaningful and accessible way to the citizens. A large

proportion of the learning that takes place within food technology is directed at individuals becoming independent with regard to food and associated activities, learning skills for life.

Conclusive of the educational concept is the development of a teacher training curriculum in Teacher Education Institutions to be known as Bachelor in Technical Teacher Education (BTTE) major in Foods Technology Management.

#### ➤ *Program Description*

The Bachelor in Technical Teacher Education is a four-year program designed in producing teachers in the foods technology and management skills for learners under the K to 12 curriculum.

**Goal.** The program produces the turning point for globally competitive foods technology educators.

**Objectives.** After finishing the four-year program, the graduates are able to:

1. Acquire knowledge on the socio-cultural, technical and ethical dimensions of the profession;
2. Possess the higher level of competencies in rendering foods science and technical services;
3. Hold the basic principles and practices in human relations and entrepreneurship;
4. Practice managerial skills in both educational and business sectors;
5. Exhibit superior sense of professionalism in dealing with the Philippines Professional Standards for Teachers;
6. Facilitate the needed knowledge and skills to the learning children on the practical application of food management and services;
7. Keep themselves updated with the recent technology and practices in food related business operations through research.

**The Curriculum.** In carrying out these objectives, the following essential components of the program shall be met.

1. **The Technology Related Courses.** The subjects in this program shall include minimum required units in general education in accord to the directives of higher authorities.
2. **The Technology Courses.** These subjects shall cover the eight (8) basic technology courses on electricity, woodworking, general mechanics, metal working, computer, electronics, graphic arts, and agriculture in the two semesters of first year.
3. **Professional Courses.** As teaching professionals, the students shall complete the professional subjected prescribed by the competent authorities in higher education.

4. **Specialization Courses.** To finish the program, the students must have satisfactorily completed the six (6) following course specializations starting from their second year:

4.1 **Shop work 201.** Basic Foods. It covers introduction in food preparation, food and nutrition, sanitation and safety principles involved in food selection, preparation, cooking and serving and project making.

4.2 **Shop work 202.** Meal planning and Meal service, it covers, planning budgeting, marketing meals of the day menu making, styles of meal service and fine dining and project making.

4.3 **Shop work 301.** Baking and Frosting. It covers the history of baking quick and yeast breads, specialty cakes, frosting and project making.

4.4 **Shop work 302.** Food processing and Experimentation. It covers the principle of food preservation of fruits, vegetables, fish, meat, poultry products drying, fermentation, curing and project making.

4.5 **Shop work 401.** Contents, Tea Room and Catering Management. It covers the management of canteen, tea room and catering services.

4.6 **Shop work. 402.** Practice cooking services on the job training this covers the application of skills outside environment such as fast foods, restaurant, and bakeshops processing plant and other food indexes which lecture to teaching and learning experiences.

5. **The tools and equipment.** Tools and equipment and other facilities necessary to carry the objectives of the program are listed in appendix.

6. **Student Admission.** The admission and retention follows shall adhere to the finding standards set by the authorities of the learning institution.

7. **Budgeting requirement.** For public and government institutions, the budget shall be borne from the General Appropriation Act of every fiscal year or other resources.

8. **The Tools and Equipment.** The tools, equipment, and other facilities necessary to carry-out the objective of the entire program are listed in Appendix F.

9. **Student Admission and Retention.** The admission and retention policies shall adhere to the existing standards set by the competent authorities of the learning institution.

10. **Budgetary Requirement.** For public or government Teacher Education Institutions, the budget shall be borne from the General Appropriation Act of every fiscal year or other sources. The private institutions shall be sourced out from tuition fees and other sponsoring agencies.

## VII. CONCLUSION

The study is purported to examine the extent of the technology management practices among food establishments in Surigao City, and to measure the extent they satisfied of their clientele of their services rendered. It used the combination of descriptive and inferential research design. The descriptive design was used to determine the extent the management-respondents practice the recruitment and hiring, food selection, food preparation, cooking, serving, safety, sanitation, and restoration. On the other hand, the clientele also answered the extent they were satisfied of the services as to food preparation, serving, sanitation, safety, and ambience.

The inferential design employing differential and correlation statistical methods were used to determine the presence or absence of significant difference and relationship among the ratings of the respondents. The sample size of the respondents was determined using the quota sampling on account of the loose population. The researcher employed random numbers in the selection of the respondents from the community, except for the personnel and workers.

The data were gathered in Surigao City over 12 food establishments and answered by the 191 management-respondents and 197 customer-respondents, using the use of researcher-made instrument. The data were analyzed and interpreted with the use of weighted mean and ordinal rank, One-way Analysis of variance (ANOVA) and Scheffé Test, Pearson Product Moment-Correlation.

The findings of the study are revealed below:

1. The food establishments in Surigao City were practicing **always** the technology management operations on restoration, safety, sanitation, serving, and cooking; but **often** only in recruitment and hiring, food selection, and food preparation;
2. The clientele of food establishments were **much satisfied** of the food practices, where the safety, food preparation, and ambience came out the top three highest;
3. There were significant differences among the extents of the technology management practices of food establishments;
4. There were significant difference among the levels of clientele satisfaction on food establishment practices;
5. There were significant differences in the extent of technology management practices among food establishments;
6. There were significant difference in the levels of clientele satisfaction among food establishments;
7. There were significant relationships between the extent of technology management practices and levels of clientele satisfaction in food establishments, and were found between the recruitment and hiring practice and the food preparation and safety satisfaction;

8. A technology management philosophy: “People in the organization creates the quality of business technology management operations”, was formulated.
9. A four-year teacher-education curriculum of Bachelor of Technical Teacher Education (BTTE) major in Foods Entrepreneurial Technology and Management (FETM) was developed.

The recruitment and hiring of best quality management personnel is the most important function to satisfy customers on food preparation and safety among food establishments in Surigao City.

Specifically, the findings of the study led to the following conclusions:

1. The food establishments in Surigao City are observing the needed business principles of engaging into the food business;
2. They offered the most satisfying operations in preparing the best meal and safety of their customers while their business vicinity;
3. There are food establishments that perform their best in some operations while others do not;
4. There are food establishments that provides best satisfaction of their customers in some operations while others do not;
5. There are food establishments that give serious attentions in observing the principles of business management while some are not;
6. There are food establishments that set premium to the satisfaction of their customers while others do not;
7. Safety and quality of foods prepared are the primary bases of customers;
8. Quality people develop quality outcomes;
9. A technology management philosophy that the best management operations depends on the best people in it;
10. A teacher education program is necessary to address the internationalization of foods technology.

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