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Educational Technology Standards Scale And Pedagogical Content Knowledge As Predictors Of Culinary Competence Of Senior High School Student

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ABSTRACT

This study aimed to determine the Educational Technology Standards Scale and Pedagogical Content Knowledge as predictors of Culinary Competence of Senior High School students the year 2020 and 2021 using a quantitative nonexperimental descriptive-correlational research design. This was participated by the 101 randomly selected Senior High School students in the five chosen public secondary schools in Davao Occidental. It utilized standardized questionnaires. More so, findings reveal that Educational Technology Standard Scale, Pedagogical Content Knowledge and Culinary Competence have “high” verbal description which means they are frequently manifested. Significant relationship existed between Educational Technology Standard Scale and Culinary Competence, and between Pedagogical Content Knowledge and Culinary Competence. Also, none of the indicators of Pedagogical Content Knowledge and Educational Technology Standards Scales best influence culinary competence. Furthermore, technology in education and the right devices in students' hands help them develop the technological and job knowledge they will need to succeed in today's and tomorrow's workforces is not enough to make a very good culinary competence. There may be other factors to be considered in the development and improvement of culinary competence. More so, positive technology integration needs teachers to have a constructive outlook toward technology and to improve their technical proficiency during their teaching processes.

Keywords: *senior high school students, educational technology standards scale, pedagogical content knowledge, culinary competence, Philippines*

Chapter 1

INTRODUCTION

Rationale

Competencies are crucial considerations that significantly affect an individual's career achievements, and the lack of standards has made defining and measuring these competencies challenging (Techanamurthy, DeWitt & Alias, 2018). It does not exclude culinary competencies where companies are searching for employees who can have a strategic advantage and demonstrated skills as employers depend on Higher Education Institutions (HEIs) (Spowart, 2011); however, Cheng (2012) noticed that HEIs are not successful in training graduates for jobs as there existed a difference between graduates' expectations of knowledge competencies. Students who cannot transfer skills and overcome challenges cannot work in the "real world" and meet workplace expectations (Ko & Chung, 2015). The problem is that technical skills are no longer considered necessary for business sustainability (Shani et al., 2013). In culinary competency, businesses must have highly qualified personnel to support industry development, especially in light of the rapidly changing labor market and progressive technology advancements required to stay current with global economics.

The Educational Technology Standards Scale (ETSS), particularly on educational technologies, has ensured schools and universities that students can sufficiently be coached for adult citizenship to foster better learning and understanding (Baron et al., 2014). As new technologies emerge, educational technology guidelines for teachers offer a basis for successfully incorporating technology into teaching and learning. In technical education and livelihood, predominantly on culinary competency of a teacher, quality is significant to technical proficiency. Chiou (2015) highlighted that students perform and deliver the task well if teachers are equipped with pedagogical knowledge and pass qualification standards. In the same vein, Culinary Competency (CC) can be more complicated if teachers utilize educational

technology instead of manual teaching strategies to harness learning knowing that not all students are equipped with computers (Namlu & Odabasi, 2016) or acquainted with its usage (Stuve & Cassady, 2015).

Consequently, Pedagogical and Content Knowledge (PCK) has been considered as an essential requirement for teachers in fostering the learning process since it forms an understanding of how topics and problems are organized and delivered in teaching to suit various students' interests and abilities (Halim et al., 2012). This has given to the improvement of educative materials (Pompea & Walker, 2017) and relates to how educators teach the subject, make students aware of their misconceptions (Davis et al., 2014), and acquire them before they begin teaching (Guerriero, 2017). Hence, it is with these that the researcher posited how the teachers make use of technology as the way they can integrate technology with learning, how teachers provide for the content of the lessons to make their students have not only a conducive learning environment but an environment that is well equipped with real-life and theoretical knowledge would contribute to culinary competency. They have an indispensable relationship in having students competent and adaptive in the 21st-century learning setting.

Nevertheless, there is also a gap in the literature since the researcher has not encountered studies in the Philippine setting that examines the connection between ETSS, PCK, and students' CC. Most of the ETSS, PCK, and CC research has taken place outside the country. As a result, there is a need to close this gap. The purpose of this research is to determine if there is a correlation between ETSS and CC and between PCK and CC. This may be one of the references for developing ETSS, PCK by culinary competency. It is generally accepted that when ETSS and PCK are high, it is expected that professional competence is also high, leading to a significantly more advanced and dynamic learning process. Learners, in return, will boost their competence since teachers perform well in the administration and facilitation of learning. However, realistically talking, this is not always the case. Even how exceptional the teachers performed well, there are still instances when learners have difficulty learning and practicing the competency. Some are hesitant to apply the learning as there is uncertainty. With this, the researcher

proposes determining the Educational Technology Standards Scale and Pedagogical Content Knowledge as predictors of Culinary Competence.

Research Objectives

This study aims to determine the Educational Technology Standards Scale (ETSS) and Pedagogical Content Knowledge (PCK) as predictors of Culinary Competence (CC) of Senior High School students the year 2020 and 2021.

Specifically, the study will attempt:

1. To determine the Educational Technology Standard Scale (ETSS):

1.1 technology operations and concepts,

1.2 planning and designing learning environments and experiences,

1.3 assessment and evaluation,

1.4 productivity and professional practice,

1.5 social, ethical, legal, and human issues, and

1.6 planning of teaching according to individual differences and special needs.

2. To determine the Pedagogical Content Knowledge (PCK) in terms of:

2.1 knowledge of subject matter,

2.2 knowledge of instructional strategies, and

2.3 knowledge of concept representational.

3. To determine the culinary competence (CC) of the Senior High School students in terms of:

3.1 learning attitude,

3.2 study habits,

3.3 learning method,

3.4 resources application, and

3.5 learning self-review.

4. To determine the significant relationship between:

4.1 ETSS and culinary ETS of Senior High School students

4.2 PCK and CC of Senior High School students.

5. To determine if ETSS and PCK significantly influence CC of senior high school students.

Hypothesis

The hypotheses of the study were tested at alpha 0.05 level of significance:

Ho_1. There is no significant relationship between ETSS and culinary competence of senior high school students.

Ho_2. There is no significant relationship between PCK and culinary competence of Senior High School students.

Ho_3. Educational Technology Standard Scale and Pedagogical Content Knowledge do not significantly influence culinary competence of senior high school students.

Review of Related Literature

This section discusses the study's different variables and the characteristics that may considerably aid in completing the research. In this section, topics are thematically presented. For the Educational Technology Standard Scales, each of its domains is in elaboration been given details such as the technology operations and concepts planning and designing learning environments and experiences, assessment and evaluation, productivity and professional practice, social, ethical, legal, and human issues, and planning of teaching according to individual differences and special needs. This has been detailed in the work of Çoklar and

Odabaşı (2009).

On the other hand, for Pedagogical Content Knowledge, each domain is emphasized based on Halim, Meerah, Zakaria, Abdullah, and Tambychik (2012). This is where the researcher explained and provided related articles on the domains being identified. Furthermore, on CC, each part is also equipped with relevant discussions based on Ko (2017). They were exclusively explained, including the learning

attitude, study habits, learning method, resources application, and learning self-review. The utilization of these shall give a more elaborated meaning and information about the topic being investigated.

Educational Technology Standards Scale

To have students adequately prepared for adult citizenship, computerbased technology is routinely used at schools and universities (Baron et al., 2014). The teaching career moves away from teacher-centered, lecture-based training and toward student-centered, immersive learning experiences as innovations arise. The path to fundamental, wide-ranging educational improvements is designing and introducing effective ICT-enabled teacher education programs (Kadijevich, 2015). These programs should adhere to any relevant instructional technology requirements. While digital technologies are used for entertainment and networking, they are also used in education to help teachers and students understand (Kanbul & Uzunboylu, 2017).

Technology Operations and Concepts. The first domain in measuring educational technology standard scale is *technology operations and concepts*. The systemic implementation of applicable technical processes and tools in teaching to enhance student achievement is known as educational technology (Kesh, 2017). It entails taking a systematic approach to assessing students' needs, incorporating technologies into teaching, and monitoring their progress. It necessitates a disciplined approach by the instructor in disclosing the students' needs. These requirements will aid them in determining the appropriate equipment to use in the classroom. Both outcomes must be recorded so that the instructor can assess how successful their interventions are (Rajput, 2021). If the students do not achieve satisfactory results using a particular instrument, the instructor should look for a new one.

The key obstacles to ICT inclusion in learning environments are teachers' inadequate computing abilities, restricted hardware in workplaces, and inadequate technological assistance (Jenson, Lewis & Smith, 2015). Students would be more involved in the learning process if teachers used technology efficiently. Similarly, the role of the instructor is not overlooked in the study. When professors have more

sophisticated conceptions of teaching, it is more likely that they will use educational methods that result in student understanding and constructive participation in the process.

Similarly, when teachers want to use technology, the training process must provide more than just technical knowledge (Stosic, 2015). They must assess their students' interests and choose the appropriate resources for assignments, assessments, and objectives. Since students are enthralled by technology, educators should find a way to use it to improve student interaction. To catch the students' interest and measure their progress, the teacher may use several strategies (Lowther, Inan, Ross & Strahl, 2012).

As a result, Moore and colleagues (2016) defined four areas of instructional technology capabilities, one of which was technology to improve learning for educational purposes. Other reports on introducing ICT into education have demonstrated the academic importance of using ICT (Chen, Looi & Chen, 2016). According to Hakkarainen et al. (2017), knowing how to operate technology and incorporate it into the classroom makes learning immersive and vibrant, and students seem to enjoy its importance by participating more and paying attention in class.

Planning and Designing Learning Environments and Experiences. The second domain in measuring educational technology standard scale is *planning and designing learning environments and experiences*. One of the most critical management tasks is planning and anticipating future needs, challenges, and potential solutions. Many instructional technology manuals are out-of-date (Issroff & Scalon, 2015) and do not always meet the needs of educational institutions in specific communities. This is attributed to a lack of coordination and inefficiently designed learning environments, such as allowing for computerized and internetbased systems in remote locations where connectivity is difficult, if not impossible (Kurt, 2017). As a result, many instructional technology materials have gone from helpful to ineffective and burdensome.

Technology also strengthens the teaching and learning experience by offering new resources. On the other hand, adopting educational technologies is a lengthy and challenging operation (Lazaro, 2020).

Problems can arise due to a lack of adequate preparation. A vision and a roadmap for implementing educational technology adoption are essential for a well-integrated educational technology system (Gokdas, 2014). Schools must make the challenging choice on which devices and technological models can better help them meet their goals of improving education. Acting alongside various partners and assessing how instructors and students use the devices for day-to-day learning are the best ways to make product choices. Strategic technology adoption preparation necessitates innovative educational leadership ability. Multiple stages of implementation may take place, each of which requires additional knowledge, skills, and experience.

Assessment and Evaluation. The third domain in measuring educational technology standard scale is *assessment and evaluation*. Educational

technologies can be challenging to adopt, particularly at the beginning. There were also a variety of potential roadblocks. For example, equipping schools with technologies can be costly. In addition, teachers will not embrace technologies (Yuzgec, 2017).

Parents can also see technology as a distraction from academic learning. These are only a handful of the problems that might need attention. This necessitates a detailed review and examination on the administrators' part.

Consequently, there are several approaches to testing and picking instructional technologies for use in the classroom, including the promotion of greater comprehension, ease and use, availability, and benefits (Barron et al., 2014).

Productivity and Professional Practice. The fourth domain in measuring educational technology standard scale is *productivity and professional practice*. In an increasingly technologically advanced environment, educational institutions face the critical challenge of providing students with the expertise and resources to respond to 21st-century technical advancements. More importantly, these organizations are now heavily reliant on technology, adopting tools such as laptops, personalized applications and services, and other facilities to help with administrative and teaching processes. Technology in education

has a lot of promise. It has the potential to improve innovation, inspiration, and commitment (Kadijevich, 2015).

Social, Ethical, Legal, and Human Issues. The fifth domain in measuring educational technology standard scale is *social, ethical, legal, and human issues*. Since technical tools have become routine, a seamless transition into the academic environment necessitates further thinking. It must be logical and rational and understand the individual "true life" needs or social importance of those who will be participating in the school, as well as ethical and legal concerns. To put it another way, educational technology, especially when bringing it into the classroom, must include all the stakeholders (Zimnyaya, 2016). Stakeholder engagement is an essential element in effectively integrating and executing any plans.

For social issues, consider how technology usage and overuse can affect students' quality of life, the dangers of participating in online social networking sites, and fundamental technical problems, including viruses and spam. According to Mattison (2018), It is simple to go online and import multimedia in the Connected Era. There are also subscription platforms that offer free downloads of movies, songs, or games, further blurring the distinction between free and licensed content. Some students are perplexed whether copying and pasting constitute plagiarism because their source material lacks an author, making it common knowledge (Brown, Roberts, Jacobsen, Hurrell, Kerr, et al., 2020).

Seemingly, plagiarism is a major ethical issue, especially in the age of search engines that make it simple to locate any question (Ma, Wan & Lu, 2008). Since evidence is readily accessible, it is easier for students to fabricate research and make up a source. It would help to reduce these instances by reinforcing how to quote writers and why it is necessary to protect the intellectual property of others. While electronic contact between teachers and students can be beneficial, the distinction between business and personal can become blurred. For instance, Facebook has 1.79 billion active users, with 66 percent of them using the site regularly (Robyler & Doering, 2014). Some educators are using Facebook to exchange multimedia with students or as a means for students to communicate and collectively brainstorm.

Moreover, teachers who are "friends" with their students may face ethical problems because of their use of social media. Teachers can gather information about their students from posts about underage drinking. A young students may not realize that by sharing information on social media, they are waiving their right to privacy, and they may believe that Facebook is anonymous and there is no faceto-face contact (Lynch, 2019). Teachers need to outline both technology rules and the explanations for the management and define ethical scenarios.

Planning of Teaching According to Individual Differences and Special Needs. The sixth domain in measuring educational technology standard scale is *the planning of teaching according to individual differences and special needs*. Since incorporating educational technology into the learning process can dictate what is learned and how it is taught, one of the first steps is to define concrete instructional objectives while still defining the institution's goals, with an eye toward
how technology may be utilized to improve leadership and promote the development of creative methods (Namlu & Odabasi, 2016).

A comprehensive strategy that addresses the utilization of technical capabilities is another aspect that aids in technology integration (Wang & Qualls, 2017). This serves as a starting point for further research into how technologies can be used to better the educational experience for both teachers and students.

In synthesis, technology in the classroom is becoming increasingly common. One enjoys learning about technology because they are used to all gadgets and can use them with ease. Smartphones, notebooks, tablets, and other electronic devices are all standard. As a result, educational innovation provides technology in the classroom. The way things were learned is slowly fading away, and modern training approaches are being contemplated. There is a wide range of possibilities, from providing students with learning devices to developing immersive educational applications and everything in between. Students would find it fascinating when they are used to using technology today.

Pedagogical Content Knowledge

Pedagogical Content Knowledge (PCK) is an academic term that describes several interconnected domains of knowledge that are useful to the science educator teaching in a school or an out-of-school context (Koppelman, 2017). The most critical parts are subject-specific content knowledge and knowledge of the pedagogy used in teaching a subject (Maat & Zakaria, 2017). The broader contextual knowledge that frames the teaching may also be necessary.

Moreover, this pedagogical content knowledge can be complex since it is only one aspect of an educator's professional expertise and may be tied to the specific educator, the specific topic, and even the particular teaching situation (Rohaan, Taconis & Jochems, 2016). PCK may represent a repertoire of pedagogical approaches that the experienced educator develops after teaching a topic multiple times.

Knowledge of Pedagogy. The first domain in measuring pedagogical content knowledge is *knowledge of pedagogy*. Pedagogical content knowledge is viewed on a continuum, with educators acquiring more of it through appropriate training and experience. However, the critical point is that it is tough to provide enough additional training to educators once they have begun teaching (Nilsson, 2017). The daily demands of the position make less time available for improving content knowledge or learning different pedagogically valuable approaches.

Consequently, if content knowledge is "what is being taught," pedagogical knowledge is "how it is being taught." It includes knowledge of the subject matter and instructional strategies, concept representation, teaching objectives, students' understanding, and evaluation.

Similarly, knowledge of pedagogy tests and evaluates the understanding of a topic. This is also where the objectives and the concepts are thoroughly understood. Also, students can demonstrate an active and interactive learning process, and different approaches to classroom context have been given appropriate actions (Halim et al., 2012).

Knowledge of Students. The second domain in measuring pedagogical content knowledge is *the knowledge of students*. Knowledge of students uses familiar analogies in explaining concepts of the subject matter. Students have a unique appeal from materials that go deeper, useless repetition, and create a sense of ownership of the educational process (Adediwura & Tayo, 2017). With analogy and similar materials, there is a deeper exposure to the underlying pedagogy that reinforces an understanding of the process. The materials may even be remembered by students years later for their innovative approaches or exciting selection of topics.

Knowledge of Concept Representational. The third domain in measuring pedagogical content knowledge is *an understanding of concept representational*.

These concepts representational make use of events to describe concepts. These become an integral part of instructional strategies and interactive and educative curriculum materials. These are useful for the teacher and can be especially appealing to the student since they can be creative and science process-oriented rather than emphasizing memorization and repetition. De Jong (2009, as cited in Nilsson, 2017) mentioned that these materials could have deeper content and appeal to most students, especially gifted students who are easily bored or turned off by repetition.

One approach to developing these high-quality instructional materials is to have them designed and developed by teams that have experience in the different components of PCK. These teams can also combine these components in creative and powerful ways. There is a significant advantage to using these materials. Teachers will not have to compensate for poor-quality materials with outdated or inaccurate content or ineffective approaches (Gess-Newsome, 2016). Furthermore, instructors who use these educational materials will be having students do it in authentic ways rather than reading about inauthentic practices (Abell, 2015). They may be addressing topics that are considered essential for today and the future.

In synthesis, various researchers agree that positive technology integration requires teachers to have a constructive outlook toward technology and improve their technical proficiency during their

teaching processes. While teachers were aware of the value of using technology, they were not yet prepared to do so due to a shortage of funding, technological assistance, and the teachers' inexperience in bringing technology into motion (Campigotto, McEwen & Epp, 2013; Ninlawan,

2015; Soykan & Ozdamli, 2017; Tugun, 2016).

Culinary Competence

Modern culinary education aspires to produce culinary artists with the talents of performers who can use their imagination, intuition, intellect, emotions, and physical, sensory technical skills to transform raw food into a pleasing creation. As the hospitality industry is facing increasing competition, restaurant managers and chefs working in the industry must be able to remain innovative and attract new customers by satisfying their increasingly sophisticated demands. Restaurant consumers are looking for new and unique experiences (Hu, 2017).

More so, to meet this challenge, there has recently been more emphasis on innovation in the culinary service industry, even on the notion of culinary creativity and the importance of innovation competency. Employers search for specific qualifications in work applicants that correspond to the skills required to perform a particular job. Employers also universally seek those qualities in addition to jobspecific technological skills (Hansen, 2010). Vocational colleges must prepare graduates with the necessary skills for jobs. Depending on the needs of the market, these abilities can change.

Employers today are looking for knowledgeable workers who get along well with other people, work as part of a team, are dependable, eager to learn, and have good written and oral communication skills. Levy and Mumane (2001) use the words "competencies" and "skills" synonymously and have identified the following six key competencies critical to economic success:

- Essential reading and mathematics skills.
- The ability to communicate effectively.
- The organization of work within firms.

- Teamwork.
- Familiarity with computers.
- Formal educational credentials.

With the exponential development in technology, emerging human resource standards call for graduates to acquire basic organizational and information skills and communication and technical abilities (Singh et al., 2013).

Learning Attitude. The first domain in measuring culinary competence is *learning attitude*. In learning attitude, even how increasing the demand for culinary is, an attitude that is willing to learn is still given utmost consideration. Most restaurants and hotel establishments require flexible culinary workers who know the culinary skills and possess attitudes toward taking the customer well. This has become a trend in the culinary and is often labeled as a professional career (Brown, 2015). Chefs are in high demand worldwide as they are responsible for overseeing food production at places where food is served (Doyle, 2020).

Moreover, chefs may work in restaurants, private homes, events, and hotels and take a variety of hard and soft skills as they effectively command a kitchen, direct the cooking staff, and make numerous decisions related to everything from food production to administrative issues. Likewise, the professional culinary artist must have excellent knowledge of various cooking techniques (Weigel, Mulder & Collins, 2017). This further makes culinary professionals need to be equipped with specific competencies to perform quality work.

It is becoming increasingly clear that employability skills make it easier to find work, retain it, and respond to the changing demands of the job market (Riordan & Rosas, 2003). Employers today are looking for intelligent employees who get along well with others, can collaborate as part of a team, are dependable and trustworthy, and are willing to learn.

Study Habits. The second domain in measuring culinary competence is *study habits*. Culinary professionals are responsible for maintaining the high quality of food service in hospitality-related

operations. They needed to be organized and required systematized study habits, particularly on the culinary materials, ingredients, equipment, and technologies. Students who were culinary certified had significantly higher scores in basic culinary knowledge and culinary attitude. This illustrated that culinary behavior or habit is the foremost consideration in culinary competence next to culinary basic knowledge and innovation (Rozila & Noor Azimin, 2016).

Learning Method. The third domain in measuring culinary competence is on *learning method*. Methods or strategies employed in the culinary program are also an essential gauge for culinary competence. Chefs are highly sought after all over the world. They will work in restaurants, private residences, festivals, and hotels, among other places. Chefs manage the kitchen workers and make various decisions ranging from food preparation to administrative matters. This usually included having the right cookware, setting up quantifiable and practical goals, and remembering the garbage in and out rule describing how flawed input data is. Also, preparing like a professional is needed as it is time to prep the ingredients, as having the elements prepped and measured will help to best follow the recipe (Tittl, 2018).

Furthermore, a presentation that includes considering contrast and color when planning the meal and avoiding overcrowding the plate, and serving odd amounts of food for visual balance are seen as necessary too. Being a great cook who can successfully command a kitchen necessitates hard and soft skills. The ability to prepare, as well as experienced in the kitchen, are essential hard skills for chefs. This broad expertise covers a range of sub-skills, such as knife and tasting skills. Chefs must be able to prepare quickly and precisely. They must also be experts at identifying flavors and assessing seasoning balance.

Resources Application. The fourth domain in measuring culinary competence is *resources application*. Resources application as one of the culinary competencies requires thorough planning and budgeting, particularly on the cost of materials. This has been considered vital in culinary competence

since, with the lack of ability to foresee and forecast future demands and needs (Chalmers, 2018), it will be impossible to allocate sufficient materials needed for cooking.

More so, in resource application, this has included video usage in teaching culinary arts. Learning is aided by technology as learners may use Youtube videos, available cooking shows, and other educational paraphernalia leading to the development of culinary competence among learners. Also, culinary laboratories too must be fully utilized by the learners. This is one way of integrating theorybased learning with real-life situation learning. Learners may not only get familiarized with some of the culinary equipment and tools, but they will know the exact function and purpose of why such tools have been used in culinary (Rush, 2017).

They are learning Self-review. The fifth domain in measuring culinary competence is learning *self-review*. Cooking has been seen as a science since every ingredient and measurement must be exact, including ordering food

products or figuring out how long to cook certain items so that they will be all plated simultaneously (Kraft, 2019). Details include heat control, measuring, portion sizing, precision, presentation, quality of food, and supervising. This is where cooking is only one of the fields of culinary expertise and requires specific technical

skills.

Wolfe (2018) added that excellent cooking skills are what chefs can do. One should possess skills in evaluating oneself since self-evaluation and learning review can further improve. They can work at restaurants, grocery stores, specialty food stores, residential care facilities, schools, hospitals, private households, or catering companies and may be employed on ships, lodges, or resorts (Casey, 2019).

Correlation between Measures

The use of educational technology standard scale has made the learning environment interactive, proactive, and responsive to the learners. This has boosted academic performances (Wu, Chang & Guo,

2017) and the interest in participating in the class. With this, the educational technology standard scales will not only boost the learners' performances but also create a positive environment conducive to productivity and enhancing competency. Through utilizing technology and other instructional materials, learners tend to be more focused, curious, and motivated to be engaged in activities (Wolf & Fraser, 2017).

Moreover, teacher knowledge of technology education is generally assumed to play a vital role in affecting students' learning in technology. Rohaan, Taconis, and Jochems (2012) highlighted that this knowledge would positively affect teachers' teaching confidence and attitude towards the subject. For learners, technology empowers them on the path to personalized learning by giving them control of how they learn, making schooling important to their digital lives, and training them for their futures. Learners are encouraged to become problemsolvers, strategic thinkers, allies, and developers due to technologies and access to information outside of the classroom.

Consequently, to Koehler, Mishra, and Cain (2013), technological pedagogical content knowledge of teachers is critical to effective teaching with technology since the interaction among three bodies of knowledge such as content, pedagogy, and technology produces a type of flexible knowledge needed to integrate technology use into teaching successfully. Teachers use technologies to build blended learning experiences and use interactive resources for formative and summative tests, introducing new learning and teaching styles into the classroom.

In addition to knowledge, beliefs also indirectly impact technology integration, and pedagogical expertise has a significant total effect on technology integration (Taimalu & Luik, 2019). Technology in education and the proper devices in students' hands help them develop the technological and job knowledge they will need to succeed in today's and tomorrow's workforces. Relevant learning experiences will motivate creativity, assist students in applying what they have learned, and train them for potential career prospects and careers that have yet to be developed. Coding, scripting, physical computing, and computational thinking skills have also become commonplace in the workplace. Students

will learn these skills and develop their problem-solving and critical thinking skills for the twentyfirst century by producing. When built and combined with the right technologies, learning by doing with creator mindsets and cultures can be entertaining.

Similarly, the competencies are identified for each task in the critical areas of skill, knowledge, attitude, and behavior. Further, a significant correlation among variables in professional culinary competence and effective learning existed. There was a positive correlation between effective learning, professional competence, and learning performance, including job satisfaction, course satisfaction, and practice scores (Ko, 2017).

Theoretical Framework

Different theories had supported each of the domains of the study. This includes Rogers' Theory of Diffusion of Innovations, constructivist learning theory, mental discipline theory, and self-fulfilling prophecy.

The study has been anchored on Rogers' Theory of Diffusion of Innovations (Sherry & Gibson, 2002 as cited in Sahin, 2006) which posited that teachers and students are introduced to emerging educational development; their beliefs and interpretation of the technology would decide their level of adoption to it. While a school or training department would implement and encourage the latest capabilities and functions of modern educational technology to teachers and pupils, one of the most critical tactics was to optimize the use of actual instructional cases in classrooms in highlighting the benefits of educational technology to enhance teaching and learning effectiveness.

More so, it strongly supports teachers' instruction and students' learning encouragement while assisting teachers and students in maintaining a positive mental state. As a result, early adopters of technology seemed to embrace emerging technology more quickly than late adopters. In educational technology training, the diffusion of inventions principle is widely used. Teachers may use it in adapting strategies and designs to uplift values and behaviors and encourage coteachers and students to embrace

new technologies, making learning accessible, convenient, and vivid in given illustrations and effective instructional materials.

Since one of the teachers' goals is to improve students' performance, technology can be of help in accomplishing this goal, such as access to educational resources, encourages collaboration, personalized learning opportunities, helps in career preparation, improving knowledge retention, and teacher productivity, and

efficiency.

This has been supported by a constructivist learning theory which considers learning as a collective and analytical mechanism (Halpern, 2015) facilitated by experiential learning methods such as case studies or the development of problems for learners to solve (Galton, Simon & Croll, 1980). They agree that knowledge is gained through practices and interactions and that the learner incorporates new knowledge into their worldview through self-reflection. The presence of technology as a form of innovation eventually gives way to integrating new knowledge and understanding. Also, it has been believed that perceiving and performing, as shown by manipulation and play, come before the ability to symbolize, which prepares for comprehension. According to Lave and Wenger (1991, as quoted in Furikakekid, 2014), the teaching approach can be based on repetition and memorization. Using technology can clear teachers' academic authority and competence in the classroom.

Furthermore, few educational scholars consider a child's schooling as a continuous phase. As a natural commodity, the infant grows, and the teacher's primary role is to create the best environment for that growth. This has contributed to the theory that the child's perception is the important thing designed to offer the best experience for the child's progress (Tizard & Hughes, 1984).

This has been parallel with the concept of competence: competency-based instruction and competence management in organizations (Mulder, 2012). When an individual successfully masters a job, according to Harter's competence motivation theory (1978), or an idea of achievement motivation based on a person's feelings of personal competence, motivation rises. This motivates the person to take on more obligations.

More so, culinary skill is not too far from the concept of technological skills or the integration of technology into learning. This has contributed to the belief that one can view himself as good whether they can accomplish the assigned tasks. This is reinforced by Roberto Merton's (Ackerman, 2020) self-fulfilling prophecy that induces itself to become real, either directly or indirectly, due to positive reinforcement between expectation and actions.

In addition, awareness and comprehension (theoretical knowledge in an academic area, the desire to know and understand), learning how to behave (practical and operational application of knowledge to real situations), and knowledge of how to be all included in the definition of competency (values as an integral part of the way of perceiving and living with others in a social context), and skills. As a result, it has been attributed to a subject's overall consistency: emotional, motivational, value-conscious, and functional facets, as shown by active practices in any field (Kuzmina, 2014).

A conceptual paradigm has been made out of the theories in the study has been anchored. The independent variables of the study are the Educational **Conceptual Framework**

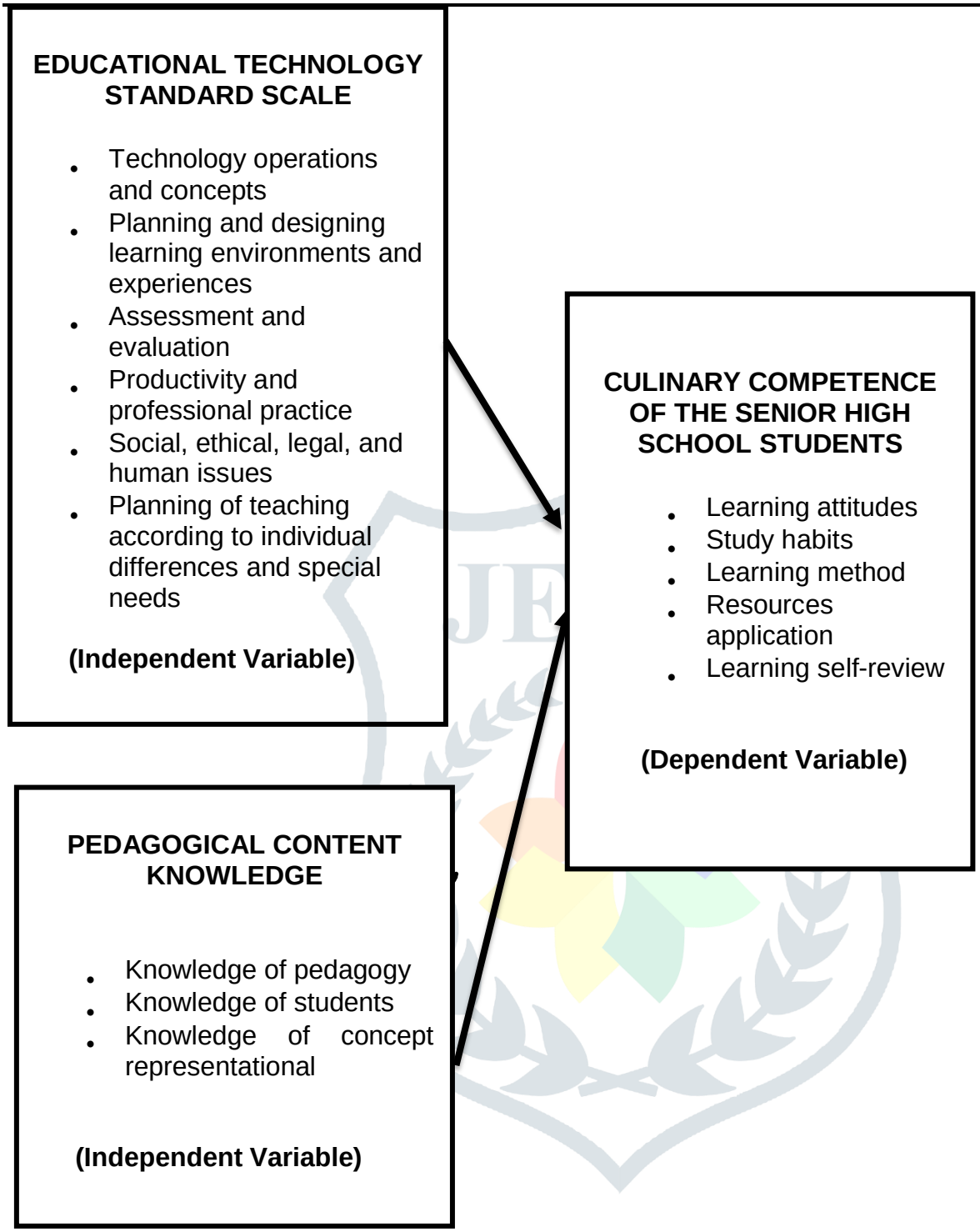

Figure 1. *Conceptual Framework Showing the Variables of the Study* Technology Standard Scale with domains on technology operations and concepts, planning and designing learning environments and experiences, assessment and evaluation, productivity and professional practice, social, ethical, legal, and human issues, and planning of teaching according to individual differences and special needs; and the pedagogical content knowledge with domains on knowledge of pedagogy, knowledge of students, and knowledge of concept representational.

Furthermore, the study's dependent variable is the culinary competence of the Senior High School students with domains on learning attitudes, study habits, learning methods, resources application, and learning self-review.

Significance of the Study

Educational technology standards scale, pedagogical content knowledge, and culinary competence are essential since the students' well-being can be significantly affected. Learning what to learn is critical when there is a strong demand for a specific culinary competence. Due to market demand, schools in various countries can deliver a particular program to acquire specific culinary skills while also considering understanding and awareness of the Educational Technology Standards Scale and Pedagogical Content Knowledge, which promotes accessible, relaxed, and rapid transfer of knowledge its practical applications. As a result, students would be more motivated, engaged, and enthusiastic in the classroom.

The study served as a repository of information that enabled people to have a more comprehensive understanding. It would give a better experience of classroom administration and learning methods. This would assist in generating relevant data that can be used to guide industry shifts and programs. The generated profile may be connected to culinary professionals' existing technical and vocational education. Accurate competency profiling has the potential to improve educational performances.

The study's findings had social implications, such as increased understanding of the educational technology standards scale and pedagogical content, culinary expertise, and knowledge. This would contribute to a greater understanding of how potentially increase productivity, skills, and expertise. The results of this study may help assess culinary professionals' skills. The results would illustrate the value of experience in determining a person's level of mastery. The sources of these competencies were identified by studying culinary professionals who serve in low-level positions but have higher competency standards.

The result of the study is seen to be an effective and efficient tool in aiding the following institutions or stakeholders: the school, administrators, teachers, and future researchers. For the school, it would help them in making the challenging choice on which devices and technological models can better help them meet their goals of improving education. Acting alongside various partners and assessing how instructors and students use the devices for day-to-day learning are the best ways to make product choices. This would be the basis for programs and projects to improve the classroom environment. For the administrators, this would aid them in how to assess teachers under their care and what are possible help they could give to those who lack the necessary skills needed in their teaching.

Moreover, the study would serve as reference material for enhancing deeper understanding for the teachers. This would increase their content knowledge and pedagogical approaches in teaching students and make students' abilities visible. Further, this would also give insights into managing classes kind of learning strategies that may satisfy learners' learning process. For the students, this would provide learners with the understanding and awareness of the Educational Technology Standards Scale and Pedagogical Content Knowledge (PCK) and Culinary Competence (CC) of Senior High School students and how it can affect academic performances as well as the learning process itself. For future researchers, the result of the study would serve as reference material when they are conducting any research of similar nature.

Definition of Terms

To better understand the study and to establish consistency and clarity, some of the terms were operationally and conceptually defined:

Educational Technology Standard Scale as used in the study, refers to the set of standards given or equated with the usage of technology in education in terms of technology operations and concepts, planning and designing learning environments and experiences, assessment and evaluation, productivity and professional practice, social, ethical, legal, and human issues, and planning of teaching according to individual differences and special needs.

Pedagogical Content Knowledge (PCK) refers to specific teacher knowledge that combines content and pedagogical knowledge to form an understanding of how the topic, problems or issues are organized, delivered, and used in teaching to suit various students' interests and abilities. Originally, the study included domains knowledge of subject matter, knowledge of instructional strategies, knowledge of concept representational, knowledge of teaching objectives and context, knowledge of students' understanding and knowledge of evaluation, but the sample questionnaire provided by Halim, Meerah, Zakaria, Abdullah and Tambychik (2012) focused only on three components such as knowledge on science pedagogy, knowledge of students and knowledge of concept representational. Hence, in this study, PCK only includes knowledge of pedagogy, knowledge of students and knowledge of concept representational.

Culinary Competence as used in the study, refers to the acquired mastery of knowledge base and skill sets of relating to kitchen or cookery. It included domains such as learning attitudes, study habits, learning methods, resources application, and learning self-review.

Chapter 2

METHOD

This chapter presents the methodologies used in the study, such as the Research Design, Research Subject, and Research Instrument. Data Gathering Procedure, Statistical Treatment, and Ethical Considerations have also been included.

Research Design

The study utilized a non-experimental descriptive-correlational research design as it would determine the Educational Technology Standards Scale (ETSS) and Pedagogical Content Knowledge (PCK) as predictors of culinary competence of Senior High School students. Calmorin (2007) highlighted

that descriptive research design involved a description of conditions that existed between variables. A data collection approach that helps them clarify the situation more thoroughly, descriptive research seeks to shed light on current issues or concerns. Descriptive analysis is described as an account of the current situation where the researcher has no control over the variables. According to Creswell (2003), the outcomes of this method of design can be descriptive, informative, or confirmatory.

Calmorin (2007) further pointed out that descriptive study design entailed describing the circumstances between variables. This included descriptions of the variables being considered and an emphasis on the "what" rather than the "why" of the research subject. According to Cohen et al. (2011), a descriptive-correlation research design would aid in identifying any patterns of relationship that exist between two variables. It is used to measure the strength of the relationship. This is concerned merely with describing current conditions without being influenced by the investigator (Stangler, 2011).

Research Locale

The study was conducted on the five (5) identified and selected public secondary schools in Malita District, Davao Occidental. The names of the schools where participants came from were substituted with School A, School B, School

C, School D, and School E to maintain confidentiality and privacy and avoid biases.

According to PhilAtlas.com, Malita is a coastal municipality in the province of Davao Occidental and has served as the provincial with a capital land area of

883.37 square kilometers or 341.07 square miles, constituting 40.83% of Davao Occidental's total area. Its population, as determined by the 2015 Census, was 117,746. This represented 37.22% of the total population of Davao Occidental province or 2.41% of the overall population of the Davao Region. Moreover, the population density was computed at 133 inhabitants per square kilometer.

Consequently, Malita has 30 barangays, namely: Bito, Bolila, Buhangin, Culaman, Datu Danwata, Demoloc, Felis, Fishing Village, Kibalatog, Kidalapong,

Kilalag, Kinangan, Lacaron, Lagumit, Lais, Little Baguio, Macol, Mana, Manuel

Figure 2. *Map of the Philippines highlighting Malita, Davao Occidental where the study was conducted.*

Peralta, New Argao, Pangaleon, Pangian, Pinalpalan, Poblacion, Sangay, Talogoy, Tical, Ticulon, Tingolo, and Tubalan. Davao Occidental was even said to be the province of endless possibilities. Malta was since it was more convenient and practical. A map is shown above.

Population and Sample

Senior high school students participated in the study in the five selected public secondary schools in Davao Occidental. Universal sampling was employed in the study. The total number of participants is 203, but only 101 responded and made themselves available to become part of the study. Some of them were not available when the study was conducted since they were not physically present in the place and time where the questionnaire was administered. Aside from not being present at the time the study was conducted, some of them did not give their consent to participate and did not voluntarily submit to the survey. Others were even hesitant as some did not report or make themselves present due to the location of their homes: they resided far away from the school. Consequently, because the census or the complete enumeration was chosen, the calculation for the sample size was no longer necessary and immaterial. This would be redundant and inefficient without a comprehensive count or census.

More so, the researcher provided a set of desired criteria as to who qualified to be the study's respondents, which included: a). respondents must be bona fide senior high school students enrolled in one of the five identified and selected schools; and b) if respondents are under the age of majority or minors, the researcher would fully explain the scope of the study and obtain their consent before administering the survey questionnaire, its implications, and risk.

Similarly, the researcher also provided a set of criteria as to who would not be qualified for the study or who were excluded from participating in the study, such as teachers and students who were not from the Senior High School department.

Furthermore, respondents were informed that they could withdraw from participating anytime in the research process. Participating in the study gave them the free will and voluntariness to get involved. They were assured that no threats, intimidation, force, or coercion would be manifested against them. Their responses were treated with complete secrecy; they should not be revealed or disclosed to anyone.

Research Instrument

The research instruments utilized in the study were standardized questionnaires contextualized by the researcher to fit based on the research objectives and validated by the experts. The Educational Technology Standard

Scale is adapted from Çoklar and Odabaşı (2009) with the following indicators: technology operations and concepts, planning and designing learning environments and experiences, assessment and evaluation, productivity and professional practice, social, ethical, legal, and human issues, and planning of teaching according to individual differences and special needs. Halim, Meerah, Zakaria, Abdullah, and Tambychik (2012) for pedagogical content knowledge with the following indicators: knowledge of pedagogy, knowledge of students, and knowledge of concept representational And Ko (2017) for culinary competence with the next hands: learning attitudes, study habits, learning methods, resources application, and learning self-review. The Cronbach-Alpha scores and the validators' mean ratings were used in the standardized-modified questionnaires for reliability. These questionnaires were obtained through the internet and correctly referenced. The questionnaires lifted from the internet had permission from the author in the manner that the researcher personally e-mailed them.

Before the research instrument commenced, the respondents were explicitly informed of the purpose of the study and that they needed to answer it honestly. They were also told that their answers would not be revealed to anyone as the researcher observed proper ethical considerations, particularly on confidentiality, privacy, and anonymity. The first part of the research instrument focused on the demographic profile of the respondents, such as their names being optional, sex, age, school, and grade level.

More so, the second part of the research instrument determined the mediating effect of educational technology standard scale in terms of technology operations and concepts, planning and designing learning environments and experiences, assessment and evaluation, productivity and professional practice, social, ethical, legal, and human issues, and planning of teaching according to individual

differences and special needs. It was patterned from the study by Çoklar and Odabaşı (2009). The questionnaire was composed of 43 questions: six (6)

Range of Means	Numerical Value	Verbal Description	Descriptive Meaning
4.21 – 5.00	5	Very High	This means that the level of educational technology standard scale is always practiced.
3.41 – 4.20	4	High	This means that the level of educational technology standard scale is frequently practiced.
2.61 – 3.40	3	Moderate	This means that the level of educational technology standard scale is sometimes practiced.
1.81 – 2.60	2	Low	This means that the level of educational technology standard scale is rarely practiced.
1.00 – 1.80	1	Very Low	This means that the level of educational technology standard scale is not practiced.

questions for the technology operations and concepts; eight (8) questions for the planning and designing of learning environments and experiences; seven (7) questions for the assessment and evaluation; twelve (12) questions for the product activity and professional practice; five (5) questions for the social, ethical, legal, and human issues and three (3) questions for the planning of teaching according to individual differences and special needs. As per Cronbach's Alpha reliability test result, for the Educational Technology Standards Scale with the 43 items, it has 0.912. Cronbach's alpha result suggested an internal consistency of "excellent" or high stakes testing (Streiner, 2003). Also, a five-point Likert scale was used.

Range of Means	Numerical Value	Verbal Description	Descriptive Meaning
4.21 – 5.00	5	Very High	This means that the level of pedagogical content knowledge is always practiced.

3.41 – 4.20	4	High	This means that the level of pedagogical content knowledge is frequently practiced.
2.61 – 3.40	3	Moderate	This means that the level of pedagogical content knowledge is sometimes practiced.
1.81 – 2.60	2	Low	This means that the level of pedagogical content knowledge is rarely practiced.
1.00 – 1.80	1	Very Low	This means that the level of pedagogical content knowledge is not practiced.

Consequently, the third part of the research instrument would determine the level of Pedagogical Content Knowledge (PCK), as this was adapted from the study of Halim, Meerah, Zakaria, Abdullah, and Tambychik (2012). The 16-item questionnaire was developed based on three components of Science PCK: knowledge of science pedagogy, knowledge of students or learners, and knowledge of concept representational. The Cronbach's Alpha reliability test resulted in 0.786which suggested an internal consistency of acceptable based on Streiner (2003). Respondents were asked to rate the importance of teachers' knowledge on a five-point Likert scale.

Range of Means	**Numerical Value**	**Verbal Description**	**Descriptive Meaning**
4.21 – 5.00	5	Very High	This means that the level of culinary competence is always practiced.
3.41 – 4.20	4	High	This means that the level of culinary competence is frequently practiced.
2.61 – 3.40	3	Moderate	This means that the level of culinary competence is sometimes practiced.
1.81 – 2.60	2	Low	This means that the level of culinary competence is rarely practiced.
1.00 – 1.80	1	Very Low	This means that the

level of culinary competence is not practiced.

Furthermore, the last part of the research instrument would determine the level of culinary competence of the Senior High School students in terms of learning attitudes, study habits, learning methods, resources application, and learning self-review; it is adapted from the study Ko (2017). Based on the Cronbach's Alpha reliability test, the questionnaire for culinary competence has 0.924 results, suggesting an internal consistency of "Excellent" or high-stakes testing (Streiner, 2003).

In evaluating the level of culinary competence, the range of means, numerical value, verbal description, and descriptive meanings were provided with a five-point Likert scale of Very High to Very Low.

Data Collection

The researcher devised steps and protocols for data collection. First, the researcher wrote a letter to the schools' division superintendent of Davao Occidental, channeled to the Division Research Supervisor and the respective school heads of the identified five public secondary schools, requesting permission to collect data through the administration of a research questionnaire as this was noted by the UM President and approved by the research adviser in gathering data outside of the school campus.

Moreover, letters of approval were accepted and approved by the schools' division superintendent of Davao Occidental and by the identified school heads or principals. Consent to the identifiable respondents - senior high school students in public secondary schools commenced. The researcher instructed the respondents on the purpose of the study, their willingness to be part of the study, and their withdrawal anytime from the research process whenever they felt that they were forced, coerced, threatened, or uncomfortable. Moreover, the informed consent was disseminated and distributed personally by the researcher before the data gathering. After the respondents consented, the researcher administered the survey questionnaire.

Since the administration of the survey questionnaire was made face-to-face and in conjunction with the Covid-19 pandemic, the researcher strictly adhered to the prescribed health precautions and protocols, which included wearing face masks and face shields, hand washing, or handwashing sanitization with alcohol, and social distancing. Following that, the study's data were obtained, and tokens were given to the respondents to appreciate their participation and cooperation during the study. All data were obtained, retrieved, and statistically treated at a validity level of alpha 0.05. Also, the researcher requested a statistician for the examination and interpretation of the data.

Statistical Tools

The statistical results were calculated and evaluated using SPSS Tools, with a significance level of 0.05.

Mean and Standard Deviation. These were utilized in determining the levels of Pedagogical Content Knowledge, Educational Technology Standard Scale and culinary competence.

Pearson Product Moment Correlation Analysis (Pearson r). This was utilized to determine if significant relationship among Educational Technology Standards Scale, Pedagogical Content Knowledge (PCK) and culinary competence of Senior High School students in five (5) identified and selected public secondary schools in Malita District, Davao Occidental for the year 2020 and 2021.

Spearman Rho Coefficient. This was used to determine whether Educational Technology Standard Scale and Pedagogical Content Knowledge significantly influence culinary competence of senior high school students.

Ethical Considerations

Ethical considerations were often considered when doing the research. Some requirements must be met. Many professional organizations and institutions have adopted codes and regulations that detailed ethical conduct and directed researchers because ethical concerns were relevant. Honesty, objectivity, intellectual property respect, social justice, confidentiality, non-discrimination, and many other

problems were addressed in these codes. These codes and rules provided a foundation for researchers, but they would still experience difficulties (Delvin, 2006).

The following ten points, according to Bryman and Bell (2007), reflected the most critical ethical considerations concepts: social value, informed consent, vulnerability, privacy, confidentiality and anonymity, justice, risk, benefits, and safety, adequacy of the facilities, researcher qualification, honesty and trust, and reciprocity, however, in this paper, this would only include concepts under the University of Mindanao Ethics Review Committee (UMERC) such as voluntary participation, privacy, and confidentiality, informed consent process, recruitment, risk, benefits, bio-safety, plagiarism, fabrication, falsification, conflict of interest, focus group participant identification, deceit, observation, permission from organization and or location, technology issues, and authorship.

Voluntary Participation. Since the participants came from various cultural and educational contexts, they might be vulnerable to physical, mental, psychological, and emotional injury or loss because of their differences. They were told that their similar or dissimilar answers were valued and not discriminated against. Hence, equality was rested assured too.

Furthermore, respondents were informed that they could withdraw from participating anytime in the research process. Participating in the study gave them the free will and voluntariness to get involved. They were assured that no threats, intimidation, force, or coercion would be manifested against them. Their responses were treated with complete secrecy; they should not be revealed or disclosed to anyone. The researcher gave tokens to the respondents as an appreciation of their participation and cooperation during the study.

Privacy and confidentiality. The research respondents were told that any answers they offered would be held in strict secrecy and would not be shared with others without permission, prior authorization, or information. Their responses were never be known, and they were able to leave blank all details or information that might place their privacy at risk. The data collected would be encrypted, including names, addresses, and phone numbers. Colleagues would be unable to classify participants

based on the study's detail. The protection of privacy, adequate confidentiality of the research data, and anonymity of individuals participating in the research must be ensured. Research information was always kept in locked files. Only the researcher had access to the files. After the study was completed, the stored data would be retained for at least three (3) years and deleted after the data's expiration.

The informed consent process. The respondents were well informed about the study's existence, intent, and work, as it would necessitate their complete understanding, approval, voluntariness, and cooperation. It is also essential that their consent not be tainted by threats, intimidation, force, or coercion. Full permission was obtained from the respondents before the study. Respondents gave their informed consent to participate. The theory of informed consent requires the researcher to offer adequate knowledge. It guarantees participation for individuals to appreciate the consequences of involvement properly and make a fully informed, thoughtful, and voluntarily provided decision about whether to participate without any intimidation or coercion (Saunders, Lewis, & Thornhill, 2012). Moreover, the informed consent was disseminated and distributed personally by the researcher before the data gathering.

Recruitment. Senior high school students, particularly those in Grades 11 and 12, from the five selected public secondary schools in Davao Occidental participated in the study. In determining the study participants, a universal census of the entire population of 203 senior high school students was selected; however, only 101 of them responded, qualified, and made themselves available to become part of the study. Consequently, because the census or the complete enumeration was chosen, the calculation for the sample size was no longer necessary and immaterial. This would be redundant and inefficient without a comprehensive count or census. For the inclusion criteria, the researcher provided criteria for the respondents to be qualified for the study, such as a). Respondents must be bona fide senior high school students enrolled in one of the five identified and selected schools; and b) if respondents are under the age of majority or minors, the researcher would fully explain the scope of the study and obtain their consent before administering the survey questionnaire, its implications, and risk.

More so, the researcher provided a set of desired criteria as to who qualified to be the study's respondents, which included: a). respondents must be bona fide senior high school students enrolled in one of the five identified and selected schools; and b) if respondents are under the age of majority or minors, the researcher would fully explain the scope of the study and obtain their consent before administering the survey questionnaire, its implications, and risk. Similarly, the researcher also provided a set of criteria as to who would not be qualified for the study or who were excluded from participating in the study, such as teachers and students who were not from the Senior High School department.

Furthermore, respondents were informed that they could withdraw from participating anytime in the research process. Participating in the study gave them the free will and voluntariness to get involved. They were assured that no threats, intimidation, force, or coercion would be manifested against them. Their responses were treated with complete secrecy; they should not be revealed or disclosed to anyone.

Risk. No individual should be placed in a position where they could be affected because of their involvement, the likelihood that something harmful or unpleasant can happen, something that causes positive outcomes and

consequences, and relief from injury, risk, or the state of being brought safely. Research respondents were not subjected to harm in any way whatsoever. The respondents were assured that they were safe since whatever discussions transpired would be kept among them and with the researcher. The researcher would better understand his ethical and research obligations against the communities and societies in which study subjects reside and work. This allowed the skills to be put to work and shared for the common benefit. Rather than becoming judgmental, the researcher strived to foster an art of comprehension and in-depth understanding of study participants' perspectives. It would view the study as a means of promoting social acceptance rather than demonstrating that one is superior to another.

Benefits. It is essential to consider general norms while conducting the research; it must also have social significance since the results may influence society. The study served as a repository of information that enabled people to understand more comprehensively. This would assist in generating relevant data

that can be used to guide industry shifts and programs. The generated profile may be connected to culinary professionals' existing technical and vocational education. Accurate competency profiling has the potential to improve educational performances.

Further, this study hoped to benefit schools, administrators, teachers, and future researchers. For schools, it would help make the challenging choice on which devices and technological models can better help them meet their goals of improving education. For teachers, it would serve as reference material in enhancing deeper understanding. For students, it would provide knowledge and awareness of the Educational Technology Standards Scale, PCK, and culinary competence and how they could affect academic performance and learning. For future researchers, it would serve as reference material when conducting research of similar nature.

Bio-safety. Because the respondents were senior high school students and the researcher would not be collecting samples, properly disposing of infectious or biological risks, bio-safety would never be a problem or worry.

Plagiarism. The researcher ensured that proper and exact citations of ideas from other authors and academics were followed to the letter. The research was checked for plagiarism using the Turnitin software. The writings were done in no attempt to deceive the respondents into damaging their well-being. The panel of experts verified and authenticated every information submitted. The researcher adhered to the highest scientific and professional standards and assumed the study's authority, ownership, and authorship. Although they differed on methodological, scientific, or personal approaches to professional activities, their shared humanity was understood, and would show respect for other social scientists.

Fabrication. While making broad strokes, the researcher must remember that there was no simple path or shortcut to truth. Because the research was not fiction but founded on reality, it was essential to collect complete data. Regardless of personal need or advantage, one evaluated and interpreted the gathered information or data favorably. The study outcomes were not manufactured or not fictional but

were verified and assessed for reliability and validity via several research processes. The ethical protocols and guidelines were strictly followed. The researcher diligently sought and received the necessary permission from key school officials to complete this study. It is essential to obtain their approval and authorization to provide formality and confirmation to the research subjects.

Falsification. The respondents were informed that the researcher adhered to a strict professional culture that prohibited data manipulation and "cherrypicking" to "match" a hypothesis. Any deception or exaggeration about the aims and objectives of the research were avoided. Any type of communication about the study was done with honesty and transparency, and misleading information and the representation of primary data findings in a biased way were avoided. The researcher guaranteed that there was no distortion in the study. What other studies showed or suggested was correctly referenced and based on reality, not on madeup theories, thoughts, ideas, or findings.

Conflict of interest. The respondents were told that data interpretations would not require personal opinions and that they were not exposed to a personality diagnostic evaluation. Respect for the dignity of research participants was prioritized. There was no conflict of interest since the researcher's position was an ethic, as an observer rather than a participant. Additionally, the researcher strived for the highest level of competence in the work, was aware of his limitations, and took on only certain positions for which he was qualified by education, training, or practice. The critical nature of continuing education in sustaining professional competence has been recognized and allowed effective use of accessible research, professional, technical, and administrative resources to ensure competence in professional activities. Consultation with other experts for the study's success was also made.

Focus group participant identification. Since the study was of a nonexperimental quantitative descriptive-correlational nature of the research and the absence of focus group discussion (FGD), this ethical concern was waived. This was not relevant since identifying focus group participants was beneficial only for qualitative research designs. The researcher had placed a premium on protecting the identity of the respondents and ensuring that confidentiality was maintained correctly.

Deceit. When the researcher provided incorrect information to the respondents or purposefully misled them about critical elements of the study, deception or trickery occurred. This comprised inputs to subjects that entailed the formation of false ideas about oneself, one's connection, or self-concept manipulation. There was no deception since the study needed respondents to provide accurate and complete information. More so, the researcher possessed objectivity and honesty in encoding the respondents' responses. The researcher must have interest, motivation, curiosity, commitment, and sees the thing in a scholarly approach. It was assured that the researcher was open-minded and adopted a critical way of thinking, diligent, and hardworking (Stefanadis, 2006).

While establishing generalizations, the researcher must remember that there is no quick method or shortcut to truth. Therefore, comprehensive data was required. Regardless of personal need or advantage, one must examine and interpret the gathered information or data in a favorable light.

Observation. The rules addressing ethical concerns while watching individuals in public or quasi-public places were irrelevant in this study since it was meant for qualitative research designs, namely in-depth interviews, small group discussions, or focus group discussions. None of it was used in the research.

There is no accurate observation; instead, the study questionnaire is administered.

Permission from the organization and location. It was essential for the researcher to get a letter of consent from the schools where the study was performed, requesting authorization to administer the survey questionnaire to the planned respondents. The researcher signed the letter, noted by the researcher and the advisor, and the dean of the Professional Schools approved it. Additionally, the researcher stated that the study was conducted in obtaining formal authorization from the organization. When obtaining written permission, the researcher may be sure that the individual with whom the researcher expressed their desire to speak 1is the person with the power to provide the consent requested.

Technology issues. The researcher did not utilize online panels or gather data online, preferring instead to conduct face-to-face interviews under strict adherence to appropriate health protocols: thorough hand washing, social distance, and a facial mask and shield.

Authorship. Authorship requirements and credit were established based on significant contributions. This research adhered entirely to the ethical procedures and criteria set by the University of Mindanao's Ethics Committee. The researcher carefully sought and got approval from relevant school authorities to conduct the study. To give formality and confirmation to the research subjects, their permission, authorization, and the support and authorization of any prospective responders in the study, where required. Permission letters are also given to perform this analysis.

Chapter 3

RESULTS

Presented in this chapter are the results of the data and analysis of the study grounded on the answers of the respondents on Educational Technology Standards Scale (ETSS) and Pedagogical Content Knowledge (PCK) as predictors of Culinary Competence (CC). Chapter 3 has been presented the same way the Research Objectives are presented in Chapter 1: level of Educational Technology Standard Scale, level of Pedagogical Content Knowledge, level of Culinary Competence, and significant relationship existed among ETSS, PCK, and CC and their combined influences.

Level of Educational Technology Standard Scale

While digital technologies are increasingly being utilized for entertainment and networking, they are also being employed in education to aid instructors and students in understanding. As new technologies emerge, the teaching profession is shifting away from teacher-centered, lecture-based instruction and toward student-centered, immersive learning experiences.

Table 1 shows the level of Technology Operations and Concepts. The results reveal that the level of Technology Operations and Concepts was frequently manifested as it has an overall mean score of 3.79 (*SD* = 0.518) with a verbal description of "High". As shown in the table below, all the domains have high verbal descriptions. However, among the domains, only the domain *My teacher explains how technological devices operate* got the highest mean score of 3.97 (*SD* = 0.737). Moreover, the domains *My teacher does basic things regarding computer technologies* and *My teacher uses technological devices effectively* got the mean scores of 3.92 with (*SD* = 0.776) and the latter with (*SD* = 0.742). Furthermore, *My teacher defines the technological devices found in the faculty* obtained a mean of 3.72 (*SD* = 0.799); *My teacher uses technological devices in different ways* obtained a mean of 3.68 (*SD* = 0.835); and *My teacher explains general concepts related to computer technology* attained a mean of 3.53 (*SD* = 0.880).

Table 1. *Table on the Level of Technology Operations and Concepts*

Domains	Mean	SD	Descriptive Level
My teacher explains how technological devices operate.	3.97	0.737	High
My teacher uses technological devices in different ways.	3.68	0.835	High
My teacher defines the technological devices found in the faculty.	3.72	0.799	High
My teacher does basic things regarding computer technologies.	3.92	0.776	High
My teacher explains general concepts related to computer technology.	3.53	0.880	High
My teacher uses technological devices effectively.	3.92	0.742	High
Overall	**3.79**	**0.518**	**High**

Table 2 displays the level of Planning and Designing Learning

Environments and Experiences. The results unveil that the level of Planning and Designing Learning Environments and Experiences was frequently manifested as it has an overall mean score of 3.76 (*SD* = 0.569) with a verbal description of

"High". As shown in the table below, all the domains have high verbal

Table 2. *Table on the Level of Planning and Designing Learning Environments and Experiences*

Domains	Mean	SD	Descriptive Level
My teacher chooses the technology appropriate to the teaching process by evaluating the present technological sources.	3.69	0.808	High
My teacher states whether the electronic sources are suitable for the me and the planning of the learning activities.	3.54	0.868	High
My teacher informs me about the benefits of using different technological devices in the process of teaching.	4.02	0.823	High
My teacher uses sources on the Internet to prepare me with the different learning activities and strategies.	3.92	0.784	High
My teacher makes use of research findings about technology use for the planning of educational environments.	3.55	0.903	High
My teacher determines whether technological sources are suitable for me to be utilize.	3.88	0.777	High
My teacher explains how technological sources should be used to increase the effectiveness of education.	3.83	0.833	High
My teacher shapes the teaching process in line with new educational technologies.	3.58	0.900	High
Overall	**3.76**	**0.569**	**High**

descriptions. However, among the domains, the domain *My teacher informs me about the benefits of using different technological devices in the process of teaching* got the highest mean score of 4.02 (*SD* = 0.823). Moreover, the domain *My teacher uses sources on the Internet to prepare me with the different learning activities and strategies* got the mean scores of 3.92 with (*SD* = 0.784) Furthermore, *My teacher determines whether technological sources are suitable for me to be utilize* obtained a mean of 3.88 (*SD* = 0.777); *My teacher explains how technological sources should be used to increase the effectiveness of education* obtained a mean of 3.83 (*SD* = 0.833); *My teacher chooses the technology appropriate to the teaching process by evaluating the present technological sources* obtained a mean of 3.69 (*SD* = 0.808); *My teacher shapes the teaching process in line with new educational technologies* obtained a mean of 3.58 (*SD* = 0.900); *My teacher makes use of research findings about technology use for the*

planning of educational environments obtained a mean of 3.55 (*SD* = 0.903); and *My teacher states whether the electronic sources are suitable for the me and the planning of the learning activities* attained a mean of 3.54 (*SD* = 0.868).

Table 3 shows the level of Assessment and Evaluation. The results disclose that the level of Assessment and Evaluation was frequently manifested as it has an overall mean score of 3.72 (*SD* = 0.516) with a verbal description of "High". As

shown in the table below, all the domains have high verbal descriptions.

However, among the domains, the domain *To assess me in different aspects, my teacher form evaluation procedures consisting various measurement techniques* got the highest mean score of 3.89 (*SD* = 0.759). Moreover, the domain *My teacher helps me find my own measurement tools in evaluating my own learning processes got the mean scores of 3.87 with (SD* = 0.774). Furthermore, *My teacher plans learning activities based on technology use for me to yield creative products* got the mean scores of 3.84 with (*SD* = 0.796). Also, *My teacher plans teaching strategies that require the use of different technological sources* obtained a mean of 3.70 (*SD* = 0.769). *My teacher uses technological tools to process and report all kinds of data related to the teaching process* obtained a mean of 3.62 (*SD* = 0.837); *My teacher follows technology-based measurement and evaluation strategies which help me evaluate my performance like portfolios and e-mails* obtained a mean of 3.59 (*SD* = 0.863); and *My teacher uses*

Table 3. *Table on the Level of Assessment and Evaluation*

Domains	Mean	SD	Descriptive Level
To assess me in different aspects, my teacher form evaluation procedures consisting various measurement techniques.	3.89	0.759	High
My teacher plans teaching strategies that require the use of different technological sources.	3.70	0.769	High
My teacher plans learning activities based on technology use for me to yield creative products.	3.84	0.796	High
My teacher follows technology-based measurement and evaluation strategies which help me evaluate my performance like portfolios and e-mails.	3.59	0.863	High
My teacher uses technology for the purpose of developing appropriate strategies in solving real life problems.	3.52	0.797	High

My teacher uses technological tools to process and report all kinds of data related to the teaching process.	3.62	0.837	High
My teacher helps me find my own measurement tools in evaluating my own learning processes.	3.87	0.774	High
Overall	**3.72**	**0.516**	**High**

technology for the purpose of developing appropriate strategies in solving real life problems gained a mean of 3.52 (*SD* = 0.797).

Table 4 shows the Level of Productivity and Professional Practice. The results unveil that the level of Productivity and Professional Practice was frequently manifested as it has an overall mean score of 3.73 (*SD* = 0.502) with a verbal description of "High". As shown in the table below, all the domains have high verbal descriptions. However, among the domains, the domain *My teacher in becoming a more productive, uses software (such as Microsoft Word, Excel, PowerPoint) that will increase the quality of instructional or applications* got the highest mean score of 4.01 (*SD* = 0.791). Moreover, the domain *My teacher in becoming a more effective teacher, finds information on the Internet* got the mean scores of 3.89 with Table 4. *Table on the Level of Productivity and Professional Practice*

Domains	Mean	SD	Descriptive Level
My teacher in becoming a more effective teacher, finds information on the Internet.	3.89	0.808	High
My teacher shares ideas with experts and colleagues on an online basis to develop my skills.	3.49	0.882	High
My teacher in becoming a more effective, evaluates myself in terms of my improvement in technology use.	3.86	0.720	High
My teacher in becoming a more productive, uses software (such as Microsoft Word, Excel, PowerPoint) that will increase the quality of instructional or applications.	4.01	0.791	High
My teacher explains how I will benefit from technology to keep lifelong learning.	3.69	0.825	High
My teacher to have cooperation, uses communication tools like e-mails, forums, and discussion groups.	3.56	0.857	High
My teacher in becoming more effective, always develop myself in terms of new technological tools.	3.74	0.869	High
My teacher benefits from Internet services in supporting the learning process during the education program.	3.84	0.796	High

My teacher uses technology and observes how it was used in the teaching process.	3.84	0.757	High
My teacher explains the effects of the use of electronic environments: computers and the Internet on social life.	3.56	0.868	High
To increase student learning, my teacher uses technological sources for the establishment of communication with my parents.	3.61	0.908	High
My teacher uses technological devices to send the results of any evaluation of the teaching process to me and to my parents.	3.61	0.874	High
Overall	**3.73**	**0.502**	**High**

(*SD* = 0.808). Furthermore, *My teacher in becoming a more effective, evaluates myself in terms of my improvement in technology use* obtained a mean of 3.86 (*SD* = 0.720); both domains *My teacher benefits from Internet services in supporting the learning process during the education program and My teacher uses technology and observes how it was used in the teaching process* obtained a mean of 3.84 with (*SD* = 0.796) and (*SD* = 0.757) of the latter; *My teacher in becoming more effective, always develop myself in terms of new technological tools* obtained a mean of 3.74 (*SD* = 0.869); *My teacher explains how I will benefit from technology to keep lifelong learning* obtained a mean of 3.69 (*SD* = 0.825); both domains *To increase student learning, my teacher uses technological sources for the establishment of communication with my parents* and *My teacher uses technological devices to send the results of any evaluation of the teaching process to me and to my parents* obtained a mean of 3.61 with (*SD* = 0.908) and (*SD* = 0.874) to the latter; both domains *My teacher explains the effects of the use of electronic environments: computers and the Internet on social life and My teacher to have cooperation, uses communication tools like e-mails, forums, and discussion groups* obtained a mean score of 3.56 with (*SD* = 0.868) and (*SD* = 0.857) to the latter; and *My teacher shares ideas with experts and colleagues on an online basis to develop my skills* attained a mean of 3.49 (*SD* = 0.882).

Table 5 shows the Level of Social, Ethical, Legal and Human Issues. The results reveal that the level of Social, Ethical, Legal and Human Issues was frequently manifested as it has an overall mean score of 3.66 (*SD* = 0.613) with a verbal description of “High”. As shown in the table below, all the domains have high verbal descriptions. However, among the domains, the domain *My teacher explains the safety precautions to be taken for a safer use of technology in schools* got the highest mean score of 3.80 (*SD* = 0.853). Moreover, the domain *My teacher explains the issues related to the equal use of technology*

got the mean scores of 3.78 with (*SD* = 0.820). Furthermore, *My teacher explains the health-related issues that could be caused by technology use in schools* obtained a mean of 3.74 (*SD* = Table 5. *Table on the Level of Social, Ethical, Legal and Human Issues*

Domains	Mean	SD	Descriptive Level
My teacher states the legal issues about technology use.	3.41	0.932	High
My teacher explains the important issues related to the copyright of any technological system.	3.55	0.857	High
My teacher explains the issues related to the equal use of technology.	3.78	0.820	High
My teacher explains the health-related issues that could be caused by technology use in schools.	3.74	0.836	High
My teacher explains the safety precautions to be taken for a safer use of technology in schools.	3.80	0.853	High
Overall	**3.66**	**0.613**	**High**

0.836); *My teacher explains the important issues related to the copyright of any technological system* obtained a mean of 3.55 (*SD* = 0.857); and *My teacher states the legal issues about technology use* attained a mean of 3.41 (*SD* = 0.932).

Table 6 shows the Level of Planning of Teaching According to Individual Differences and Special Needs. The results reveal that the level of Planning of Teaching According to Individual Differences and Special Needs was frequently manifested as it has an overall mean score of 3.79 (*SD* = 0.623) with a verbal description of “High”. As shown in the table below, all the domains have high verbal descriptions. However, among the domains, the domain *My teacher prepares lesson plans that allows the usage of technology in meeting different learners’ needs* got the highest mean score of 3.91 (*SD* = 0.774). Moreover, the domain *With the help of technology, my teacher designs learning environments for those who need special education due to their loss of hearing or their defect of vision*

got the mean scores of 3.76 with (*SD* = 0.815). Furthermore, *My teacher makes plan* Table 6. *Table on the Level of Planning of Teaching According to Individual Differences and Special Needs*

Domains	Mean	SD	Descriptive Level
My teacher makes plan that will allow me to use the technological sources.	3.68	0.886	High
My teacher prepares lesson plans that allows the usage of technology in meeting different learners' needs.	3.91	0.774	High
With the help of technology, my teacher designs learning environments for those who need special education due to their loss of hearing or their defect of vision.	3.76	0.815	High
Overall	**3.79**	**0.623**	**High**

that will allow me to use the technological sources obtained a mean of 3.68 (*SD* = 0.886).

Lastly, Table 7 shows the summary table on the level of Educational Technology Standards. The results reveal that on the level of Educational Technology Standards was frequently manifested as it has an overall mean score of 3.74 (*SD* = 0.472) with a verbal description of "High". As shown in the same table, all the domains on the level of educational technology standard have high verbal descriptions. However, among the domains, two of them got the highest mean score of 3.79 (SD = 0.518) on *technology operations and concepts* and *planning of teaching according to individual differences and special needs* with a mean score of 3.79 *(SD* = 0.623). This was followed by *planning and designing learning environments and experiences* with a mean score of 3.76 ($SD = 0.569$) described as high. Moreover, *productivity and professional practice* obtained a mean of 3.73 ($SD = 0.502$); *assessment and evaluation* obtained a mean of 3.72

(SD = 0.516); and *social, ethical, legal, and human issues* obtained a mean of 3.66

(SD = 0.613).

Table 7. *Summary Table on the Level of ETSS*

Domains	Mean	SD	Descriptive Level
Technology operations and concepts	3.79	0.518	High
Planning and designing learning environments and experiences	3.76	0.569	High
Assessment and evaluation	3.72	0.516	High

Productivity and professional practice	3.73	0.502	High
Social, ethical, legal, and human issues	3.66	0.613	High
Planning of teaching according to individual differences and special needs	3.79	0.623	High
Overall	**3.74**	**0.472**	**High**

Level of Pedagogical Content Knowledge

Pedagogical content knowledge may be complicated, since it is just one component of an educator's professional knowledge and may be unique to the educator, the subject, or even the teaching environment. PCK may refer to a collection of pedagogical methods developed by an experienced educator after teaching a subject numerous times. Table 8 reveals the level of knowledge and pedagogy of the respondents in the five identified schools.

Table 8 shows the level of knowledge and pedagogy. The results disclose that the level of knowledge and pedagogy was frequently manifested as it has an overall mean score of 3.83 (*SD* = 0.469) with a verbal description of “High”. As

shown in the table below, all the domains have high verbal descriptions.

However, among the domains, the domain *My teacher should make me clearly understand objectives of this course* got the highest mean score of 4.00

(*SD* = 0.865). Moreover, the domain *My teacher’s tests should evaluate my*

understanding of a topic got the mean scores of 3.98 with *(SD* = 0.732).

Table 8. *Table on the level of Knowledge on Pedagogy*

Domains	Mean	SD	Descriptive Level
My teacher’s tests should evaluate my understanding of a topic.	3.98	0.732	High
My teacher’s questions should evaluate my understanding of a topic.	3.89	0.764	High
My teacher’s tests should allow me to check my understanding of concepts.	3.75	0.842	High

My teacher should make me clearly understand objectives of this course.	4.00	0.865	High
My teacher's belief or value in teaching must be active and aggressive.	3.55	0.903	High
My teacher should use demonstrations to help explaining the main concept.	3.96	0.745	High
My teacher should identify students' abilities and skills in learning concepts.	3.94	0.814	High
My teachers should use various teaching approaches to teach different topics.	3.90	0.854	High
My teacher needs to cope with our classroom context appropriately.	3.52	0.834	High
Overall	**3.83**	**0.469**	**High**

Furthermore, *my teacher should use demonstrations to help explaining the main concept* got the mean scores of 3.96 with (*SD* = 0.745). Also, *My teacher should identify students' abilities and skills in learning concepts teacher plans teaching strategies that require the use of different technological sources* obtained a mean of 3.94 (*SD* = 0.814). *My teachers should use various teaching approaches to teach different topics* obtained a mean of 3.90 (*SD* = 0.854); *My teacher's questions should evaluate my understanding of a topic* obtained a mean of 3.89 (*SD* = 0.764); *My teacher's tests should allow me to check my understanding of concepts* with a mean of 3.75 (*SD* = 0.842); *My teacher's belief or value in teaching must be active and aggressive* with a mean of 3.55 (*SD* = 0.903); and *My teacher needs to cope with our classroom context appropriately got a mean score of* 3.52

(*SD* = 0.834).

Table 9. *Summary Table on the level of Knowledge of Students/Learners*

Domains	Mean	SD	Descriptive Level
My teacher must use familiar analogies to explain concepts of subject matter.	3.82	0.744	High
My teacher should use analogies with which I am familiar to help me understand concepts.	3.98	0.724	High
My teachers should use students' prior knowledge about a concept in making a lesson plan.	3.79	0.868	High
Overall	**3.86**	**0.562**	**High**

Table 9 shows the Level of Knowledge of Students/Learners. The results reveal that the level of Knowledge of Students/Learners was frequently manifested as it has an overall mean score of 3. 86(*SD* = 0.562) with a verbal description of

"High". As shown in the table below, all the domains have high verbal descriptions. However, among the domains, *My teacher should use analogies with which I am familiar to help me understand concepts* got the highest mean score of 3.98 (*SD* = 0.724). Moreover, the domain *My teacher must use familiar analogies to explain concepts of subject matter* got the mean scores of 3.82 with (*SD* = 0.744). Furthermore, *My teachers should use students' prior knowledge about a concept in making a lesson plan* obtained the mean scores of 3.79 with (*SD* = 0.868).

Table 10 reveals the Level of Knowledge of Concept Representation. The results reveal that the level Knowledge of Concept Representation was frequently manifested as it has an overall mean score of 3.79 (*SD* = 0.610) with a verbal description of "High". As shown in the table below, all the domains have high verbal descriptions. However, among the domains, *My teacher needs to use familiar examples to explain concepts* got the highest mean score of 3.98 (*SD* = 0.791). Moreover, the domain *My teacher must prepare some additional teaching materials* got the mean scores of 3.84 with (*SD* = 0.857). Furthermore, *My teacher needs to use real objects to help me understand concepts* obtained the mean scores of 3.70 with (*SD* =

Table 10. *Summary Table on the level of Knowledge of Concept Representation*

Domains	Mean	SD	Descriptive Level
My teacher should use familiar events to describe concepts.	3.63	0.882	High
My teacher needs to use real objects to help me understand concepts.	3.70	0.880	High
My teacher needs to use familiar examples to explain concepts.	3.98	0.791	High
My teacher must prepare some additional teaching materials.	3.84	0.857	High
Overall	**3.79**	**0.610**	**High**

0.880). Last of all, *My teacher should use familiar events to describe concepts* got the mean score of 3.63 (*SD* = 0.882).

Based on the table, pedagogical content knowledge was frequently manifested which obtained an overall mean score of 3.83 (SD = 0.485) with a verbal description of high. All the domains on the level of pedagogical content knowledge have high verbal descriptions; however, *knowledge on student learners* obtained the highest mean score of 3.86 ($SD = 0.562$), followed by *knowledge on pedagogy* with a mean score of 3.83 ($SD = 0.469$), and *knowledge on concept representation* with a mean score of 3.79 ($SD = 0.610$).

Table 11. *Summary Table on the level of PCK*

Domains	Mean	SD	Descriptive Level
knowledge on pedagogy	3.83	0.469	High
knowledge on student learners	3.86	0.562	High
knowledge on concept representation	3.79	0.610	High
Overall	**3.83**	**0.485**	**High**

Level of Culinary Competence

Modern culinary education aims to create culinary artists with the abilities of performers, capable of transforming raw food into a pleasant product via the use of their creativity, intuition, intellect, emotions, and physical sensory technical skills. Table 12 illustrates the level of learning attitude.

The results disclose that the level of learning attitude was frequently manifested as it has an overall mean score of 3.82 (*SD* = 0.578) with a verbal description of “High”. As shown in the table below, all the domains have high verbal

descriptions.

However, among the domains, *I hope to teach culinary skills to others* got the highest mean score of 4.03 (*SD* = 0.777). Moreover, the domain *I hope to share my culinary skills with others* got the mean scores of 4.01 with *(SD* = 0.778). Furthermore*, I hope to apply culinary knowledge in my life* got the mean scores of 3.94 with (*SD* = 0.886). Also, *I think learning in a culinary class is very interesting rather than only getting a good grade* obtained a mean of 3.94 (*SD* = 0.814). *My teachers should use various teaching*

approaches to teach different topics obtained a mean of 3.93 (*SD* = 0.844); *I think that it is useful for me to take culinary classes* obtained a mean of 3.88 (*SD* = 0.852); both domains *I like to understand the contents and outlines before learning* and *I hope to apply the core concepts I*

Table 12. *Learning Attitude*

Domains	Mean	SD	Descriptive Level
I think that it is useful for me to take culinary classes.	3.88	0.852	High
I hope to share my culinary skills with others.	4.01	0.778	High
I hope to teach culinary skills to others.	4.03	0.777	High
I think learning in a culinary class is very interesting rather than only getting a good grade.	3.93	0.844	High
I hope to apply culinary knowledge in my life.	3.94	0.886	High
I hope to apply the core concepts I learn in culinary class.	3.78	0.844	High
I like to write and review the notes when I finish class.	3.64	0.882	High
I am enthusiastic about culinary class.	3.60	0.931	High
I like to understand the contents and outlines before learning.	3.78	0.880	High
I like to imagine what one's own success looks like.	3.62	0.950	High
Overall	**3.82**	**0.578**	**High**

learn in culinary class obtained a mean of 3.78 with (*SD* = 0.882) and the latter with (*SD* = 0.880); *I like to write and review the notes when I finish class* with a mean of 3.64 (*SD* = 0.882); *I like to imagine what one's own success looks like* with a mean of 3.62 (*SD* = 0.950); and *I am enthusiastic about culinary class got a mean score of* 3.60 (*SD* = 0.931).

Table 13 illustrates the level of study habits. The results disclose that the level of study habits was frequently manifested as it has an overall mean score of 3.64 (*SD* = 0.554) with a verbal description of "High". As shown in the table below, all the domains have high verbal descriptions.

However, among the domains, *I am confident that I can finish my goal on schedule* got the highest mean score of 3.98 (*SD* = 0.798). Moreover, the domain Table 13. *Study Habits*

Domains	Mean	SD	Descriptive Level
I am in the habit of organizing study materials.	3.58	0.923	High

I can concentrate in culinary class.	3.93	0.839	High
I avoid nervousness when I have a test in culinary class.	3.39	0.920	High
I overcome pressure when I learn in culinary class.	3.76	0.830	High
I bring up problems and ideas when I attend culinary class.	3.44	0.833	High
I have confidence that I can get a good grade in culinary class.	3.76	0.827	High
I have doubts and re-check the textbook for accuracy.	3.15	0.985	High
I am confident that I can finish my goal on schedule.	3.98	0.798	High
I review and handle the quiz well.	3.79	0.899	High
Overall	**3.64**	**0.554**	**High**

I can concentrate in culinary class got the mean scores of 3.93 with *(SD* = 0.839). Furthermore*, I review and handle the quiz well* got the mean scores of 3.79 with (*SD* = 0.899). Also, both domains *I overcome pressure when I learn in culinary class* and *I have confidence that I can get a good grade in culinary class* got the mean score of 3.76 (*SD* = 0.830) and the latter with (*SD* = 0.827). *I am in the habit of organizing study materials* obtained a mean of 3.58 (*SD* = 0.923); *I bring up problems and ideas when I attend culinary class* with a mean of 3.44 (*SD* = 0.833); *I avoid nervousness when I have a test in culinary class* with a mean of 3.39 (*SD* = 0.920); and *I have doubts and re-check the textbook for accuracy* got a mean score of 3.15 (*SD* = 0.985).

Table 14 illustrates the level of learning method. The results disclose that the level of learning method was frequently manifested as it has an overall mean Table 14. *Learning Method*

Domains	Mean	SD	Descriptive Level
I can relax when I feel nervous.	3.31	0.971	High
I analyze and improve upon any drawbacks when I am learning in culinary class.	3.55	0.770	High
I ask classmates and teachers when I have a culinary question.	3.81	0.845	High
I am encouraged when I pass a test or received certification.	3.99	0.752	High
I can obtain more information to understand the texts in the class.	3.77	0.790	High

I can find the relationship among the various concepts.	3.55	0.795	High
I always think of questions when I attend culinary class.	3.20	0.940	High
I record the information in culinary.	3.66	0.853	High
Overall	**3.61**	**0.559**	**High**

score of 3.61 (*SD* = 0.559) with a verbal description of "High". As shown in the table below, all the domains have high verbal descriptions.

However, among the domains, *I am encouraged when I pass a test or received certification* got the highest mean score of 3.99 (*SD* = 0.752). Moreover, the domain *I ask classmates and teachers when I have a culinary question* got the mean scores of 3.81 with *(SD* = 0.845). Furthermore*, I can obtain more information to understand the texts in the class* got the mean scores of 3.77 with (*SD* = 0.790). Also, the domain *I record the information in culinary* got the mean score of 3.66 (*SD* = 0.853). Both domains *I can find the relationship among the various concepts* and *I analyze and improve upon any drawbacks when I am learning in culinary class got* 3.55 (*SD* = 0.795) and the latter with (*SD* = 0.770); *I can relax when I feel*

nervous obtained a mean of 3.31 (*SD* = 0.971); and *I always think of questions when I attend culinary class* with a mean of 3.20 (*SD* = 0.940).

Table 15. *Table on the level of Resource Application*

Domains	Mean	SD	Descriptive Level
I use the video to obtain more culinary knowledge.	3.75	0.830	High
I use technology tools to help my culinary learning.	3.60	0.920	High
I can use the Internet to obtain information to solve culinary questions.	3.82	0.779	High
I use the cooking lab to practice my culinary abilities.	3.80	0.953	High
I review my schedule to check my learning performance.	3.24	1.036	High
Overall	**3.64**	**0.598**	**High**

Table 15 reveals the Level of Resource Application. The results reveal that the level of Resource Application was frequently manifested as it has an overall mean score of 3.64 (*SD* = 0.598) with a verbal description of "High". As shown in the table below, all the domains have high verbal descriptions. However, among the domains, *I can use the Internet to obtain information to solve culinary questions* got the highest mean score of 3.82 (*SD* = 0.779). Moreover, the domain *I use the cooking lab to practice my culinary abilities* got the mean scores of 3.80 with (*SD* = 0.953). Furthermore, *I use the video to obtain more culinary knowledge* obtained the mean scores of 3.75 with (*S* = 0.830); *I use technology tools to help my culinary learning* with a mean score 3.60 with (*S* = 0.920); and *I review my schedule to check my learning performance* got the mean score of 3.24 (*SD* = 1.036).

Table 16 shows the Level of Learning Self-Review. The results reveal that the level of Learning Self-Review was frequently manifested as it has an overall Table 16. *Table on the level of Learning Self-Review*

Domains	Mean	SD	Descriptive Level
I can detect my culinary learning abilities myself.	3.67	0.886	High
I can encourage myself when I feel depressed.	3.54	1.009	High
I can practice pre-testing by myself.	3.74	0.836	High
I can review the class content and learning performance step by step by myself.	3.46	0.914	High
I can discover the relationship between theory and practices.	3.67	0.888	High
Overall	**3.62**	**0.626**	**High**

mean score of 3.62 (*SD* = 0.626) with a verbal description of "High". As shown in the table below, all the domains have high verbal descriptions. However, among the domains, *I can practice pre-testing by myself* got the highest mean score of 3.74 (*SD* = 0.836). Moreover, the *domains I can discover the relationship between theory and practices* and *I can detect my culinary learning abilities myself* got the mean scores of 3.67 with (*SD* = 0.888) and (*SD* = 0.886) with the latter. Furthermore, *I can encourage myself when I*

feel depressed obtained the mean scores of 3.54 with (*S* = 1.009); and *I can review the class content and learning performance step by step by myself* with a mean score 3.46 with (*S* = 0.914).

Based on the same table, the level of culinary competence was frequently manifested with an overall mean score of 3.67 ($SD = 0.520$) with a verbal description of high. All the domains on the level of culinary competence have "high" descriptive levels; however, learning attitude obtained the highest mean score of 3.82 ($SD = 0.578$), followed by *study habits* with a mean score of 3.64 ($SD = 0.554$), and *resource application* with a mean score of 3.64 ($SD = 0.598$), *learning self-review* with a mean score of 3.62 ($SD = 0.626$), and *learning method* with a mean score of 3.61 ($SD = 0.559$).

Table 17. *Summary Table on the level of CC*

Domains	Mean	SD	Descriptive Level
learning attitude	3.82	0.578	High
study habits	3.64	0.554	High
learning method	3.61	0.559	High
resource application	3.64	0.598	High
learning self-review	3.62	0.626	High
Overall	**3.67**	**0.520**	**High**

Significant Relationship: Educational Technology Standards Scales and Culinary Competence

Table 18 shows the correlation analysis showing the significance of the relationship between Educational Technology Standards Scales and Culinary Competence among Senior High School students. Based on the analysis, overall Educational Technology Standards Scales positively and significantly correlated with overall Culinary Competence (r=0.748, p<0.05). Moreover, the domains of Educational Technology Standards Scales also significantly correlated with culinary competence: technology operations and concepts (r=0.638, p<0.05), planning and designing learning environments and experiences (r=0.660, p<0.05), assessment and evaluation (r=0.652, p<0.05), productivity and professional practice (r=0.717, p<0.05), social, ethical, legal, and human issues (r=0.573, p<0.05), and planning of teaching according to individual differences and special needs (r=-0.582,

p<0.05). Hence, the null hypothesis of no significant relationship is rejected. There existed a significance relationship between ETSS and CC.

Table 18. *Correlation matrix of ETSS and CC*

Educational Technology Standards Scale	Culinary Competence					
	learn attitude	study habits	learning methods	Application	self-review	Overall
TOC	.597** (.000)	.561** (.000)	.559** (.000)	.568** (.000)	.559** (.000)	.638** (.000)
PDLEE	.615** (.000)	.573** (.000)	.604** (.000)	.578** (.000)	.574** (.000)	.660** (.000)
AE	.619** (.000)	.614** (.000)	.578** (.000)	.524** (.000)	.573** (.000)	.652** (.000)
PPP	.652** (.000)	.611** (.000)	.642** (.000)	.623** (.000)	.664** (.000)	.717** (.000)
SELHI	.484** (.000)	.502** (.000)	.512** (.000)	.511** (.000)	.543** (.000)	.573** (.000)
PTIDSN	.496** (.000)	.489** (.000)	.528** (.000)	.516** (.000)	.561** (.000)	.582** (.000)
Overall	**.676**** **(.000)**	**.654**** **(.000)**	**.670**** **(.000)**	**.650**** **(.000)**	**.681**** **(.000)**	**.748**** **(.000)**

** *p*<0.01 * *p*<0.05

Note: TOC - technology operations and concepts
PDLEE - planning and designing learning environments and experiences
AE - assessment and evaluation
PPP - productivity and professional practice
SELHI - social, ethical, legal, and human issues
PTIDSN - planning of teaching according to individual differences and special needs

More so, Table 18 presents the significant relationship between the domains of Educational Technology Standards Scales and the domains of culinary competence. Technology operations and concepts significantly correlated to the domains of culinary competence; learn attitude (r=0.597, p<0.05), study habits (r=0.561, p<0.05), learning methods (r=0.559, p<0.05), application (r=0.568, p<0.05) and self-review (r=0.559, p<0.05).

Also, planning and designing learning environments and experiences significantly correlated to the domains of culinary competence; learn attitude (r=0.615, p<0.05), study habits (r=0.573, p<0.05), learning methods (r=0.604, p<0.05), application (r=0.578, p<0.05) and self-review (r=0.574, p<0.05).

Furthermore, assessment and evaluation significantly correlated to the domains of culinary competence; learn attitude (r=0.619, p<0.05), study habits (r=0.614, p<0.05), learning methods (r=0.578, p<0.05), application (r=0.524, p<0.05) and self-review (r=0.573, p<0.05). Consequently, productivity and professional practice significantly correlated to the domains of culinary competence; learn attitude (r=0.652, p<0.05), study habits (r=0.611, p<0.05), learning methods (r=0.642, p<0.05), application (r=0.623, p<0.05) and self-review (r=0.664, p<0.05). For social, ethical, legal, and human issues, it significantly correlated to the domains of culinary competence; learn attitude (r=0.484, p<0.05), study habits (r=0.502, p<0.05), learning methods (r=0.512, p<0.05), application (r=0.511, p<0.05) and self-review (r=0.543, p<0.05).

In addition, for planning of teaching according to individual differences and special needs, it significantly correlated to the domains of culinary competence; learn attitude (r=0.496, p<0.05), study habits (r=0.489, p<0.05), learning methods (r=0.528, p<0.05), application (r=0.516, p<0.05) and self-review (r=0.561, p<0.05).

Thus, the null hypothesis of no significant relationship is rejected.

Significant Relationship: Pedagogical Content Knowledge and Culinary Competence

Table 19 shows the correlation analysis showing the significance of the relationship between Pedagogical Content Knowledge and Culinary Competence Table 19. *Correlation matrix of PCK and CC*

Pedagogical Content Knowledge	Culinary Competence					
	learn attitude	study habits	learning methods	application	selfreview	Overall
pedagogy	.645** (.000)	.608** (.000)	.591** (.000)	.534** (.000)	.629** (.000)	**.675** (.000)**

student learners	.508** (.000)	.472** (.000)	.497** (.000)	.456** (.000)	.479** (.000)	**.541** (.000)**
concept representation	.553** (.000)	.509** (.000)	.540** (.000)	.492** (.000)	.548** (.000)	**.593** (.000)**
Overall	**.636** (.000)**	**.592** (.000)**	**.609** (.000)**	**.555** (.000)**	**.618** (.000)**	**.675** (.000)**

among Senior High School students. Based on the analysis, overall Pedagogical Content Knowledge positively and significantly correlated with overall Culinary Competence (r=0.675, p<0.05). Moreover, the domains of Pedagogical Content Knowledge also significantly correlated with culinary competence: pedagogy (r=0.675, p<0.05), student learners (r=0.541, p<0.05), and concept representation (r=0.593, p<0.05). Hence, the null hypothesis of no significant relationship is rejected. This has suggested that since the null hypothesis has been rejected, a significance relationship between PCK and CC existed.

More so, Table 19 presents the significant relationship between the domains of Pedagogical Content Knowledge and the domains of culinary competence. Pedagogy significantly correlated to the domains of culinary competence; learn attitude (r=0.645, p<0.05), study habits (r=0.608, p<0.05), learning methods (r=0.591, p<0.05), application (r=0.534, p<0.05) and self-review (r=0.629, p<0.05). Also, student learners significantly correlated to the domains of culinary competence; learn attitude (r=0.508, p<0.05), study habits (r=0.472, p<0.05), learning methods (r=0.497, p<0.05), application (r=0.456, p<0.05) and self-review (r=0.479, p<0.05). Further, concept representation significantly correlated to the domains of culinary competence; learn attitude (r=0.553, p<0.05), study habits (r=0.509, p<0.05), learning methods (r=0.540, p<0.05), application (r=0.492, p<0.05) and self-review (r=0.548, p<0.05). Thus, the null hypothesis of no significant relationship is rejected.

Combined Influence of Educational Technology Standard Scale and Pedagogical Content Knowledge on the Culinary Competence of Students

A multiple linear regression was used to show the combined variables that best influence overall culinary competence of the Senior High School students in the five selected and identified public secondary schools in Davao Occidental. Table 20 illustrates three models which includes the entry of the domains of ETSS and on PCK.

In Model 1 with productivity and professional practice as one of the domains of Educational Technology Standard Scale entered as regressor, it was found not to significantly influence overall culinary competence (B=0.741, t=10.220, p<0.05). It has a combined variance explained of R^2=0.513, which means that 51.30% of the variation of the dependent variable is explained by the domains mentioned. In Model 2 with productivity and professional practice (B=0.500, t=4.602, p<0.05), one of the domains for Educational Technology Standard Scale and knowledge on pedagogy (B=0.338, t=2.909, p<0.05), and one of the domains for Pedagogical

Content Knowledge entered as regressor was found not to significantly influence Table 20. *Multiple linear regression results showing the combined variables that best influence overall culinary competence*

Regressors	B	S.E.	B	t	Sig.	R^2
Model 1 (Constant)	.904	.273		3.315	.001	**0.513**
productivity and professional practice	**.741**	.073	.717	**10.220**	.000	
Model 2 (Constant)	.507	.296		1.712	.090	**0.552**
productivity and professional practice	**.500**	.109	.483	**4.602**	.000	
knowledge on pedagogy	**.338**	.116	.305	**2.909**	.004	
Model 3 (Constant)	.440	.294		1.497	.138	**0.570**
productivity and professional practice	**.430**	.112	.416	**3.831**	.000	
knowledge on pedagogy	**.279**	.118	.252	**2.358**	.020	
planning of teaching according to individual differences and special needs	**.146**	.073	.175	**2.004**	.048	

the overall culinary competence. The regressors in the Model 2 have a combined variance explained of R^2=0.552, which means that 55.20% of the variation of the dependent variable is explained by the two (2) regressors entered in the model. Furthermore, in Model 3 with productivity and professional practice and planning of teaching according to individual differences and special needs, as one of the domains for Educational Technology Standard Scale and knowledge on pedagogy, and one of the domains for Pedagogical Content Knowledge entered as regressors revealed not to significantly influence overall culinary competence as productivity and professional practice has a B=0.430 (t=3.831, p<0.05), knowledge on pedagogy has a B=0.279 (t=2.358), and planning of teaching according to individual differences and special needs has a B=0.146 (t=2.004).

The regressors in the Model 3 have a combined variance explained of R^2=0.570, which means that 57.0% of the variation of the dependent variable is explained by the three (3) regressors entered in the model.

Chapter 4

DISCUSSION

This chapter presents the analysis and interpretation of the results of the study. Findings are discussed and supported by related literature and studies. This has been logically presented the same with the research objectives in Chapter 1: level of Educational Technology Standards Scales (ETSS), level of Pedagogical Content Knowledge (PCK), group of Culinary Competence (CC); a significant relationship existed between ETSS and CC, between PCK and CC, and the combined influence of ETSS and PCK on the CC of the senior high school students. In addition, the conclusion and recommendation are also presented.

Level of Educational Technology Standards Scales

Since the level of the Educational Technology Standards Scale with all its domains has an overall mean score of 3.74 (SD=0.472), a verbal description of high means that the level of ETSS is frequently manifested.

When it comes to *technology operations and concepts*, senior high school students believe their teachers explain how technological devices operate and their usage in different ways. They had a strong inclination for their teachers to illustrate general concepts related to computer technology and had to use technological devices effectively. The result has been supported by Rajput (2021) that taking a systematic approach to assessing students' needs, incorporating technologies into teaching, and monitoring their progress should be done by teachers. It necessitates a disciplined approach by the teachers in disclosing students' needs. The systemic implementation of applicable technical processes and tools in teaching intends to enhance student achievement (Kesh, 2017). This was further suggested by Stosic (2015) that when students do not achieve satisfactory results by using a particular instrument, teachers should look for a new one. It implied that students would be more involved in the learning process if teachers used technology efficiently in the same way they wanted to use technology more than just technical knowledge. One must assess students' interests and choose appropriate resources for assignments, assessments, and objectives.

Moreover, when *planning and designing learning environments and experiences*, students have seen their teachers select the technology appropriate to the teaching process by evaluating the current technological sources. Teachers stated whether the electronic sources are suitable for them and let them be informed on the benefits of using them in teaching. It explained how technological sources should be used to increase the effectiveness of education and shape the teaching process in line with new educational technologies.

This has been parallel with Gokdas's (2014) study that having a vision and a roadmap for implementing educational technology adoption is essential for a well-integrated educational technology

system. Technology serves in strengthening the teaching and learning experiences by offering new resources. It implied that strategic technology adoption preparation would necessitate innovative leadership ability, although educational technologies can be challenging to adopt initially.

Consequently, when it comes to *assessment and evaluation*, it had observed that teachers form evaluation procedures consisting of various measurement techniques, planned teaching strategies, and learning activities based on technology use in yielding innovative products. Respondents also saw that teachers used technological tools in processing and reporting all kinds of data related to the teaching process and helped them find their measurement tools in evaluating students' learning processes.

This has been to the study by Barron et al. (2014). Many approaches in testing and picking instructional technologies for use in the classroom existed and included the promotion of greater comprehension, ease and use, availability, and benefit.

Furthermore, when it comes to *productivity and professional practice*, students have seen teachers find information on the internet to aid them in becoming more effective. Teachers share ideas with experts and colleagues online to help them develop their potential and skills. In becoming a more effective teachers, they evaluated the learners to improve technological usage. This has increased the quality of instructional applications and explained how one could benefit from technology to keep lifelong learning. Also, it had used communication tools like e-mails, forums, and discussion groups to cooperate and utilized technological sources to establish communication with their parents.

This has been considered essential, particularly in times of pandemics. The findings had been in relative to the study of Kadijevich (2015) that technology in education has a lot of promise and has the potential to improve innovation, inspiration, and commitment. Educational institutions face the critical challenge of providing students with the expertise and resources to respond to 21st-century technical advancements. Organizations are heavily reliant on technology by adopting tools such as laptops, personalized applications and services, and other facilities to help with administrative and teaching processes.

When it comes to *Social, Ethical, Legal, and Human Issues,* the majority of the students in the five identified public secondary schools believed teachers stated the legal issues on technology use had explained the critical issues related to the copyright of any technological system and its equal use, explained the health-related problems that could be caused by technology use in schools and its safety precautions to be taken for safer use of technology in schools. It can be inferred that educational technology, especially when bringing it into the classroom, must include all the stakeholders (Zimnyaya, 2016). Stakeholders' engagement is an essential element in effectively integrating and executing any plans.

This has been supported by Mattison (2018) that technology usage and overuse can affect students' quality of life and the dangers of participating in online social networking sites and real technical issues, including viruses and spam. Some educators are using Facebook to exchange multimedia with students or as a means for students to communicate and collectively brainstorm. Teachers need to outline both technology rules and the explanations for the management and define ethical scenarios (Lynch, 2019).

When it comes to the *planning of teaching according to individual differences and special needs*, the majority of students agreed that they had seen teachers making plans to allow them to use the technological sources, had prepared lesson plans that will enable the usage of technology in meeting different learners' needs, and had designs learning environments for those who need special education due to their loss of hearing or their defect of vision.

The findings of the study are in line with Namlu and Odabasi (2016) that since incorporating educational technology into the learning process can dictate what is learned and how it is taught, one of the first steps is to define concrete instructional objectives while still defining the institution's goals, with an eye toward

how technology may be utilized to improve leadership and promote the development of creative methods.

Furthermore, the study's results are in harmony or agree with Rogers' Theory of Innovation Diffusion (Sahin, 2006), which indicates that when instructors and students are presented with developing educational advancements, their beliefs and interpretations of the technology determine their degree of acceptance. While a school or training department may implement and promote the latest capabilities and functions of educational technology to teachers and students, one of the most effective strategies is to maximize the use of actual instructional cases in classrooms to demonstrate the benefits of educational technology in improving teaching and learning effectiveness.

Also, it vigorously supports instructors' teaching and encourages students' learning while also supporting teachers and students in keeping a pleasant mental state. With this, those early adopters of technology seem to embrace emerging technology more quickly than late adopters.

Level of Pedagogical Content Knowledge

Since the level of Pedagogical Content Knowledge and all its domains had an overall mean score of 3.83 (SD=0.485) with a verbal description of "High," it means that level of PCK is frequently manifested.

When it comes to *knowledge of pedagogy*, most of the students in the five identified public secondary schools believed that their teacher's tests and questions should check and evaluate their understanding of a topic or concept. This would let them have a clear understanding of the objectives of their course. They also saw that their teacher's belief or value in teaching must be active and aggressive and should have utilized demonstrations to help explain the central concept and identify students' abilities and skills in learning concepts.

The results parallel Rohaan, Taconis, and Jochem's (2016) findings that PCK may represent a repertoire of pedagogical approaches that the experienced educator develops after multiple teaching topics. Likewise, the daily demands of the position make less time available for improving content knowledge or learning different pedagogically practical approaches, knowledge of pedagogy tests and evaluating the understanding of a topic a student. Also, students can demonstrate an active and interactive

learning process, and different approaches to classroom context have been given appropriate actions (Halim et al., 2012).

When it comes to *the knowledge of student learners*, most students believe that their teachers must use familiar analogies in explaining concepts of subject matter and use students' prior knowledge of an image in making a lesson plan. With analogy and similar materials, there is a deeper exposure to the underlying pedagogy that reinforces an understanding of the process. The materials may even be remembered by students years later for their innovative approaches or exciting selection of topics. This can be supported by the study of Adediwura and Tayo (2017) that unique appeal from materials that go deeper, useless repetition, and create a sense of ownership of the educational process must be done by the students.

When it comes to *knowledge of concept representation*, most students believe that teachers should use familiar events to describe concepts, need to use natural objects and everyday examples to understand concepts, and must prepare some additional teaching materials. Teachers who use these educational materials will be having students do it in authentic ways rather than reading about inauthentic practices (Abell, 2015). They may be addressing topics that are considered essential for today and the future.

Furthermore, the study's findings corroborate constructivist learning theory, in which different views are learning as a collaborative and analytical process assisted by experiential learning approaches (Halpern, 2015; Galton, Simon & Croll, 1980). It agrees that knowledge is acquired via activities and interactions and that self-reflection enables the learner to assimilate new information into their worldview. It was all about comprehension and fantasy. They think that sensing and acting, as shown via manipulation and play, precede the capacity to represent, preparing for extended cognition.

Level of Culinary Competence

Since the level of Culinary Competence such as learning attitude, study habits, learning method, resource application, and learning self-review had an overall mean score of 3.67 (*SD*=0.520) with a verbal description of "High," this means that level of culinary competence is frequently manifested." Modern culinary education aspires to produce culinary artists with the talents of performers who can use their imagination, intuition, intellect, emotions, and physical, sensory technical skills to transform raw food into a pleasing creation.

When it comes to *learning attitude*, the majority of the Senior High school students agreed that it was helpful for them to take culinary classes and had hope for sharing and teaching their culinary skills to others. They thought that learning in a culinary class was more interesting than only getting a good grade. They had to apply culinary knowledge in their lives and core concepts, write and review notes when they finished classes, and be enthusiastic about culinary. They also liked to understand the contents and outlines before learning and imagined what one's success looks like.

The study results have supported Hu (2017) that employers search for particular qualifications in work applicants that correspond to the skills required to perform a specific job. For him, learning in a culinary class must be more than just getting a good grade but rather a real-life-based situation, more realistic and responsive to the customers' needs. Employers also universally seek those qualities in addition to job-specific technological skills (Hansen, 2010). Vocational colleges must prepare graduates with the necessary skills for jobs. In Singh et al. (2013), emerging human resource standards call for graduates to acquire basic organizational and information skills and communication and technical abilities.

Consequently, in Brown (2015), this has become a trend in the culinary and is often labeled as a professional career. Tom Doyle (2020), chefs are in high demand worldwide as they are responsible for overseeing food production at places where food is served. Likewise, the professional culinary artist must have excellent knowledge of various cooking techniques (Weigel, Mulder & Collins, 2017). This further makes culinary professionals need to be equipped with specific competencies to perform quality work.

When it comes to *studying habits*, most of the respondents agreed that they had a habit of organizing study materials. Since it was a habit, they can be able to concentrate in culinary class, hence, avoiding nervousness. This has overcome pressure when they learn in culinary class, bring up problems and ideas, and are confident that they can finish their goals on schedule. They had to re-check the textbook for accuracy, review, and handle their quizzes well.

The result has been that culinary professionals are responsible for maintaining the high quality of food service in hospitality-related operations. They needed to be organized and required systematized study habits, particularly on the culinary materials, ingredients, equipment, and technologies. In Rozila and Noor Azimin (2016), it was highlighted that culinary behavior or habit is the foremost consideration next to culinary basic knowledge and innovation in culinary competence.

Likewise, when it comes to *learning methods*, the majority of the respondents, Senior High School students, agreed that they could relax when they feel nervous, analyze and improve upon any drawbacks when learning in culinary class, asked their classmates and teachers about culinary questions, and were encouraged when they pass a test or received certification. They were also able to obtain more information to understand the texts in the class, find the relationship among the various concepts, think of questions when they attended culinary style, and record the data in culinary.

This was in parallel with Tittl (2018) that preparing like a professional is needed since Chefs supervise the kitchen workers and make various decisions ranging from food preparation to administrative matters. This usually included having the right cookware, setting up quantifiable and practical goals, and remembering the garbage in and out rule describing how flawed input data is.

Further, they supervise food preparation in establishments where food is prepared and work in restaurants, private residences, festivals, and hotels. Being a great cook who can successfully command a kitchen necessitates hard and soft skills. The ability to prepare, as well as experienced in the kitchen, are essential hard skills for chefs. This broad expertise covers a range of sub-skills, such as knife and tasting skills. Chefs must be able to prepare quickly and precisely.

In addition, when it comes to *resource application*, the majority of the respondents, Senior High School students, agreed that they used videos in obtaining more culinary knowledge and that the utilization of technology tools had helped them in their culinary learning. They were able to use the internet to get information to solve culinary questions. They were also able to utilize the cooking lab to practice their culinary abilities and reviewed schedules to check their learning performances.

The result of the study has been supported by Chalmers (2018) that the need for culinary resources must be foreseen since with the lack of ability to predict and forecast future demands and conditions, it will be impossible to allocate sufficient materials needed for cooking. More so, learning is aided by technology as learners may use Youtube videos, available cooking shows, and other educational paraphernalia leading to the development of culinary competence among learners. As mentioned by Rush (2017), learners may not only get familiarized with some of the culinary equipment and tools, but they will know the exact function and purpose of why such tools have been used in culinary.

Furthermore, when it comes to *learning self-review*, the majority of respondents, Senior High School students, were able to detect their culinary learning abilities themselves, encourage themselves when they feel depressed, able to practice pre-testing by themselves, and able to review the class content and learn performance step by step by me. This also contributed to their ability to review the class content and learning performance step by step and discover the relationship between theory and practices.

This has been in support by Kraft (2019) that it has been a science since this is where cooking is only one of the fields of culinary expertise and requires specific technical skills. As a science, every ingredient and measurement must be exact, including ordering food products or figuring out how long to cook certain items so that they will be all plated simultaneously. Details include heat control, measuring, portion sizing, precision, presentation, quality of food, and supervising.

Consequently, the study's findings concur that when an individual effectively learns a job, motivation increases, according to Harter's (1978) competence motivation theory, or a theory of accomplishment motivation based on a person's emotions of personal competence. This encourages the

individual to take on more responsibilities. The culinary ability has led to the concept that an individual may see themselves as excellent regardless of their ability to do the duties set to them. This is supported by Roberto Merton's (Ackerman, 2020) self-fulfilling prophesy, which is a hypothesis that, by its terms, induces itself to become true, either directly or indirectly, as a result of positive reinforcement between anticipation and action.

Significant Relationship: Educational Technology Standards Scales and Culinary Competence

Based on the analysis, the overall ETSS positively and significantly correlated with general CC ($r=0.748$, $p<0.05$), the null hypothesis of no significant relationship is rejected. This means that there existed a substantial connection between domains of ETSS such as technology operations and concepts, planning and designing learning environments and experiences, assessment and evaluation, productivity and professional practice, social, ethical, legal, and human issues, and planning of teaching according to individual differences and special needs with CC such as learn attitude, study habits, learning methods, application, and self-review.

It can be implied that the more they utilized and integrated technology, the more the Senior High School students developed and improved their acquisition of culinary competence. The more they could understand, share and teach their culinary competence with others. Wu, Chang, and Guo (2017) highlighted that the utilization of ETSS has made the learning environment interactive, proactive, and responsive to the learners. This has boosted academic performance and the interest in participating in the class.

Further, Wolf and Fraser (2017) had pointed out that through the utilization of technology and other instructional materials, learners tend to be more focused, curious, and motivated to be engaged in activities. With this, the educational technology standard scales will not only boost the learners' performances but also create a positive environment conducive to productivity and enhancing competency.

Also, it can be posited that technology empowers learners on the path to personalized learning by giving them control of how they learn, making schooling important to their digital lives, and training them for their futures (Rohaan, Taconis & Jochems, 2012). Learners are encouraged to become problem-solvers, strategic thinkers, allies, and developers because of technologies and access to information outside of the classroom.

Significant Relationship: Pedagogical Content Knowledge and Culinary Competence

Since, based on the analysis, the overall PCK positively and significantly correlated with general CC ($r=0.675$, $p<0.05$), the null hypothesis of no significant relationship is rejected. This means that there existed a substantial connection between domains of PCK such as knowledge on pedagogy, student learners, and concept representation with culinary competence such as learning attitude, study habits, learning methods, application, and self-review. It can be implied that the more that PCK was applied, the more the Senior High School students developed and improved their acquisition of culinary competence.

This has been in parallel with the study of Koehler, Mishra, and Cain (2013), which posited that the technological pedagogical content knowledge of teachers is critical to effective teaching with technology since the interaction among three bodies of knowledge such as content, pedagogy, and technology produce a type of flexible knowledge needed to integrate technology use into teaching successfully. Also, relevant learning experiences would motivate creativity, assist students in applying what they have learned, and train them for potential career prospects and careers that have yet to be developed. Further, as Ko (2017) pointed out, there was a positive correlation between effective learning, professional competence, and learning performance, including job satisfaction, course satisfaction, and practice scores.

Combined Influence of Educational Technology Standard Scale and Pedagogical Content Knowledge on the Culinary Competence

In Model 1, with productivity and professional practice as one of the domains of the Educational Technology Standard Scale entered as a regressor, it was found not to significantly influence overall

culinary competence (B=0.741, t=10.220, p<0.05); in Model 2, with productivity and professional practice (B=0.500, t=4.602, *p*<0.05) and knowledge on pedagogy (B=0.338, t=2.909, *p*<0.05) entered as a regressor, it was found not to influence overall culinary competence significantly; and in Model 3 with productivity and professional practice (B=0.430, t=3.831, *p*<0.05), planning of teaching according to individual differences and special needs (B=0.146, t=2.004, *p*<0.05) and knowledge on pedagogy (B=0.279, t=2.358, *p*<0.05) entered as regressors, it was revealed not to influence overall culinary competence significantly. It can be inferred that although overall PCK and ETSS correlated considerably with general CC, they do not considerably influence CC. None of the domains would best impact culinary competence.

On the ETSS such as technology operations and concepts, planning and designing learning environments and experiences, assessment and evaluation, productivity and professional practice, social, ethical, legal, and human issues, and planning of teaching according to individual differences and special needs have a degree of relationship in the acquisition, development, and improvement of CC., their learning attitude, study habits, learning methods, application, and self-review. Still, it is not enough to be a good influencer. Although technology in education and the proper devices in students' hands help them develop the technological and job knowledge they will need to succeed in today's and tomorrow's workforces, this is not enough to make an excellent culinary competence. There may be other factors to be considered in the development and improvement of culinary competence. Coding, scripting, physical computing, and computational thinking skills have also become commonplace in the workplace. However, necessary efforts may still be required for students to learn these skills and develop their problem-solving and critical thinking skills for the twenty-first century.

On PCK such as knowledge of pedagogy, student learners, and concept representation have a degree of relationship in the acquisition, development, and improvement of CC, their learning attitude, study habits, learning methods, application, and self-review; still, it is not enough to be a good influencer. For instance, instructional materials may have a significant relationship with the acquisition, development, and improvement of CC. Still, teachers will not have to compensate for poor quality materials with outdated

or inaccurate content or ineffective approaches (Gess-Newsome, 2016). Furthermore, instructors who use these educational materials will be having students do it in authentic ways rather than reading about inauthentic practices (Abell, 2015).

Also, positive technology integration needs teachers to have a constructive outlook toward technology and improve their technical proficiency during their teaching processes. While teachers were aware of the value of using technology, they were not yet prepared to do so due to a shortage of funding, technological assistance, and the teachers' inexperience in bringing technology into motion (Campigotto, McEwen & Epp, 2013; Ninlawan, 2015; Soykan & Ozdamli, 2017;
Tugun, 2016).

Conclusion

Based on the findings generated in the study, it can be concluded that students would be more involved in the learning process if teachers used technology efficiently. In the same way, when teachers want to use technology, the training process must provide more than just technical knowledge.

In Educational Technology Standards Scale (ETSS), they assess their students' interests and choose the appropriate resources for assignments, assessments, and objectives. Technology serves in strengthening the teaching and learning experience by offering new resources. Since it has a verbal description of high which means ETSS is frequently manifested. The results agreed with Rogers' Theory of Innovation Diffusion that when teachers and students are presented to develop educational advancements, their beliefs and interpretations of the technology determine their degree of acceptance. It can also be concluded that when teachers introduce new topics using technological tools students have already mastered, they feel confident in their ability to learn the latest issue.

Similarly, in PCK, the daily demands of the position make less time available for improving content knowledge or learning different pedagogically valuable approaches. Students can demonstrate an active and interactive learning process, and other methods to classroom context have been given appropriate

actions. Since it has a verbal description of high which means that PCK is frequently manifested, it corroborates constructivist learning theory that views learning as a collaborative and analytical process assisted by experiential learning. Additionally, it can be concluded that pedagogy is a critical component of teaching since it helps teachers understand how their students think and assists them in achieving full knowledge. This has enabled both instructors and students to develop and learn at their speed. Teachers may promote 'reversed classroom' techniques, in which delegates acquire knowledge independently before training and show it during lectures or sessions. On the other side, students may imagine themselves in various scenarios and practice responses during real-time conversations. Teachers benefit from reflection time since it enables them to reflect on learning points and assess which areas worked well and which did not, as well as maintain materials current with new ideas.

Likewise, on Culinary Competence, learning in a culinary class must be more than just getting a good grade but rather a real-life based situation, realistic and responsive to the needs of the customers. Since it has a verbal description of

“High” which means that CC is frequently manifested, the findings concur that when individuals effectively learn a job, motivation increases. Individuals would be encouraged to take on more duties as a result of this. Additionally, given the breadth of culinary, it can be inferred that in order to get employment in the hospitality business, one must possess in-depth knowledge of culinary skills, for which training should be offered to make the workforce more employable. Culinary proficiency will not only improve prospective candidates' employability, but will also pave the way for entrepreneurial endeavors.

Furthermore, since ETSS positively and significantly correlated with CC, it implied that the more they utilized and integrated technology, the more students developed and improved the acquisition of CC. The more they could understand, share and teach their culinary competence with others. Since society has become dependent on technology and technological literacy has become imperative, educators are responsible for leading the necessary skills to become successful employees and productive community members. For educators to accomplish such tasks, they must provide opportunities for students to use technology during learning. Also, technology, if misused, can propagate poor educational practice and, in

some instances, impede learning; however, when used properly, technology can help promote understanding, transform education and will never be seen as an add-on rather a compliment to teachers, creating an environment of hybrid instruction or that combines face to face instruction with computer-based learning.

In addition, since PCK positively and significantly correlated with CC, t implied that the more pedagogical content knowledge was applied, the more students developed and improved their acquisition of CC. Since there existed a significant relationship between domains of ETSS with culinary competence with relevant learning experiences, it would motivate creativity, assist in applying what they have learned, and train potential career prospects.

Since none of the domains of Pedagogical Content Knowledge and Educational Technology Standards Scales best influence culinary competence, technology in education and the proper devices in students' hands help them develop the technological and job knowledge they will need to succeed in today's and tomorrow's workforces, this is not enough to make an excellent culinary competence. There may be other factors to be considered in the development and improvement of culinary competence. While teachers were aware of the value of using technology, they were not yet prepared to do so due to a shortage of funding, technological assistance, and the teachers' inexperience in bringing technology into motion. There may be reluctance due to a lack of comprehension of technology, a worry of teacher obsolescence, or, perhaps most importantly, a fear of the unknown and change.

Recommendations

Based on the conclusions drawn from the results of the study, it has been recommended since the level of Educational Technology Standards Scales, level of Pedagogical Content Knowledge, and status of Culinary Competence are high, learners may be motivated, become more participative, and are engage well in skill acquisition, development, and improvement. Educational technologies may be difficult to adopt, particularly at the beginning. There may always be a variety of potential roadblocks, but technology in

education has a lot of promises and has the potential to improve innovation, inspiration, and commitment. For the Higher Educational Institutions, CHED, TESDA, and similar technical and vocational schools may provide more awareness programs, forums, or campaign agendas to raise potential enrollees and pursue culinary competence. Since the school can provide better strategies, a basis for programs and projects related to improving the school environment, which may lead to the improvement of the classroom environment, equipment, facilities, and laboratories may be provided. Educational institutions may face the critical challenge of providing students with the expertise and resources, but they need to respond to 21st-century technical advancements.

Moreover, teachers may provide a more informative drive-thru that may serve the result of the study as one of their references. This may highlight what culinary competence and skills they could give more to learners, whether such skills are in need or trivial by nature. Incorporating educational technology into the learning process may dictate what is learned and how it is taught. One of the first steps may define concrete instructional objectives while still defining the institution's goals. In addition, for future researchers, an exploratory study may be made on the experiences of the students and teachers towards culinary competence.

Distance education is another way technology is utilized in culinary education. After picking up their school materials, students may watch their teachers on television or by webcam and follow along in the comfort or privacy of their home kitchen. Virtual reality may be advantageous in the provision of learning for the theoretical components of culinary arts curricula. Technological advancements and developments are a fact of life in the culinary classroom and instructional kitchen. As with educators, aspiring culinarians may be informed of recent technological advancements to stay competitive and current.

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