

Food Innovation Strategy: A Basis for Teaching and Learning Enhancement

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Abstract— Food innovation strategy plays an important role and serves as driving force for the students who are actively participating in Cookery that helps develop their skills in creating, innovating original and authentic menus, best dishes and food that they can be proud of. The diversity of learning Cookery is still growing and improving for those aiming to be globally competitive. The skills garnered by the TVL students can be useful for their future career specifically in food business industry. Food innovation strategy is about presenting something new to meet the customer's satisfaction and basic needs. The respondents of the study were 13 TVL teachers and 346 grade 12 students at public secondary schools in CD III, in the Division of Nueva Ecija. The respondents were selected using purposive sampling wherein total and entire population is considered in data gathering. The researcher used descriptive correlation research design. In data gathering, survey questionnaire, and interview guide questions, were used. All respondent-teachers with age from 30 to 39 were categorized as young professionals, female and married. They had spent 1 to 3 years in teaching, and graduated with bachelors' degree in TVL-HE and Cookery with trainings and seminars attended related to TVL. On the implementation of food innovation strategies, as assessed by the teachers themselves, the food innovation strategies got the overall mean of 3.17 and interpreted as "Implemented". Whereas, the assessment of students in the food innovation strategies of TVL teachers, the overall mean got 2.86 and verbally interpreted as "Implemented". The profile variables like teachers' category, age, sex, civil status, length of service, major field and seminars attended had no significant relationship to teachers' food innovation strategies in teaching cookery except educational background and PFC, ($r = .598$, $p\text{-value} = .031$), interpreted as moderate positive correlation. There is a significant difference in the overall food innovation strategies assessments of the teachers and students, $t = -2.663$, $p = .018$. These imply that teachers and students were different in their assessment in terms of food innovation strategies. Teachers ($m = 3.18$, $sd = .41$) had higher assessment rating than students ($m = 2.86$, $sd = .67$). The teachers encountered challenges and difficulties in teaching during online learning.

Keywords— Cookery, Food Innovation, Fusion Cuisine Strategies, Teaching, TVL

I. INTRODUCTION

Food innovation strategy plays an important role and serves as driving force for the students who are actively participating in Cookery that helps develop their skills in creating, innovating original and authentic menus, best dishes and food that they can be proud of.

Galanakis (2016), mentioned that food innovation strategy is the tool for implementation and an indispensable resource for the food industry to introduce innovations in the market, to stand out from the competition and satisfy consumer demands.

The diversity of learning in Cookery is still growing and improving for those aiming to be globally competitive. The skills garnered by the TVL students can be useful for their future career specifically in food business industry. Food innovation strategy is about presenting something new to meet the customer's satisfaction and basic needs.

To clarify, innovation strategy is not only about innovation tactics, like setting up an idea challenge, but more about representing organization's mission, vision and value proposition for defined customer markets. It sets boundaries to one's innovation performance and expectations by simplifying and structuring the person's innovative work to achieve the best possible outcome.

According to Schumpeter's theory, economic development is driven by the discontinuous emergence of new combinations (innovations) that are economically more viable than the old way of doing things (Schumpeter, 1934). In this sense, firms depend on their ability to be innovative for achieving and sustaining competitive advantage. Innovation is acknowledged as one of the main factors of organizational success and survival of a company, regardless of its size and the industry where it operates (Bigliardi and Galati, 2013).

Food innovation is one of the important topics in Senior High School particularly in Technical Vocational and Livelihood (TVL) Track wherein the students are challenged to promote an innovative attitude towards their future career in the food industry.

They should prove that they will be professionals to work in a small and medium-sized enterprise, or in a large multinational company, or even as entrepreneurs with their own working projects. In addition, the TVL students should be encouraged to be creative as well as globally competitive in their outputs.

Since the country is now in the modern world and needs to adopt educational and technological changes, students have to develop their knowledge and skills to be globally competitive.

Teachers need to do integrative innovative cooking strategies with creative ways in the preparation of fusion cuisine, foods/products, transforming cuisine towards students' development of technical skills and professional competence in food innovation.

Based on the researcher's personal experiences and observations, teachers teaching cookery during this COVID-19 pandemic, are finding different strategies and methodologies that can make learners engage actively specifically during cooking laboratory in distance learning (home or online).

Some teachers use innovative strategies in cookery but others use traditional methods. Some of them combine one dish with another from local to international but others adhere to their usual way.

With the affirmations above, TVL teachers teaching Cookery subject play a vital role in developing skills and increasing the students' understanding of the known learning competencies thereby ensuring the satisfaction and meeting national standard for the subject.

One of the common problems arising in teaching Cookery is having enough knowledge and understanding to design and create unique and sustainable outcome for the students to spark creativity and be inspired doing innovation.

It is indeed important for the TVL teachers to integrate varied strategies in teaching Cookery specifically in food innovation. Food Innovation strategy helps both teachers and students increase their understanding of topics and lessons thereby boosting confidence and independence in creating and preparing food to meet the national standards and competency.

According to Sutton (2020), food innovation is the development and commoditization of new food products, processes and services. People in the Food and beverages industries are looking for ways to make healthy, nutritious food offerings that are not only enticing, accessible, exciting and unique but also sustainable. They want to meet the unique needs of the millennial and today's trends.

Hence, TVL students should develop not only the psychomotor skills but also the cognitive skills to become highly/globally competitive. It is a must to the TVL teachers to prepare their students for such purposes. That is why TVL teachers keep on applying effective, efficient and innovative strategies in Cookery to help and support students' learning and to prepare them facing the needs of the society.

To this notion the researcher aims to identify the food innovation strategies being applied by TVL teachers in teaching Cookery toward the enhancement of the curriculum in selected public Senior High Schools in Congressional District III of the Schools Division of Nueva Ecija.

II. OBJECTIVES OF THE STUDY

This study aimed to enhance the teaching and learning in cookery as a subject of Grade 12- TVL students through the use of food innovation strategy.

Specifically, it tried to answer the following questions:

1. How may the profile of the respondents be described in terms of: teachers' category; age; gender; civil status; length of teaching; educational attainment; major field of specialization; and number of seminars attended prior to TVL?
2. What are the different strategies applied by teachers in teaching Cookery before the implementation of food innovative strategies?
3. How may the implementation of food innovation strategies integrated by teachers in teaching cookery be described in terms of: preparation of fusion cuisine; promoting innovative foods/products; developing transformation cuisine; developing technical skills in food innovation; developing professional competence?
4. How may the implementation of food innovation strategies integrated by teachers based on the assessed by the students be described in terms of: preparation of fusion cuisine; promoting innovative foods/products;



developing transformation cuisine; developing technical skills in food innovation; developing professional competence?

5. Is there a significant relationship between the profile of respondents and food innovation strategies applied by teachers in teaching cookery?
6. Is there a significant difference between the assessment of teachers and students in the integration of food innovation strategies?
7. What are the challenges encountered by TVL teachers in teaching cookery?
8. What training plan may the researcher propose based on the findings of the study.

Hypotheses of the Study

1. There is no significant relationship between the profile of respondents and food innovation strategies applied by teachers in teaching cookery.
2. There is no significant difference between the assessment of teachers and students in the integration of food innovation strategies.

III. RESEARCH METHOD

This study used a descriptive correlation to describe teachers' profile and food innovation strategies applied in teaching Cookery. According to Tan (2016, as cited by Malgapo 2016) a descriptive method of research involves analysis of an extreme range of phenomena that results in comprehensive presentation and interpretation of statistical tabulations of data yielded by survey. Thus, this method is the most commonly used in summarizing values to describe group characteristics of data.

Correlation analysis is a statistical method used to evaluate the strength between two quantitative variables. This method is used by the researcher to determine the relationship between profile and food innovation strategy applied by teachers in teaching cookery.

The respondents in this study are the selected 13 Senior High School TVL teachers who are currently teaching Cookery subject in the K-12 curriculum and 320 Grade 12 students in public secondary schools in the Congressional District III, Schools Division of Nueva Ecija. The respondents are purposively selected using total population sampling to satisfy the needs of the objectives.

To gather the needed data on food innovation strategies of TVL teachers in CD III, survey questionnaire was used as the main instrument. The survey questionnaire was personally developed by the researcher based on several researches and references related to food innovation strategy.

It includes the socio-demographic profile of teachers and the food innovation strategy applied in teaching Cookery. The food innovation strategies being applied by teachers in Cookery are categorized to seven strategies in five statements per category for the total of 35 items/statements.



The researcher utilized the following statistical tools to classify, tabulate and analyze data in accordance with the objectives of the study.

To describe the profile of the teacher-respondents the frequency count and percentage were used.

To describe the different teaching strategies applied in teaching cookery before the implementation of food innovation strategies, frequency count and percentage were used.

To describe the self-assessment of teachers and students' assessment in food innovation strategy applied in teaching Cookery, weighted mean was used using the following scoring guide:

Table 1: Scoring Guide

Weights Assigned	Food Innovation Strategy
3.25 - 4.00	Well-Implemented
2.50 - 3.24	Implemented
1.75 - 2.49	Less Implemented
1.00 - 1.74	Not Implemented

To determine the significant relationship between teachers' demographic profile and components of food innovation strategies, Pearson r Correlation were utilized.

To determine the significant differences between teachers' food innovation strategies assessment of the teachers and students, independent samples t-test were used.

And to identify challenges encountered by teachers in food innovation strategies in teaching cookery, frequency and ranking based on statement of the problem were utilized.

IV. RESULTS AND DISCUSSION

1. Profile of Teacher-Respondents

The respondents of the study are all teachers whose age ranged between 30 to 39 and were categorized as young professionals, female and married. They had 1 to 3 years' length in teaching, and with bachelor's degree major in TVL-HE and Cookery with trainings and seminars attended prior to teaching TVL.

2. Different Strategies Before Implementation of Food Innovation Strategies in Teaching Cookery

Before the implementation of food innovation strategies, TVL teachers utilized traditional teaching strategies such as lecture-discussion and laboratory activities in teaching Cookery.

3. Implementation of Food Innovation Strategies of TVL Teachers

On the implementation of food innovation strategies, as assessed by the teachers themselves, the food innovation strategies got the overall mean of 3.17 and interpreted as "Implemented". Developing technical skills in food

innovation had the highest mean of 3.37, followed by developing transformation cuisine with mean of 3.35 and verbally interpreted as “Well Implemented” and preparation of fusion cuisine had the lowest mean of 2.94 and verbally interpreted as “Implemented”.

4. Students’ Assessment on the Implementation of Food Innovation Strategies

Based on the assessment of students in the food innovation strategies of TVL teachers, the overall mean is 2.86 and verbally interpreted as “Implemented”.

Developing technical skills in food innovation has the highest mean of 2.96. These are followed by Developing Competence with mean of 2.93, Developing Transformation Cuisine with mean of 2.84, Promoting Innovative Food/Products with mean of 2.83 and preparation of fusion cuisine having the lowest mean of 2.73 but still both have verbal interpretation of “Implemented”.

5. Relationship between the Profile of Respondents and Food Innovation Strategies

Educational attainment and Preparation of Fusion Cuisine ($r = .598$, $p\text{-value} = .031$) had found significant correlation and interpreted as having moderate positive correlation. The food innovation strategies applied by TVL teachers teaching cookery in terms of preparation of fusion cuisine found a positive correlation. The hypothesis of no significant relationship was rejected.

6. Difference between the assessment made by teachers and students in food innovation strategies

There is a significant difference in the overall food innovation strategies assessments of the teachers and students, $t = -2.663$, $p = .018$. This implies that teachers and students are different in their assessment in terms of food innovation strategies. Teachers ($m = 3.18$, $sd = .41$) are having higher assessment rating than students ($m = 2.86$, $sd = .67$).

And also, teachers and students have different assessment in terms of Developing Professional Competence (DPC), significant result was also recorded, $t = -2.105$, $p = .036$. This means that teachers and students have different assessment in DPC, where teachers obtained higher assessment rating than students. All other aspects in food innovation strategies (PFC, PIF, DTC, and DTS) were not found to be significant.

7. Challenges Encountered by TVL Teachers in Teaching Cookery

The teachers encountered challenges and difficulties in teaching Cookery like limited cooking materials and lack of equipment used during demonstrations and laboratory activities, mismatch teaching load or subject handled, limited knowledge in different and fusion cuisine and weak internet connectivity during online learning.

The findings meant that teachers have encountered difficulties in performing activities because of unavailable and limited materials and resources needed that could be used during laboratory.

8. Proposed Enhancement Teaching and Learning Plan

Based on the findings of the study the researcher proposes teaching-learning enhancement plan that could help both teachers and students learn to improve their performance.

V. CONCLUSIONS

Based on the findings of the study, the following conclusions are drawn:

1. The TVL teachers in Congressional District III in Nueva Ecija are in the right age and considered as young professionals. They have the knowledge and skills in teaching cookery because they gained a lot from their Bachelor's Degree related to the field of TVL-HE and Cookery and have experienced teaching the same specialization. They also have attended lot of seminars and trainings prior to teaching TVL that could help them to be more efficient and confident in teaching the subjects.
2. TVL teachers utilized lecture-discussion and laboratory activities in teaching Cookery even before the implementation of food innovation strategies. Lecture-based teaching method and laboratory activities were considered traditional method of teaching.
3. Based on the assessment made by the teacher-respondents, they implemented food innovation strategies that could help learners improve and enhance their learning skills in preparation of fusion cuisine, promoting innovative products, developing transformation cuisine, developing technical skills in food innovations and developing professional competence.
4. On the assessment made by the students they also agreed that TVL teachers in Congressional District III, implemented food innovation strategies in teaching cookery leading to better cooking skills performance of the students.
5. Students' assessment was different with teachers' assessment on the food innovation strategies applied by teachers in cookery because teachers and students have different point of views and learning experience. Students' assessments and beliefs were based on their personal experiences during online learning in cookery while the teachers' assessment was based on their personal experiences on how to deliver their strategies in teaching cookery.
6. There is a significant difference in the overall food innovation strategies of TVL students. This implies that teachers and students are really different in their assessment in terms of food innovation strategies. This means that teachers and students have different assessment in DPC, where teachers obtained higher assessment rating than students. All other aspects in food innovation strategies (PFC, PIF, DTC, and DTS) were not found to be significant. In developing professional competencies, student and teachers' assessments were different because implementation of food innovation strategies depends on the level of learning competencies and learning capacity of the students.
7. TVL teachers experienced teaching and learning challenges in teaching cookery leading to the implementation of food innovation strategies that help support learners to improve their cooking skills and performance.

8. The researcher came up with a proposed enhancement teaching-learning plan based on the results towards better cooking performance.

RECOMMENDATIONS

Based on the findings and conclusions of the study the following are recommended:

1. TVL Teachers should pursue higher level of study related to TVL-HE and Cookery specialization. They should attend more training workshops in food innovation related to TVL-HE and Cookery to improve innovative strategies in teaching and to help learners improve their cooking skills performance in more unique, innovative and creative ways.
2. TVL teachers should continue to apply lecture-discussion and laboratory activity with mixed method of innovative strategies that could help learners to be more engaged and participative in learning towards improved cooking skills and performance.
3. TVL teachers should continue to integrate and implement food innovative strategies that help learners improve their technical skill and develop technical and professional competence and performance. They may continue to adopt the technological and educational changes leading to better performance.
4. Students must continue actively participating and engaging in learning in any learning context.
5. Teachers may integrate and apply varied innovative teaching strategies that could arouse the interest and motivation of learners. Teachers should always consider the individual differences of students so that the innovative strategies applied in teaching cookery can be effective.
6. Teachers and students may constantly and regularly interact with each other in any means of communication leading to better learning progress and development of the students.
7. School Heads may continue to support, guide and provide the teaching and learning needs of both teachers and students towards better outcome. School heads should ensure that all laboratory materials and equipment are available and ready to be used.
8. The proposed enhancement plan in teaching and learning may be implemented to the school, district and whole division levels.

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