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## Beyond the knife: Attitudes and learning in Thai fruit and vegetable carving

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### Abstract

This study aims to compare attitudes towards fruit and vegetable carving in Thai cuisine between Thai and foreign participants and evaluate the effectiveness of a short course in teaching this traditional art form. We split the study into two parts using a mix of methods. The first part polled 200 people (100 Thai and 100 foreign) about their attitudes towards carving courses. The second part set up a short course for 20 people (10 Thai and 10 foreign) to see how their skills improved and how satisfied they were with the course. The results revealed that Thai participants showed higher positive attitudes in all dimensions (personal, general, and cultural attitudes), with cultural attitudes scoring the highest (Thai:  $4.68 \pm 0.19$ ; foreign:  $4.42 \pm 0.27$ ). Both groups strongly agreed that fruit and vegetable carving enhances the value of Thai cuisine and reflects Thai cultural identity. In the short course evaluation, both groups achieved 'good' proficiency levels and reported high satisfaction with the teaching process and course benefits, particularly in the instructor's knowledge and competence. Both groups showed a strong interest in learning side dishes and fruit carving techniques. The study concludes that structured courses can effectively transmit these traditional skills across cultural boundaries. These findings provide valuable insights for developing educational programs that conserve cultural heritage while enhancing Thailand's culinary tourism appeal through structured learning.

**Keywords:** Cultural heritage, Food culture, Fruit and vegetable carving, Short course, Thai cuisine.

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**Transparency:** The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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## 1. Introduction

This ancestral wisdom, dating back approximately 700 years to the Sukhothai era, originated with the carving of fruits and vegetables as part of royal cuisine, for the nobility, and for special occasions to welcome important national figures. This tradition has been passed down to the present day, and Thai people commonly encounter it in various forms: as part of meals, in fruit platters, as side dishes and condiments, and as food containers [1]. Beautifully carved food items are akin to works of art that reflect Thai culture. These unique cultural heritage pieces are characterized by their exquisite artistry. Thai cuisine is not only renowned for its excellent taste but also for its visual appeal, which contributes to aesthetic pleasure. Notably, this beauty affects the senses, emotions, and cognition. Thus, food becomes more than just a response to the body's biological needs; it can also satisfy a 'hunger for beauty' [2]. The art of fruit and vegetable carving in Thai cuisine, despite its cultural and economic significance, lacks comprehensive research, especially regarding comparative perceptions between Thai nationals and foreign tourists. This study aims to address this gap by examining attitudes towards this culinary art form from both Thai and foreign perspectives. The research seeks to compare these attitudes, assess related experiences and consumption patterns, and evaluate the effectiveness of short courses for diverse learners. This multifaceted approach will provide a holistic view of how this traditional art is perceived, experienced, and learned across different groups. The study's findings will contribute to the preservation and promotion of this cultural heritage by offering evidence-based recommendations for stakeholders in cultural preservation, tourism, and culinary education. Ultimately, this research aims to ensure the continued thriving of this exquisite art form both within Thailand and globally. This study aligns with the concept proposed by Prapasawadi, et al. [3], who examined cultural tourism behavior and the enhancement of tourists' perceptions of Thai food and local culture. In this context, the art of fruit and vegetable carving is considered an integral part of Thai food culture, capable of creating memorable experiences for tourists. Furthermore, this research can contribute to the development of policies and practices related to promoting creative tourism. This approach resonates with the study by Thirachaya and Patipat [4], which emphasized the importance of developing creative marketing strategies for traditional Thai sports tourism aimed at special interest groups. This concept can be applied to promote fruit and vegetable carving art as a creative tourism activity. Concurrently, the study by Namkham and Wannajun [5] on the creation of Thai royal cuisine in the context of the creative economy underscores the importance of developing and adapting the art of fruit and vegetable carving in the modern era as part of Thai royal cuisine, which has been elevated and presented in new forms to meet the demands of contemporary markets.

This comparative study of Thai and foreign attitudes towards fruit and vegetable carving in Thai cuisine, along with an evaluation of its short courses, seeks to bridge knowledge gaps and support cultural heritage conservation. By exploring diverse perspectives and assessing educational programs, the research aims to provide strategic insights for preserving and promoting this distinctive art form both nationally and internationally. The findings will offer valuable guidance for policymakers, tourism professionals, and culinary educators, ultimately contributing to the sustainable development of this unique cultural practice in the context of global cultural exchange.

## 2. Literature Review

### 2.1. Economic and Tourism Impact of Thai Fruit and Vegetable Carving

The art of fruit and vegetable carving in Thai cuisine plays a crucial role in various aspects. Besides enhancing the visual appeal of food, it also enriches the overall dining experience. Luxury hotels often employ skilled carvers to decorate banquet halls and dinner plates, creating a competitive advantage in the hospitality industry [6]. Moreover, this practice aligns with Thailand's national economic and social development goals by adding value to products and services through cultural diversity, thereby increasing economic competitiveness [5]. The development of fruit and vegetable carving art is not limited to preserving traditional practices but also involves applying modern technology and design to perpetuate Thai wisdom. For instance, a study by Iamsomboon, et al. [7] analyzed factors affecting the design and application of ergonomic technology in pumpkin carving, demonstrating efforts to blend traditional art with modern technology. Thailand's tourism sector has recognized the potential of cultural experiences, including culinary arts, in attracting tourists. Between 2016 and 2017, there was an 11.66% increase in foreign tourists, with many expressing an interest in Thai culture, including culinary traditions [8]. The popularity of Thai food among tourists is not only due to its distinctive flavors and nutritional value but also its aesthetic presentation, which often includes carved fruits and vegetables [9]. A study by Promsivapallop and Kannaovakun [10] indicates that the image of food at a destination, including the presentation of food in beautiful forms such as carved fruits and vegetables, affects tourists' food preferences and consumption. Furthermore, Lertputtarak [11] found a relationship between destination image, food image, and tourists' revisiting intentions, highlighting the importance of presenting distinctive food in promoting tourism. The conservation and promotion of intangible cultural heritage, such as the art of fruit and vegetable carving, have gained international recognition. Intangible cultural heritage is considered a vital resource for contemporary tourism, demonstrating the potential for the development of a harmonious relationship between traditional culture and the tourism industry [12].

### 2.2. Cultural Heritage and International Relations

The cultural heritage, including culinary arts, has broader implications for social development. It is linked to goals of peacebuilding, conflict resolution, tolerance, social restoration, and reconciliation [13]. When a country's culture aligns with the interests and values of other nations, it has the potential to become a form of soft power [14]. Cross-cultural exchange activities involving intangible cultural heritage, such as the art of fruit and vegetable carving, can foster understanding and appreciation among foreign visitors, contributing to ongoing global cultural development [15]. The use of Thai food knowledge as a marketing strategy for tourism promotion has been widely studied. Singsomboon [16] analyzed the use of Thai food knowledge in promoting tourism, including the presentation of fruit and vegetable carving art. Meanwhile,

Lunchprasith and Macleod [17] examined the use of authenticity in Thai food tourism, where fruit and vegetable carving art is considered an integral part of authentic Thai food culture. Watanasin [18] studied central Thai food culture and acculturation during World War II and the Vietnam War, demonstrating the flexibility and adaptability of Thai food culture, including fruit and vegetable carving art, during periods of significant social and cultural change. In terms of policy and sustainability, Muangasame and Park [19] analyzed the popularity of Thai food in the context of food tourism, policy, and sustainability, which included considering the role of fruit and vegetable carving art in promoting sustainable food tourism. Promoting food culture through innovation is another approach to preserving and disseminating the art of fruit and vegetable carving. Varayanond [20] presented the concept of promoting food culture through innovation, linking it with the role of the One Tambon One Product (OTOP) project and small and medium-sized enterprises (SMEs) in presenting Thai cuisine to the world, with fruit and vegetable carving art being part of this presentation. Laoakka [21] studied historical data, culture, and community identity related to Thai food culture for promoting and creating film and television drama productions highlighting the potential of fruit and vegetable carving art as part of presenting Thai culture through entertainment media. Watanasin [22] proposed the concept of Thai food as a gateway to cultural understanding, with fruit and vegetable carving art playing a crucial role in communicating the delicacy and sophistication of Thai culture through food. Yambunjong and Gulasirima [23] studied the image of Thai food and Thai restaurants from the perspective of tourists in the Asian market, particularly in Laos and Cambodia, demonstrating the perception and appreciation of fruit and vegetable carving art in the context of neighboring countries.

### 3. Research Methodology

#### 3.1. Research Design

This study employed a mixed-methods research approach to compare Thai and foreign attitudes towards the art of fruit and vegetable carving in Thai cuisine and to examine their satisfaction with a short course on this subject. The research was conducted in two phases. In the first phase, the study focused on Thai and foreign food tourists in three popular areas of Bangkok. The second phase involved collecting data from both Thai and foreign participants who had attended a short course on fruit and vegetable carving in Thai cuisine. A purposive sampling method was employed for both phases. A carefully designed and validated questionnaire served as the primary tool for data collection, ensuring comprehensive and reliable information gathering to address the research objectives.

#### 3.2. Data Collection

This study aims to compare Thai and foreign attitudes towards the art of carving fruits and vegetables in Thai cuisine and to examine their satisfaction with short courses on fruit and vegetable carving in Thai cuisine. The art of carving fruits and vegetables in Thai cuisine is shown in Figure 1. For the first phase, a purposive sampling method was used to select a sample of 200 food tourists, consisting of 100 Thais and 100 foreigners, from three food tourism destinations in Bangkok: Yaowarat Road, Khao San Road, and Sukhumvit Road. For the second phase, a purposive sampling method was employed to select 10 Thai tourists and 10 foreign tourists who had participated in a short course on fruit and vegetable carving in Thai cuisine. The study followed ethical research guidelines. All participants were informed of the study's objectives, and all informants gave their consent before starting the study. We collected no personal identification documents, ensured data confidentiality, and allowed participants the right to withdraw at any time.

Experts reviewed the questionnaire, which was the data collection tool used in 2024, to ensure its accuracy. The index of item-objective congruence (IOC) values ranged from 0.70 to 1.00. We also conducted a pilot test with a group of 30 people with similar characteristics to those of the main sample to confirm the validity of the questionnaire structure. We assessed the questionnaire's reliability using Cronbach's alpha coefficient, yielding a value of 0.89, indicating an acceptable level of reliability. The data collection in this research was divided into two phases as follows:



Figure 1.

Carved fruits and vegetables in Thai cuisine: (a): Carvings used in the preparation and cooking of Thai dishes; (b): Carvings served as a side dish to be eaten with Thai cuisine; (c): Carving used as a container for Thai cuisine; (d): Carved fruits for eating

**3.3. First Phase**

In the first phase, data collection was conducted using a questionnaire comprising three parts.

Part 1: Demographic characteristics of respondents: The questionnaire was designed to collect demographic data from both Thai and foreign respondents. This part was used to gather information on personal characteristics, including gender, age, education level, current employment status, and region.

Part 2: Attitudes towards fruit and vegetable carving in Thai cuisine: This part of the questionnaire was used to assess the attitudes of Thai and foreign respondents toward fruit and vegetable carving in Thai cuisine. It consisted of three key areas: 1) personal attitudes towards fruit and vegetable carving in Thai cuisine, 2) general attitudes towards fruit and vegetable carving in Thai cuisine, and 3) cultural attitudes towards fruit and vegetable carving in Thai cuisine.

Part 3: Opinions on the types and objectives of short courses on fruit and vegetable carving in Thai cuisine: This part of the questionnaire was used to explore opinions to guide the development of short courses on fruit and vegetable carving in Thai cuisine. The questionnaire consisted of two key areas: 1) types of short courses that learners were interested in, and 2) objectives of applying for short courses. Parts 2 and 3 employed the same measurement tool: a 5-point rating scale questionnaire adapted from [Abdon-Liwanag, et al. \[24\]](#). The score levels and meanings were as follows: 1 (strongly disagree), 2 (disagree), 3 (neither agree nor disagree), 4 (agree), and 5 (strongly agree). We converted the scores into ranges by calculating class differences. The ranges were as follows: 1.00-1.80 (strongly disagree), 1.81-2.60 (disagree), 2.61-3.40 (neither agree nor disagree), 3.41-4.20 (agree), and 4.21-5.00 (strongly agree).

For the comparison of means between Thais and foreigners, an additional checklist questionnaire was used to obtain in-depth information that would be beneficial for organizing short courses on fruit and vegetable carving in Thai cuisine. The questionnaire consisted of important questions on the following: 1) venue for short courses, 2) duration of short courses, 3) date of short courses, 4) cost of short courses, and 5) classroom management in short courses. Furthermore, the questionnaire provided an opportunity for respondents to offer additional suggestions regarding the organization of short courses.

**3.4. Second Phase**

In the second phase, data collection was conducted using a questionnaire comprising three parts. This phase involved organizing a short course on fruit and vegetable carving in Thai cuisine. Insights from the "opinions on the types and objectives of short courses on fruit and vegetable carving in Thai cuisine" section (part 3) of the first phase questionnaire were incorporated into the course design. This approach ensured that the short course aligned closely with learners' needs and preferences. Subsequently, an evaluation of the outcomes of this short course was conducted.

Part 1: Demographic characteristics of respondents: This part was used to gather information on personal characteristics, including gender, age, education level, current employment status, and region.

Part 2: Assessment and evaluation of the finished products from the short course on fruit and vegetable carving in Thai cuisine for both Thai and foreign learners: The evaluation was conducted using a scoring sheet completed by the instructors. The scoring was divided into four categories of fruit and vegetable carving in Thai cuisine, as shown in [Figure 1](#).

Instructors assessed the finished products using a 5-point rating scale with clear scoring criteria, as presented in [Table 1](#). The score levels were as follows: 1 (needs improvement), 2 (below average), 3 (average), 4 (good), and 5 (excellent) [\[25, 26\]](#). The interpretation of scores was based on the following calculated ranges: 1.00-1.80 (needs improvement), 1.81-2.60 (below average), 2.61-3.40 (average), 3.41-4.20 (good), and 4.21-5.00 (excellent). After scoring, the instructors provided feedback to the learners about their work, including their scores and areas for improvement.

**Table 1.**  
Scoring criteria for fruit and vegetable carving in Thai cuisine for instructors.

Rating scale	Description	Criteria
1	Needs improvement	Work not completed within the time limit; unable to be assessed. Fruits and vegetables show significant bruising, and carved patterns do not conform to the intended design.
2	Below average	Work completed within the time limit; assessable; fruits and vegetables show bruising; carved patterns lack clarity.
3	Average	Work completed within the time limit; assessable; fruits and vegetables show minor bruising; carved patterns have moderate clarity.
4	Good	Work completed within the time limit; assessable; fruits and vegetables show no bruising; carved patterns are clear.
5	Excellent	Work completed within the time limit; assessable; fruits and vegetables show no bruising; freshness is maintained; carved patterns are highly distinct.

Part 3: Study of Thai and foreign learners' satisfaction with the short course on fruit and vegetable carving in Thai cuisine: After the learners completed this short course, the researchers assessed their satisfaction using a questionnaire. It consisted of three key areas: 1) learners' skills (two questions), 2) service process (five questions), and 3) benefits from the course (four questions). The study employed a 5-point rating scale. The following score levels were used: 1 (very dissatisfied), 2 (dissatisfied), 3 (neither satisfied nor dissatisfied), 4 (satisfied), and 5 (very satisfied) [\[27, 28\]](#). The interpretation of scores was based on the following calculated ranges: 1.00-1.80 (very dissatisfied), 1.81-2.60 (dissatisfied), 2.61-3.40 (neither satisfied nor dissatisfied), 3.41-4.20 (satisfied), and 4.21-5.00 (very satisfied).

### *3.5. Statistical Analysis*

The statistical analysis was conducted using IBM SPSS Statistics software (Version 22.0), employing descriptive statistical methods to interpret the collected data. The research utilized frequency distribution, percentage calculations, mean values, and standard deviation to analyze demographic characteristics, attitudes toward fruit and vegetable carving, and participants' satisfaction levels. A 5-point rating scale with predefined score ranges facilitated precise data interpretation, enabling a comprehensive comparison between Thai and foreign respondents.

## **4. Results and Discussion**

### *4.1. First Phase Results*

This study compares the attitudes and experiences of Thai and foreign participants regarding fruit and vegetable carving in Thai cuisine. It examines demographic characteristics and attitudes towards this culinary art form, including perspectives on short courses. Statistical analyses highlight similarities and differences between Thai and foreign participants, offering insights into perceptions of this traditional aspect of Thai culinary culture. The findings contribute to the body of academic knowledge and provide valuable information for cultural preservation efforts and educational program development in this unique art form.

#### *4.1.1. Demographic Characteristics of Respondents*

The demographic characteristics of Thai and foreign respondents indicate that the majority of Thai respondents were female (82%), while foreign respondents had a more balanced gender distribution (46% male, 54% female). Age distribution differed, with Thai respondents primarily in the 20-30 years (48%) and 51-60 years (42%) brackets, while foreign respondents were more evenly spread across the 31-40 years (36%) and 20-30 years (26%) ranges. Both groups predominantly held bachelor's degrees, with a higher proportion of Thai respondents (80%) compared to foreign respondents (45%). The foreign group showed higher percentages of education levels below a bachelor's degree (28%) and doctoral degrees (10%). Employment-wise, full-time work was most common (Thai: 56%; Foreign: 45%), with foreign respondents showing higher rates of unemployment and self-employment (both 21%). Regionally, most foreign respondents were from Asia (58%), followed by America (19%) and Europe (13%). This demographic diversity potentially influences perspectives on fruit and vegetable carving in Thai cuisine.

**Table 2.**

Comparative attitudes of Thai and foreign participants towards fruit and vegetable carving in Thai cuisine.

Attitudes towards Fruit and Vegetable Carving in Thai Cuisine	Scale of agreement										$\bar{x} \pm S.D.$		Level of agreement	
	Strongly disagree		Disagree		Neither agree nor disagree		Agree		Strongly agree					
	T	F	T	F	T	F	T	F	T	F	T	F	T	F
Personal attitudes toward fruit and vegetable carving in Thai cuisine														
1. The art of fruit and vegetable carving in Thai cuisine serves as a form of meditation.					10 (10%)	8 (8%)	46 (46%)	43 (43%)	44 (44%)	49 (49%)	4.34 ± 0.65	4.41 ± 0.63	Strongly agree	Strongly agree
2. Engaging in the art of fruit and vegetable carving in Thai cuisine helps to create personal value.					6 (6%)	13 (13%)	50 (50%)	43 (43%)	44 (44%)	44 (44%)	4.38 ± 0.59	4.31 ± 0.69	Strongly agree	Strongly agree
3. Those who can perform the art of fruit and vegetable carving in Thai cuisine are considered charming.		2 (2%)	2 (2%)	34 (34%)	18 (18%)	44 (44%)	46 (46%)	10 (10%)	34 (34%)	10 (10%)	4.12 ± 0.76	2.92 ± 0.96	Agree	Neither agree nor disagree
4. Individuals who can execute the art of fruit and vegetable carving in Thai cuisine possess unique skills.							34 (34%)	42 (42%)	66 (66%)	58 (58%)	4.66 ± 0.47	4.58 ± 0.49	Strongly agree	Strongly agree
5. Mastering the art of fruit and vegetable carving in Thai cuisine requires dedicated practice.							21 (21%)	34 (34%)	79 (79%)	66 (66%)	4.79 ± 0.40	4.66 ± 0.47	Strongly agree	Strongly agree
Total											4.45 ± 0.29	4.17 ± 0.26	Strongly agree	Agree
General attitudes toward fruit and vegetable carving in Thai cuisine														
1. The art of fruit and vegetable carving in Thai cuisine enhances diners' appreciation of the dishes.			10 (10%)		18 (18%)	16 (16%)	57 (57%)	50 (50%)	15 (15%)	34 (34%)	3.77 ± 0.82	4.18 ± 0.68	Agree	Agree
2. Compared to ordinary dishes, Thai dishes with fruit and vegetable carvings are more visually appealing and appetizing.			12 (12%)		14 (14%)	16 (16%)	39 (39%)	45 (45%)	35 (35%)	39 (39%)	3.97 ± 0.98	4.23 ± 0.70	Agree	Strongly agree
3. The art of fruit and vegetable carving in Thai cuisine adds a touch of luxury and aesthetics to the dining experience.		3 (3%)	3 (3%)	1 (1%)	8 (8%)	12 (12%)	29 (29%)	33 (33%)	60 (60%)	51 (51%)	4.46 ± 0.77	4.28 ± 0.93	Strongly agree	Strongly agree
4. In Thai cuisine, the art of fruit and vegetable carving adds value to the dish.				3 (3%)	4 (4%)	10 (10%)	25 (25%)	33 (33%)	71 (71%)	54 (54%)	4.67 ± 0.55	4.38 ± 0.78	Strongly agree	Strongly agree
5. The value of food is enhanced by the art of fruit and vegetable carving in Thai cuisine.					12 (12%)	20 (20%)	26 (26%)	34 (34%)	62 (62%)	46 (46%)	4.50 ± 0.70	4.26 ± 0.77	Strongly agree	Strongly agree
6. In today's world, the skills of fruit and vegetable carving in Thai cuisine are essential.	12 (12%)	15 (15%)	20 (20%)	20 (20%)	55 (55%)	36 (36%)	13 (13%)	12 (12%)		17 (17%)	2.69 ± 0.84	2.96 ± 1.27	Neither agree nor disagree	Neither agree nor disagree

7. The art of fruit and vegetable carving in Thai cuisine can be applied to daily life.	3 (3%)	13 (13%)	9 (9%)	7 (7%)	23 (23%)	17 (17%)	37 (37%)	34 (34%)	28 (28%)	29 (29%)	3.78 ± 1.05	3.59 ± 1.32	Agree	Agree
8. Possessing the skills of fruit and vegetable carving in Thai cuisine can lead to career opportunities.			3 (3%)	20 (20%)	9 (9%)	40 (40%)	40 (40%)	20 (20%)	48 (48%)	20 (20%)	4.33 ± 0.76	3.40 ± 1.02	Strongly agree	Agree
9. Engaging in the art of fruit and vegetable carving in Thai cuisine is a beneficial way to spend your free time.		4 (4%)	4 (4%)	14 (14%)	31 (31%)	29 (29%)	34 (34%)	32 (32%)	31 (31%)	21 (21%)	3.92 ± 0.88	3.52 ± 1.09	Agree	Agree
Total											4.01 ± 0.34	3.86 ± 0.36	Agree	Agree
Cultural attitudes toward fruit and vegetable carving in Thai cuisine.														
1. The art of fruit and vegetable carving in Thai cuisine represents a unique aspect of Thai culture.				9 (9%)	6 (6%)	9 (9%)	10 (10%)	37 (37%)	84 (84%)	45 (45%)	4.78 ± 0.54	4.18 ± 0.93	Strongly agree	Agree
2. Thai cuisine's fruit and vegetable carvings can captivate international tourists.		3 (3%)		6 (6%)	2 (2%)	8 (8%)	20 (20%)	27 (27%)	78 (78%)	56 (56%)	4.76 ± 0.47	4.27 ± 1.04	Strongly agree	Strongly agree
3. The art of fruit and vegetable carving in Thai cuisine stands distinct from international culinary practices.					2 (2%)		18 (18%)	22 (22%)	80 (80%)	78 (78%)	4.78 ± 0.46	4.78 ± 0.41	Strongly agree	Strongly agree
4. Thai cuisine's art of fruit and vegetable carving can be adapted for international use.			2 (2%)	10 (10%)	3 (3%)	6 (6%)	38 (38%)	30 (30%)	57 (57%)	54 (54%)	4.50 ± 0.65	4.28 ± 0.96	Strongly agree	Strongly agree
5. The art of fruit and vegetable carving in Thai cuisine should be promoted and preserved for future generations.				1 (1%)		11 (11%)	21 (21%)	34 (34%)	79 (79%)	54 (54%)	4.79 ± 0.40	4.41 ± 0.72	Strongly agree	Strongly agree
6. Thailand's soft power is enhanced by the art of fruit and vegetable carving in its cuisine.					6 (6%)	25 (25%)	14 (14%)	37 (37%)	80 (80%)	38 (38%)	4.74 ± 0.56	4.13 ± 0.78	Strongly agree	Agree
7. The art of fruit and vegetable carving in Thai cuisine demonstrates the wisdom of the Thai people.					4 (4%)	3 (3%)	13 (13%)	50 (50%)	83 (83%)	47 (47%)	4.79 ± 0.49	4.44 ± 0.55	Strongly agree	Strongly agree
8. Thai people's way of life is reflected in the art of fruit and vegetable carving in their cuisine.					10 (10%)	12 (12%)	25 (25%)	22 (22%)	65 (65%)	66 (66%)	4.55 ± 0.67	4.54 ± 0.70	Strongly agree	Strongly agree
9. The art of fruit and vegetable carving in Thai cuisine is a cherished culinary cultural heritage.					9 (9%)		46 (46%)	36 (36%)	45 (45%)	64 (64%)	4.36 ± 0.64	4.64 ± 0.48	Strongly agree	Strongly agree
10. The delicacy and refinement of Thai people are showcased through the art of fruit and vegetable carving in their cuisine.						3 (3%)	17 (17%)	35 (35%)	83 (83%)	62 (62%)	4.83 ± 0.37	4.59 ± 0.55	Strongly agree	Strongly agree
Total											4.68 ± 0.19	4.42 ± 0.27	Strongly agree	Strongly agree

Note: T = Thai respondents, F = Foreign respondents.

**Table 3.**  
Opinions of Thai and foreign participants on the types and objectives of short courses in fruit and vegetable carving within Thai cuisine.

Opinions on the types and objectives of short courses	Scale of agreement										$\bar{x} \pm S.D.$		Level of agreement	
	Strongly disagree		Disagree		Neither agree nor disagree		Agree		Strongly agree					
	T	F	T	F	T	F	T	F	T	F	T	F	T	F
Types of short courses that participants were interested in														
1. Carvings used in the preparation and cooking of Thai dishes.			20 (20%)	27 (27%)	36 (36%)	26 (26%)	34 (34%)	38 (38%)	10 (10%)	9 (9%)	3.34 ± 0.91	3.29 ± 0.96	Neither agree nor disagree	Neither agree nor disagree
2. Carvings served as a side dish to be enjoyed with Thai cuisine.					37 (37%)	43 (43%)	52 (52%)	52 (52%)	11 (11%)	5 (5%)	3.74 ± 0.64	3.62 ± 0.58	Agree	Agree
3. Carvings used as containers for Thai cuisine.		6 (6%)	32 (32%)	45 (45%)	27 (27%)	36 (36%)	31 (31%)	9 (9%)	10 (10%)	4 (4%)	3.19 ± 1.00	2.60 ± 0.88	Neither agree nor disagree	Disagree
4. Carved fruits for eating.	2 (2%)	6 (6%)	3 (3%)	17 (17%)	34 (34%)	24 (24%)	43 (43%)	31 (31%)	18 (18%)	22 (22%)	3.72 ± 0.86	3.46 ± 1.18	Agree	Agree
Total											3.49 ± 0.45	3.24 ± 0.45	Agree	Neither agree nor disagree
Objectives of applying for short courses														
1. To enhance skills.	2 (2%)	2 (2%)	3 (3%)	7 (7%)	17 (17%)	22 (22%)	54 (54%)	46 (46%)	24 (24%)	23 (23%)	3.95 ± 0.84	3.81 ± 0.94	Agree	Agree
2. To pursue carving as a hobby.			7 (7%)	6 (6%)	23 (23%)	21 (21%)	54 (54%)	65 (65%)	16 (16%)	8 (8%)	3.79 ± 0.79	3.75 ± 0.68	Agree	Agree
3. To utilize skills for a professional career.	85 (85%)	97 (97%)	15 (15%)	3 (3%)							1.15 ± 0.35	1.03 ± 0.17	Strongly disagree	Strongly disagree
4. To preserve Thai culture.				2 (2%)	8 (8%)	12 (12%)	62 (62%)	54 (54%)	30 (30%)	32 (32%)	4.22 ± 0.57	4.16 ± 0.70	Strongly agree	Agree
Total											3.26 ± 0.34	3.20 ± 0.32	Neither agree nor disagree	Neither agree nor disagree



#### 4.1.2. Attitudes Towards Fruit and Vegetable Carving in Thai Cuisine

**Table 2** presents a comparative analysis of attitudes towards fruit and vegetable carving in Thai cuisine between Thai and foreign participants. The results are divided into three main categories: personal attitudes, general attitudes, and cultural attitudes.

**Personal attitudes:** Both Thai and foreign participants showed strongly positive personal attitudes towards fruit and vegetable carving in Thai cuisine. Thai participants had a slightly higher overall mean score ( $4.45 \pm 0.29$ , strongly agree) compared to foreign participants ( $4.17 \pm 0.26$ , agree). Both groups strongly agreed that mastery of this art required dedicated practice (Thai:  $4.79 \pm 0.40$ , strongly agree; Foreign:  $4.66 \pm 0.47$ , strongly agree) and that practitioners possessed unique skills (Thai:  $4.66 \pm 0.47$ , strongly agree; Foreign:  $4.58 \pm 0.49$ , strongly agree). Interestingly, there was a difference in perception of the charm associated with this skill, with Thai participants agreeing ( $4.12 \pm 0.76$ , agree), while foreign participants were neutral ( $2.92 \pm 0.96$ , neither agree nor disagree). These findings align with literature highlighting the cultural significance of fruit and vegetable carving. [Panprom, et al. \[6\]](#) emphasized the traditional knowledge principles embedded in this art form, noting that it reflects individual artistic skills that are simple yet require practice and creativity. The inclusion of carving courses in Thai high school curricula [\[29\]](#) may further contribute to Thai participants' stronger cultural recognition and positive attitudes towards this traditional skill.

**General attitudes:** Both groups demonstrated positive general attitudes, with Thai participants showing a slightly higher mean score ( $4.01 \pm 0.34$ , agree) compared to foreign participants ( $3.86 \pm 0.36$ , agree). Both groups strongly agree that this art form adds value to Thai dishes (Thai:  $4.67 \pm 0.55$ , strongly agree; Foreign:  $4.38 \pm 0.78$ , strongly agree), enhances the value of food (Thai:  $4.50 \pm 0.70$ , strongly agree; Foreign:  $4.26 \pm 0.77$ , strongly agree), and enhances luxury and aesthetics to the dining experience (Thai:  $4.46 \pm 0.77$ , strongly agree; Foreign:  $4.28 \pm 0.93$ , strongly agree). However, both groups were neutral regarding the necessity of these skills in today's world (Thai:  $2.69 \pm 0.84$ , neither agree nor disagree; Foreign:  $2.96 \pm 1.27$ , neither agree nor disagree). These findings align with [Panprom, et al. \[6\]](#) who noted that fruit and vegetable carving used in Thai food decoration serves as a means to enhance both the cultural value and economic value of Thai cuisine. Furthermore, this corresponds with previous literature suggesting that a positive food image stems from dining satisfaction, which can lead tourists to develop positive attitudes and perceptions towards Thai food, potentially influencing their future revisit intentions to Thailand [\[10, 11, 30-32\]](#). Interestingly, while participants recognized the aesthetic and cultural value of fruit and vegetable carving, their neutral stance on its necessity in modern times reflects an awareness of evolving culinary practices and lifestyle changes in contemporary society. This perspective aligns with [Mills \[33\]](#) who discusses how traditional food practices face adaptation challenges within the context of globalization and changing social norms.

**Cultural attitudes:** Cultural attitudes were highly positive for both groups, with Thai participants showing a higher mean score ( $4.68 \pm 0.19$ , strongly agree) compared to foreign participants ( $4.42 \pm 0.27$ , strongly agree). Most aspects received strong agreement from both groups, but there were notable differences between the two questions. First, regarding the art form as a unique aspect of Thai culture, Thai participants strongly agreed ( $4.78 \pm 0.54$ , strongly agree), while foreign participants merely agreed ( $4.18 \pm 0.93$ , agree). Similarly, when considering this art form's contribution to Thailand's soft power, Thai participants strongly agreed ( $4.74 \pm 0.56$ , strongly agree), while foreign participants only agreed ( $4.13 \pm 0.78$ , agree). These findings align with [Panprom, et al. \[6\]](#) who emphasized fruit and vegetable carving as a distinctive national identity of Thailand. [Namkham and Wannajun \[5\]](#) noted the art form's unique significance in royal court cuisine, highlighting its special role in food presentation. The difference in perception between Thai and foreign participants stems from varying levels of cultural immersion, with Thai participants having a deeper, lifelong exposure to this cultural heritage compared to foreign participants' more limited, tourism-based encounters. Both groups strongly agreed that fruit and vegetable carving is a cherished culinary cultural heritage, with foreign participants showing slightly higher mean scores (Thai:  $4.36 \pm 0.64$ ; Foreign:  $4.64 \pm 0.48$ , strongly agree). This aligns with [Panprom, et al. \[6\]](#) who found foreign tourists willing to pay premium prices to appreciate this artistry as a valuable cultural heritage. Thai participants scored highest regarding how this art form showcases the delicacy and refinement of Thai people (Thai:  $4.83 \pm 0.37$ ; Foreign:  $4.59 \pm 0.55$ , strongly agree), corresponding with [Nuanmeesri, et al. \[1\]](#) who emphasized the intricate nature of Thai fruit and vegetable carving. Ultimately, integrating this art form with food presentation helps preserve Thai cultural identity while enhancing its cultural and economic value [\[6\]](#).

#### 4.1.3. Opinions on the Types and Objectives of Short Courses on Fruit and Vegetable Carving in Thai Cuisine

**Table 3** presents an analysis of Thai and foreign participants' opinions on the types and objectives of short courses on fruit and vegetable carving in Thai cuisine. The results are divided into two main sections: types of short courses of interest and objectives for enrolling in such short courses.

Regarding the types of short courses of interest, Thai participants showed overall interest at the "agree" level ( $3.49 \pm 0.45$ ), while foreigners expressed "neither agree nor disagree" opinions ( $3.24 \pm 0.45$ ). Both groups showed the highest interest in carvings served as side dishes in Thai cuisine (Thai:  $3.74 \pm 0.64$ ; Foreign:  $3.62 \pm 0.58$ ) and fruit carving for eating (Thai:  $3.72 \pm 0.86$ ; Foreign:  $3.46 \pm 1.18$ ), which were both at the "agree" level. This may be because these two forms of carving are popular and commonly found in Thailand, especially in hotels and Thai restaurants [\[6, 7, 34\]](#). Furthermore, vegetable carvings as side dishes are often served with main dishes and Nam Prik (Thai chili paste) [\[5\]](#), which is a staple in the Thai lifestyle [\[18, 21\]](#). This aligns with [Nuanmeesri, et al. \[1\]](#), which indicates that vegetables eaten as food or with main dishes in each meal are beautifully carved before serving. Meanwhile, fruit carving is commonly found in dessert service after meals or as part of the meal [\[5, 35\]](#). This familiarity with carving forms integrated into Thai dining culture may contribute to both Thai and foreign participants having better perceptions and attitudes toward these two types of carving compared to others. Carvings used in preparing and cooking Thai dishes received a "neither agree nor disagree" level of interest from both groups (Thai:  $3.34 \pm 0.91$ ; Foreign:  $3.29 \pm 0.96$ ). Interestingly, carvings used as containers for Thai cuisine received the least interest,

with Thai participants showing "neither agree nor disagree" opinions ( $3.19 \pm 1.00$ ) and foreigners "disagree" ( $2.60 \pm 0.88$ ). This may be because this type of carving is a high-level art form rarely seen today, aligning with Nuanmeesri, et al. [1] and Namkham and Wannajun [5], who noted its specialized nature in royal courts and palaces. The difference in interest levels between Thai and foreign participants reflects cultural perceptions. Thai people, naturally exposed to this art form as a national heritage passed down for hundreds of years [6, 34], tend to see more value and have a stronger desire to preserve it. Foreigners may view art from a purely aesthetic perspective, perceiving it as requiring intricate skills and being difficult to learn [6], and being culturally distant from their traditions. This aligns with Watanasin [22], who found that ethnic food popularity doesn't necessarily promote cultural understanding. Similarly, Luchaprasith and Macleod [17] observed that Thai tourists have a greater appreciation for traditional food varieties compared to foreign tourists with limited knowledge of Thai cuisine.

Concerning the objectives for enrolling in short courses, both groups expressed overall "neither agree nor disagree" opinions (Thai:  $3.26 \pm 0.34$ ; Foreign:  $3.20 \pm 0.32$ ). However, when considering individual items, both groups showed high agreement levels. Thai participants "strongly agree" with participating in courses to preserve Thai culture ( $4.22 \pm 0.57$ ), while foreign participants "agree" ( $4.16 \pm 0.70$ ). This aligns with previous research by Rimdusit and Duangsaeng [36], which found that foreign tourists' main purpose in attending Thai cooking schools in Chiang Mai was to develop skills for cooking Thai food at home while experiencing new aspects of Thai culture. Interestingly, both groups "strongly disagree" with using these skills for professional careers (Thai:  $1.15 \pm 0.35$ ; Foreign:  $1.03 \pm 0.17$ ). This strong disagreement may reflect the recognized complexity of carving as a professional skill, aligning with Baldwin [37] and Lee [38], who noted that fruit and vegetable carving requires specialized expertise and precision, making professional-level mastery seem challenging for novice learners.

Table 4 reveals similar preferences among Thai and foreign participants for short courses on fruit and vegetable carving in Thai cuisine. Both groups predominantly favor educational institutions (Thai: 63%; Foreign: 51%) for a 2-3 day course (Thai: 45%; Foreign: 49%) on weekends (Thai: 78%; Foreign: 70%). Participants strongly prefer courses costing less than 100 USD (Thai: 94%; Foreign: 90%), with a majority (Thai: 86%; Foreign: 87%) desiring mixed classes of Thai and foreign learners. The preference for educational institutions may reflect a desire for a formal learning environment with proper facilities and expert instruction, aligning with previous research on culinary tourism [36]. The shared preference for mixed classes highlights the potential for fostering cross-cultural understanding through culinary heritage education. [14, 15].

**Table 4.** Preferences of Thai and foreign participants regarding the organization of short courses on fruit and vegetable carving in Thai cuisine.

Preferences regarding the organization of short courses		Thai		Foreign	
		Respondents	%	Respondents	%
Venue for short courses	Hotel	21	21.00	19	19.00
	Shopping mall	7	7.00	19	19.00
	Educational institution	63	63.00	51	51.00
	Cultural tourist attractions	9	9.00	11	11.00
	Total	100	100.00	100	100.00
Duration of short courses	1 day	23	23.00	22	22.00
	2-3 days	45	45.00	49	49.00
	4-5 days	14	14.00	16	16.00
	More than 5 days	18	18.00	13	13.00
	Total	100	100.00	100	100.00
Date of short courses	Weekdays	16	16.00	24	24.00
	Weekends	78	78.00	70	70.00
	Public holidays	6	6.00	6	6.00
	Total	100	100.00	100	100.00
Cost of short courses	Less than 100 USD per course	94	94.00	90	90.00
	100-200 USD per course	4	4.00	6	6.00
	More than 200 USD per course	2	2.00	4	4.00
	Total	100	100.00	100	100.00
Classroom management for short courses	Thais and foreigners study together	86	86.00	87	87.00
	Thais and foreigners study separately	14	14.00	13	13.00
	Total	100	100.00	100	100.00

#### 4.2. Second Phase Results

The second phase of this study focuses on evaluating the learning outcomes and satisfaction of participants in a short course on fruit and vegetable carving in Thai cuisine, comparing Thai and foreign learners. Insights from the first phase were effectively incorporated into the course design, particularly those from the "preferences regarding the organization of short courses" section, as presented in Table 4. The course was held at an educational institution, lasted 2-3 days, was scheduled on weekends, cost less than 100 USD, and featured mixed classes of Thai and foreign learners. All these aspects aligned with the preferences expressed by the majority of participants from both groups.

4.2.1. Demographic Characteristics of Thai and Foreign Learners in the Short Course

The study revealed distinct demographic characteristics of Thai and foreign learners. Gender distribution showed 60% female and 40% male Thai learners, contrasting with 70% male and 30% female foreign learners. Age-wise, 40% of Thai learners were between 41-50 years old, while 50% of foreign learners were 31-40 years old. Both groups predominantly held bachelor's degrees (50% Thai, 70% foreign), with full-time employment at 50%. Thai learners showed a higher unemployment rate (30%) compared to foreign learners (20%). The majority of foreign learners (70%) were from Asia, with equal representation from Europe, America, and Australia. These demographics highlight the diverse interest in Thai fruit and vegetable carving across different nationalities and backgrounds.

4.2.2. Learning outcomes of the short course on fruit and vegetable carving in Thai cuisine

Table 5 reveals that both Thai and foreign participants achieved a "good" level of proficiency in fruit and vegetable carving skills. Thai participants scored slightly higher overall ( $4.00 \pm 0.68$ ) compared to foreigners ( $3.67 \pm 0.60$ ), with both groups performing best in carving fruits for eating. The foreign participants' ability to acquire carving skills comparable to their Thai counterparts reflects the universal appeal of this art form. This aligns with Panprom, et al. [6], who found that fruit and vegetable carving skills could be effectively taught and developed through appropriate training. Moreover, learners who are genuinely interested and motivated to learn fruit and vegetable carving courses demonstrate high levels of dedication and constant determination to improve their skills. This corresponds with the objectives of short courses, which indicate that many foreign tourists desire to cook independently after completing the course [36]. This demonstrates genuine intention and application of learning outcomes in daily life. It illustrates the universal accessibility of fruit and vegetable carving skills, with both groups achieving similarly good levels of proficiency, despite Thai participants' greater cultural proximity to this art form.

**Table 5.** Comparative results of Thai and foreign participants' scores on fruit and vegetable carving in Thai cuisine, as evaluated by instructors.

Participants	Carvings used in the preparation and cooking of Thai dishes	Carvings served as a side dish to be eaten with Thai cuisine	Carvings used as containers for Thai cuisine	Carving fruits for eating	Total	Level of proficiency
	$\bar{x} \pm S.D.$	$\bar{x} \pm S.D.$	$\bar{x} \pm S.D.$	$\bar{x} \pm S.D.$	$\bar{x} \pm S.D.$	
Thai	$3.80 \pm 0.78$	$3.80 \pm 0.78$	$4.00 \pm 0.81$	$4.40 \pm 0.51$	$4.00 \pm 0.68$	Good
Foreign	$3.50 \pm 0.85$	$3.50 \pm 0.70$	$3.50 \pm 0.52$	$4.20 \pm 0.63$	$3.67 \pm 0.60$	Good

4.2.3. Learners' Satisfaction with the Short Course on Fruit and Vegetable Carving in Thai Cuisine

Table 6 presents a comparative analysis between Thai and foreign learners on levels of satisfaction with the short course on fruit and vegetable carving in Thai cuisine. The results reveal high levels of satisfaction across all evaluated aspects, with interesting differences between the two groups.

In terms of learners' skills, both Thai and foreign participants showed an increase in their satisfaction with their carving skills after completing the course. The average level of satisfaction with skills increased from  $2.50 \pm 0.70$  (dissatisfied) to  $4.50 \pm 0.52$  (very satisfied) for Thai learners, and from  $2.50 \pm 0.97$  (dissatisfied) to  $4.30 \pm 0.48$  (very satisfied) for foreign learners. This significant improvement aligns with the research of Panprom, et al. [6] Panprom, et al. [34] Rimdusit and Duangsaeng [36], which found that structured training can effectively develop fruit and vegetable carving skills.

Regarding the service process, both groups expressed high levels of satisfaction, with Thai learners showing slightly higher satisfaction ( $4.50 \pm 0.19$ , very satisfied) compared to foreign learners ( $4.22 \pm 0.56$ , very satisfied). Notably, both groups reported very high satisfaction with the instructor's knowledge and competence (Thai:  $5.00 \pm 0.00$ , very satisfied; Foreign:  $4.70 \pm 0.48$ , very satisfied). This aligns with Richards [39] concept that learning cultural skills from local experts not only provides knowledge but also creates emotional connections to the culture, leading to a deeper cultural understanding.

Concerning the benefits gained from the course, Thai learners reported higher satisfaction ( $4.82 \pm 0.23$ , very satisfied) compared to foreign learners ( $4.10 \pm 0.64$ , satisfied). The higher satisfaction with course benefits reported by Thai learners compared to foreign learners may be attributed to the fact that fruit and vegetable carving is a long-established cultural heritage of Thailand [1, 6]. This cultural connection provides Thai learners with more opportunities to apply their acquired knowledge and skills in daily life, as the art of carving is inherently integrated into Thai culinary culture [34].

**Table 6.**  
Comparative results of Thai and foreign learners' satisfaction with the short course on fruit and vegetable carving in Thai cuisine.

Satisfaction with the fruit and vegetable carving short course	Scale of satisfaction										$\bar{x} \pm S.D.$		Level of satisfaction		
	Very dissatisfied		Dissatisfied		Neither satisfied nor dissatisfied		Satisfied		Very satisfied						
	T	F	T	F	T	F	T	F	T	F	T	F	T	F	
<b>Learners' skills</b>															
1. How satisfied were you with your carving skills prior to the course?	1 (10%)	2 (20%)	3 (30%)	2 (20%)	6 (60%)	5 (50%)			1 (10%)			2.50 ± 0.70	2.50 ± 0.97	Dissatisfied	Dissatisfied
2. How satisfied are you with your carving skills after the course?							5 (50%)	7 (70%)	5 (50%)	3 (30%)		4.50 ± 0.52	4.30 ± 0.48	Very satisfied	Very satisfied
<b>Service process</b>															
1. Suitability of the learning venue.						2 (20%)	5 (50%)	5 (50%)	5 (50%)	3 (30%)		4.50 ± 0.52	4.10 ± 0.73	Very satisfied	Satisfied
2. The appropriateness of the course duration.						2 (20%)	7 (70%)	5 (50%)	3 (30%)	3 (30%)		4.30 ± 0.48	4.10 ± 0.73	Very satisfied	Satisfied
3. The reasonableness of the course fee.					1 (10%)	1 (10%)	3 (30%)	6 (60%)	6 (60%)	3 (30%)		4.50 ± 0.70	4.20 ± 0.63	Very satisfied	Satisfied
4. The knowledge and competence of the instructor.								3 (30%)	10 (100%)	7 (70%)		5.00 ± 0.00	4.70 ± 0.48	Very satisfied	Very satisfied
5. Promotion of the carving course.						3 (30%)	8 (80%)	4 (40%)	2 (20%)	3 (30%)		4.20 ± 0.42	4.00 ± 0.81	Very satisfied	Satisfied
Total												4.50 ± 0.19	4.22 ± 0.56	Very satisfied	Very satisfied
<b>Benefits from the course</b>															
1. Knowledge gained from this course.							2 (20%)	8 (80%)	8 (80%)	2 (20%)		4.80 ± 0.42	4.20 ± 0.42	Very satisfied	Satisfied
2. Ability to apply the knowledge acquired from this course in daily life.						4 (40%)	1 (10%)	3 (30%)	9 (90%)	3 (30%)		4.90 ± 0.31	3.90 ± 0.87	Very satisfied	Satisfied
3. Ability to transfer the knowledge acquired from this course to others.						2 (20%)	3 (30%)	5 (50%)	7 (70%)	3 (30%)		4.70 ± 0.48	4.10 ± 0.73	Very satisfied	Satisfied
4. The extent to which the course fulfilled your expectations.						2 (20%)	1 (10%)	4 (40%)	9 (90%)	4 (40%)		4.90 ± 0.31	4.20 ± 0.78	Very satisfied	Satisfied
Total												4.82 ± 0.23	4.10 ± 0.64	Very satisfied	Satisfied

In contrast, foreign learners may face limitations in applying these skills upon returning to their home countries due to differences in dining cultures and social contexts. These factors may be key reasons for the differences in satisfaction levels between the two groups of learners.

## 5. Conclusion

This study explored attitudes toward Thai fruit and vegetable carving among Thai and foreign participants while evaluating a short course's effectiveness. The findings revealed a significant appreciation for this culinary art form across both groups, with Thai participants showing deeper cultural connections and foreign participants expressing a strong interest in learning. The research demonstrated that structured short courses can effectively transmit these traditional skills across cultural boundaries, with both groups showing marked improvement and high satisfaction levels. The study affirms fruit and vegetable carving as not merely a culinary technique but a valuable cultural asset that can foster cross-cultural understanding and appreciation.

### 5.1. Implications

The findings have significant implications for cultural preservation and tourism development. Educational institutions can develop targeted programs that bridge cultural gaps while maintaining traditional authenticity. The tourism industry can create meaningful cultural experiences around culinary arts education, potentially increasing Thailand's cultural tourism appeal. For policymakers, the research supports investment in cultural preservation initiatives that can enhance Thailand's soft power through culinary arts education.

### 5.2. Limitations

The study faced several limitations that should be considered. Its focus on Bangkok may not represent broader regional perspectives, while the small sample size for the short course (20 participants) limits generalizability. Cultural and language barriers may have influenced data collection and interpretation. Additionally, the lack of long-term follow-up leaves questions about skill retention and practical application in participants' home countries unanswered.

### 5.3. Recommendations and Future Research

Future research should address these limitations through longitudinal studies examining skill retention and application in various cultural contexts. Research should explore the economic impact of culinary arts education on cultural tourism and investigate the integration of modern technology into traditional teaching methods. The development of standardized teaching materials and certification programs is recommended to strengthen the transmission of these traditional skills. Special attention should be paid to engaging younger generations in preserving this cultural heritage while adapting to contemporary needs.

## References

- [1] S. Nuanmeesri, K. Tangcharoenbumrungsuk, and L. Poomhiran, "Multiple-ontology developing for Thai dessert from scraps of Thai vegetable carving arts," *TEM Journal*, vol. 11, no. 4, pp. 1768-1773, 2022. <https://doi.org/10.18421/tem114-43>
- [2] A. Borghini and A. Baldini, "Cooking and dining as forms of public art," *Food, Culture & Society*, vol. 25, no. 2, pp. 310-327, 2022. <https://doi.org/10.1080/15528014.2021.1890891>
- [3] U. Prapasawasdi, L. Wuttisittikulij, C. Borompichaichartkul, L. Changkaew, and M. Saadi, "Cultural tourism behaviors: Enhancing the Influence of tourists' perceptions on local Thai Food and Culture," *The Open Psychology Journal*, vol. 11, no. 1, pp. 184-197, 2018. <http://dx.doi.org/10.2174/1874350101811010184>
- [4] C. Thirachaya and T. Patipat, "Tourist behaviors and needs for the development of creative Thai traditional sports tourism marketing for special interest tourism," *African Journal of Hospitality, Tourism and Leisure*, vol. 9, no. 1, pp. 1-15, 2020.
- [5] S. Namkham and S. Wannajun, "The cultural invention of Thai royal cuisine in a creative-economy context," *Journal of Business, Innovation and Sustainability*, vol. 17, no. 2, pp. 124-138, 2022.
- [6] S. Panprom, K. Somtrakool, and P. Thidpad, "Traditional Knowledge Principles of Thai Fruit and Vegetable Carving," *Asian Culture and History*, vol. 6, no. 2, pp. 43-51, 2014. <https://doi.org/10.5539/ach.v6n2p43>
- [7] N. Iamsomboon, P. Bhumkittipich, and S. Onputtha, "Factors affecting the design and application of ergonomics technology in pumpkin carving in order to inherit Thai wisdom," *TEST Engineering and Management*, vol. 83, pp. 1597-1606, 2020.
- [8] T. Chaigasem and T. Patipat, "Tourist behaviors and needs for the development of creative Thai traditional sports tourism marketing for special interest tourism," *African Journal of Hospitality, Tourism and Leisure*, vol. 9, no. 1, pp. 1-15, 2020.
- [9] G. Su and P. Run, "A proposal for a study on the Thai traditional food market in Chinese," *International Graduate Studies HRD Center*, vol. 14, no. 1, pp. 108-116, 2023.
- [10] P. Promsivapallop and P. Kannaovakun, "Destination food image dimensions and their effects on food preference and consumption," *Journal of Destination Marketing & Management*, vol. 11, pp. 89-100, 2019. <https://doi.org/10.1016/j.jdmm.2018.12.003>
- [11] S. Lertputtarak, "The relationship between destination image, food image, and revisiting Pattaya, Thailand," *International Journal of Business and Management*, vol. 7, no. 5, pp. 111-121, 2012. <http://dx.doi.org/10.5539/ijbm.v7n5p111>
- [12] E. Rudan, "Circular economy of cultural heritage—possibility to create a new tourism product through adaptive reuse," *Journal of Risk and Financial Management*, vol. 16, no. 3, p. 196, 2023. <https://doi.org/10.3390/jrfm16030196>
- [13] M. E. B. Christensen, "The cross-sectoral linkage between cultural heritage and security: How cultural heritage has developed as a security issue?," *International Journal of Heritage Studies*, vol. 28, no. 5, pp. 651-663, 2022. <https://doi.org/10.1080/13527258.2022.2054845>
- [14] T. Roongsangjun, "Soft power and the development of Thai society," *Journal of Social Work and Social Administration*, vol. 31, no. 1, pp. 89-117, 2023.

- [15] F. Chen, "Analysis of the characteristics of art intangible cultural heritage in cross-cultural communication," *Art and Design Review*, vol. 10, no. 3, pp. 389-396, 2022. <https://doi.org/10.4236/adr.2022.103030>
- [16] T. Singsomboon, "The use of Thai food knowledge as marketing strategies for tourism promotion," *Thammasat Review*, vol. 18, no. 1, pp. 82-98, 2015.
- [17] T. Lunchaprasith and D. Macleod, "Food tourism and the use of authenticity in Thailand," *Tourism Culture & Communication*, vol. 18, no. 2, pp. 101-116, 2018. <https://doi.org/10.3727/109830418X15230353469492>
- [18] R. Watanasin, "Central Thai food culture and acculturation during World War II and the Vietnam war," *Manusya: Journal of Humanities*, vol. 23, no. 2, pp. 205-223, 2020. <https://doi.org/10.1163/26659077-02302004>
- [19] K. Muangasame and E. Park, *Food tourism, policy and sustainability: Behind the popularity of Thai food*, in *Food tourism in Asia*. Singapore: Springer, 2019, pp. 123-142.
- [20] W. Varayanond, "Fostering food culture with innovation: OTOP/SME and Thai kitchen to the world," presented at the The Japanese International Research Center for Agricultural Sciences International Symposium, Tokyo, Japan, 2013.
- [21] S. Laoakka, "A study of historical data, the culture and identity of communities related to Thai food culture to promote and create the production of films and television dramas," *International Journal of Innovation, Creativity and Change*, vol. 15, no. 6, pp. 296-310, 2021.
- [22] R. Watanasin, "Thai food: A gateway to cultural understanding," *The Journal of the Royal Institute of Thailand*, vol. 4, pp. 145-164, 2012.
- [23] P. Yambunjong and R. Gulasirima, "Images of Thai cuisine and Thai restaurant among tourists in the Asian market: A case study of Laos and Cambodia " presented at the The International Conference on Culture, Tourism and Communication Technology Learning, Bangkok, Thailand, 2013.
- [24] B. Abdon-Liwanag, E. C. Padohinog, and N. W. Balsicas, "Online learning satisfaction among college students from a higher education institution in Cavite," *Online Submission*, vol. 4, no. 1, pp. 12-18, 2022. <https://doi.org/10.5281/zenodo.8023104>
- [25] N. Koocharoenpaisal, "Enhancing competency in designing learning activities based on STEM education of pre-service science teachers," *Anatolian Journal of Education*, vol. 8, no. 2, pp. 207-224, 2023. <https://doi.org/10.29333/aje.2023.8214a>
- [26] A. Warmin, J. Sharp, and M. D. Condrasky, "Cooking with a chef: A culinary nutrition program for college aged students," *Topics in Clinical Nutrition*, vol. 27, no. 2, pp. 164-173, 2012. <https://doi.org/10.1097/TIN.0b013e3182542417>
- [27] P. Praditbatuga, S. Treetipbut, and S. Chantarak, "The influence of service and food quality and perceived value on customer satisfaction of Thai Casual Dining Restaurants in The United Arab Emirates," *Abac Journal*, vol. 42, no. 2, pp. 52-69, 2022. <https://doi.org/10.14456/abacj.2022.4>
- [28] P. Sukalakamala and J. B. Boyce, "Customer perceptions for expectations and acceptance of an authentic dining experience in Thai restaurants," *Journal of Foodservice*, vol. 18, no. 2, pp. 69-75, 2007. <https://doi.org/10.1111/j.1745-4506.2007.00048.x>
- [29] M. Jantanapalin, *Thai heritage series, number 7*. Bangkok, Thailand: Ammarin, 2003.
- [30] J. Y. J. Choe and S. S. Kim, "Effects of tourists' local food consumption value on attitude, food destination image, and behavioral intention," *International Journal of Hospitality Management*, vol. 71, pp. 1-10, 2018. <https://doi.org/10.1016/j.ijhm.2017.11.007>
- [31] L. Q. Ling, M. S. A. Karim, M. Othman, N. M. Adzahan, and S. Ramachandran, "Relationships between Malaysian food image, tourist satisfaction and behavioural intention," *World Applied Sciences Journal*, vol. 10, no. 10, pp. 164-171, 2010.
- [32] S. Seo, N. Yun, and O. Y. Kim, "Destination food image and intention to eat destination foods: A view from Korea," *Current Issues in Tourism*, vol. 20, no. 2, pp. 135-156, 2017. <https://doi.org/10.1080/13683500.2014.934210>
- [33] M. B. Mills, "Cookbook confidential: Global appetites, culinary fantasies, and Thai food," *Food, Culture & Society*, vol. 22, no. 1, pp. 26-44, 2019. <https://doi.org/10.1080/15528014.2018.1547588>
- [34] S. Panprom, K. Somtrakool, and P. Tidpad, "Fruits and vegetable carving: Development of carving patterns for banquets," *International Journal of Academic Research in Business and Social Sciences*, vol. 3, no. 9, p. 697, 2013. <https://doi.org/10.6007/IJARBS/v3-i9/259>
- [35] W. Eiamprapai, *The traditional culture of the Suan Sunandha palace in the Western context of change*. Bangkok, Thailand: Suan Sunandha Rajabhat University, 2010.
- [36] S. Rimdusit and V. Duangsaeng, "Thai culture creates value added for Thai culinary tourism," *ASEAN Journal of Management & Innovation*, vol. 6, no. 2, pp. 118-130, 2019. <https://doi.org/10.14456/ajmi.2019.25>
- [37] W. Baldwin, "The transference of Asian hospitality through food: Chef' s inspirations taken from Asian cuisines to capture the essence of Asian culture and hospitality," *International Journal of Gastronomy and Food Science*, vol. 8, pp. 7-13, 2017. <https://doi.org/10.1016/j.ijgfs.2017.01.002>
- [38] J. C. Lee, *Asian palate: Savouring Asian cuisine & wine*. Bangkok, Thailand: Asset Publishing and Research Limited, 2009.
- [39] G. Richards, *Rethinking cultural tourism*. Cheltenham, UK: Edward Elgar Publishing, 2021.