

# **TRAINING FOR CULINARY CREATIVITY, THE ROLE OF FORMATIVE EDUCATION**

**MING-CHU PEARL LIN**

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## ABSTRACT

The purpose of this thesis is to explore the nature of applied creativity in the culinary industry and the role of training through formative education. By investigating the 4Ps creativity model (Rhodes, 1961), this study seeks to understand the role of creativity from the perspectives of industry and academic chefs on Chinese culture in Taiwan in order to plan for future culinary education development. The relevant literature has not yet sought to examine training for culinary creativity from an educational perspective. Although research has focused increasingly on the hospitality sector, there is little empirical research that has used the culinary industry as a research base.

From a position of philosophical pragmatism, this research applies a three-phase sequential exploratory mixed methods to achieve its research aims and to address its research questions. By applying a qualitative inductive approach, Phase One seeks to explore the nature of culinary creativity with in-depth and semi-structured interviews. Findings from Phase One are used to develop an AHP questionnaire survey for Phase Two, to evaluate and prioritize participants' thoughts on culinary creativity. Finally, in Phase Three, a modified Delphi technique was employed to provide a better understanding of the Analytic Hierarchy Process (AHP) and of the interview findings from a group of experts. The purpose of applying mixed methods is to funnel down and ascertain participants' opinions and thoughts on culinary creativity development.

The overall findings indicate applied creativity in the culinary industry has played a key role in the culinary revolution, which may be considered a major trend in gradually changing people's taste and dining experience. The role of creativity in the culinary industry has its own distinct characteristics, such as time limitations and market acceptance, which are acquired through building the blocks of professional skills and experience. These distinct characteristics comprise the basic principle of creativity development in the culinary industry. To summarize, the participants' perspectives on culinary creativity, this is seen to be based on a foundation of traditional cuisine by adding various other elements, in order to escape the limitations of culinary traditions and deliver customer satisfaction.

The study contributes to understand the role of applied creativity in the culinary industry from the perspective of academic and industry chefs in Chinese culture, specifically in Taiwan. The modified 5Ps model explains the elements of culinary creativity development, and it used to enhance the value of such creativity in culinary educational settings. This thesis provides evidence that show how training as a mediator in the culinary creativity process plays a significant role in culinary creativity development. This thesis concludes that culinary creativity can be enhanced and developed through culinary education and in industry.

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# Chapter 1 INTRODUCTION

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## 1.1 INTRODUCTION

This thesis explores the development of culinary creativity from the perspectives of both industry and academic chefs in order to inform the development of future education and training. This chapter addresses the background to creativity in the culinary industry, identifies research objectives, research significance and scope, the questions and provides a research chapter outline.

## 1.2 BACKGROUND OF THE STUDY

Creativity is a solution to distinguish and beat rivals (Hospers, 2003). In today's world, creativity has been extensively applied to enhance value in products and services, such as high technology products, business and financial services, media and cultural industries, and neo-artisanal manufacturing (Scott, 2006). Many countries and cities, particularly in the developed world where traditional industries have declined, place a great emphasis on seeking to cultivate a creative economy and use conceptions such as creative cities and industries as part of their wider social, economic and political development purposes.

Creativity appears as the best solution to compete with new and inexpensive economies in Asia and elsewhere. The technological-creative city, of which Silicon Valley is a successful example demonstrate how creativity can apply to macro-communities such as a city or an industry. Hospers (2003) cites other historical examples, such as Silicon Glen (linking Glasgow and Edinburgh) and Silicon Forest (Seattle) to show how much other locations aspire to imitate the technological success of Silicon Valley. "Creativity plays a central role in stimulating economic growth in cities, regions and advanced capitalist economies in general" (Steam, de Jong and Marlet, 2008:119). It is also considered as a policy option for stimulating a range of wider economic, cultural and social outcomes.

In broad terms, strategies for creative industries aim to encourage the development of creative production through the support of creative industries (Richards, 2011). Creative industries are defined “in terms of a class of economic choice theory in which the predominant fact is that, because of inherent novelty and uncertainty, decisions both to produce and to consume are determined by the choice of others in a social network” (Potts, Cunningham, Hartley and Ormerod, 2008:169). Steam et al., (2008) classify creative industries into three domains: arts; media and publishing; and creative business services, within which the subject of this thesis, culinary creativity, could legitimately be located. According to Richards (2011), in some cases, the definition of creative industries has been expanded to contain tourism (Bagwell, 2009; Bonink and Hitters, 2001; Evans, 2009 cited in Richards, 2011) but this research is probably the first exploration of culinary creativity within this broad context. The impetus for these changes can be linked to the broader process of globalization, commodification, raising competitions between cities, industries and the development of new economies (Richards, 2011). The phenomenon of creative cities and industries demonstrates that social, economic and political development can provide the appropriate underlying framework conditions to promote creative cities, industries and nations. Similarly, these environmental factors provide a clear wider context for culinary creativity.

Gospodini (2007:11) notes that “cultural and leisure production and consumption (of arts, fashion, music, food, tourism), creative industries of technology-intensive and knowledge-rich enterprises containing design (in architecture, fashion, graphics, internets, etc.), new media as well as Information and Communication Technologies have become the growth engine of the post-industrial city”. Thus, creativity in tourism has stimulated the innovation of industries and cities.

The growth of creative approaches to the tourism industry can also be associated with the numerous strategies to create unique places, including the promotion of creative industries, cities, and classes. “Arguably these various strategies manifest themselves concretely through the absorption of creative production and consumption into specific creative clusters” (Richards, 2011:1245). Consequently, as

the culinary industry is a part of the tourism industry, culinary creativity can serve as a part of robust medium to promote tourism innovation.

The culinary industry depends on the fact that eating is one of our daily routines. “Eating is both a personal and social act” (Brown, Edwards, and Hartwell, 2010: 206). In human living, when we dine out and choose a restaurant, food and service are the most common considerations in mind. With new restaurants constantly coming to the market with new culinary creations, the culinary industry is a highly competitive environment (Ottenbacher and Harrington, 2007). Success in this industry, therefore, depends on chefs who can be considered as the most influential people in the restaurant business and who have to continuously develop their culinary creations in order to satisfy their customers and achieve profit targets.

Within varying social and cultural contexts, gender differences in creativity tend to present different outcomes. Vernon (1989) states that in western culture, female in the arts and sciences is limited compared to that of males achievement. Vernon (1989:107) notes that “most writers attribute this difference to sex-role stereotypes and differential pressures on the sexes that is exerted by parents, peers, schools, and society in general”. It is because gender role stereotypes and differential pressures on the gender are exerted by parents, schools, peers, school and society in general (Vernon 1989).

Creativity outcomes can differ from cultures and places. Mar’I and Karayanni (1983) note that “in Arab cultures males tend to perform better than females on creativity tasks which may be attributed to female’s submissive social roles, limited occupational choices and/or limited schooling opportunities”. Perhaps females will tend to be more creative in general than males in a matriarchal culture (Lubart, 1999). Nevertheless, according to Lubart (1999), “it is important to note that contradictory findings often exist for studies conducted within a single culture. Thus, the existence of gender-based differences on the quantity or quality of creative work remains an open question”.



Taking an historical perspective of the culinary industry, it is clear that perceptions of the culinary profession as a male-dominated industry are socially constructed. Only in recent years, have female chefs progressively increased their presence in the modern societies including Chinese culture and elsewhere in the world.

Chefs, the soul of the restaurant, can be identified as culinary artists (Horng and Lee, 2006). Peterson and Birg (1988) propose that chefs are like commercial artists who have to develop their creations to meet market demand within time limitations. To reach the highest level of culinary excellence, chefs require intense levels of dedication and professionalism in order to spark their creativity (Pratten, 2003). Although their skills and expertise can be developed from their accumulated experience and can be tested from their culinary creations and certification, their creativity is difficult to measure by easily identifiable tools and measures.

“Without creative thinking in the realm of food, there would be no noodles, no puff pastry, no sauce Bearnaise, no Peking Duck” (Auffrey, 2009:1), an argument which demonstrates the important role of creativity in the culinary industry. In addition, the example of the culinary revolution of nouvelle cuisine, which reimaged the food industry in the 1970s, was “underpinned by creativity” (Gillespie, 1994, Horng and Lee 2006 cited in Robison, 2011:36). Horng and Lee (2009) note that culinary creativity is a skill-oriented discipline, which they argue, is the key to upgrading the status of culinary professions. Unlike creativity in general, Chossat and Gergaud (2003) define culinary creativity as the refinement of classical or traditional culinary art, which indicates that culinary creativity is not completely created from new (Horng and Hu, 2008:376). This demonstrates one of the unique characteristics of culinary creativity.

Consequently, to develop culinary creativity is an important task for each chef who is required to have knowledge of food science, food preparation, nutrition, cooking techniques, and aesthetics in order to spark their creations (Horng and Lee, 2009) and meet market demand. Therefore, training for culinary creativity is important to

both the culinary industry and academia where industry chefs can gain reputations on the basis of their creativity and academic students can benefit from culinary education for their future career development. In terms of the issue of developing future chefs, Ferguson and Berger (1985:74) see creativity as a business skill, so it follows that “fostering creativity should be one of the goals of hospitality education”.

Taiwan is a relatively small island which does benefit from unforgettable or iconic scenery or attractions that, in themselves, can attract tourists from all over the world. However, Taiwan has a great food tradition which has been influenced by many nationalities. In Taiwanese society, culinary industry shows the clear influence of Japanese, Mainland Chinese and various strands of western culture. This is because Taiwan has been exposed to periods of colonial rule by different countries. Thus, culinary development in Taiwan remains rich in its diversities and is an open-minded industry. Over the last 10 years, culinary education in Taiwan has been a popular subject to study. Unlike a majority of approaches to culinary education around the world, Taiwanese culinary education is rather conservative in terms of curriculum design and development which follows the common higher education system in its planning and the culinary industry in Taiwan. The researcher believes that culinary education is closely linked to the culinary industry, therefore, to focus on culinary education development can enhance future culinary industry development. Furthermore, building on the researcher’s own education and working experience in the culinary industry and education, the purpose of choosing research into culinary creativity in Taiwan is to build a strong culinary education in order to ensure that those entering the culinary industry are able to promote creative culinary tourism in Taiwan.

### 1.3 RESEARCH SIGNIFICANCE AND SCOPE

In the past within foodservice labour markets, chefs were trained by their mentors (Horng and Lee, 2009), where they learned to become a chef through skills development and accumulated experience. They were not involved in any management skills training. Johnson, Surlemont, Nicod, and Revaz (2005) note that

there are two education and training routes to becoming a chef, one being the traditional way which starts from apprenticeship (professional long-term on-the-job training) in industry; and the second is the academic route of earning a diploma within a hospitality and culinary subject which offers more general courses and has more limited on-the-job training opportunities. They found that chefs who have a degree appear to have earlier success in opening restaurants than those in the apprenticeship route. Generally, academia assists by offering future chefs managerial and financial skills, which go beyond core culinary skills.

With the popularity of food-related programming on television and on the Web, Severson (2007) notes that TV celebrity chefs have given a positive image to culinary education and the industry. However, this does not always match the reality in the industry. This leads to a current issue in culinary education, high enrolment for culinary education but a low willingness to work in the culinary industry in Taiwan and many other parts of the world.

According to Horng and Lee (2009), until recent years, culinary education in higher-level institutes was a booming segment in Taiwan education. This brought benefits to many generations of young people, enabling them to pursue their dream. Thus, students could learn from a systematic curriculum of both theoretical and practical for their future career. Despite the decreasing birth rate in Taiwan, the number of students in hospitality education is not decreasing but is increasing. With the popularity of food and travel TV programmes and changing style of living in Taiwan, people realize that learning a profession can be better a life-time skill. Thus, among service related industries, hospitality education is a popular subject to study in Taiwan. This leads to concerns about quality in hospitality education, in terms its curriculum design and educator competence. In view of the demand for culinary quality, educators are required to give more not less attention to their role (Yang, 2012). However, according to a Taiwan Yahoo survey of the top 10 that need to be changed in university campuses (Yahoo:2012), the number one is the academics where teaching content is deemed out of touch with industry practice.

This demonstrates that the issue of the quality of educators is a concern to culinary education. In addition, Müller, Van Leeuwen, Mandabach, and Harrington (2009) identify the issues of differing expectations between graduate students and industry employers which lead to the issue of linkages between academia and industry in the cultivation of future culinary chefs.

There is a clear need for culinary education research to “raise the quality of culinary education and the standard of the culinary professions” (Horng and Lee:2009:101). The study of creativity in the culinary field has been limited (Horng and Lee, 2006). Essentially, research focuses on the creativity process (Horng and Hu, 2008), innovation development and process prospect by Stierand and Lynch (2008), Harrington (2004), and Ottenbacher and Harrington (2007), personality (Horng and Lee, 2006), and environment (Horng and Lee, 2009), which all fall under Process, Person, Press (environment) and Product in Rhodes’ (1961) 4Ps model of creativity. In addition, other related culinary research focuses on curriculum (Hu et al., 2006; Müller et al., 2007), training and retention (Pratten, 2003), and occupation (Peterson and Birg, 1988). However, there has not been any particular study in training for culinary creativity from an educational point. It appears that culinary education and the culinary industry cannot match the chain of demand and supply. Therefore, based on the 4Ps model of creativity (Rhodes, 1961), this research focuses on exploring the role of applied creativity and its meaning to the culinary industry. By investigating the impact factors of the culinary creativity development process, this research will explore the 4Ps model from both academic and industry perspectives in order to find possible gaps between them. Lastly, this research will investigate the potential for training for culinary creativity through academia and industry.

#### 1.4 RESEARCH OBJECTIVES

This research study aims to investigate training for culinary creativity through formative education in upscale hotels and restaurants (5\* or equivalent) in Taiwan. The objectives of this study are:

To explore the role of applied creativity in the upscale culinary industry

To investigate the impact factors on the development of culinary creativity  
To investigate training in the culinary creativity development process  
To explore the difference in creativity training development from academic and industry perspectives.

## 1.5 RESEARCH QUESTIONS

Drawing in the stated aims, this study raises a number of research questions.

Q 1: What is the role of applied creativity in the upscale culinary industry?

Q 2: What are the implications of personal characteristics and environmental factors on culinary creativity development?

Q 3: What are the implications of training as a mediator in the culinary creativity development process?

Q 4: What are the gaps between academic and industry perspectives in creativity training development?

## 1.6 RESEARCH OUTLINE

This research is organized into eight chapters.

Chapter one presents the research background, research aims and questions, significance and scope of this research and is followed by an outline of the structure of the thesis.

Chapter two addresses the relevant literature, which consists of creativity in general, and also the concept of creativity specifically relating to the culinary industry. It begins with definitions of creativity and debates the origin of creativity, followed by creativity in the culinary industry. A review of the 4Ps Model (Rhodes, 1961) is applied to explain creativity in general, and also in the culinary industry. Lastly, education and training within the culinary industry are addressed.

- Chapter three explains the methodology and the process of data collection in study which includes research paradigms, research design, research methods, data collection and analysis. The first section of this chapter begins with research paradigms and design. The second section justifies adopting mixed method in study. The third section, addresses data collection method, analysis, and its challenges and limitations. Personal reflections follow and lastly conclusions are drawn.
- Chapter four presents the interview findings with three main themes: defining culinary creativity, training and education and gaps between industry and academia.
- Chapter five presents the AHP (Analytical Hierarchy Process) survey findings. The first section presents outcome from both industry and academic perspectives. The second section presents individual industry and academic outcomes. Lastly, comparison between industry and academia in relation to AHP outcome at level 2 and level 3 are presented.
- Chapter six presents the modified Delphi technique findings. The first section presents the questionnaire outline. The second section presents the modified Delphi round one outcomes. The third section presents round two findings and comparisons between industry and academia participants.
- Chapter seven discusses the three-phase findings and compares these to previous research. The four main research questions are addressed in light of the findings.
- Chapter eight concludes this study by presenting the theoretical contributions of the research followed by practical implications, limitations, recommendations for further research and final reflections.

## Chapter 2 LITERATURE REVIEW

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### 2.1 INTRODUCTION

This chapter reviews the literature relating to creativity in general as well as the concept of creativity as it specifically applies to the culinary industry. The chapter begins with definitions of creativity and debates the origin of creativity in general, followed by the nature of the culinary industry and creativity in the culinary industry. Based on the 4Ps (Product, Process, Person and Press) (Rhodes, 1961), this chapter considers diverse interpretations of creativity in general and uses this as the basis for consideration of how s creativity in the culinary profession is interpreted. The chapter then moves on to creativity training and education, and issues of trainability within the culinary industry and academia are addressed.

### 2.2 DEFINITIONS OF CREATIVITY

It has been noted that there are numerous varying definitions of creativity from different perspectives. These varying definitions create an immediate challenge within this study because considered judgements need to be made with respect to how our understanding of culinary creativity can be accommodated within them. A useful starting point is Johnson-Laird (1988) who considers creativity to be a mystery, and argues that many people believe that it should remain a mystery. Laird points approvingly to a recent dictionary of psychology (Reber, 1985 and Reber & Reber, 2001: 165) which offers the following definition:

*“Creativity, a term used in the technical literature in basically the same way as the popular, namely, to refer to mental processes that lead to solutions, ideas, conceptualizations, artistic forms, theories or products that are unique and novel”*

This generalised definition, while it may not be wholly adequate in some areas of the creative arts, has a sense of applied realism with which practitioners in the culinary field may be able to identify.

Taylor (1988:118) presents six major groups of creativity definitions that highlight the main themes that emerge (Table 2.1). Firstly, “Gestalt” or “Perception” creativity emphasises the recombination of ideas or the restructuring of a “Gestalt.”

Wertheimer (1945, cited in Taylor, 1988) says that “creativity is the process of destroying one gestalt in favour of a better one”. Secondly, “end product” or “innovation” is considered in number of definitions. Stein (1953, cited in Taylor, 1988) explains that “creativity is that process which results in a novel work that is accepted as tenable or useful or satisfying by a group at some point in time”. Thirdly is “Aesthetic” or “Expressive” creativity, where the major emphasis is upon self-expression. Fourthly, “Psychoanalytic” or “Dynamic” creativity is defined in terms of certain interactional strength ratios of the id, ego and superego. Fifthly, “Solution Thinking” creativity places the emphasis upon the thinking process itself rather than upon the actual solution of the problem. Lastly, “Veria” creativity refers to Rand (1952 cited in Taylor, 1988) who sees creativity as the “addition to the existing stored knowledge of mankind”. From these six groups, some definitions constrain elements that fall into different groups. Thus, in order to define creativity, one must consider a range of factors, which include interactions, translations, rearrangements, evolutions and stimulations, as well as the creator’s (person) own abilities and personality in order to produce a product and be accepted and satisfied by a group.

In summary, De Dreu (2010) summarizes a number of researchers’ perspectives to argue that creativity is often identified from three aspects, person, product and process. Person is related to the personality profiles of those perceived to be ‘creative geniuses’ compared with less gifted individuals (De Dreu, 2010). In a narrow sense, this concept also refers to the abilities that are most characteristic of creative people (Guilford, 1950). This approach is reminiscent of ‘great man’ theories in the field of leadership and, while alluring in its simplicity, has little empirical evidence to support its main tenets. Other psychologists define creativity as an ability to synthesize disparate ideas or to see the unusual in what would commonly be considered ordinary (Ferguson and Berger, 1985). In a broad sense, others argue that a person’s creativity may be linked to personality traits that include intrinsic motivation, wide interests, and openness to experience and autonomy. Kozbelt,



Beauviale and Runco (2010) refer to behaviour traits which consist of aptitudes, interests, attitudes, and temperamental qualities (Guilford, 1950). Furthermore, personality traits and behaviour traits could be influenced through hereditary or environmental determinates to varying degrees (Amabile, 1996).

Product is related to outputs and processes concerned with the promotion or inhibition of creative performance (De Dreu, 2010). Lee, Theng, and Goh (2005:461) point out that

*“product-oriented views associate creativity to attributes of the outcome. Only when an outcome is both novel and valuable can creativity be said to have happened” (Akin and Akin, 1998 cited in Lee et al., 2005).*

Amabile (1990) notes that of the three, ‘product’ is the most straightforward and scientifically conservative, and is easily observed. Thus, Amabile argues, focusing on product is also the most objective approach, concerning, for example, works of art, inventions, publications, and musical compositions which can be counted, viewed, and judged (Kozbelt et al., 2010). However, a counter argument is that product-driven approaches focus only on the end result, which cannot reveal the actual person who demonstrates creative traits and behaviour, or the creative potential during the creative process.

The process-oriented definition emphasizes creativity as a process, which results in innovative products, whereas the product-oriented definition is considered to be associated with creativity outcomes (Lee et al., 2005). Kozbelt et al., (2010:24) note that the creative process aims to understand the nature of the mental mechanisms that occur when a person is engaged in creative thinking or creative activity. Process theories typically specify different stages of processing (e.g., Mace and Ward, 2002; Simonton, 1984; Wallas, 1926; Ward, Smith and Finke, 1999) or a particular mechanism as the components of creative thought (e.g., Mumford, Baughman, Maher, Costanza, and Supinski 1997; Mumford, Mobley, Uhlman, Reiter-Palmon, and Doares, 1991). The key issues in the creative process are the roles of conscious versus unconscious processes, stochastic processes versus more controlled and

guided processes and the reliability of evaluation processes during the process (Kozbelt et al., 2010).

The definitions of creativity have been widely acknowledged from person, product and process approaches, which according to these different approaches, are tied closely to environmental influences at various stages. Different domain fields show different cognitive processes; however, the creative process will depend on the same components and be influenced by the same social factors.

Table 2.1 Definitions of Creativity

| Keywords                         | Author                      | Definition  |
|----------------------------------|-----------------------------|---|
| 1. "Gestalt" or "Perception"     | Werthimer (1945)            | "process of destroying one gestalt in favour of a better one"   |
|                                  | Keep (1957)                 | "the interaction of two ideas for the first time"   |
|                                  | Duhrssen (1957)             | "translation of knowledge and ideas into a new form"  |
| 2. "end product" or "innovation" | Stein (1953)                | "creativity is that process which results in a novel work that is accepted as tenable or useful or satisfying by a group at some point in time" |
|                                  | Webster's dictionary (1953) | "to create" is defined as "to bring into being," "to produce as a work of thought or imagination"   |
|                                  | Harmon (1955)               | "any process by which something new is produced—an idea or an object, including a new form or arrangement of old elements"                      |
| 3. "Aesthetic" or "Expressive"   | Lee (1957)                  | "the creative process can be defined as ability to think in uncharted water without influence from conventions set up by past practices"        |

Table 2.1 Definitions of Creativity

| Keywords  | Author          | Definition  |
|---|-----------------|---|
|   | Lange (1957)    | “the creative process is God, the creator working through his creation, man”  |
|   | Ghiselin (1955) | “the process of change, of development, of evolution, in the organization of subjective life”   |
| 4. “Psychoanalytic” or “dynamic”  | Bellak (1958)   | “Assumes that all forms of creativity are permanent operant variables of personality and he subscribes to the notion that to be creative the ego must regress in order for preconscious or unconscious material to emerge” (Taylor, 1988) |
| 5. “Solution Thinking”<br>Emphasis is upon the thinking process itself rather than upon the actual solution of problem. | Spearman (1931) | “creativity is present or occurs whenever the mind can see the relationship between two items in such a way as to generate a third item” (Taylor)   |
|   | Guilford (1959) | “ability to develop information out of what is given by stimulation”  |
| 6. “Varia”  | Rand (1952)     | “addition to existing stored knowledge of mankind”  |

Source: Taylor (1988:118)

Unlike researchers who suggest creativity is associated with one of product, person or process, Amabile (1996) indicates that creative thinking depends to some extent on personality characteristics but that the social environment can also influence the development of creativity. She proposes the component model of creativity which is most likely to be applicable when people’s skills overlap with their strongest intrinsic interests so that “creativity intersection” occurs (Amabile, 1997). The component model of creativity combines expertise, creativity skills, and task motivation. Domain-relevant skills are the basis for any performance to progress and

include memory for factual knowledge, technical proficiency and special talents in the domain in question (Amabile, 1990:76). Creativity-relevant skills involve a cognitive style in viewings new aspects of problems, and application of the discovery of new cognitive pathway, and a working style conducive to the constant, energetic pursuit of one’s work (Amabile, 1990).

Table 2.2 Components of Creative Performance

|            | Domain-Relevant Skills              | Creativity-Relevant Skills   | Task Motivation   |
|------------|-------------------------------------|--|---|
| Includes:  | Knowledge about the domain.         | Appropriate cognitive style.   | Attitudes toward the task.  |
|            | Technical skills required.          | Implicit or explicit knowledge of heuristics for generation novel ideas. | Perceptions of own motivation for undertaking the task.           |
|            | Special domain-relevant “talent”.   | Conductive work style  |   |
| Depend on: | Innate cognitive abilities.         | Training   | Initial level of intrinsic motivation toward the task.            |
|            | Innate perceptual and motor skills. | Experience in idea generation  | Presence or absence of salient extrinsic constraints.             |
|            | Formal and informal education.      | Personality characteristics  | Individual ability to cognitively minimize extrinsic constraints. |

Source: Amabile (1996:84)

Skills can be seen to depend on personality characteristics which relate to independence, self-discipline, orientation toward risk taking, tolerance for ambiguity,

perseverance in the face of frustration, and a relative unconcern for social approval (Barron, 1955; Feldman, 1980; Golann, 1963; Hogarth, 1980; MacKinnon, 1962; Stein 1974 ). Task motivation includes two elements: “ the individual’s baseline attitude toward the task and the individual’s perceptions of his or her reasons for undertaking the task in a given instance” (Amabile, 1990:79). Amabile also states that part of intrinsic motivation depends on personality as well as the social environment, which can have a considerable influence on the person’s level of intrinsic motivation at any point. This could lead to a conclusion that creativity is more than person, product and process. On the basis of this analysis, it can be argued that environmental and skill factors are essential for creativity development.

Numerously definitions of creativity have been drawn from these various approaches: process, product, person and component-driven. While not always incompatible, the differing approaches to interpreting creativity, in themselves, do not provide a satisfactory explanation for a phenomenon that has considerable importance to most societies in both economic and cultural terms. Depending on which domain and aspect is selected, the creative approach can be explained and defined differently. However, it may be possible to reveal the ‘mystery’ of creativity by combining these approaches and find that the final purpose of creativity is to make things better and to be appreciated by people.

### **2.2.1 The Difference between Creativity and Innovation**

The concepts of creativity and innovation are frequently interchangeable in the literature (Martins and Terblanche, 2003), so it is necessary to address how these concepts inter-relate in the context of this study. Creativity is a starting point for innovation by individuals and teams (Amabile et al., 1996:1154). “All innovation begins with creative ideas. Successful implementation of new programs, new product introductions, or new services depends on a person or a team having a good idea and developing that idea beyond its initial state” . Yeh (2004) notes that innovation refers to the successful implementation of creative ideas within an organization. A majority of definitions of innovation are related to implementation of “ideas,

processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, organization or wider society” (West and Farr, 1990 cited in Martins and Terblanche, 2003:67), a definition that leaves innovation not so far removed from many explanations of creativity..

Kuratko and Hodgetts (1989) facilitate the understanding of innovation by classifying it into three types: extension, duplication and synthesis. Extension is a new use or different application of an already existing product, service or process. Duplication is a replication of an existing concept. Synthesis is a combination of existing concepts and factors into a new formulation. These classifications are similar to some definitions of creativity and, indeed as will be seen, provide a useful starting point for an examination of aspects of culinary endeavour. However, McLean (2005: 228) points out that innovation operates more at group and organizational levels with a focus on “interrelationship, interactions and dynamics among actors, components of the organization and its environment”. On the other hand, McLean continues by creating a distinction in that ,“creativity is a phenomenon that is initiated and exhibited at the individual level. The individualistic approach to distinguishing the two concepts focuses on variables such as personality (Feist, 1999), motivation (Collins and Amabile, 1999), and expertise (Weisberg, 1999). Consequently, this approach leads to an interpretation of creativity as “the ability to produce work that is both novel and appropriate” (Sternberg and Lubart, 1999:3) which is often linked to the individual’s ideas, invention and breakthrough (McLean, 2005).

This collective - individual distinction leads to an approach which is extended by Roberts (1988) who sees innovation as ‘invention + exploitation’. Invention is aimed at creating new ideas and applying them. This means that creativity is the first stage of the innovation process, an interpretation similar to Amabile’s (2004:1) insight that “no innovation is possible without the creative processes”, which includes identifying problems and opportunities, gathering relevant information, generating new ideas and exploring the validity of those ideas. In addition, exploitation includes commercial development, application and transfer toward objectives, an important

extension in the context of this study of culinary creativity. Consequently, “innovation is a process whereby new ideas are put into practice” (Rickards, 1985:10). While both concepts have significance, it can be concluded that the concept of creativity is more appropriate in this culinary research, which explores the 4Ps of creativity (creative person, creative product, creative process and creative press) (Rhodes, 1961) in seeking to understand the origin of creativity in the culinary industry.

### **2.2.2 Creativity in the Culinary Industry**

Innovation in hospitality can improve the quality and reputation of an organization, and is an important resource of survival and growth in the service sector (Ottenbacher and Gnoth, 2005). They further point out that innovations in the hospitality industry are mostly intangible which makes them difficult to measure and evaluate, except via their contributions to customer satisfaction and profit growth. Robinson (2011:36) extends this argument and highlights the challenges faced in locating culinary processes and production within mainstream definitions of creativity when he argues that “in the hospitality sphere, the literature is rich in supporting the notion that cookery is a creative occupation, yet the definition of ‘creativity’ alters somewhat, depending on context which can be the organizational setting, leadership, empowerment and intrinsic motivators”.

A useful starting point in this discussion and one which drives the conceptualisation of culinary creativity which is adopted here is to posit that the purpose of creativity in the culinary industry is to increase sale and profit and improve the quality and reputation of an organization which is vital to advance culinary professions (Horng and Hu, 2009). This is a significant shift from the body of argument with respect to creativity in a more general sense. One of the difficulties in pinning down a clearer understanding of culinary creativity is that empirically-based creativity research in this area has been relatively limited. Culinary creativity is not often considered to be one of the visual arts because of the multi-sensory experience that underpins judgement of its outcomes. Culinary creativity is frequently seen in tangible terms and

considered as a “skill-oriented discipline” (Horng and Lee, 2009:100), intended to satisfy basic human needs (Horng and Hu, 2008). Chossat and Gergaud (2003:130) note that culinary creativity is aimed at “introducing radical changes in the traditional way of cooking, or experimenting with new combinations of foodstuffs like fish and meat in the same course. Classical or traditional cooking signals the reproduction by a chef of the French gourmet cuisine standards or canons (*volaille en vessie* or *boeuf bourguignon*)”. From the previous literature, there are only few descriptions of creativity in the culinary profession. Most previous culinary research focuses on various aspects, culinary curriculum (Hu et al., 2006; Muller et al., 2007), environmental factors (Horng and Lee, 2009), personal characteristics (Horng and Lee, 2006), culinary innovation (Stierand and Lynch, 2008), innovation development process (Harrington, 2004; Ottenbacher and Harrington, 2007), creative process (Horng and Hu, 2008) and training and retention (Pratten, 2003), creativity and intention to quit (Robinson and Beesley, 2010). It seems that creativity in the culinary industry is still requires more attention from a research perspective.

Culinary creativity has, arguably, played a key role in the culinary revolution. For example, the culinary ‘revolution’ of *nouvelle cuisine*, which dramatically changed the food industry in the 1970s, is an example of creativity-inspired change (Robinson, 2011). An example of this culinary revolution, ‘*la nouvelle cuisine Française*’, is Bocuse’s version of ‘*la cuisine du moment*’, which was influenced by mentor Chef Point. “The secret and soul of *nouvelle cuisine* lay in the simple act of following Chef Point’s insistence on cooking according to the day’s market, cooking it at the last minute, individually for each client, and cooking it perfectly” (Chelminski, 2005:6). Further, Point demonstrates his philosophy of cooking that “the simplest dishes that are the hardest to master”. The *nouvelle cuisine* approach can be taken as an example of one style of culinary creativity and is still deeply influenced by considerations of how cuisine should be prepared, presented and appreciated.

Horng and Hu (2009:376) summarize that “in the French culinary tradition, creativity is the refinement of classical or traditional culinary art (Chossat and Gergaud, 2003), and top chefs do need to know the classical arts to refine them”.



This is a representation of culinary refinement rather than development from completely new which is similar to the argument put forward by Robinson and Beesley (2010:767) who note

*“a chef ‘creates’ a meal: raw ingredients are skilfully selected, prepared, combined, transformed, cooked and presented to be enjoyed by the consumer. From this perspective, creativity need not always mean something new or ‘novel’ as has hitherto been the focus of discussion, but is aligned more with ‘creation’, and where creativity (new and novel combinations of ingredients, variety, aesthetics, and ‘artistry’) exists on a continuum”.*

Frumkin (2005:78) presents interview findings with some well-known chefs in the USA and the UK where each chef defines and describes culinary creativity differently. Culinary creativity can be considered ‘of the moment’, ‘as a product’, ‘experience’ (your growing up, your travels, your observations and memory), ‘a cycle of change’ (transformation), ‘a process like playing musical instrument’ and ‘psychology and flavour memory’ (childhood memory and experiments). These diverse descriptions are difficult to categorise and distil into a single and universally applicable definition and this ambiguity of meaning is an evident cause of difficulty for this research., Furthermore, some chefs even questioned whether reference to culinary creativity will be valid a decade hence asking whether new wave of culinary invention “is truly creative at all, contending that many new dishes that are being praised as originals are simply reinterpretations of classic preparation” (Frumkin, 2005:78). Parseghian (2002) argues that truly creative cuisine depends on the ability to combine the knowledge of various cultures and experience of other cultures and travelling in order to stimulate the combination of culinary creativity. Therefore, the creation of a new culinary product requires merging of into the nature of its style of cuisine, which echoes with “creativity is synonymous with cookery has its origins in antiquity as evidenced in the writing of Apicius” (Vehling, 1977 cited in Robinson, 2011:36). Each cuisine represents the cultural background and history which lies behind it.

The role of applied creativity in the culinary industry has been described from different perspectives. However, it is possible to define culinary creativity from its

roots in creativity in general focusing on product-orientation, process-orientation, experience (press)-orientation or even personal philosophy. Ultimately, this analysis concludes that the final goal of culinary creativity is to satisfy customers, upgrade restaurant reputations, and maximize organizational profit. In the context of this research, it is important to explore the role of creativity in the culinary industry and to reach an applicable understanding of what this means in a commercial kitchen context.

### 2.3 DEBATES ABOUT THE ORIGIN AND NATURE OF CREATIVITY

Tardif and Sternberg (1988:440) note the nature of creativity, by arguing “clearly, creativity, like food, has many natures, and psychologists, as tasters and samplers, are just beginning to distinguish among them”.

There are four questions of frequent debate in relation to the nature of creativity:

- How can scientific and artistic creativity be defined? (Vernon, 1988)
- Is creativity generic? (Tardif and Sternberg, 1988)
- Is creativity available to everyone? (Tardif and Sternberg, 1988)
- Can creativity be trained or educated? (Runco, 2008)

#### *How can scientific and artistic creativity be defined?*

The different types or areas of creativity show some diversity and some similarities with scientific and artistic creativity. Scientific creativity involves some existing knowledge, either to advance a theory or a new idea or process. On the other hand, artistic creation may give new representation of life or feeling. However, there is not usually a development from prior representation (Vernon, 1989). Feist (1999:290) notes that personal characteristics demonstrate the main differences between artists and scientists. He points out that “creative people in art and science tend to be open to new experiences, less conventional and less conscientious, more self-confident, self-accepting, driven, ambitious, dominant, hostile, and impulsive”. In the same way, Landau (2007:192) notes that “the creative attitude makes a difference between

a scientist and a technician, between an artist and a copyist”. However, this does not offer solutions but rather formulates the problem. Furthermore, Simonton states that both types of creativities require similar mastery of skills, however personality differences lead individuals to particular pursuits. He explains that “the major criterion is how much restraint in the creative process, science has to be constrained to scientific process, but there is a lot less constraint on artists” (cited in Kersting, 2003:40). Feist (1999:290) summarizes that creative people in arts and science have their own distinct and unique personality profiles: “Artists are more affective, emotionally unstable, as well as less socialized and accepting of group norms, whereas scientists are more conscientious”. The evidence, therefore, suggests that definitions remain problematic and, indeed, contextual so that it is legitimate to explore for and reach a working definition that is applicable within the specific culinary context.

### *Is creativity generic?*

Creativity is often linked with several other terms, which can be used interchangeably with one another. Vernon (1989:94) distinguishes the relevant terms: talent, genius, prodigy and gifted and these are reinforced by Heller (2007). First of all, talents are the skills, which vary in different sciences and arts. It is often considered to involve a genetic component, and may present differently in diverse professions. Secondly, genius is immeasurable with high creative abilities. Vernon (1989) indicates that there is strong evidence for genetic factors responsible for outstanding genius, both in the arts and the sciences. Whereas, Lee et al. (2005:461) discuss the work of Weisberg (1986) who argues that creativity is a trait everyone has and that novelty results from the use of similar thinking processes. Weisberg claims that the thinking processes used by both great and ordinary individuals are similar. Thirdly, prodigy refers to superior skills or talents within a peer group. Lastly, gifted refers to children or adults whose abilities are much higher than others, which is also considered in part genetic in origin. Moreover, creativity also refers to cognitive abilities that provide a significant contribution to problem-solving, both in general and in specific domains (Heller, 2007). However, there is no evidence to confirm or disprove genetic theories. Highly creative scientists or artists tend to present a great

many differences in their personality and home background. Given the fragmented nature of evidence here and observation of the field in practice, in the context of culinary creativity, it is difficult to sustain a credible argument for genetic influences on culinary creativity.

### ***Is creativity available to everyone?***

One of the most common questions relating to creativity is whether creativity is available to everyone or not? Some authors believe that creativity only occurs in special individuals (e.g. Edisons, Einsteins, Freuds, Mozarts, and Picassos) at rare moments in time. However, others believe creativity can occur through a normative process which is available to everyone (Tardif and Sternberg, 1988). Weisberg (1986) argues that creativity exists in everyone. Further, he highlights that everyone has creative traits and the novel results from the practice of similar thinking process (Lee et al., 2005). According to Tardif and Sternberg (1988), some authors (Barron, 1969; Csikszentmihalyi, 1988; Gruber and Davis, 1988; Hennessey and Amabile, 1988) believe that creativity is achieved when the ‘right’ combination of particular issues, skills, individual, and social setting comes together for everyone. The conclusion reached here is that, given the appropriate training and wider environmental conditions, elements of creativity are accessible on a wide scale and not confined to a small number of ‘great men’.

### ***Can creativity be trained or educated?***

Can creativity be trained or taught to people? Many authors (Amabile, 1983; Amabile and Tighe, 1993; Copley, 1992; Dominowski, 1995; Finke, Ward, and Smith 1992; Guilford and Tenopyr, 1968; Hennessey, Amabile and Martinage, 1989; Stein, 1974, 1975; Sternberg and Lubart, 1996 cited in Nickerson, 2004) contend that creativity can be enhanced through training. From an educational perspective, many researchers note the importance of creativity in training and education. Runco (2008:101) believes creativity is something that can be found in every child, not just gifted or highly intelligent children. He thinks “creative potential is the direction of thought and action” which can be learnt through education. Similarly, Rhodes

(1961:308) states that “there is considerable research evidence to support the statement that the creative process can be taught”. Nickerson (2004) points out that approaches, such as brainstorming and creative problem solving, can help to enhance creativity in the classroom. However, there are many variables including abilities, interest, attitudes, and motivation that are believed to play some role in determining how creative an individual is likely to be.

The nature of creativity has been explored here in various forms within different fields. The origin and the debate around the nature of creativity are still under discussion and changeable as a result. Nevertheless, creativity is a human-bound potential, dependent on, demonstrated and manifested by a person, his/her thinking, acting, and doing in order to produce a new product (Urban, 2007). The essence of creativity is to create something useful or appropriate according to the specific task or discipline (Russ and Fiorelli, 2010).

### **2.3.1 The Role of Applied Creativity in the Culinary Industry**

The culinary industry is a competitive and intensive business and a distinguishing culinary vision can have a powerful appeal to potential customers. Frumkin (2005:75) quotes Tim Zagat (the president of Zagat food guide) who states, “unrestrained creativity is not the answer to a chef’s prayers. Ultimately, it is whether the dish tastes wonderful” (Frumkin, 2005:75). Culinary creativity takes various manifestations, whether as a creative product, creative process, or creative person. A culinary product is received and is evaluated by customers; chefs develop product through the culinary process and are evaluated by food cost; the culinarian is nurtured by experience and/or education.

Whether a chef can be considered as an artist who produces an art piece to be appreciated by customers, or whether she/he should be considered as a craftsman who has the required skills to produce good food to satisfy the hunger of consumers is an important question. Perhaps she/he can also be considered a scientist? There is some evidence from other researchers (Hegaty and O’Mahony, 2001; Peterson and

Birg, 1988; Horng and Hu, 2008; Robinson, 2011) who claim that culinary production and gastronomy are fine arts, and chefs should therefore be considered as artists. By contrast, Vikneswaran (2008) notes that most chefs do not only know how and why things work, but also require to some extent knowledge of scientific phenomena, such as emulsion and, vacuum-packing. Thus, science has been known and applied in the culinary field for many decades. Fine (1992:1271) notes cooks have a set of conflicting identities, being simultaneously artists, professionals, businessmen and manual labours (Fine, 1981 cited in Fine, 1992). In addition, professional cooking is situated amid demands for aesthetic choice, consistency, efficiency, autonomy and highly skilled technical work (Hall 1975:188-200 cited in Fine, 1992).

The hospitality industry involves:

*“commercial organizations that specialize in providing accommodation and /or, food, and or/drink, through a voluntary human exchange, which is contemporaneous in nature, and undertaken to enhance the mutual well-being of the parties concerned” (Brotherton and Wood, 2000:143).*

Food, atmosphere and service are identified by Campbell-Smith (1967) as the key elements in restaurants and could impact commercially on the provided meal (Jenser and Hansen, 2007:604). Thus, a restaurant is a commercial place, and customer tastes are always taken into consideration by chefs. Client demands are the main difference between the contemporary practitioners of the fine arts and chefs. Chefs are artists who can at least bend to client demands, and insist their occupational standings (Fine, 1996). In addition, Peterson and Birg (1988:67) discuss the occupation of a chef who is more like a “commercial artist” who is “less fully under control of the artist and more directly subject to the wishes of the consumers”. Perhaps, these culinary commercial artists are like many painters and writers who can produce their works, which are not necessary creative in the purest sense but are popular and fashionable and meet market demand.

Fine (1996:229) states

*“cooking has had an ambivalent and often distant-relationship to the world of art”. All diners agree that the sensory characteristics of what is served matter deeply to the outcome... Cooks must negotiate the ways in which they are expected to take aesthetic concerns into account but simultaneously must do this with the recognition that they are industrial employees, and that their ultimate goal, if they wish to remain employed must be to prepare food so as to be profitable and to satisfy both customer and managers. This is a delicate balance in that it involves questions of autonomy and control, craft and labour”.*

However, there are a range of factors that can also influence eating and food choice which can lead to customer satisfaction and organizational profitability. For instance, Rozin (1996) points to environmental/cultural factors, indirect personal factors, and social cultural aspects which occur prior, during and after food consumption. In addition, Meiselman (2002) also identifies that the eating environment can influence the difference in acceptability of the same products. The relationship between product acceptance and consumer satisfaction closely impact upon each other. Therefore, it is clear that the culinary industry is commercial and profit-making and satisfying customers are the major concerns. Different ambience and dining atmosphere may have direct or indirect influences on customers’ satisfaction. The role of applied creativity in the culinary industry plays a sensitive but not exclusive role in meeting customer expectations by a process which includes the continuous development of new ideas for culinary products but also maintains a balanced position in matching culinary fashion and market demand.

## 2.4 METHODOLOGIES EMPLOYED TO MEASURE/ACCESS CREATIVITY

The successful measurement of creativity is dependent on what methods are applied. Most studies have used ratings by individuals who are believed to have extensive creativity within the domain of interest. Specifically, laboratory studies have generally used expert judges to rate the creativity of ideas produced by research participants. Amabile (1996:66) discusses issues relating to the assessment of creativity, which is “much like the judgment of attitude statements on degrees of favourability” (Thurstone and Chave, 1929 cited in Amabile, 1990) or the

identification of individuals as physically attractive. Furthermore, she states that creativity may be very difficult for judges to define.

According to Amabile (1996:22) there are three major creativity-assessment techniques which can be grouped into three broad categories: personality tests, biographical inventories and behavioural assessments. Firstly, personality tests include traditional personality inventory forms based on “creativity scales” and generally, highly creative individuals describe themselves as altruistic, curious, self-starting rather than courteous, self-confident and obedient. Secondly, biographical inventories were designed on an intuitive basis and developed through testing samples of individuals rated high in creativity as well as those rated low or average. Thirdly, behavioural assessments include battery of tests, similar in administration and form to traditional intelligence tests, and are more test-like than the personality or biographical inventories.

The two most commonly used test batteries, and the criteria against which many other creativity tests have been validated are the Torrance Tests of Creative Thinking (TTCT, also called Minnesota of Creative Thinking, Torrance, 1962) and the Wallach and Kogan (WKCT, 1965). The TTCT consists of three categories: nonverbal tests, verbal tests using nonverbal stimuli and verbal tests using verbal stimuli to assess five mental characteristics: fluency, resistance to premature closure, elaboration, originality and abstractness of titles. It is appropriate at all levels, kindergarten through to adult. The WKCT is similar to the TTCT. The only difference is that WKCT focuses on specific components. For example, the participant would be asked to name as many things as she/he can with certain objects: wheels, rounds things and things that make noise (Roue, 2011). Both tests are considered as a type of divergent thinking test which “is the ability to consciously generate new ideas that branch out to many possible solutions for a given problems” (Dow, 2003). WKCT has been used in primary school students to test creative potential in domains of verbal and figural domains which is considered a useful in gathering data quickly and effectively (Cheung, Lau, Chan and Wu, 2010; Lau and



Cheung, 2010). TTCT has also been applied with secondary (Cheung and Lau, 2010) and college students (Lissitz and Willhoft, 1985). Both tests have computer based assessments which make them easy to administer (Lau and Cheung, 2010).

In general, both tests satisfy the complex and multidimensional coverage and vitality (Lau and Cheung, 2010). Both tests generate similar patterns of coefficients and inter-correlation eight creativity measures, which include reliability verbal, figural fluency, flexibility, uniqueness and unusualness (Lau and Cheung, 2010).

Amabile (1996) proposes a number of reasons for considering that creativity tests are unsatisfactory for application in social psychology. Firstly, there is the issue of validity, where many of the creativity tests are validated against one another. Secondly, many of the creativity tests assess a narrow range of abilities so that it is inappropriate to label a particular test performance as generally indicative of “creativity”. Thirdly, the purportedly objective-scoring procedures in many of the creativity tests are subjective. Thus, it is important to measure abilities and dispositions for creative performance. However, it is not appropriate to label the results as directly indicative of some global quality that can be called creativity. Ward (1974 cited in Amabile, 1996) argues that a “test score should not be considered a measure of creativity but, instead, should give narrower labels that more accurately capture the particular abilities assessed”. Furthermore, Amabile (1996) states that the combinations of innate skills, learned abilities and task attitude are necessary components in creative performance.

A majority of assessments focus on measuring products or persons as creative in a way which is similar in form to conventional intelligence tests. Moran (2009) points out that to measure creativity (product) one should consider the interaction of the three components: individual (person); field (press); and domain (process). However, Moran (2009) also notes that this is limited by the need for precise measurement. On the other hand, creativity within the food industry and organizations cannot be measured by objective means. In a practical and commercial sense, the creative product is produced and decided by the organization in order for it to proceed and be

accepted by customers. Therefore, the majority of creative products are accessed in a business transaction. Ottenbacher and Gnoth (2005:208) discuss measuring hospitality innovation success, where new services and products are most frequently based on financial measures of performance, for instance, revenue or profit-related-measures, such as sales volume or market share. Other indirect benefits include: improved image and enhanced customer loyalty and the ability to attract new customers. In the same way, the culinary industry is part of the hospitality industry, where culinary creativity can be measured in a similar way to hospitality innovation, so it depends on profit making, customers' feedback and organizational support. The nature of culinary creativity is based on the commercial environment with an aesthetic approach to create and satisfy customers within a limited amount of time (Peterson and Birg, 1988).

In summary, it seems that the role of applied creativity in the culinary industry demonstrates complex purposes, as an artistic form of cuisine to satisfy customers' demand, organizational goals and reputations. This is an important first step and takes discussion away from more abstract conceptions of creativity. However, defining the role of applied culinary creativity alone is still insufficient. What is required to further investigate the characteristics of culinary creativity and its implications for the culinary industry and education.

## 2.5 MODELS TO EXPLAIN CREATIVITY

One route by which to explore creativity in more depth and to gain greater understanding of how the concept applies within the culinary environment is the adoption of a model-based approach. There are a number of alternative models, designed to explain this phenomenon.

### *4Ps of creativity*

Because many definitions of creativity overlap and intertwine, Rhodes (1961) proposes four different approaches to the problem of measuring creativity, each involving one of four fundamental aspects. This model is called the four "Ps."

- (1) Press: The environment in which the creation comes about, that is, the creative environment (or climate or situation or place);
- (2) Product: The product of creating, that is, the creative product;
- (3) Process: The process of creating, that is the creative process;
- (4) Person: The person who is creative that is the creative person.

The term 'Press' refers to the relationship between human beings and their environment. "Creative production is the outcome of certain kinds of forces playing upon certain kinds of individuals as they grow up and as they function" (Rhodes, 1961:308). The term 'Product' refers to a thought that it has been communicated to other people in the form of words, or other material. Furthermore, "when an idea becomes embodied into tangible form it is called a product" (Rohde, 1961:309). The term 'Process' relates to "motivation, perception, learning, thinking and communicating" (Rhodes, 1961:308). What are the steps of thinking process? The term 'Person' includes information about "personality, intellect, temperament, physique, traits, habits, attitudes, self-concept and behaviours" (Rhodes 1961:307). The four strands have their own unique identity academically, but "only in unity do the four strands operate functionally" (Rhodes, 1961:307). Moran (2009:293) points out that:

*"creativity is a novel yet appropriate outcome of the interaction of individual, field and domain that influences the way others in the field use domain resources. The system corresponds to the 4Ps: the individual is the person, the field is the press with social focus, the domain is the process with its cognitive focus, and the outcome is the product".*

A robust model involves the 4Ps interacting with each other in a dynamic fashion in order to generate ideas and manage their application..

### **2.5.1 Press-The Creative Environment**

The environmental effects on creativity development have been increasingly considered for study in various senses, notably the work environment and the educational environment. The work environment is defined as the social climate of an organization which may include physical environmental variables (Amabile,

1989). Furthermore, social and environmental factors appear to play a critical role in creative performance, where social-psychological factors have an important impact on the productivity and creativity of outstanding individuals (Amabile, 1996; Boden, 1994). In scientific society, today it is extensively accepted that genetic and environmental factors, working in dynamic consort, influence intelligence (Reuter, 2007). Notwithstanding an individual's talents, expertise and skills, the conditions of social environment can significantly increase or decrease the level of creativity produce (Amabile, 1996).

From a macro-environmental perspective, a PEST (political, economic, social, technological) analysis (Middleton, 2003) is commonly applied in an environmental scanning framework to evaluate the environmental influences and understand the relationship of the macro-environment on creativity development. Simonton (1978 cited in Amabile, 1996:217) concludes that the creator's developmental period (childhood, adolescence, and early adulthood) influence later creativity, whereas virtually no social factors during the actual productive period have an impact. During the developmental period, several variables are influential: formal education, role-model availability, political fragmentation, civil disturbances, and political instability, which will be discussed in the following section.

#### *Culinary Creativity Environment*

The growth economic segment of creative cities and industries has been gradually replacing declining traditional industries in seeking to develop a creative economy. This change overlaps into tourism as well as there is considerable focus on developing creative or innovative solutions for tourism in many countries, such as Scotland (Huston et al., 2008). Consequently, culinary experience is a part of tourism experience. Many countries place emphasis on their culinary experiences to enrich their tourism industry, for example Thailand, Italy and Korea offer culinary courses within their travel package to promote their cultural experience and value which gain the reputation of their cuisines around the world.

In the past, in traditional societies, people shared their public taste and cultural value through interpersonal relationship of the group in a specific time and place to meet the conditions of their shared needs and experience (O’Sullivan, Dutton and Rayner, 1994 cited in Randall, 2000). However, in modern societies, media plays an important role communicating across the temporal and spatial boundaries of situated culture. “In this way, mediated messages have the potential to transform the values of other cultural groups” (Randall, 2000:82).

Media and publishing are considered a domain of the creative industries (Steam et al., 2008). In some cases the definitions of creative industries also include tourism industries (Richards, 2011). “The role of the media is an examination of the ways by which societies construct sets of cultural values” (Randall, 2000:82). It has great influence on consumer tastes and behaviour. “Food and beverage are articulated by the media with universal concepts of tradition, community, and belonging.... In an increasingly competitive and mass mediated world, knowledge of these contemporary tastes, as well as the ways in which the media communicates to the consumer, can assist the design and management of food and beverage establishments and their product” (Randall, 2000:94). Riley (2000:188) notes that, to some extent, “tourism has acted as an engine of cultural dispersion”. “One of consequences of the growth of tourism lead to tastes becoming mobile across national boundaries”.

This demonstrates a clear wider context for an interest in culinary creativity from an academic as well as a social, economic, technological and political point of view. According to Richards (2011:1226), “creativity was historically associated with the creative person, although Amabile (1996) suggested that in recent decades creativity research has increasingly tended to highlight the creative product. The contemporary emphasis seems to have shifted again, both towards the social context and the broader environment of creativity”. Correspondingly, European Affairs (2009) propose that six pillars of creativity are considered as essential dimensions of creativity, innovation and economic performance: human capital, institutional environment, openness and diversity, social environment and technology. Cultural

and creative industries are progressively considered to be drivers of creativity and economic growth throughout the economy (European Affairs, 2009). These six pillars demonstrate a close relationship between environmental factors to creativity development. The final goal of creative industries and cities is to highlight advantages, promote culture and generate profit.

### ***2.5.1.1 Political Environment***

Political factors to some extent may demonstrate a certain degree of implication to creativity development in particular countries, industries and organizations. Frey (2002:373) discusses the issue of the government system towards to creativity in arts, where he states that democratic governments are committed to tolerate divergent views, which allows for more forms of the arts. Additionally, he states that “government policies tend to undermine intrinsic artistic motivation and therewith creativity”. Karkhurin and Motalleebi (2008) found that the political situation of a country can influence the structure of education systems as well as the tradition of raising children within families.

When there is a case of changing the governmental leadership or an economic downturn, from an organizational perspectives, Puccio and Cabra (2010) note that some studies suggest that the policy, process and decisions of a government can have deleterious effects on organizational creativity. Political and social dynamics are outside of the industry and organization’s control, thus, these can have an effect on the progress of creativity.

By applying political histories and time-series analysis, Simonton (1975) found that political issues have an impact on personal creativity development within an environmental setting for several reasons. He categorized the societies by the extent of political fragmentation, civil disturbances and political instability.

Political fragmentation

*“A larger number of independent states during the developmental period of the creator is positively related to later achieved eminence. This relationship might obtain because the number of independent states*

*indicates the degree of cultural diversity in a nation; cultural diversity might be generally conducive to creativity” (Amabile, 1996:220).*

For instance, societies embracing multiple political entities or parties tend to present greater rates of creativity activity (Simonton, 1975). Political factors are beneficial to multiple sources of power which can allow an extended world view and lead to less conformity pressure (Lubart, 2010).

Civil disturbances:

*“Again perhaps resulting from increased cultural diversity popular revolts, rebellions, and revolutions in the developmental period of the creator appear to be a stimulus to later creative eminence, especially, when these disturbances are directed against large empire states” (Amabile, 1996:220).*

De Dreu (2010:443) notes that cultural background shapes what is important to the individual. He states that in Chinese civilization, war intensity has showed the positive impact on scientific and technological creativity during the time of war. However, this does not impact on literature and philosophical creativity.

Political instability:

*“Instability in the form of assassinations and coups d’etat during the developmental period tend to have a negative impact on later creativity. Simonton (1978) suggests that during such unstable times, young person learn to believe that the world is unpredictable. Such a belief in unpredictability can be detrimental to active productivity” (Amabile, 1996:220).*

Political factors cannot be controlled by organizations and industries, thus they could impact on creativity development in various ways. A country’s leader has a tremendous influence on the nation’s politics which can also effect on the whole social environment as well as creativity development (Simonton, 1988).

### *Political Factors in the Culinary Industry*

Currently, there does not appear to be any relevant literature within culinary creativity, which links it to political factors. However, governmental support

demonstrates a positive impact on the culinary industry and academia. According to Horng and Lee (2009) governmental organizations and also the private sector and associations hold large-scale culinary competitions that can enable culinary artists to learn from each other and exchange ideas. Due to the sensitive political status of Taiwan, this factor will be considered later in this thesis in order to investigate whether or not political factors may impact on culinary creativity development.

### ***2.5.1.2 Economic Environment***

The need for creativity in the economic environment has been increasing. Economic pressure associated with an increased level of global competition forces most organizations to find ways to remain competitive (Getz and Lubart, 2009). Puccio and Cabra (2009) note that cost and quality of products are no longer considered as competitive elements, imagination and innovation are the key concerns. More and more organizations and governments alike are beginning to compel educational systems to inspire and lead the younger generation to be more creative (Puccio and Cabra, 2009). “Organizations recognize the need to be innovative and that employees’ creative imaginations are the wellspring for innovation (Cabra and Puccio 2009:325); as noted by Amabile et al. (1999:1), “creativity is the crucial front-end of the innovation process; before innovation can happen, the creative ideas must be generated by individuals and teams so that they can be successfully implemented”.

An economic perspective seeks to investigate how the economic environment impacts on creativity development in this sense, the economic environment can be divided into microeconomic and macroeconomic levels. Getz and Lubart (2009) point out that macroeconomic phenomena consist of the market for creativity, the supply of and demand for creativity, societal policies toward investing in creativity, and the costs and benefits of creativity at a comprehensive level. The major assertion of economic theories in creativity is that creative ideas and behaviour are influenced by market force and cost-benefit analysis. The impact of macro-level factors, the



psycho-economic perspective, markets of creativity and investment decisions are related to creativity development (Kozbelt et al., 2010).

Microeconomic phenomena consist of investment in ideas which are unknown or undervalued, the notion of actively increasing human capital by creativity training and the costs and benefits of creative work to the individual. Getz and Lubart (2009) mention that some authors think that creativity is metaphorically similar to economic behaviour, as the propose of creative people as successful investors in Sternberg and Lubart's (1991, 1995 cited in Getz and Lubart, 2009) comments about creative people. On the other hand, authors such as Rubenson and Runco (1992, 1995 cited in Getz and Lubart, 2009) argue that active investment in creativity training and creative activity is directly impacted on by the economic environment. Economic and creativity benefit each other in several important ways. Economic conditions permit research on creativity to develop and the transference of ideas about the nature of creativity. Inversely, creative products and industries boost economic performance and growth. Organizational economics offer the field of creativity research ideas that encompass and expand the understanding of the person, process, product and press components of the phenomenon of creativity (Getz and Lubart, 2009).

#### *Economic Factors in the Culinary Industry*

The hospitality product is most frequently considered via financial measures of performance, such as revenue, sales volume or market share (Ottenbacher and Gnoth, 2005). Fine (1996:228) notes that

*“the economic order, in part, affects those patterns of interaction, emotional responses, and cultural practice within the organization, just as those patterns, responses, and practices affect how the organization will be able to adjust and compete in the larger organizational field to which it belongs. ...to survive, organizations must cope with a structured environment that demands minimized fixed, labour and food costs, together with maximizing the number of clients and the profitability of each encounter”.*

Unlike artworks, culinary creation has a short self-life, which requires immediate feedback and evaluation from the market and customers to ensure success (Peterson and Birg, 1988). Contrastingly, certain artworks have a longer shelf life and may be evaluated as creative artworks over a longer period of time than is available for culinary products. Economic factors can directly and indirectly impact on culinary creativity development from various levels, which is also related to organizational strategies. In terms of culinary creativity, the culinary product is aimed at being accepted by the market and to satisfy customers' demand. Therefore, the market and demand for culinary creativity demonstrate significant characteristics, which means without market and demand there is no stage to develop new creative dishes. From the culinary industry's perspective, economic performance is realistically related to a microeconomic decision where by the organization can decide how much time and money to invest in training for creativity in order to raise human capital.

### ***2.5.1.3 Social Environment***

The social environment is one of the key impacts on creativity development. This section presents the relevant social factors, which include culture, family, education, the organizational climate, and market, all of which show various degrees of influence on individuals.

#### ***(1) Culture***

Culture can be defined as:

*“an historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which men communicate, perpetuate, and develop their knowledge about and attitudes toward life” (Geertz, 1973:89) .*

Lubart (1999) identifies four ways that cultural influence might affect creativity: First, people from different cultures may have different concepts of creativity; second, people from different cultures may use different psychological processes when they engage in creative endeavours; third, language may influence the development of creativity; and fourth, environment can either promote or reduce people's creativity. Similarly, De Dreu (2010:439) notes that culture influence on

creativity development can be understood from the assessment of novelty, usefulness or both, the related weight accorded to novelty, and the related field evaluators, The assessment of novelty or usefulness or both may lead to the conclusions that different cultural backgrounds may evaluate and perceive creativity in different ways. He also notes that culture background shapes what is important to the individual. Lubart (2010) notes that multicultural experiences of individuals have been found as a beneficial advantage for their creativity development, for instance, living in multicultural societies, exposure to foreign languages, culture, and educational experiences. In particular, the advantage of bilingualism for creativity indicates higher scores in divergent-thinking performance and originality, as well as enhancing mental flexibility (Lubart, 2010).

#### *Comparison between East and West*

Kharkhurin and Motalleebi (2008) compared originality in thinking, where they note Western people are more independent and focus on internal thoughts and life revolves around expressing themselves as different from others, whereas Eastern people are more collectivist and interdependent and focus on their fit with others. A cross-cultural approach to looking at creativity is that “individualistic societies support and value creativity, whereas collectivistic societies are less supportive of creative endeavours” (Rudowicz et al., 2009:105). In terms of perceptions of creativity, Kharkhurin and Motalleebi (2008) found that Eastern participants demonstrated lower performance on the ATTA (Abbreviated Torrance Test for Adults) measure of originality than Western participants. De Dreu (2010) found that in Eastern cultures people tend to be more concerned with usefulness than originality and engaged various implicit or explicit standards. Morris and Leung (2010) note that the Chinese culture values usefulness more than novelty, whereas Western culture values novelty more than usefulness.

Therefore,

*“these culture-induced normative pressure, one may see relatively more useful and less original ideas and insight in Eastern compared with Western culture” (De Dreu, 2010:439).*

*“Culture is omnipresent, and for this very reason its impact is often underestimated. Culture provides the bedrock, the deep psychological structure in which all human activity occurs” (Lubart, 2010:276).*

Kharkhurin and Motalleebi (2008) suggest that the definition of creativity might be reconsidered to take account of different culture specific approaches on the objectives, tasks, and aesthetic values of creative activity. The individual is expected to agree with the values of that culture, whether school, family or work place, in order to fit into a social environment (Rudowicz, Tokarz and Beauvale, 2009).

### *Culture in the Culinary Industry*

People with different backgrounds or cultures show differences in terms of the need for and expression of creativity and may be motivated to be creative by different environmental stimulants (Wong and Pang, 2003). Cultural differences can lead the way to evaluate and measure creativity differently. This is especially the case where the culinary creative product is concerned, which is evaluated subjectively by individuals. Personal tastes are related to a person’s cultural background. Whether chefs have been multiculturally trained or in simply in one culture, can impact on the evaluation and measurement of culinary creativity. Ottenbacher and Harrington (2007:457) note that “cultural elements that provide value-added to the customer with features such as historical information, story-telling, and authenticity as part of the intangible experience”. Environment (climate and geography) as well as culture (religious, historical, level of ethnic diversity, innovations, capabilities, traditions, beliefs and values) can be defined as ‘gastronomic identity’.

Horng and Lee (2009:113) found that culture and society can not only impact on culinary creativity but also encourage its development. They identify four important factors within culture and society:

*“(1) multi-cultural exchange; (2) competitive markets; (3) opportunities made possible by governmental and non-governmental resources as well as (4) the enhanced status of culinary artists due to social change”.*

Depending on the culture and history behind it, some cultures are enriched by diverse ethnic groups, which offer chefs more opportunities to absorb various elements to enhance their creativity development. Competitive markets naturally encourage chefs to advance their talents and professions in order to satisfy the demand of market. Support from government and organizations can enable chefs to devote their passion to culinary creativity. With social change and the development of culinary education, culinary career recognition has slowly gained improved status (Horng and Lee, 2009).

The culturally divergent social norms are salient and individuals which slowly emerge into creators' taught (De Dreu, 2010:443). Cultural background occupies a vital and invisible position in culinary creativity development, which can not only impact on idea inspiration but also be applied as a market tool to promote creative products.

## *(2) Family*

The relationship of creativity development and family background has been taken into consideration for research from various different perspectives, for instance birth order, parental characteristics and behaviour, and family positions. Extensive research has been carried out to examine how birth order affects creativity propensities. Amabile (1996:211) discusses family influences on creativity development arguing that:

*“some have found a positive relationship between birth order and creativity, showing that firstborns are more creative (e.g., Eisenman and Schussel, 1970; Helson, 1968; Lichtenwalner and Maxwell, 1969; Weisberg and Springer, 1961), others have reported no relationship (Cicirelli, 1967, Datta, 1968; Dewing and Taft, 1973; Joesting, 1975), and still others have uncovered negative relationships” (Eisenman 1964; staffieri, 1970).*

Additionally, Simonton (2009) found something similar in terms of the effect of birth-order on creativity. He agrees that firstborns have more advantages and are more likely to be classical composers and mainstream scientists, whereas artists, writers and revolutionary scientists are more likely to be later born. Later born children tend to have the character of being more rebellious, more open minded and less conforming to conventions (Simonton, 2010). The difference of birth order is reflected in aesthetic forms of creative eminence.

Parental characteristics and behaviour can directly and indirectly have an influence on the creators' creativity development. The findings of Gardner and Moran (1990 cited Amabile, 1996) suggest that college students who had the highest creativity scores tended to come from homes that were characterized as 'adaptive' according to the results of family style. Lower levels of authoritarianism and restrictiveness are considered an encouragement of independence for children's creativity development, which somehow creates distance between parents and children. Moreover, Amabile (1996) states that the characteristics and behaviour of parents may be even more closely related to children's creativity than family considerations.

Family position and resemblance can have an influence on creativity development. Some adverse family events, such as the loss of one or both parents, economic downturns and personal disabilities are prominent triggers for creators to pursue a more unconventional and revolutionary career (Simonton, 2010). Family resemblance between relatives can be recognized either as a result of common genes, or of environmental impact, or both of these things. However, there is no method to determine whether Parent-child resemblance in occupational choice is common. However, there is no convincing data for indicating how frequently these patterns of resemblance and difference occur, or why (Vernon, 1989).

Family environment can be beneficial for creativity development by supporting independence and encouraging intrinsic engagement in activities and practice of a creativity-relevant process (Amabile, 1996). Kozbelt et al., (2010) note that the

developmental theories of creativity have a focus on place and family structure, role of play, support during transitions and so on, whereas family structure demonstrates a positive effect in creativity development.

### *The family and culinary creativity*

“Food carry emotional lables and can be symbolic of “home”, memories of holidays, or nostalgia for times past” (Verbeke and López, 2005 cited in Hartwell, Edwards, Brown, 2011:1402). Horng and Lee (2009) highlight that a supportive family is a positive influence on culinary creativity. They state that family legacy, open-minded and democratic family attitudes, and emotional support from family are important elements to an individual’s culinary creativity development. This is supported by Miller and Gerard (1979 cited in Amabile, 1996) who argue that family can foster creativity in children where there is a low level of authoritarianism and restrictiveness, and encouragement of independence. Fine (1996) notes in European countries, culinary family connections are important for developing an individual’s culinary career, but not in the United States where children are less encouraged to follow in their parents’ footsteps. Earlier culinary connections through family have an impact on future career development. The research mentioned here suggests that a supportive family has a positive impact on an individual’s culinary creativity development.

### *(3) Educational Environment*

*“With increasing global concern with 21st century skills, re-structuring of education to include much greater focus on developing critical and creative skills is happening across the world” (Li, 2010:1) .*

Sawyer (2006) agrees with some scholars who refer to today’s economy as a creative economy. Education should be structured around disciplined improvisation and reinforced in the classroom to support the social nature of creativity in today’s economy.

Simonton (1988) argues that education is a social method of preserving and passing down to future generations the cultural variations that have demonstrated adaptive value in the past history of sociocultural development. Amabile (1996) notes that formal education contributes to a creator's distinctiveness only up to a certain level. Beyond that level, higher levels of formal education are associated with lower levels of distinctiveness.

Amabile (1996) notes that the classroom is one of the most influential environments for creativity development. However, the classroom is also the easiest place in which to control that environment. Most researchers believe that creativity in the classroom has to depend upon the philosophies of the educators, schools and families (Eason, Giannangelo, and Franceschini, 2009 cited in Amabile, 1996). The development of creativity cannot be controlled or manipulated. Many outstanding creative individuals have succeeded even with unfavourable schooling, home and other conditions. School setting can impact on educators and students, for example, overall classroom climate, the behaviour and characteristics of educators as well as can all fellow students have a direct influence on students' learning processes.

An open versus traditional classroom is the major distinction in classroom climate which is viewed as the style of teaching and involves flexible use of space, learning materials, and curriculum design (Amabile, 1996). Getz and Lubart (2009) point out that creativity training may potentially show more positive impact in education. However, the effects of creativity training are less certain than traditional education. Traditional education shows more predictable educational outcomes and less risky returns.

Educators should be encouraged to distinguish and value the potential for creativity in each student by offering a risk-free environment which allows them to express their thoughts and be accepted and tested. Although creativity within education may not often be presented as a finished product to evaluate, educators can empower students to seek out problems, try to solve a problem and develop their own ideas and solutions (Eason, Giannangelo, and Franceschini, 2009). Beside school settings



and educators, the family plays an essential role in influencing creativity development. For example, family characteristics, and behaviour can have variously level of impact. From an educational perspective, Runco (2008) states that process is more important than product in that if the process is followed then creative products are likely to result. He points out that education should assist in developing potential, with probable outcomes being noticeably creative performances.

#### *Education in the Culinary Industry*

In culinary creativity, a friendly learning environment has been shown to have a positive impact on creativity development, for instance, the enlightenment from school education and other learning, and an open-minded learning environment (Horng and Lee, 2009:107). Culinary education in high level institutes has been booming in Taiwan alongside changing patterns of human resource structures within the industry. This includes a move from dominant traditional mentor systems to a more broad based learning approach through internships and the emergence of culinary graduates. With professional training and education, more and more culinary graduates work in the culinary industry which improves the level of the culinary industry and also changes the perceptions of career status to better recognition which are important to the overall culinary industry and to academia.

#### *(4) Organizational Climate*

Isaksen (2007:4) defines organizational climate as follows:

*“climate is the recurring patterns of behaviour, attitudes and feelings that characterize life in the organization. When aggregated, the concept is called work unit or organizational climate”.*

Organizational climate is more easily observed and, perhaps, more influential than organizational culture. The organizational climate supports the development, integration and application of new and different creativity approaches, practices and concepts.

*“Organizational climate is an intervening variable that affects individual and organizational performance due to its modifying effect on organizational and psychological processes” (Isaksen, 2007).*

Amabile (1996:233) proposes KEYS scales (The work environment inventory) for assessing the climate for creativity covering three aspects: stimulants to creativity, obstacles to creativity and work outcomes.

The KEYS scales for assessing environmental stimulants to creativity are as follows:

- Organizational encouragement gives freedom to accomplish tasks with supportive leadership;
- Supervisory encouragement provides good communication skills and sets a clear direction;
- The work group support offer various organizational characteristics by cooperating and collaborating across levels and divisions;
- Freedom offers a threat-free working environment;
- Sufficient resources are available including funds, people, facilities and information;
- Challenging work which focus on individual gives a sense of challenge.

The KEYS scales for assessing environmental obstacles to creativity are:

- (1) Organizational impediments which includes the organizational culture through internal political issues
- (2) Workload pressure means unrealistic expectations for productivity and extreme time pressure. In terms of KEYS scales work outcomes, creativity and productivity are the main considerations from an organizational perspectives.

Aside from the creation of new products, services and processes, the positive impact within organizations, Amabile (1996) notes that the degree of innovation within an organization acts as a significant negative predictor of turnover among employees in the organization.

### *Organizational Climate in the Culinary Industry*

Some researchers (Horng and Lee, 2006, Ottenbacher and Harrington, 2007), have suggested that work environments appear to affect creativity in the culinary industry. In particular, the positive impact of freedom or autonomy is identified as the key determinant of success. Innovative thinking can be facilitated from the creation of a conducive organizational culture. “Creativity and adaptability are important intangible characteristics of organizations that excel in innovation management”. Ottenbacher and Harrington (2007:458) give an example of a Michelin-starred chef who offers “a visible identification of an innovative process used in an environment that demands creativity, surprise, and continuous innovations to succeed”. In addition, they point out that procurement practices, centralization techniques and standardization processes can have both positive and negative influences on the creative potential in the hospitality industry. Leaders in hospitality organizations need to balance between the efficiency of process with the effectiveness created by supporting innovative behaviours across the organization (Ottenbacher and Harrington, 2007). From the commercial environment, Michelin-starred restaurants apply more qualitative and long-term thought processes before bringing a product to market.

*“Due to the severe costs of making a mistake in this creative environment (loss of customers or loss of a Michelin star), chefs in this situation focus on customer satisfaction and long-term reputation rather than food cost analysis or contribution margin. Traditional financial associated with losing a high-end customer or Michelin star make individual financial considerations a mere shadow of other more catastrophic results”*(Ottenbacher and Harrington, 2007: 457).

Horng and Lee (2009:106-111) found that “lessons taught by tough organizational environment, a job which requires constant changes, sufficient organizational resources, open-minded leadership, resources and interactions among colleagues are the positive factors”. On the other hand, Horng and Lee (2009:106-111) also indicate some negative factors related to the nature of the culinary industry and organizational climate in Chinese society, “a hierarchical system limits culinary artists’ future development; the constraints of tradition; the limits imposed by the

traditional mentor system; the tradition of ‘holding back a trick’ and the traditional concept of only scholastic study leads to a good future”.

#### *(5)Market*

At a social level, the supply side of creativity can be identified as novel, useful productions, ideas, inventions, and artistic works which are provided within the social unit (organizations and society). The demand for creativity can vary from one place to another. Across the domain of creativity in arts, sciences, businesses, as well as societies’ value, conformity and maintenance are important factors in creativity development. Timing is also one of the critical factors, which impacts on market reaction. Getz and Lubart (2009:209) demonstrate two example of how timing can affect creativity in development within the market. They state that during a time of political instability, technological creativity may be in greater demand than artistic creativity. Furthermore, during financially tight periods, there may be a greater market for less expensive innovations than for bold expensive options. Sternberg and Lubart (Getz and Lubart, 2009) characterizes environments-markets for creativity as including bullish environments which can spark creativity by providing financial and social resources. However, bullish environments provide obstacles that provoke creative solutions, in some situations where this may not always be bad for creativity. The value of a creative idea has the combined character of factors-quality, value for money, aesthetic appeal, and novel features, convenience and price that consumers can appreciate or depreciate in value (Bruce, 2009).

#### *Market in the Culinary Industry*

Ottenbacher and Gnoth (2005:214) discuss their findings related to success factors for hospitality innovation where, “market selection, market responsiveness and marketing synergy” are the essential factors. Market selection is related to the potential and the attractiveness of the target market. Market responsiveness is related to the new service or product and the demands of the market which “requires close customer contact detailed consumer research, and comprehensive understanding to distinguish amongst what might be a fad, a fashion or indeed a trend” (Ottenbacher and Gnoth, 2005:215). Market synergy is related to outputs that are appropriately

priced, advertised, and delivered in order to fit market demand. Chefs are considered to be commercial artists where the art works they perform are much more temporary than other artists and writers (Peterson and Birg, 1988). Within temporary time limitations, the market for culinary creation is crucial within which it is to be received, evaluated and appreciated through market demand.

#### ***2.5.1.4 Technological***

Technological factors have been identified as having a key impact on creativity development. Creativity occupies various levels in most business organizations and technologies are significant assets to organization strategy. Bond and Huston (2003:122) point out how technologies may influence a firm's strategies at three levels: product, process and administrative. Product technologies consist of "the set of ideas embodied in the product" and thus are distinct from the product itself. Process technologies are "the set of ideas involved in the manufacture of product or the steps necessary to combine new materials to produce a finished product". Administrative technologies include "the set of management procedures associated with selling the product and administration of the business". Researchers also believe that matching technologies to market opportunities can increase shareholder value and create future cash flows. Some researchers present evidence of technologies benefiting creativity development and contributing to efficiency (Getz and Lubart, 2009; Kappel and Rubenstein, 1999). They emphasise that a creative design must be practical as well as new to the market. Consequently, a creative designer can apply new technological products to enhance their creativity development.

#### ***Technological in the Culinary Industry***

In the culinary industry, technological factors influence the process and administration of culinary creativity development. New kitchen technologies, for example combi-ovens and vacuum-packing low-heat cooking, assist staff in working efficiently and also reduce labour costs. In kitchens, technology is applied to the culinary process where chefs wish to finely control the cooking process, as well as in carrying out administrative work, which can facilitate the business. Frumkin (2005)

notes that an increasing number of chefs have started to look outside the boundary of the professional cooking community in order to ignite their own culinary creativity. In addition, advancements in technology and food science offer chefs a collection of new tools and instruments, which allow them to explore new and unfamiliar areas within culinary professions. While ingredients might be the first consideration for culinary creativity development, cooking techniques and technology seem to be running a close second with creative chefs. Michelin-starred outlets and other prestigious operations are likely to be the top level of ‘trickle down’ effects on the use of food products, trends in cooking style, use of new cooking technology and creative innovations in service (NDP Group, 2004 cited in Ottenbacher and Harrington, 2007).

Culinology is an approach to “food that blends the culinary arts and food technology” (Nair, 2008:1). With these two disciplines as a background, culinology seeks to make food taste better, something which can be applied to fine dining, traditional cuisine and even supermarket meals (Nair, 2008:1). Additionally, fast-food restaurants like McDonalds, demonstrate their operational efficiency, calculability and predictability by applying technologies into food production and service (Wood, 1995). This not only minimises potential for human error but also ensures the quality of the product.

*“Rapid changes in food technology, food science and agricultural methods (Van Landingham:1995) and changes in educational requirements (Harrington et al.:2005) have caused institutions to examine the programmes and courses on offer” (Müller et al., 2009:168).*

In addition, from an organizational perspective, technology should also be considered as a reason to update and improve the efficiency and quality of products.

Horng and Lee (2006) discuss how information technology for communication has been assisting chefs to develop their creativity, which includes transportation and Internet communication. Information technology closes the communication distance between different countries, and allows chefs and cooks to research new ideas for creating new dishes, new food trends and recipes that can be shared across the global

culinary industry. Advanced transportation reduces travel time, allow chefs to visit different food cultures and regions, and to explore new tastes and local specialties in order to develop their creations. It also allows the importation of fresh and exotic raw materials in a global basis but with the downside of environmental costs.

Technological improvement enhances the efficiency of internal culinary creativity development within the process and administrative stages of food production as well as the external aspects of communication and transportation. This allows chefs to develop new creative dishes by applying new technologies within the kitchen, and absorb new food trends and culture from all over the world via the Internet and through global travel and access to a global supply chain for raw materials (ingredients).

### **2.5.2 The Creative Product**

The product of creativity includes behaviour, performances, ideas, things and all other kinds of outputs availing of many kinds of expression. “The criteria of creativity define the targets against which a predictor or batteries of predictors are validated through correlation and multiple regression methods” (Taylor, 1988:104). Tardif and Sternberg (1988) indicate that the products of creative thought are solutions to problems, responses to creativity tests, and explanations of phenomena. They also emphasise that fine arts (painting, sculpture, and music) receive less attention than scientific and laboratory problem solving (for example, Barron; Hennessey and Amabile; Johnson-Laird; Sternberg; Taylor; Torrance; Weisberg). Furthermore, images and behaviours are more likely to be considered as components of creativity than the creative products themselves. The key concern of the creative product is whether or not any generalizations can be made about products that are considered to be creative across different domains.

The creative product is often considered to divide into two categories: artistic creativity and scientific creativity. Artistic creativity involves an unusual sensory image or transformation and is valuable to society. It is neither mass-produced nor an

imitation, such as the novel that may cause irreparable change in the human environment. By contrast, scientific creativity may relate to problem solving and new product creation designed to “fill either a gap in existing knowledge cross disciplinary or within-discipline boundaries” (Tardif and Sternberg, 1988:438). Creative acts are defined by society through a complex process of social judgment which may rely on the opinions of relevant experts in making judgments (Hayes, 1989).

The creative product and creative person approaches have to face issues of objectivity, reliability and validity (Reuter, 2007). Objectivity is supposed to guarantee that the result of a test or problem-solving measurement depends on the test situation and not the person conducting and /or analysing the test (Perleth and Wilde, 2007). Reliability represents conformity or consistency of measurement, which includes inter-judge trustworthiness, and within any individual test, inter-item reliability. Validity represents the accuracy of measurement (Kozbelt et al., 2010). In a general consumer sense but also in relation to the culinary world, there has been an extraordinary decline in product life cycles which indicate the importance of product creativity in order to strive for market share and maximise profits (Puccio and Cabra, 2010).

#### ***2.5.2.1 The Creative Product in Culinary***

The culinary product is the most obvious and direct element by which customers’ form their first impressions of a restaurant. Culinary creativity can be developed from taste, flavour, texture and product presentation. Thus, the culinary product occupies a key role within the culinary industry. Frumkin (2005:78) presents an interview with chef O’Connell who states that culinary creativity is a product that requires skill along with the chef’s with own personality.

*“Rather than a process of addition, it is often a process of subtraction-a removal of social and educational sandbags which have been placed upon us all for the convenient purpose of management, control and efficiency-all of which are antithetical to creativity.... You need*



*unrestricted boundaries so that you are open to any thought that comes through you”.*

Unlike occupations (e.g., beautician, housepainter, plastic surgeons) whose professionals can directly negotiate with their client, chefs depend on a typification of the audience and their evaluation is mediated by the manager and servers. Customers can judge the culinary product, whereas chefs have difficulty in judging customers. Consequently, chefs “develop techniques for dealing with the vagaries of customer taste” (Fine, 1996:185). Culinary creations, to some extent are a fashion in food trends. Chefs have to develop this sense of the culinary fashion, match demand and satisfy customers.

### **2.5.3 The Creative Process**

Novelty is often used to define a key element of creativity. Most definitions of creativity also demand that the creative response should meet certain criteria of value. Benack, Basseches and Swan (1988) present characteristics of the creative process (Table 2.3) First, creativity is often illustrated as a response to an ill-defined rather than a well-defined problem, in which the nature of a solution and the path to a solution are uncertain. Second, creative thought involves the ability to move from previous thinking methods to break the mental set. Third, creativity is often considered to form relations among things formerly disconnected. Lastly, some theorists have given particular importance to the role of contradictions in the creative process.

Wallas (1926) proposed four steps in the creative process: (1) preparation: A problem is investigated in all direction. (2) Incubation: Subconsciously thinking of the problem. (3) Illumination: Appearance of the “happy idea”, together with the psychological events immediately preceding and accompanying that appearance. (4) Verification: evaluating the problem and possible solutions. These four steps in the creative process have the basic framework for analysing creativity in cognitive and organizational psychology and have not only been widely adopted, but also received

considerable criticism. Guilford (1950) states that this approach lacks mental operations, and also that such analysis is rather superficial from a psychological point of view. Benack et al. (1988) state that creativity is seen as the ability to hold together or bring into relation elements that were previously seen as contradictory. However, some creations may not be the result of a process that is considered as creative. The reaction process is distinctive to a person and is an emergent property of one's interaction with the problem domain, previous history, and societal state as a whole. Tardif and Sternberg (1988) summarized the creative process including the time required for such processes; the role of creative thinking; how closely processes are tied to their product; the characteristics of creative thought across different domains; level of creative processing; the need for the products of such processes to be unique in order to be labelled as creative, and how accessible and controllable the processes are in conscious awareness.

Table 2.3 Characteristics of the Creative Process

| <i>Characteristics of the Creative Process</i>   | <i>Authors</i>   |
|--|--|
| “a response to an ill-defined problem rather than a well-defined problem”  | <ul style="list-style-type: none"> <li>• Amabile (1983) termed these two types of problems “heuristic” and “algorithmic”</li> <li>• Newell et al., (1962) “difficulty in problem formulation”</li> </ul>   |
| “many authors see creative thought as involving the ability to move away from the past ways of thinking, to break mental sets” | <ul style="list-style-type: none"> <li>• Newell et al., (1962) “creative problem solving as unconventional”</li> <li>• Henle (1962) referred to this aspect of creativity as “freedom”</li> <li>• Stein (1974) described creativity as a “leap” away from what has previously existed</li> </ul> |

Table 2.3 Characteristics of the Creative Process

| <i>Characteristics of the Creative Process</i>  | <i>Authors</i>   |
|---|--|
| “creativity is often seen as the forming of relations among things formerly disconnected”         | <ul style="list-style-type: none"> <li>• Koestler (1964) saw the essence of creativity as “bisociation,” the association of two self-consistent but normally incompatible frames of reference</li> <li>• Henle (1962) called this aspect of creativity “harmony”</li> </ul>  |
| “some theorists gave particular importance to the role of contradictions in the creative process” | <ul style="list-style-type: none"> <li>• Kuhn (1963) saw divergent thinking in science as a response to anomalies, data contradicting the existing paradigm.</li> <li>• Rothenberg (1976) described a process of “Janusian thinking,” the holding together of apparently contradictory views as essential to creativity</li> </ul> |

Source: (Benack et al., 1988:203)

### ***2.5.3.1 The Culinary Creative Process***

There is not much previous literature specifically related to the culinary creative process. However, Ottenbacher and Harrington (2007) propose a modified model of the innovation process, and this is followed by the model proposed by Horng and Hu (2009) to account for the creative culinary processes and culinary performances.

*“The use of development process models will not necessarily guarantee success, but the use of a model does increase the chance for success (Cooper and Edgett, 1999 cited in Ottenbacher and Harrington, 2007) Innovation process models tend to follow the format of the Booz, Allen and Hamilton (1982) model (Urban and Hauser, 1993). These models consist of the following six steps: (1) idea generation, (2) screening, (3)*

*business analysis, (4) concept development, (5) final testing, (6) commercialization” (Ottenbacher and Harrington, 2007:446).*



Figure 2.1 Innovation Process Models <sup>1</sup>

Hornig and Hu (2009) develop a model of the creative culinary process based on Wallas’s (1926) classic model of a four phases creative process: idea preparation, idea incubation, idea development, and verification, as well as accounting for culinary performance. Hornig and Hu (2009) found the creative culinary process has a positive and cumulative impact on the final production. The model demonstrates the linkage between each stage with consequent interactions to develop the final culinary outcome.



Figure 2.2 Model of creative culinary process and culinary performance<sup>2</sup>

Both models have some similarities in idea generation /idea preparation, screening/idea incubation, concept development/idea development and final testing/verification. The main differences relate to the section of each model which deals with the innovation process. Ottenbacher and Harrington (2007) includes (3<sup>rd</sup> step) business analysis and (6<sup>th</sup> step) commercialization, which emphasizes the integration strategy and marketing considerations. On the other hand, in their model

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<sup>1</sup> Source: Ottenbacher and Harrington (2007)

<sup>2</sup> Source: Hornig and Hu (2009:378)

of the creative culinary process and culinary performance, Horng and Hu (2009) present the last stage of process as (5<sup>th</sup> stage) culinary performance. In addition, the model of the innovation process focuses on the development process in a commercial business sense as well as showing another focus on the culinary creativity process development itself. The culinary creativity process within academia and industry demonstrates an important position, which can enable students and employees to follow a more effective direction and develop culinary creativity through a process approach.

#### **2.5.4 The Creative Person**

Hayes (1989:136) sought answers to the question, “what are creative people like?” Creative people do not have higher IQs or get better school grades than others. In fact, no cognitive abilities have been identified that reliably distinguish between creative and non-creative people. Moreover, surprisingly, findings suggest that all the variables that discriminate between creative and non-creative people are motivational. No cognitive abilities have been discovered that discriminate between these two groups (Hayes, 1989). Thus, creative people may have higher standards, be more sensitive, and more flexible in terms of performance than others. Torrance (1996) argues that personality has a powerful influence on creative thinking. While Guilford (1950:444) notes that

*“creativity refers to the abilities that are most characteristic of creative people. Creative abilities determine whether the individual has the power to exhibit creative behaviour to a noteworthy degree”.*

Guilford (1950) points out that the psychologist’s problem is that of a creative personality. He states that patterns of traits are characteristic of the creative person and include activities such as inventing, designing, contriving, composing and planning. He proposes that divergent thinking categories are the factors of fluency, flexibility, originality, and elaboration (Table 2.4).

Table 2.4 Guilford's Divergent Thinking

|             |   |
|-------------|---|
| Fluency     | Word fluency: the ability to produce words comprising a certain letter or set of letters.   |
|             | Associational fluency: the ability to generate words of similar meaning   |
|             | Expressional fluency: the ability to generate phrases or sentences  |
|             | Ideational fluency: the ability to generate ideas to fulfil specified requirements in a given time  |
| Flexibility | Spontaneous flexibility: the ability to generate a wide variety of ideas rapidly and without preservation   |
|             | Adaptive flexibility: the ability to generate unusual solutions for problems  |
| Originality | Originality: the ability to perceive remote associations, generate responses rated as "clever," or produce responses of low frequency in the population |
|             | Redefinition: the ability to reconceptualise a familiar interpretation and apply it in a unique situation   |
| Elaboration | Elaboration: the ability to extend a simple design to a more complex or intricate design.   |

Source: Prentky (1989)

#### ***2.5.4.1 The Drive for Originality***

Guilford (1959) proposes that creativity is reflective of ability. He explains that originality is the ability to perceive remote associations, generate responses rated as "clever," or produce responses of low frequency in the population. Hayes (1989:137) notes that the definition of creative acts is what is original. MacKinnon (1963 cited in Hayes, 1989) described the typical creative architect in his study as "satisfied only with solutions which are original and meet his own high standards of architectural excellence". Moreover, Ypma (1968 cited in Hayes, 1989) found that when they are asked about their major motivations, more creative scientists were likely to answer,

“to come up with something new”. Barron (1963) and Bergum (1975) have also made similar observations (cited in Hayes, 1989).

#### 2.5.4.2 Creativity and Personality Traits

Hornig and Lee (2006:7) summarize a range of researchers’ studies of the components of individual creativity.

Table 2.5 Components of individual Creativity

|   |  |
|---|--|
| Personal characteristics and creativity | (Barron and Harrington, 1981; Davis, 1989; Martindale, 1989)   |
| Knowledge                               | (Feldhusen, 1995; Siau, 1995; Weisberg, 1999)  |
| Cognition knowledge                     | (Feldhusen, 1995; Siau, 1995; Weisberg, 1999; Ward, Smith and Finke, 1999; Filipowicz, 2006)                             |
| Attitude                                | (Lubartand Getz, 1997)   |
| Emotion                                 | (Filipowicz, 2006)   |
| Motivation                              | (Amabile, 1997; Siau, 1995; Pollickand Kumar, 1997; Cooper andJayatilaka, 2006)  |
| Culture                                 | (Zha, Walczyk, Griffith-Ross andTobacyk, 2006)   |
| Personality                             | (Amabile, 1988; Amabile, Conti, Lazenbyand Herron, 1996; Oldham and Cummings, 1996; Williams, 2004; Reuter et al., 2005) |

Source: Hornig and Lee (2006)

In addition, Amabile (1996) found that creativity expresses itself differently in different professions. Claxton, Edwards, Sacle-Constantinou (2006) grouped the most of supportive characters of creativity into the acronym CREATE: curiosity, resilience, experimenting, attentiveness, thoughtfulness, and environment setting.

- Curiosity: Creative people show more for questioning that most strongly in their particular domain of creative expertise.

- **Resilience:** the core attribute of creative people is the ability to tolerate misperception, and obstruction, to take on a challenge, and not give up prematurely. Weisberg (1993) argues that creative scientists are believed to be different from others in their need to be free of rules (flexibility) which has been found to be a significant characteristic in personality studies. This is confirmed by Hayes (1989) who notes that flexibility is strongly correlated with creative performance.
- **Experimenting:** creative people like to experiment with ingredients, ideas, and actions. They have a playful approach to solutions and often search for new aspects and possibilities.
- **Attentiveness:** creative people seem to have a proclivity for intense concentration. Wong and Pang (2003) also suggest that highly creative people have been described as being totally absorbed in and devoted to their work.
- **Thoughtfulness:** “how people make use of the private rooms and resources of their own minds strongly influences their creativity” (Claxton et al., 2006:62).
- **Environmental setting:** “creative people seem to know that their physical and social environment can make a big difference, and that they need different kinds of setting, support (or challenge) at different point” (Claxton et al., 2006:62).

Claxton et al. (2006) believe CREATE is more likely to represent a creative mind which does not appear overnight. It is necessary for people to get into daily creative habits in order to cultivate creative mentalities. It is also important to note that CREATE combines with environmental setting, which indicates that environment setting can influence a person’s creativity.

#### ***2.5.4.3 The Creative Person in the Culinary Field***

Hornig and Lee (2006:11) found creative culinary artists have 13 distinctive personality traits (Table 2.6): high imagination, high curiosity, high sensitivity,



openness, having a broad array of interests and a huge appetite for art, passionate, confident, willing to take reasonable risk, achievement-oriented, perseverant, having a desire to learn, thinking positively and independently. In addition, they purpose four distinct experiences of creative culinary artists: professional knowledge and skills; comprehensive understanding of cultures; life experience; and cultivation of an aesthetic sense. Some of these characteristics are similar to the character of creative artists.

Dorneburg and Page (2003 cited in Horng and Lee, 2006:19), highlight sense of taste, sight, smell, touch, hearing combined with a chef’s creation reflecting his/her personal experiences. They state “culinary creativity is a product of the interaction between the inherently or innately creative individual”. From the artists’ perspective, culinary creativity is the way to express a personal style, which places emphasis on uniform creation. Unlike artists and writers, chefs’ work emphasises on uniqueness and problem solving (Peterson and Birg, 1988). Therefore, this raises the question about the relationship between personal characteristics and culinary creativity development.

Table 2.6 Distinctive personality traits of creative culinary artists

|   |  |
|---|--|
| Highly imaginative  | Like to discover new possibilities   |
| Highly curious  | Like to learn and investigate to obtain new knowledge and develop new methods. |
| Highly sensitive  | Capable of finding fresh, out of the ordinary, ideas.                          |
| Openness  | “Have an open mind and look at questions in an innovative way.”                |
| Having a broad array of interests and a huge appetite for art | Have sense of appreciating aesthetics and explore their own creativities.      |
| Passionate  | “Have a strong interest in culinary arts”                                      |
| Confident   | “Confidence plays a pivotal role in developing creativity”                     |

Table 2.6 Distinctive personality traits of creative culinary artists

|                                  |  |
|----------------------------------|--|
| Willing to take reasonable risks | Like to overcome new challenges                                    |
| Achievement-oriented             | Break through and set up new goals, take on new challenges.        |
| Perseverant                      | Has a spirit of learning from failure and works until last minute. |
| Having a desire to learn         | Eager to learn constantly  |
| Thinking positively              | Be optimistic and positive of learning and breakthrough            |
| Thinking independently           | Willing to discover new opportunities                              |

Source: Horng and Lee (2006:11)

The 4Ps model of creativity (Press, Product, Process and Person) clearly gives four different approaches to the problem of measuring creativity (Rhodes, 1961). It is apparent that the original 4Ps of creativity when applied in the culinary industry still leave some gaps into which there is a need to position an additional dimension to meet the reality of culinary creativity. This is because applied creativity in the culinary context is unlike a majority of creations which can be simply investigated through the 4Ps. For example, a painter may not be required to have certain level skills in order to develop his/her creativity, on the other hand, applied creativity in the culinary context needs a level of certain skills or techniques as fundamental to achieve creations. Consequently, beside the 4Ps model of creativity, applied creativity in the culinary context demands additional characteristics in order to achieve culinary creativity. For instance, a creative person is often discussed in terms of his/her mental imagination, thinking process and curiosity. In culinary creativity, a creative person is required to have professional skills and knowledge (Horng and Lee, 2006) in order to develop creative outputs within time limitations (Perterson and Birgs, 1988) that are accepted by the market. For this reason, applied creativity in the

culinary industry requires more than the 4Ps model of creativity to cover the unique characteristics of culinary creativity.

## 2.6 TRAINING AND EDUCATION FOR CREATIVITY

Creativity-training programmes have been broadly applied to organizations and industries, as well as within academia at various levels. Karwowski and Soszynski (2008:163) describe one approach to creativity training as

*“group exercises which are oriented at increasing participants’ creative potential, understood both as creative abilities (divergent thinking, imagination, fluency, flexibility and originality of thinking), but also creative attitude”.*

Successful organizations create competitive advantage in the marketplace through innovation and creativity. Organizational creativity has been defined as

*“ the creation of a valuable, useful, new product, service, idea, procedure, or process by individuals working together in a complex social system” (Woodman et al., 1993:293).*

People are often claimed to be the most vital resource for organizations and organizations have to learn how to manage, motivate and reward them (Gupta and Singhal, 1993). In many organizations and industries, creativity is considered an essential strategy for competitive advantage. Smolensky and Kleiner (1995) note that education is the booster to creativity that offers the appropriate techniques to handle new tasks and to build employees’ confidence, as well as providing new competences and reinforcing their promise to the organization. To maximise this most valuable asset to an organization, work environment and organizational attitudes are considered the major factors, which, in turn, can have an impact on creativity development. The majority of research into work environments acknowledges the crucial impact on employee creativity (Puccio and Cabra, 2010). Organizational attitudes are directly linked to the role of leadership whose behaviour, abilities and skills can impact on organizational levels of creativity (group creativity).

In terms of abilities and skills, identify that leaders have tolerance for ambiguity, the ability to assess problems with objectivity and to change. Thus, training process can result in a powerful and more committed workforce which is prepared for future challenges (Smolensky and Kleiner, 1995).

In education, creativity as a learning objective has been introduced from primary schooling up to higher education. The importance of creativity in education is to raise the creative potential of students in daily life to enhance students' life chances. Early childhood educators have been encouraged to apply creativity to nurture children's creativity potentials where researchers found an important connection between family support and school (Kemple and Nissenberg, 2000). Creativity is supported by an environment which inspires exploration and values autonomy and intrinsic motivation (Amabile, 1996; Csikszentmihalyi, 1996; Lucas, 2001 cited in Chien and Hui, 2010). Environmental factors consist of sufficient resources, opportunities offered for in-service training, as well as a policy for incorporating technology and creative teaching. Personal factors include personal beliefs about teaching, and interest in the teaching domain. Social factors include support from other colleagues, supervisors and resources from the community. Curricular factors include successful achievement of curriculum objectives and assessment of students performance (Chien and Hui, 2010).

Some researchers suggest that some of these programmes may be effective in enhancing creativity-relevant processes (Amabile, 1996:258). Tardif and Sternberg (1988) note that many authors (for example, Langly and Jones, Schank, Taylor, and Torrance cited in Tardif and Sternberg, 1988) are concerned as to whether creative processes can be trained and improved, an "available-to-everyone" view. However, other authors (Barron, Csikszentmihalyi, Gruber and Davis, and Hennessey and Amabile cited in Tardif and Sternberg, 1988) believe that creativity can be achieved only when the "right" combination of particular problems, skills, and the individual and social environment come together. Thus, "creativity is said to be relative to the particular person who produces the product, and each production is therefore considered to be absolute".

## **2.6.1 Various Forms of Training in Culinary Creativity**

Creativity training is conducted in various forms and is based on different theoretical approaches, with most of them focusing on cognitive abilities, rather than social psychological methods (Amabile, 1996). Additionally, a form on personality and motivational resources are less common in training programmes (Getz and Lubart, 2009). Researchers identify six approaches to the delivery of creativity training programmes (Amabile, 1996; Williams, 2001). These are brainstorming, synectics, problem solving, The Productive Thinking Program, The Purdue Creative Thinking Program and self-statement, which are applied for different purposes. From organizational and industry perspectives, training is increasingly engage in creativity development, using the creativity tool to solve problems or explore opportunities. Common techniques involve brainstorming and synectics (Coates and Jarratt, 1994).

### **(1) Brainstorming**

According Nickerson (2004), brainstorming is one of the earliest attempts to develop a structured method for the enrichment of creativity and stated with promotion of the process of brainstorming by Osborn (1953, 1963). This technique is used by groups which involves attempting to induce thoughts and free reign to imagination.

Brainstorming is the most widely applied programme designed purposely to enhance creativity. It is considered as the most valuable for ideas finding. Brainstorming can be thought of as a search process to bring innovative and useful ideas (Nickerson, 2004).

### **(2) Synectics**

Synectics is a group process in a creativity-stimulation programme which is guided by two principles, make the strange familiar and make the familiar strange (Amabile, 1996). Gordon (1960 cited in Puccio and Carba, 2010:162) argues that “Creative people engage in a thinking process based on nonrational, free-association models that occur in the preconscious levels of thought. Synectics, therefore, was developed to make this process explicit and to overcome mental blocks to creative thinking through the use of analogical thinking”. There are four types of analogy,

- 1) “personal analogy, in which the individual imagines himself to be the object with which he is working;
- 2) direct analogy, in which facts, knowledge, or technology from one domain are used in another;
- 3) symbolic analogy, in which images are used to describe the problem; and
- 4) fantasy analogy, in which the individual expresses his wishes for ideal, though fantastic, solutions to the problem”(Amabile, 1996:245).

The personal analogy has shown the coincidental effect of the typical brainstorming process, however there is no research on the effectiveness of synectics as a programme in itself (Amabile, 1996).

### (3) Problem Solving

From an academic perspective, “creativity is often viewed not as an end, but as a means toward ends, such as improving problem-solving ability, engendering motivation and developing self-regulatory abilities” (Smith and Smith, 2010:251). At the same time, Smith and Smith (2010) also note that improving creative abilities can also encourage the development of potential in curiosity, ingenuity and problem-solving skills. Brainstorming is a major element in a multistep processes in creative problem solving: understanding the problem, generating ideas, and planning for action (Nickerson, 2004). Amabile (1996) notes that creative problem solving is an eclectic training programme which comprises both individual and group techniques. It consists of brainstorming and making checklists for generating new ideas from old ones, as well as following the five stages of problem solving: fact finding, problem finding, idea finding, solution finding, and acceptance finding. The programme produces better ideas than those achieved by untrained individuals and also is required to use deferment of judgement to expend on ideas.

### (4) The Productive Thinking Programme & The Purdue Creative Thinking Programme

Amabile (1996) notes that the Productive Thinking Programme and the Purdue Creative Thinking programme were designed for application in school education in order to increase fluency, flexibility and originality in writing and drawing. Both training programmes are considered to be effective in enhancing scores on standard creativity tests.

#### (5) Self-Statement

Self-statement is a programme for creative behaviour, which is based on three distinct theoretical approaches: “as a mental ability to manipulate information, as an ability to engage in controlled regression to playful and child-like modes, and as a product of attitudinal and personality characteristics” (Amabile, 1996:246).

Table 2.7 Summary of training programmes

| <b>Theme</b>   | <b>Method</b>  | <b>Outcome/evaluation</b>  |
|--|--|--|
| Brainstorming<br>(Osborn, 1938)<br>Idea finding                      | 5 stage approach: fact finding, problem finding, idea finding, solution finding, acceptance finding      | “trained subject perform better than untrained subjects at using the instruction to defer judgement (Stein, 1975) and there is a moderate to large effect on creativity” (Rose and Lin, 1984)                          |
| Productive Thinking Program (Covington et al., 1972) (children)      | Subjects with several instructional units and leads to problem solving                                   | “allow subject to practice improving their fluency, flexibility and originality in writing and drawing. Meta-analyses do not, however, indicate that these training methods have notable effects” (Rose and Lin, 1984) |
| Purdue Creative Thinking Program (children) (Feldhusen et al., 1970) | A series of tape-recorded presentation and narratives integrated with creative problem solving exercise. |  |

Table 2.7 Summary of training programmes

| Theme  | Method  | Outcome/evaluation   |
|--|---|--|
| Self-statement (Meichenbaum, 1975)<br>Creative behaviour   | Self-instruction statement assists in self-control regression to playful modes of thinking development to increase creativity performance by group discussion, modelling and rehearsal.   | “subject in the training group demonstrated a significant increase in flexibility and originality on standard creativity test, while subjects in the control group did not improve”                                  |
| Synectics (William Gordon, 1944)<br>Creativity stimulation | Creative problem-solving by two principles: make the strange familiar (through metaphors and analogies), and make the familiar strange (by finding new ways of viewing a problem) (Amabile, 1996; Stein, 1975).   | “group members take turns serving as the group leader. The leader’s role is to cultivate member’s creativity and avoid directing the group toward one problem solution”  |
| Creative Problem Solving (Sidney Parnes, 1967)             | A combination of individual and group techniques, which includes brainstorming and the checklist for generating new ideas from old one. Five stages: fact finding, problem finding, idea finding, solution finding, and acceptance finding (Amabile, 1996:246). | “problem solving are limited to informal demonstrations that trained individuals do indeed use deferment of judgment and do, at times, produce more and better ideas than untrained individuals” (Amabile, 1996:246) |

Source:Amabile(1996: 244-247); Williams(2001:64)

### 2.6.2 Training Outcomes

Scott, Leritz and Mumford (2004) note that there is not a lot of research which confirms the efficacy of creativity training (cited in Karwowski and Soszynski 2008:164). Williams (2001) notes that creative problem-solving training involves a combination of individual and group problem-solving techniques (Amabile, 1996;



Stein, 1975; Karwowski and Soszynski, 2008 cited in Williams, 2001) which was generally found to be the most effective. On the other hand, the least effective approaches involved interactions aimed at changing personalities in order to make individuals more creative. This is not surprising given the complexity of attitude changes problems. Training programmes in work environments illustrate more positive outcomes than in school conditions as training programmes presume that a reality of problems addressed and adjusted to particular targets and purposes. Karwowski and Soszynski (2008) also state that small groups training sessions are more effective.

*“It also proved that in case of the training sessions directed at developing divergent thinking, originality was developed most effectively, whereas the influence of the training sessions on developing flexibility and fluency was slightly weaker, and they least influenced the development of the ability to elaborate” (Karwowski and Soszynski, 2008:164).*

*“Most effective creativity trainings were those concentrated on developing children’s imaginative skills, developed by Limont (1994, 1996)-based on Gordon’s (1971) synectics, as well as Czelakowska’s (2005) verbal skills creativity trainings strongly based on Freinet’s techniques” (Karwowski and Soszynski, 2008:164).*

Torrance (1975) found that the trained subject can produce more responses, more flexible responses and more clever responses than untrained subjects. Birdi (2005) notes that creativity training development should be covered by three aspects of knowledge: opportunity/problem finding and solution, implementation and idea generation (Basadur, Runco and Vega 2000). Roffe (1999) summarizes the implications of creativity training and development. He notes that training and development can provide benefit in four respects within organizations: general, corporate strategy, corporate culture and creativity climate, as well as organizational structure. Within the general, training and development includes learning to learn intervention, and improved leadership skills. Corporate strategy consists of human resource management, general management skills, and vision. The corporate culture and creativity climate includes team training, marketing training, coaching, project

management, employee participation and innovation auditing. The organization structure includes improved communications and the management of change. Thus, Roffe (1999) states that creativity training can be applied to a broad range of skills development, which includes team working, communications, management and even creativity in an organizational setting. Training programmes are required to be integrated with an organizational approach, the right climate, and appropriate incentives in order to produce positive outcomes. The investment in creativity training mostly depends on its marginal utility to the organization. Getz and Lubart (2009:208) state that “training can enhance the resources of creativity, at least partially” (Coates and Jarratt, 1994:14) suggest that the side benefit of creativity training is to “push less creative people into an acceptance of creativity and a willingness to plan with new concepts”.

### **2.6.3 Rewards and Competition**

Rewards and competition have been taken into consideration in motivating people to be more creative within organizations and academia. From HRM strategies, creativity can be conceptualized as having on four dimensions. Human resource planning can analyse personnel needs in order to create an effective strategy. A reward system is applied to motivate personnel to achieve an organization’s goal of productivity and profitability. Career development aims to matches an employee’s long-term career goals with the organization’s goal through continuing education and training (Gupta and Singhal, 1993). Along these dimensions, a reward system is considered an attractive factor, which directly links to the benefits of creativity development. Getz and Lubart (2009:208) argue that the benefit of creativity training can be divided to intrinsic rewards such as personal enjoyment, as well as extrinsic rewards, which include increasing job performance, earnings and opportunity for job advancement. Amabile (1996:221) states that:

*“reward for performance can, under some circumstance, be detrimental to creativity. Simonton found, however, that social reinforcement (honours, prizes, and the like) were unrelated to creative productivity”.*

She explains that, from an operational perspective, creativity can vary across different fields where social rewards were expected and related to performances. In addition, she points out that rewards can undermine the creative performance of less talented individuals whereas highly creative people may be immune to their effects. Roffe (1999) points out that a number of reasons why creators like to be rewarded, including: attention to performance, retention, recruitment, recognition of achievement and money.

Competition is part of reward performance, according to Amabile (1996: 239-240),

*“competition can be considered as a combination of several social factors: evaluation, reward, and additional win-lose aspect that is unique to competitive situation”. She notes “win-lose competition between peers has a negative effect on creativity. However, this effect may depend on some individual-difference variables such as gender or gender roles. Moreover, competition with outside groups may have a positive effect on the creativity of work team”.*

Reward and competition play an important role in encouraging creativity thinking and product development within academic and organization settings. Reward systems should not only focus on evaluating outputs but also recognize how often individuals come up with ideas or products to advance the organization (Zhang and Sternberg, 2009). Hennessey (2007) notes that rewards, competition and regular evaluation do not offer the best circumstances for students’ overall learning in the school environment. Furthermore, the author states that creativity training and education are still required in order to acquire domain skills (background knowledge), creativity skills (willingness to take risks, experiments), and task motivation, which is a confluence with Amabile (1988, 1996) component of creativity.

#### **2.6.4 Training and Education for Culinary Creativity**

In thinking about culinary creativity, consideration of how such creativity is related to intelligence and personality, the role of problem solving, and how creativity can be taught in school is necessary. Thus, there has been substantial general interest in training individuals for increased creativity (Guilford, 1950). Many writers strongly believe that education and training must also change to meet the demands of a culture in which innovation becomes the universal norm. This is also indicated by Guilford (1950) who points out that efforts made towards improving creativity through training indicate some measure of success.

In the past, within foodservice labour markets, chefs were trained by their mentors (Hornig and Lee, 2009), where they learned to become a chef through skills development and accumulated experience. Until recent years, with social economic change and growth in hospitality and culinary education in Taiwan, culinary education in higher-level institutes has been a booming segment in education (Hornig and Lee, 2009).

In terms of training for culinary creativity, as we have seen, creativity in this sense does seem to be rather abstract and difficult to define. Johnson et al. (2005) identifies two education and training routes required to become a chef, the first one is a traditional way to work from apprenticeship in industry (professional long-term on-the-job training); and second is the academic routes of earning a diploma or degree within a hospitality and culinary major which offers more general courses and limited on-the job training opportunities.

The academic model offers future chefs managerial and financial skills and knowledge that go beyond culinary skills. Johnson et al. (2005:177) note that “chefs who had completed an academic path appear to have opened their restaurants at younger age than the chefs who pursued the apprenticeship route”. This seems to confirm the notion that the academic route demonstrates more benefits for entering the culinary industry with fundamental skills and professional knowledge rather than

the traditional route of apprenticeship with less idea of the industry as a business and learning based on trial and error.

#### ***2.6.4.1 Training for the Culinary Industry***

Training is a key to the success of organizations in the hospitality industry, and today employees expect the employer to offer personal development to assist them in long-term growth. At the same time, organizations expect that their training programmes can aid employees to perform professionally with high standards and quality.

Ottenbacher and Gnoth (2005: 215) found that “employee training is a key success factor that includes planned programs to improve the performance of individuals and groups of employees which implies changes in employees’ knowledge, skills, attitudes, or social behaviour”. From an industry point of view, education and training provide the opportunity to develop employees’ creativity that enhances their confidence to face new challenges and achieve better performance outcomes (Ogilvie and Simms, 2009). In addition, training increases employees’ abilities and loyalty to the organization. Education has been considered as another creativity booster which gives employees the appropriate skills to handle new challenges builds their confidence, providing new competences and strengthening their commitment to the organization (Smolensky and Kleiner, 1995). It is common to see a high staff turnover rate in the hospitality industry. Peterson and Birg (1988) note that a lack of training, motivation and education among chefs all seem to be a problem. In addition, these factors can be considered as an occupational threat, which can directly affect the performance of the chef. “Burn-out” is a hazard among those involved in the hotel industry which is related to the previous job position of an individual rather than industry dissatisfaction (Makens, 1991:55). This indicates employees do not have a sense of the future in their career. Therefore, career enrichment can benefit employees to plan their career development by offering training and education courses which continuously enhance their professionalism and productivity. Makens (1991:54) found that consistency and regularity are dominant success factors for sales-force training and education within the hotel sector. Furthermore, he states that education and training of hotel employees is a top

priority for hotels that aspire to enjoy continuing success. Within this and to the limits of human ability, creativity can be enhanced and improved. Wong and Pang (2003) found that hotel managers and supervisors agreed that training and development was the most important factor that could motivate staff to be creative. In addition, it may be possible to teach or train many aspects of creative thinking in the same way as educating to read and to do arithmetical calculations. In the culinary industry,

*“training and development has been considered as a feature of human resource management and represents an additional demand on employee and employers faced with increasing competitive pressure within business, the growth of statutory regulations and regulatory bodies, changing technologies, quality imperatives and increasing customer choice” (Pratten, 2003:241).*

Wong and Peng (2003) notes that the development of communication skills, supervisory skills and leadership qualities, budgeting and cost control are required to be integrated into training courses with modern culinary education. Creativity training can enable people to accept new concepts and to be more creative. Therefore, education and training can improve the quality and quantity of creativity outcomes at diverse levels. Horng and Lee (2009:115) propose that the effectiveness of creativity in chefs can be cultivated, by:

- Making use of heuristic teaching to cultivate a chef’s thinking ability, observation, concentration and creativity;
- Arousing the chef’s curiosity, and developing an active attitude and open mind in the chef’s approach to all facets of learning;
- Helping chefs integrate different disciplines, especially those of liberal arts, science, and art education into their cooking;
- Giving chefs opportunities and encouraging them to taste different food, and to make savouring cuisine a part of life;
- And helping chefs to frame their professional knowledge and experience of aesthetics, culture, and culinary art within a strong structure.

Training programmes in the culinary industry are considered as important to improve creativity in both employees and product outcomes in order to maximum both profit for the organization and professional satisfaction for employees.

#### ***2.6.4.2 Culinary Education in Academia***

Ferguson and Berger (1985:74) point out that “creativity is generally recognized as a valuable business skill, so it follows that fostering creativity should be one of the goals of hospitality education”. Many researchers have pointed out the role that education can play in the development of creative efficacy (Parnes, 1963). Vernon (1989) highlights the direction of training from the earliest school years to improve children’s creative senses. Researchers (Torrance, 1965; De Bono, 1973; Parnes, 1963) believe that the curriculum should consist of extensive training in a variety of divergent thinking tasks and should improve the all-around capacity to show imaginative, flexible thinking as a lead up to problem solving. As with many other human capabilities, creativity can be enhanced or improved. However, not everyone can be equally creative. From an academic point of view, Amabile (1996) states that social and environmental factors that might impact on creativity can be found in some form in the educational environment. Chien and Hui (2010:2) point out that official documents related to education are now emphasizing the importance of creativity. Implementation plans operate at various levels. Chien and Hui (2010) also indicate that creativity is a product favoured by curriculum developers in the educational reforms in Chinese societies (Taiwan, Hong Kong, China). The curriculum, educator behaviour, and climate may influence students’ development of creativity (Yeh, 2004).

In terms of culinary education, Hu et al. (2006:101) note that culinary courses in higher education include 12 aspects:

(1) technological basis, (2) human and cultural accomplishment, (3) international concepts, occupational acknowledgement, (5) professional ethics, (6) aesthetic and creation of art, (7) scientific theory, (8) language ability, (9) service ability, (10) management ability, (11) self-reflection, and (12) idea of life-long learning.

Curricula are planned and designed according to the developmental emphasis and characteristics of each school.

Hu et al. (2006) also point out that Taiwan and USA have a similar approach to culinary curriculum design. However, in the USA, the emphasis is more on creativity and leadership. Müller et al. (2009:175) found that improving communication skills may help graduates in becoming more successful and assist already successful programmes in becoming more successful. They propose a five-step programme:

*“Firstly, discover what written and oral communication instruction occurs in other classes. Secondly, choose professional communication to emphasize in your curriculum. Thirdly, Develop contextualized assignments. Fourthly, encourage careful communication planning and revising processes. Lastly, set standards, provide feedback and reward good communication performance” (Jameson, 2007 cited in Müller et al., 2009:175).*

Santich (2004:15) notes that hospitality education and training should include a gastronomy component in order to introduce “students to a greater understanding of the history and culture of food and drink”. This cannot only benefit their knowledge of food culture but also provides an advantage to advance the development of culinary creativity in future. Furthermore, Hun et al., (2006) suggest that curriculum design should put theory into practice; understand needs and demands; formulate credible culinary curriculum and organize judging panels; and create and develop native culinary art with an international perspective. Moreover, the curriculum should integrate more reflective vocational essentials with local culture and an international perspective in order to underpin the students’ ability to learn throughout the degree (Alexander, Lynch, and Murray 2009). In addition to the focus on curriculum design, a positive educational environment is also very important to students. Horng and Lee (2009) propose that educators should provide students with multiple learning opportunities; an open mind; motivate them to learn and be creative; build their self-confidence; and provide family support and encouragement.



### 2.6.5 Issues for the Culinary Industry and Academia

Within a blooming service sector, the culinary industry is continuously growing in Taiwan. With the demands of a growing industry, culinary education has been a popular major in universities in Taiwan. However, there are some issues which impact on among industry, academia and students.

Müller et al. (2009:167) found that:

*“students enter culinary education institutions with expectations of the experience they will gain and the skills/knowledge they will master. After graduation, they discover how prepared they are for a culinary career. Similarly, employers expect students to enter the work place with specific skills and abilities”.*

It is possible the increasing number of television celebrity chefs has given a positive influence to culinary education and the industry. However, not every chef is in a high paying job and this reality impacts on students' expectations of a culinary career (Severson, 2007). In addition, students are not aware of the level of dedication required (Pratten, 2003), as well as the nature of the kitchen environment. Pratten (2003) notes that the culinary discipline, conditions of work, sexism, anti-social hours and poor pay are all problems experienced by kitchen staff. Not every kitchen has a suitable setting for cooking, the conditions of kitchens can be very cramped, and they can be aggressive environments. Staffs are required to pay attention to detail in order to produce high quality and consistently good food. Anti-social hours and low wages are common in the culinary industry and much of the personal service industry (Pratten, 2003). Many students and young people leave the industry for the reasons listed above and only the dedicated remain (Pratten, 2003).

From an employer's perspective, graduate students are expected to be ready to prepare food the way the organization or the chef wants it done. There have been some concerns about the lack of practical skills after college degrees (Pratten, 2003). However, employers should also be ready to address and deliver training in application areas related to the communication area such as comprehension, time

management, work quality, hiring and productivity (Müller et al., 2009). Not all organizations can provide training courses, and some smaller organizations have demands on their financial resources which can cause difficulties to both employees and employers alike. From an academic perspective, one of the main objectives is to educate students to meet the market (employer) demands. Both employees (students) and employers (industry) have an imbalance of expectations in culinary careers, school may play a key role to understand what the industry and young generation are looking for. It seems that graduate students and industry employers have different expectations. These different expectations might reflect gaps between academia and industry, perhaps even between academia and students. How can academia educate students to meet industry expectations? Are there gaps between both academia and industry or among academia, industry and students?

Training for creativity has been applied across various ages within education and organizations. There are various forms of training in creativity; for example, brainstorming and creative problem-solving are commonly applied in organizations and the educational environment which are considered as effective ways to generate new ideas.

However, there are still different opinions about trainability in creativity. Vernon (1989) points out that there is strong evidence for genetic factors for outstanding genius, both in arts and science. By contrast, Weisberg (1986) argues that creativity is a trait that everyone has. This supports the current practices in many societies in promoting creativity in education development and also in organizations.

Creativity depends on various professions which require different processes. Some creativity developments may not require any particular skills and techniques to produce creations. Others like cooking involve at least basic skills and techniques to prepare a dish.

The applied creativity in the culinary profession has similar processes of brainstorming and problem-solving in order to apply ideas in practice based on the chef's skills and techniques. This demonstrates the importance of skills and technique in culinary creativity development.

In this case, trainability in culinary creativity can develop from skills and techniques training to advance potential creativity development.

Tardif and Sternberg (1988) note that some authors (Barron, 1969; Csikszentmihalyi, 1988; Gruber and David, 1988; Hennessey and Amabile 1988) believe that creativity is achieved when the right combination of particular issues, skills, individuals and social setting come are combined. This demonstrates that the appropriate training and wider environmental conditions can enhance creativity outcomes.

## 2.7 LESSON FROM THE LITERATURE REVIEW: FORMULATING THE RESEARCH QUESTIONS

This section combines lessons from the literature review to formulate research questions. The purpose of this study aims to model culinary creativity from creativity in general and to investigate training for culinary creativity through formative education. The first stage of the literature review explores existing research in creativity in general and its components. De Dreu (2010) summarizes that creativity is typically identified from three approaches, product, person and process. Unlike some forms of creativity in arts and music, culinary products are tangible and skill-oriented (Horng and Hu, 2008) which have to match current trends and make profits. Consequently, the literature review of the definition of creativity help to identify the role of applied creativity in the culinary industry.

The second stage of the literature review is to explore models of creativity. Based on the 4Ps model of creativity (Rhodes, 1961), this research applies the 4Ps model to explain culinary creativity from the perspectives of industry and academic participants. Person, to some researchers (Barron and Harrington, 1981; Davis, 1989; Martindale, 1989 cite in Horng and Lee, 2008), is closely related to creativity development. Claxton et al. (2006) grouped the most of supportive characters of creativity into the acronym CREATE: curiosity, resilience, experimenting, attentiveness, thoughtfulness, and environment setting. Press, the environmental effects on creativity development have been increasingly discussed. From a macro-

environmental perspective, a PEST analysis (political, economic, social and technological) (Middleton, 2003) is applied in an environmental scanning framework to evaluate the environmental influences and understand the influence of the environmental factors on culinary creativity development. Accordingly, the implications of personal characteristics and environmental factors on culinary creativity development are considered to explore in this research.

The third stage of the literature review is to explore the implications of training as a mediator in the culinary creativity development process. Karwowski and Soszynski (2008) note that there is insufficient research to confirm the efficacy of creativity training. However, Roffe (1999) summarizes the implication of creativity training which can be of benefit in four respects within the organization: general, corporate strategy, corporate culture and creativity climate. Furthermore, Torrance (1975) found that the trained subject can produce more positive responses than the untrained subject. Johnson et al. (2005) identifies that chefs who have an academic degree in a culinary subject have earlier success in operating restaurants than chefs who pursued the apprenticeship route. This clearly demonstrates the benefits and importance of culinary education to the culinary industry. Consequently, education and training for culinary creativity was discussed in literature. The fourth stage of the literature is to explore the gaps between academic and industry perspectives in creativity training development.

Drawing in the stated aims, and following the logic of enquiry outlined in literature review, this study raises a number of research questions.

Q 1: What is the role of applied creativity in the upscale culinary industry?

Q 2: What are the implications of personal characteristics and environmental factors on culinary creativity development?

Q 3: What are the implications of training as a mediator in the culinary creativity development process?

Q 4: What are the gaps between academic and industry perspectives in creativity training development?

Essentially, the research questions explore the nature of creativity in the culinary industry and its relations to culinary education in order to develop culinary creativity. Within the conceptual model, this research applies a general model of creativity to explore creativity in culinary academia and industry.

## 2.8 CONCLUSIONS

This chapter addresses literature relating to creativity in general and specifically the culinary context. There are some similarities and differences between creativity in general and in the culinary profession. Culinary creativity is considered to be a type of artistic expression by chefs with certain conditions. Chefs are artists in a commercial sense with limited time demands. The interaction and satisfaction of customers are considered to be the vital factor to organizational success in the culinary industry. On the other hand, artists and writers' creativities are focused on uniqueness and problem solving. They do not have the time stress to produce their creations. Customer satisfaction is important to artists (if visually literate), however, it is not important to writer. The interaction with customers may only important to creative writers but may not be necessary to artists (Peterson and Birg, 1988). The 4Ps model examines creativity from four perspectives: person, product and process approaches have more similarities between culinary creativity and creativity in general. In terms of press (environmental PEST), it demonstrates enormous impacts on culinary creativity development. Lastly, there are many approaches to educate and train creativity in general. For culinary creativity, education and training are still required more studies and investigation.

Still, the research of creativity in the culinary industry is limited in scope, further research, which is required and more attention given to "raise the quality of culinary education and the standard of the culinary profession" (Horng and Lee, 2009:101). There has any particular study in training for culinary creativity from an educational point. In a Taiwanese context appears that the culinary industry and education cannot

completely match the chain of demand and supply. Therefore, based on the 4Ps model (Rhodes, 1961), this research focuses on exploring the role of applied creativity and its meaning to the culinary industry. By exploring the impact factors of the culinary creativity development process, this research will explore the different perspective held by culinary industry professionals and academia. Lastly, this research will investigate the implication of training for culinary creativity development.

## Chapter 3 METHODOLOGY

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### 3.1 INTRODUCTION

This chapter address the three-stage research methods employed within this study and explains its underpinning research philosophy and the rationale which links the three phases. The study is located in upscale hotels and restaurants (5\* or equivalent) in Taiwan and, as such, the methodology is designed to focus on the collection of data relevant to this specific constituency and not the wider culinary community in Taiwan.

The chapter explains the methodology and the process of data collection employed in this study which includes reference to research paradigms, research design, research methods, data collection and analysis. The first section of this chapter begins by exploring research paradigms and design. The second section explains the adopted mixed method in the study followed by data collection method, and analysis. At the end of this chapter, personal reflections and conclusions are address.

### 3.2 RESEARCH PHILOSOPHY

Saunders, Lewis, and Thornhill (2003) define research philosophy is the way one thinks about the development of knowledge (Elkrghli, 2010). Teddlie and Tashakkori (2009:37) define it as the conceptual roots that underlie the quest for knowledge within the human sciences. Easterby-Smith, Thorpe and Lowe (2002, p. 27) point out three main reasons to understand the importance of philosophical issues.

*“First, because it can help to clarify research designs. This not only involves considering what kind of evidence is required and how it is to be gathered and interpreted, but also how this will provide good answers to the basic questions being investigated in the research. Second, knowledge of philosophy can help the researcher to recognize which designs will work and which will not. It should enable him or her to avoid going up too many blind alleys and should indicate the limitations of particular approaches. Third, knowledge of philosophy can help the*

*researcher identify, and even create, designs that may be outside his or her past experience. And it may also suggest how to adapt research design according to the constraints of different subject or knowledge structures”.*

Research philosophy links to ontological and epistemological positions. Ontology is concerned with “what is the nature of reality” (Creswell and Clark, 2007) which is the starting point of research and leads on to epistemology and methodology (Elkrggli, 2010). Guba (1985 cited in Teddlie and Tashakkori 2009:85) notes that “positivists believe that there is a single reality, whereas constructivists believe that there are multiple constructed realities”. Consequently, epistemology is concerned with “what is the relationship between the researcher and that being researched”(Creswell and Clark, 2007:24). Further, Crotty (1998:3) explains epistemology as dealing with “the nature of knowledge, its possibility, scope and general basis” (Hamlyn, 1995 cited in Crotty 1993). It provides a philosophical grounding for choosing what kinds of knowledge are possible and how to ensure these are both adequate and legitimate. Guba (1985 cited in Teddlie and Tashakkori 2009:85) argues that “positivists believe that the knower and the known are independent, whereas constructivists believe that the knower and the known are inseparable”. In addition, Crotty (1998:8) notes that “objectivist epistemology holds that meaning, and therefore meaningful reality, exists as such apart from the operation of any consciousness”. The constructionist approach holds that “meaning is not discovered but constructed”. Within third epistemological stance, subjectivism, “meaning does not come out of an interplay between subject and object but is imposed on the object by the subject”. Thus, a methodology is defined “as the framework which relates to the entire process of research”(Creswell and Clark, 2007:47). It is concerned with “strategy, plan of action, process or design lying behind a choice and use of particular methods and linking the choice and use of methods to the desired outcomes” (Crotty, 1998:3).



Table 3.1 Common Elements of Worldviews and Implications for Practice

| <i>Worldview Element</i>  | <i>Postpositivism</i>   | <i>Constructivism</i>  | <i>Advocacy and Participatory</i>  | <i>Pragmatism</i>   |
|---|---|--|--|---|
| Ontology (What is the nature of reality?)   | Singular reality (e.g., researchers reject or fail to reject hypotheses)              | Multiple realities (e.g., researchers provide quotes to illustrate different perspectives)                             | Political reality (e.g., findings are negotiated with participants)  | Singular and multiple realities (e.g., researchers test hypotheses and provide multiple perspectives) |
| Epistemology (What is the relationship between the researcher and that being researched?) | Distance and impartiality (e.g., researchers objectively collect data on instruments) | Closeness (e.g., researchers visit participants at their sites to collect data)  | Collaboration (e.g., researchers actively involve participants as collaborators)   | Practicality (e.g., researchers collect data by “what works” to address research question)            |
| Axiology (What is the role of values?)  | Unbiased (e.g., researchers use checks to eliminate bias)                             | Biased (e.g., researchers actively talk about their biases and interpretations)  | Biased and negotiated (e.g., researchers negotiate with participants about interpretations)                                    | Multiple stances (e.g., researchers include both biased and unbiased perspectives)                    |
| Methodology (What is the process of research?)  | Deductive (e.g., researchers test an a priori theory)                                 | Inductive (e.g., researchers start with participants’ views and build “up” to patterns, theories, and generalizations) | Participatory (e.g., researchers involve participants in all stages of the research and engage in cyclical reviews of results) | Combining (e.g., researchers collect both quantitative and qualitative data and mix them)             |
| Rhetoric (What is the language of research?)  | Formal style (e.g., researchers use agreed-on definitions of variables)               | Informal style (e.g., researchers write in a literary, informal style)   | Advocacy and change (e.g., researchers use language that will help bring about change and advocate for participants)           | Formal or informal (e.g., researchers may employ both formal and informal styles of writing)          |

Source: (Creswell and Clark, 2007:24)

### 3.3 RESEARCH PARADIGMS

*“A paradigm is a worldview including philosophical and socio-political issues, whereas a research methodology is a general approach to scientific inquiry involving preferences for broad components of the research process. Research methods are specific strategies for conducting research” Teddlie and Tashakkori 2009:21).*

Four main research paradigms (worldviews) are acknowledged, positivism, social constructionism, advocacy and participatory, and pragmatism which are dependent on the way that researchers think about the development of knowledge (Saunders et al., 2003).

Creswell (2009:6) adopted the term worldview as meaning “a basic set of beliefs that guide action” (Guba, 1990:17). “Others have called paradigms (Lincoln and Guba, 2000; Mertens, 1998); epistemologies and ontologies (Crotty, 1998) or broadly conceived research methodologies” (Neuman, 2000).

The approach of positivism has been defined by Easterby-Smith et al. (2001) as an approach whereby the key idea is that the social world exists externally, and that its properties should be measured through objective methods, rather than being inferred subjectively through sensation, reflection or intuition. Moreover, the aim of positivism is to discover the reality in an objectively determined manner and to be operationalized in a way which enables the manifestations facts to be measured quantitatively. May (2001) indicates that positivism explains human behaviour in terms of cause and effect and ‘data’ must then be collected on the social environment and people’s reactions to it. Thus, for the purpose of generalization, statistical probability with large numbers selected randomly is employed in order to be measured quantitatively. Positivist research aims to measure phenomena that correspond closely to reality, as well as to confirm or contradict existing finding in order to verify or falsify that reality (Easterby-Smith et al., 2001).

Easterby-Smith et al. (2002:28-29) summarize a number of implications of this approach.

*Independence: the observer must be independent from what is being observe;*

*Value-freedom: the choice of what to study, and how to study it, can be determined by objective criteria rather than by human beliefs and interests;*

*Causality: the aim of social sciences should be to identify causal explanations and fundamental laws that explain regularities in human social behaviour;*

*Hypothesis and deduction: science proceeds through a process of hypothesizing fundamental laws and then deducing what kinds of observations will demonstrate the truth or falsity of these hypotheses;*

*Operationalization: concepts need to be operationalized in a way which enables facts to be measured quantitatively;*

*Reductionism: problems as a whole are better understood if they are reduced into the simplest possible elements;*

*Generalization: in order to be able to generalize about regularities in human and social behaviour it is necessary to select samples of sufficient size, from which inferences may be drawn about the wider population;*

*Cross-sectional analysis: such regularities can most easily be identified by making comparisons of variations across samples.*

By contrast, social constructionism is associated with a qualitative approach. According to Easterby-Smith et al. (2001) who refer to the work of Berger and Luckman (1996), Watzlawick (1984) and Shotter (1993) social constructionism focuses on the ways that people make sense of the world especially through sharing their experiences with others via the medium of language. This approach has also been referred to as the interpretive method by Habermas (1970 cited in Easterby-Smith 2001). Thus, the essence of social constructionism is that ‘reality’ is determined by people rather than by objective and external factors, as well as concentrating on what people are thinking and feeling and trying to explain and understand why people have different experiences rather than searching for external causes and basic rules to explain their behaviour.

The approach of the advocacy and participatory worldview is commonly applied in qualitative research. However, it can also be a foundation for quantitative research. This worldview is “intertwined with politics and a political agenda” in which authors engage the participants as active collaborators in their enquiries (Creswell, 2009:10).

Lastly, pragmatism is a mixed methods approach which is concerned with what works at the time. By using quantitative and qualitative data, researchers emphasize the research problem and use all approaches to provide the best understanding of a research problem. According to Creswell (2009:10), pragmatism is not committed to any one system of philosophy and reality which means pragmatists do not see the world as an absolute unity. Researchers have freedom to choose the methods, techniques and procedures of research to meet their research purposes.

*“Three areas where mixed method research is superior to the single approach designs: (1) Mixed method research can simultaneously address a range of confirmatory and exploratory questions with both the qualitative and quantitative approaches. (2) Mixed method research provides better (stronger) inferences. (3) Mixed method research provides the opportunity for a greater assortment of divergent view” ( Teddlie and Tashakkori 2009:33).*

They also state that the major advantage of mixed method research is the ability of the researcher to ask confirmatory and exploratory questions and thus verify and generate theory in the same study.

### 3.4 RESEARCH DESIGN

For the purpose of achieving the research objectives, both qualitative and quantitative approaches are considered valuable and supportive in this study which is based on the pragmatism paradigm. Mixed methods approaches embrace the features associated with both postpositivist and constructivist perspectives on phenomena. Three types of research approaches are advanced: qualitative, quantitative and mixed methods. Each approach provides specific direction for procedures in a research design.

#### 3.4.1 Qualitative and Quantitative Methods

Creswell (2008) notes that the distinctive characteristics of qualitative and quantitative research can be explained by each step of the research process. Firstly, identifying a research problem, qualitative research tends to address an exploration in which there is insufficient knowledge about the problem, whereas, quantitative research tends to address a description of trends or an explanation of the relationship among variables. The relationship between the qualitative researcher and the subject is close and the researcher is seen as an insider within the research setting (Bryman, 1993). On the other hand, the relationship between the quantitative researcher and the subject is considered to be that of an outsider. Furthermore, the role of qualitative research is to develop a theory; in contrast, the quantitative approach begins with the investigation of theories. Secondly, reviewing the literature suggests that: qualitative research is inclined to play a minor role in suggesting particular research issues to be addressed and to justify the importance of the research problem. By contrast, quantitative research tends to provide a major role by suggesting the research questions to be asked, justify the problems and creates a clear indications of the proposed direction of the research. Thirdly, in specifying a purpose for research, qualitative research tends to be general and broad seeking to understand the participants' experiences. However, quantitative research tends to be specifically structured and narrow to seek measurable and observable data on variables. Fourthly, collecting data by qualitative research tends to consist of emerging questions to generate responses, gathering word or image data, and collecting from a small number of individuals or sites. On the other hand, quantitative research tends to consist of using instruments with pre-designed questions to seek responses, gather quantifiable (numeric) data; and collect information from a large number of individuals. Fifthly, analysing and interpreting data: through qualitative research tends to consist of text analysis. It involves developing a description and themes, and stating the larger meaning of the findings. Quantitative research tends to consist of statistical analysis. It involves describing trends, comparing groups or relating variables, comparing results with prior predictions and past research. Lastly, in reporting and evaluating research, qualitative research tends to use flexible emerging structures and evaluative criteria, as well as taking a subjective and value-laden approach. By contrast, quantitative research tends to use standard, fixed structures

and evaluative criteria, and take an objective and unbiased approach (Creswell, 2008).

### **3.4.2 Mixed Methods**

Beside qualitative and quantitative approaches, mixed methods (Creswell, 2003; Tashakkori and Teddlie, 2003) is also presented as multi-methods (Brannen, 1992), multi-strategy (Bryman, 2004), mixed methodology (Tashakkori and Teddlie, 1998) research (Clark and Creswell, 2008). A mixed methods approach has been referred to as the third path (Gorard and Taylor, 2004), the third paradigm (Johnson and Onwuegbuzie, 2004) and the third methodological movement (Teddlie and Tashakkori, 2003) by authors writing in the field (Teddlie and Tashakkori, 2009:4). A mixed methods research design is a process of conceptualisation, data collection, and data analysis which combines both qualitative and quantitative methods in a single study to achieve its research purpose. The combination of both methods are assumed to offer a better understanding of research issues than either method by itself (Creswell, 2008). In addition, it also assists in answering questions that cannot be answered by either qualitative or quantitative approaches alone. Thus it offsets the weaknesses of both qualitative and quantitative methods. Mixed methods approaches demonstrate the practical sense and freedom of applying various methods to address the research problem. It is also “practical” because individuals tend to solve problems using both numbers and words, they combine inductive and deductive thinking and they employ skills in observing people as well as recording behaviour (Creswell and Clark, 2007:10). On the other hand, the procedures of this approach are time consuming and require extensive data collection and data analysis consisting of merging, linking, integrating or embedding the two methods (Creswell, 2008). Moreover, Morse and Niehaus (2009) note that qualitative and quantitative research are incompatible paradigms and therefore how to combine both components in a single project is an important consideration.

### **3.4.3 Mixed Methods Designs**

According to Creswell and Clark (2007) there are four types of mixed methods design (Table 3.2): triangulation, embedded, explanatory and exploratory. The triangulation approach refers to the application of both quantitative and qualitative methods in a mixed method study and then compares both data to conclude the differences, convergence or some combination (Creswell, 2009). Charles and Abbas (2009:27) define triangulation “as the combinations and comparisons of multiple data sources, data collection and analysis procedures, research methods, investigators and inference that occur at the end of a study”. Further, Denzin (1978 cited in Teddlie and Tashakkori, 2009) discusses methodological triangulation as referring to “the use of multiple methods to study a single problem” (Patton, 2002:247 cited in Teddlie and Tashakkori, 2009). Creswell (2009:123) notes that “some authors refer to this comparison as confirmation, disconfirmation, cross-validation, or corroboration” (Greene, Caracelli, and Graham, 1989; Morgan 1998; Steckler, McLeroy, Goodman, Bird, and McCormic, 1992). By using two separate quantitative and qualitative methods, this triangulation approach can balance the strengths and the weakness of each method. This approach is to merge the data, and integrate or compare the results of both in an interpretation or discussion section.

The concurrent embedded strategy of mixed methods refers to the collection of both quantitative and qualitative data simultaneously (Creswell, 2009). This is also called parallel mixed design, concurrent or simultaneous design (Teddlie and Tashakkori, 2009). Unlike the triangulation approach, this approach has a primary method that leads the research, and a secondary database supports the procedures. The embedded strategy may mean that the “secondary method addresses a different question than the primary method” (Creswell, 2009:214). By using the different methods, this approach can assist the researcher to gain broader perspectives than using the main method alone. The benefits of this approach can allow the researcher to collect two different types of data at the same time by investigating from different perspective within the study. The unequal weights of the two methods may result in unequal evidence when interpreting the findings (Creswell, 2009).

Table 3.2 The Major Mixed Methods Design Types

| <i>Design Type</i> | <i>Variants</i>  | <i>Timing</i>  | <i>Weighting</i>     | <i>Mixing</i>  | <i>Notation</i>            |
|--------------------|--|--|----------------------|--|----------------------------|
| Triangulation      | -Convergence<br>-Data Transformation<br>-Validating quantitative data<br>-Multilevel | Concurrent:<br>quantitative and qualitative at same time | Usually equal        | Merge the data during the interpretation or analysis                       | QUAN+<br>QUAL              |
| Embedded           | -Embedded experimental<br>-Embedded correlational                                    | Concurrent or sequential                                 | Unequal              | Embed one type of data within a larger design using the other type of data | QUNA (qual) or QUAL (quan) |
| Explanatory        | -Follow-up explanations<br>-Participant selection                                    | Sequential:<br>Quantitative followed by qualitative      | Usually quantitative | Connect the data between the two phases                                    | QUAN+<br>qual              |
| Exploratory        | -Instrument development<br>-Taxonomy development                                     | Sequential:<br>Qualitative followed by quantitative      | Usually qualitative  | Connect the data between the two phases                                    | QUAL+<br>quan              |

Source: Creswell and Clark (2007:85)

The sequential explanatory strategy is a two-phase mixed method. The first phase is to collect and analyze quantitative data, followed by a second phase of qualitative data. The purpose of this approach is that qualitative data assists to clarify or develop upon initial quantitative findings (Creswell and Clark, 2007). Thus, this approach places more emphasis on the quantitative method than the qualitative method which is typically applied to “explain and interpret quantitative results by collecting and analyzing follow-up qualitative data”. Both methods are separate forms but also connected. The length of time engaged in data collection within two separate Phases can be the main disadvantage of this approach (Creswell, 2009:211).

The sequential exploratory approach is similar to the sequential explanatory approach except that the two phases are reversed. It is characterized by the collection and analysis of qualitative data in a first phase of research followed by the collection



and analysis of quantitative data in a second phase that builds on the result of the first qualitative phase. Weight is typically given to the qualitative method on the first phase and “the data are mixed through being connected between the qualitative data analysis and the quantitative data collection”. The purpose of this approach is to explore a phenomenon by applying “quantitative data and results to help in the interpretation of qualitative findings” (Creswell, 2009:211).

The sequential exploratory approach has similar advantages and disadvantages to the sequential explanatory approach. It is a useful strategy to not only explore a phenomenon but also to expand on the qualitative findings. Creswell (2009: 212) notes “its two-phase approach (qualitative research followed by quantitative research) makes it easy to implement and straightforward to describe and report”. This approach can be a beneficial strategy for the researcher to build a new instrument. The length of time to complete both data collection can be a disadvantage to this approach. Iterative sequential mixed designs are more complex designs (Kumagai, Bliss, Daniels, and Carroll, 2004 cited in Creswell, 2009) are normally have more than two phases.

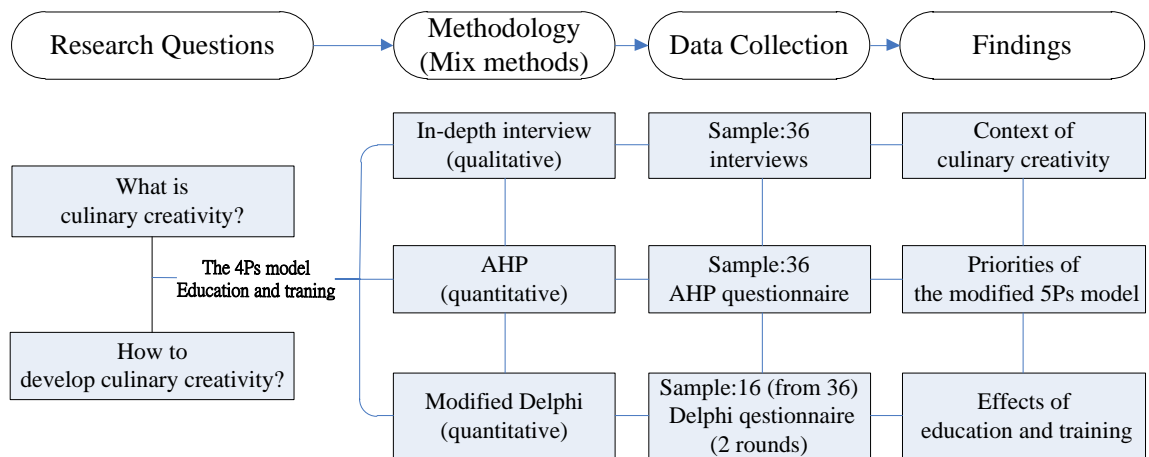


Figure 3.1 Three-Phase Sequential Exploratory, Mixed Methods Design

The intent of this three-phase, sequential exploratory, mixed methods study is to discover the meaning of culinary creativity in a Chinese culture context, in Taiwan.

Phase One is a qualitative exploration of the nature of culinary creativity, undertaken by collecting semi-structured interview data from industry and academic chefs in Taiwan. This stage set the broad scene for the study and allowed for the collection of perceptions across a wide range of areas relating to creativity. Findings from this qualitative phase are used to develop a set of elements (Phase Two) into an AHP (Analytic Hierarchy Process) questionnaire and to survey both industry and academic chefs to ascertain their evaluation of, and priorities for, the culinary creativity components. This is followed by the second phase of the AHP findings, which assists in the distilling and synthesizing of all available components so that culinary creativity may be filtered and synthesized to develop a systematic format from interviewee' opinions. Phase Three, a modified Delphi method, is used to gain better understanding, to explain and confirm the AHP and interview findings from an expert panel.

The reason for collecting qualitative data initially is that there is little creativity research done in the culinary industry. According to Horng and Hu (2008) creativity research in the area of culinary arts has been relatively neglected, perhaps because chefs are not so often seen as culinary artists in the same sense that painters, musicians, and poets are seen as visual, musical, and literary ones. Without sufficient reference to creativity research as a background in the culinary field, this research will not be able to testify or verify any existing culinary creativity theories, nor measure quantitatively a large number of chefs' personal characteristics, training background and cultural background. Moreover, each chef has his/her own individual characteristics, in term of his/her social and cultural background. Thus, this particular group, chefs, is a better fit for mixed methods with sequential exploratory strategy in order to understand complex patterns of chef behaviour in terms of their perspectives of culinary creativity.

The purpose of this strategy is to apply quantitative data and results to assist in the interpretation of qualitative findings. It is suggested by Morgan (1998 cited in Creswell, 2009) that this design is appropriate to apply when testing elements of an emergent theory resulting from the qualitative phase and can also be used to

generalize qualitative findings to different samples. Applying QUAL+quan+quan methods should confirm the findings of the main component. This can be used as an indicator of validity of the qualitative findings, or as reassurance (Morse and Niehaus, 2009).

### 3.5 RESEARCH METHODS

This research applies mixed methods to achieve its research purpose. This study was conducted in three stages. Firstly, it began with a total of 36 participants in face to face semi-structured interviews with content analysis to explore the characteristics of culinary creativity within industry and academia in Chinese culture. From this qualitative data findings, this study identifies themes and factors by which to develop a questionnaire to proceed to a second phase of study (AHP). By combining interview data and the literature review, the researcher was able to develop a modified model of five main themes in this research (Principle, Person, Press, Process and Product) and 22 items (factors).

Secondly, by applying the Analytical Hierarchy Process (AHP) method to develop a set of questionnaires, the survey contains five main objectives, 22 criteria and total of 50 pair-wise comparison questions in order to evaluate and prioritize the components of culinary creativity within the perspectives of both industry and academic chefs.

Thirdly, choosing 16 participants from previous interviews as the expert panel to process a modified Delphi survey, this survey adopts the five main themes and also develops some critical issues from previous interviews. This is in order to allow experts to share their feedback in order to reach a consensus with respect to culinary creativity within industry and academic contexts.

Table 3.3 Research Design

| Stage | Purpose/Research Aims/Questions | Sample | Research method |
|-------|---------------------------------|--------|-----------------|
|-------|---------------------------------|--------|-----------------|

|     |   |              |  |
|-----|---|--------------|--|
| 1   | 1. What is the nature of culinary creativity to hospitality industry?<br>2. How to structure creativity development training and education?<br>3. What are the gaps between academic and industry perspectives in terms of creativity training development? | 36           | In-depth Interviews                      |
| 2   | Examine and compare the priority of culinary creativity development within 5 themes (principle, person, press, process, product) and 22 criteria between industry and academic participants.  | 36           | Questionnaire Survey (AHP)               |
| 3-1 | Confirming critical issues and opinion sharing to reach consensus from industry and academic experts. (Part 1)  | 16           | Questionnaire Survey (Modified Delphi-1) |
| 3-2 | Confirming critical issues and opinion sharing to reach consensus from industry and academic experts. (Part 2)  | 15 (validly) | Questionnaire Survey (Modified Delphi-2) |

### 3.5.1 Justification of methods

A three-phase sequential exploratory mixed methods approach applies in this research to achieve the research purpose (QUAL-interview (primary), quant-AHP and quant-Delphi). On the other hand, there are two alternative methods (Figure 3.2), which were considered for application in this research. Firstly, in the qualitative research method, interview is considered the first alternative choice in this research. With relatively limited culinary creativity research (Horng and Hu, 2008), this research seeks to understand the context of culinary creativity and to establish the meaning of a phenomenon from the views of participants (Creswell, 2009). Thus, a qualitative research method can assist the researcher to understand the meaning of

creativity in the upscale culinary arena by gathering multiple forms of data in order to build patterns and themes from the bottom up. However, to apply qualitative interviews as the only method in this research may be rather limiting. The phenomenon of culinary creativity is so broad that it can only be presented in general terms of how the individual participant perceives training for culinary creativity. Thus, in using the qualitative research method, the interview is considered to apply as the first phase of methods to recognize the foundation of creativity in culinary industry. Secondly, in the quantitative research method, a questionnaire survey is considered as the second alternative method. Quantitative research is commonly used for verifying objective theories by examining the relationship among variable and developing numeric measures of observations (Creswell, 2009). Yet, this research topic is an exploratory study of culinary creativity, which seeks to generate more understanding rather than test theories. For that reason, quantitative research method may not be appropriate if applied as the only method in this research.

The purpose of applying the two quantitative methods (AHP and Delphi) as Phase Two and Phase Three in this research is to confirm and further explore participants' opinions of culinary creativity, present a synthesized evaluation of interview findings, and evaluate interview and AHP findings by a group of experts to ensure the efficiency and value of the research (Bhuasiri, Xaymoungkhoun, Zo, Rho, and Ciganek 2012). AHP and Delphi techniques have been applied together in many various research areas to accomplish set research purposes, mainly in IT information technology (Lai, Wong, and Cheung 2002), decision making (Vidal, Marle, and Bocquet 2011) and planning, and education (Bhuasiri et al., 2012). Both AHP and Delphi techniques have similar purposes for planning, setting priorities, evaluating requirements, and predicting outcomes which employ both qualitative and quantitative approaches to solve problem (Huang et al., 2008). In terms of sampling size, some researchers apply AHP as expert opinions when sampling size can be 8 to 15 participants (Huang et al., 2008, Huang et al., 2008). More importantly, AHP technique is used to ensure the validity and consistencies of judgments. Modified Delphi technique is used to achieve interaction among the group of experts without the limitations of interpersonal interaction. In addition, with anonymous feedback of

other participants, individual expert contributes to each other's understanding of the issues and redefine rating and move toward a consensus (Tavana, Kennedy, Rappaport and Ugras, 1993). These two techniques are processed, measured and presented differently so that can be built from one to the other. In this research, AHP is applied as Phase Two for selecting the structure of creativity in the culinary industry, based on the interview data and using the same group of participants from the interviews. This was followed by Delphi technique, an opinion survey technique, used (Bhuasiri et al., 2012) to refine and seek consensus from Phase One and Phase Two (interview and AHP findings) stages employing a group of experts (see section 3.6 Sampling).

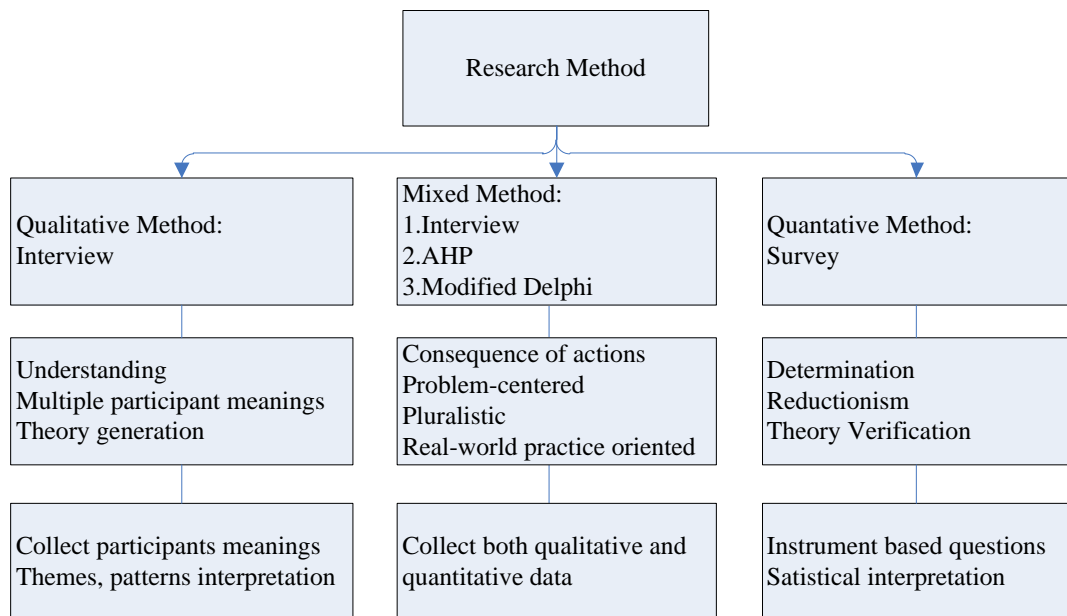


Figure 3.2 Decision Tree<sup>3</sup>

### 3.5.2 Qualitative Methods

Creswell (2009) states there are three characteristics of the qualitative research method. Firstly, natural setting, this method tends to collect data in the field where participants experience and behaviour are gathered by face-to-face interaction over time. Secondly, multiple sources of data: rather than one single source. This allows the researcher to gather data from interviews, observations and documents that make

<sup>3</sup> Source: Creswell (2009)

sense of the study and organize it into categories. Thirdly, inductive data analysis: this can assist the researcher to build their patterns, to categorize the data and focus on learning meaning from participants. In this way the research can address the objectives.

Interview strategy involves the interviewer asking questions of another person (the interviewee). The interview question setting may be open-ended, closed-ended or both. It is considered as a powerful data collection strategy which allows researchers to ask for explanations of unclear answers or offer clarification to an unclear question. Open-ended interviews are considered to apply more frequently than closed-ended interviews. In particular, open-ended interviews may generate significant information and lead to a reconceptualization of the research questions. This approach also allows participants to express their own understanding in their own words as opposed to closed-ended question setting (Teddlie and Tashakkori, 2009).

Semi structured interviews are applied when the researcher knows enough about the topic either from previous research or literature. This method allows the researcher to be able to

*“delineate the domain of the research, identify its boundaries or know where the limits of phenomenon are (i.e., what is and what is not an example of the phenomenon)*

*identify all the research areas or domains in all of its various types or kinds; develop all of the questions pertaining to the phenomenon but not necessarily know all of possible response” (Morse and Niehaus, 2009:92).*

The questions are developed in a logical order and move through the domain systematically so that participants may answer the questions as freely as they desire and the researcher can exercise control to keep the participants ‘on track’ (Morse and Niehaus, 2009:92). Therefore, qualitative research methods are applied to the semi structured interviews method in this research in order to collect rich data about chefs’ perspective of culinary creativity.

### ***3.5.2.1 Data collection method: Interview***

The purpose of the interview method is to elicit views and opinions from the participants (Creswell, 2009). Open-ended questions will be used to identify possible determinants in the origin of culinary creativity and help to generate insights into how chefs perceive their culinary creativity, and in this way, establish the meaning of culinary creativity. The advantages of this method are that it offers a context for understanding behaviour and attitudes in developing creativity. It also assists in understanding complicated behaviour differences between Western and Chinese cuisines' chefs in term of their differences in training background, experience and personal characteristics.

In-depth and semi structured interviews were applied in qualitative research in order to conduct discussions not only to reveal and understand what culinary creativity and how to develop it but also to place more emphasis on exploring why culinary creativity is important in the industry (Saunders et al., 2003). Additionally, this interview method can support an understanding of the relationships between variables, such as those revealed from a descriptive study also directly observed. This allows the researcher control over the line of questions. The findings of the interviews assist in identifying, and developing themes and factors for the second Phase of quantitative method approach.

The researcher started by contacting participants by phone and email to confirm date, time and location. Each interview lasted between one and one and a half hours. The interviews were digitally recorded and transcribed. The interview questions (Table 3.4) consisted of three main themes: defining culinary creativity, training and education, and the gap between industry and academia. Each theme contained three to four questions that conducted in Chinese, transcribed and translated by the researcher.

The strength of data collection by interview strategy is that it allows probing by the interviewer, offers in-depth information and is good for measuring attitudes. On the



other hand, the weakness of an interview data collection strategy is that it is a time consuming and costly method. Also, the “reactive and investigator effects may occur” ( Teddlie and Tashakkori, 2009:239).

Table 3.4 Interview Questions

| Theme                        | Questions   |
|------------------------------|---|
| Defining Culinary Creativity | <ol style="list-style-type: none"> <li>1. What is the nature of culinary creativity in the hospitality industry?</li> <li>2. Define culinary creativity</li> <li>3. What is the difference between culinary creativity to creativity in general?</li> <li>4. What are the differences between western cuisine and Chinese cuisine chefs’ perspective of culinary creativity and develop?</li> </ol>             |
| Training and Education       | <ol style="list-style-type: none"> <li>1. What are the internal and external impact factors to culinary creativity process?</li> <li>2. Is it possible to train for culinary creativity?</li> <li>3. Is there any difference structure of creativity development in education and training within two main cuisines?</li> <li>4. How is culinary creativity fit into curriculum design in education?</li> </ol> |
| Gaps                         | <ol style="list-style-type: none"> <li>1. What are the gaps between academic and industry perspectives in terms of creativity training development?</li> <li>2. What can industry do to enhance creativity development?</li> <li>3. What can academia do to enhance creativity development?</li> </ol>  |

### 3.5.3 Quantitative Methods

Quantitative methods involve the use of surveys and experiments with closed-ended questions, based on a predetermined approach and generating numeric data to test or verify theories or explanations. A survey offers a quantitative or numeric description of trends, attitudes or opinions of a population by researching a sample of that population. “From sample results, the researcher generalizes or makes claims about

the population”. The basic intent of an experimental design is to “test the impact of the treatment or an intervention on an outcome, controlling for all other factors that might impact that outcome” (Creswell, 2009:145). The benefits of questionnaire surveys are that they are good for measuring attitudes and eliciting other content from the research participants, it is inexpensive and has a quick turnaround. On the other hand, the questionnaire survey “must be kept short, might have missing data and response rate may be low for mail” (Teddlie and Tashakkori, 2009:239). This research applies two quantitative methods, Analytical Hierarchy Process (AHP) and a modified Delphi technique. These two methods have been widely used together in educational planning and IT research fields (Handfield, Walton, Sroufe and Melnyk, 2002) which are also related with the theme of this study.

#### ***3.5.3.1 Quantitative 1-AHP***

The Analytical Hierarchy Process is a one whereby a decision problem can be decomposed into a hierarchy. This is an effective way to approach unstructured problems because it is efficient in organizing structure for a system as well as controlling and passing information down the system (Saaty and Vergas, 2001). AHP is also suitable for qualitative and quantitative research because it makes the selection process very transparent. This is a great benefit in an education and training environment since it reveals details and leads complicated questions into a systematic layout.

#### **Instrumentation: AHP**

The second phase of this research applies Analysis Hierarchy Process (AHP) questionnaires as the quantitative method. “The AHP is a general theory of measurement. It is used to derive ratio scales from both discrete and continuous paired comparisons in multilevel hierarchic structure” (Saaty and Vergas, 2001:3). The AHP was developed by Saaty (1980) to solve a class of issues involving the prioritisation of alternative solutions. This is “an analysis methodology supporting rational decision-making by simplify a complicated problem” (Huang, Chen and Chang, 2009:478). The AHP is a tool which is applied to construct a complete order

through which optimum choice can be derived. “The purpose of the AHP is to assist people in organizing their thoughts and judgments to make more effective decisions” (Saaty and Vergas, 2001:12).

*“It is designed to cope with both the rational and the intuitive to select the best from a number of alternatives evaluated with respect to several criteria. In this process, the decision maker carries out simple pairwise comparison judgments which are then used to develop overall priorities for ranking the alternatives. The AHP both allows for inconsistency in the judgments and provides a means to improve consistency”*(Saaty and Vergas, 2001:2).

The AHP normally involves three stages: hierarchical decomposition of a complex system, comparative judgment and synthesis of priorities (Hassan, 2007; Saaty and Vergas, 2001). A hierarchy consists of three levels to structure a decision problem: the goal of the decision at the top level is to present the overall objective, the second level consists of the criteria followed by the third level presenting the alternatives (Huang et al., 2009). Saaty and Vergas (2001:2) note “the purpose of the structure is to make it possible to judge the importance of the elements in a given level with respect to some or all of the elements in the adjacent level above”. They also note that structuring a decision problem and its factors are considered the most creative task in making a decision. The researcher should include enough relevant detail to represent the issues as comprehensively as possible, however, not too thoroughly to lose sensitivity to a change in the elements. When constructing a hierarchy, the researcher should not only consider matters surrounding the problem, identifying issues or attributes contributing to clarification, but should also consider who are the participants associated with the problem. To arrange the goal, attributes, and issues in a hierarchy is to offer an overall view of the complex relationship inherent in the situation and in the judgment process which allows the participants to assess and compare issues of the same order of magnitude. The AHP is considered to have “widest applications in multi-criteria decision making, in planning and resource allocation, and in conflict resolution. It is a nonlinear framework for carrying out both deductive and inductive thinking without use of the syllogism” (Saaty and Vergas, 2001:3). Nevertheless, Lee and Chan (2008) point out that AHP is commonly criticized for its extended procedure especially when a large number of

criteria or alternatives are involved. Participants may more likely feel tired and lose patience and concentration during the answering process. In order to ascertain the acceptance of the C.R. (consistency ratio) value for consistency in AHP, it may be better to shorten the whole research process. Only a reasonable and manageable number of criteria in the questionnaires could be of help as well. Although there are some limitations to the AHP method, it is considered as an appropriate method for this study because pairwise comparison forms of data input are straightforward and convenient as a decision model for participants (Lee and Chan, 2008:157).

### **Design**

The AHP model (Figure 3.3) is used in this research. The objective is to evaluate and prioritize the important aspects and factors of culinary creativity in Chinese culture, Taiwan. A survey was conducted to determine how the participants perceived the relative importance of the evaluation criteria and culinary creativity. Thus, culinary creativity is placed in the topmost level (goal level) of a hierarchy which is broken down to level 2 (objectives level) and level 3 (criteria level). Goal level, the first level, describes the key issue of this study, culinary creativity. The second level, the objectives level, comprises five objectives (a modified 5Ps model): Principle, Person, Press, Process, and Product.

Principle describes the fundamentals (culture, market acceptance, time limitations, practical experience, and professional skills) of culinary creativity. Person refers to the personal characteristics (CREATE: curiosity, resilience, experimenting, attentiveness, thoughtfulness, and environment setting) of culinary creativity (Claxton et al., 2006). Press (environment) describes the degree of association to culinary creativity drawn from the PEST model (political, economic, social and technological factors). Process refers to 4 steps of the creativity process (Wallas, 1926) which includes preparation, incubation, illumination and verification within culinary creativity. Lastly, Product describes originality, competitiveness and the creative integration of culinary creativity.

Each objective (in level 2) consists of various criteria in the third level in order to identify the priorities of five objectives level and 22 of criteria level. Both level 2 (objectives) and level 3 (criteria) were identified and developed from interviews and the literature review. According to standard AHP methodology, a series of 50 pairwise comparisons were developed between the alternatives with respect to each criterion (Huang et al., 2009).

### ***3.5.3.2 Data Collection-AHP***

A series of 50 pairwise questionnaires were sent out to the same 36 participants as took part in the interviews by both email and mail. The 36 participants were divided into two groups with 18 participants each. Group 1 is industry chefs and group 2 is academic chefs. Participants are required to make a judgment on their relative importance in relation to the element at the higher level with reference to a 9-point scale (Lee and Chan, 2008). By comparing pairs of criteria or alternatives, a comparison matrix was established. “A scale of values ranging from 1 (equal importance) to 9 (extreme importance) was applied for acquiring participants’ preferences” (Huang et al., 2009:479). To give an example of AHP questions (Table 3.6), participants were asked to evaluate (prioritise) the comparison between the creative product and the creative process. Is the creative product more important than the creative process in respect to culinary creativity? 34/36 participants sent back the questionnaires within two weeks by either email or post. The response rate is 94.44%.

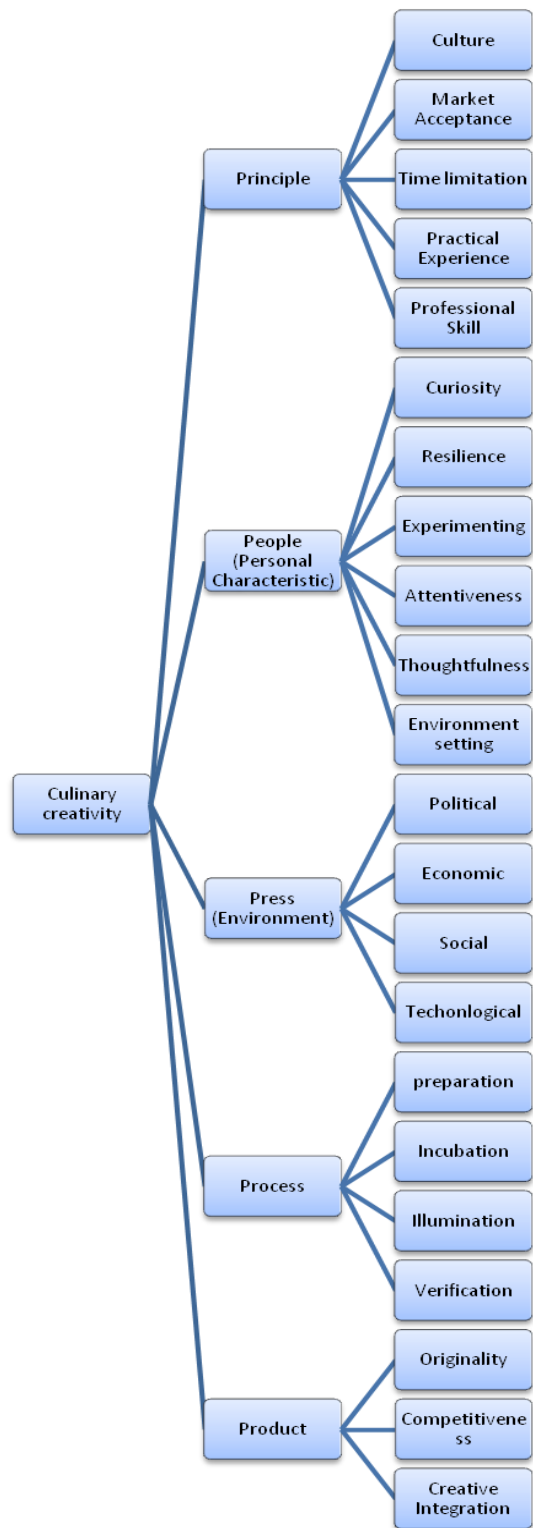


Figure 3.3 AHP Model

Table 3.5 The Fundamental scale

| Intensity of Importance | Definition  | Explanation  |
|-------------------------|---|--|
| 1                       | Equal importance  | Two activities contribute equally to the objective   |
| 3                       | Moderate importance   | Experience and judgment slightly favour one activity over another                                |
| 5                       | Strong importance   | Experience and judgment strongly favour one activity over another                                |
| 7                       | Very strong importance  | An activity is favoured very strongly over another; its dominance demonstrated in practice       |
| 9                       | Extreme importance  | The evidence favouring one activity over another is of the highest possible order of affirmation |
| 2,4,6,8                 | Immediate values between above scale values   | Absolute judgment cannot be given and a compromise is required                                   |
| Reciprocals of above    | If activity I has one of the above nonzero numbers assigned to it when compared with activity j, then j has the reciprocal value when compared with i | A reasonable assumption  |

Source: Saaty and Vergas (2001:6)

Table 3.6 Example of AHP question

| A                | <i>A is more important</i> |     |     |     | <i>Same Importance</i> | <i>B is more important</i> |     |     |     | B                            |
|------------------|----------------------------|-----|-----|-----|------------------------|----------------------------|-----|-----|-----|------------------------------|
|                  | 9:1                        | 7:1 | 5:1 | 3:1 | 1:1                    | 1:3                        | 1:5 | 1:7 | 1:9 |                              |
| Creative Product |                            |     |     | √   |                        |                            |     |     |     | Creative Process             |
| Creative Product |                            |     |     |     |                        |                            | √   |     |     | Creative Press (environment) |
| Creative Product |                            |     | √   |     |                        |                            |     |     |     | Creative Person              |

### **3.5.4 Quantitative method 2-Modified Delphi**

The Delphi technique is an iterative process to collect and distil anonymous judgments of experts using a series of data collection and analysis techniques interspersed with feedback. It is well suited as a research instrument when there is incomplete knowledge about a problem or phenomena and when the goal is to improve the understanding of problems, opportunities, solutions, or to develop a forecast (Skulmoski et al., 2007). Hsu and Standford (2007:1) note that Delphi technique can be applied for achieving the following objectives:

*“(1) To determine or develop a range of possible program alternatives; (2) To explore or expose underlying assumptions or information leading to different judgments; (3) To seek out information which may generate a consensus on the part of the respondent group; (4) To educate the respondent group as to the diverse and interrelated aspects of the topic” (Delbecq, Van de Ven, and Gustafson, 1975).*

Rowe and Wright (1999:354) present four key features of Delphi procedures as “anonymity, iteration, controlled feedback and the statistical aggregation of group response”. Anonymity is to allow the individual expert the opportunity to express his or her opinions and judgments through questionnaires without social pressure from other dominant experts. Iteration is to allow the experts to refine their views from round to round. With controlled feedback, the researcher informs the experts of the other experts’ perspectives which provide the opportunity for experts to clarify or change their views. Statistical aggregation of group response permits a quantitative analysis and interpretation of data (Skulmoski et al., 2007).

#### ***3.5.4.1 Modified Delphi Technique***

The modified Delphi technique is similar to the Delphi technique in terms of procedure, such as a series of rounds with the expert panel, intent to forecast future events and to arrive at consensus (Custer et al., 1999). Modified Delphi starts the process with a set of questions or items. These pre-selected questions or items may be developed from various sources which include literature review and previous exploratory interviews with selected content experts to develop questionnaires (Custer et al., 1999). Rather than conventional Delphi, which starts with the question



and lets participants fill out the answer, the modified Delphi process permits experts to reach consensus through anonymous contribution. It applies to both quantitative and qualitative methods (Nelson, 2002).

The advantage of the Delphi technique includes “the logical progression of participating experts focusing on a selected topic, providing answers and then viewing descriptive statistics from the group” (Sheridan, 2005:4). Custer et al. (1999) note that that primary advantages of the modified Delphi technique are that (1) it normally improves the initial round response rate and (2) it offers a solid grounding in previously developed work. In addition, it can also reduce the effects of bias due to group interaction, assuring anonymity and providing controlled feedback to participants (Dalkey, 1972 and Judd 1972 cited in Custer et al., 1999). Nevertheless, Nelson (2002:9) discuss the limitations of using Delphi techniques including that it is unscientific (Sackman, 1974 cited in Nelson, 2002) and inaccurate (Armstrong, 1978 cited in Nelson, 2002). Further, Hsu and Standford (2007) note that low response rates, unintentionally guiding feedback and the knowledge of experts are considered a weakness of the Delphi technique.

### **Delphi Questionnaire outline**

The modified Delphi questionnaire was based on the interview and AHP survey findings in order to confirm industry and academic participants’ perspectives in culinary creativity development. The questionnaire was conducted to confirm experts’ concern with regard to culinary creativity development as well as education and training.

The first round of Delphi questionnaires were developed from AHP five themes (shown as in Table 3.7), Principle, Person, Press, Process and Product with total of 38 questions. Part 1, Principle of culinary creativity, seeks define and clarify whether or not culinary creativity is required to be built up from foundations, from the accumulation of experience and cultural background; how has culinary creativity been perceived by comparison with to creativity in music and art; and what are the requirements for creativity in the culinary market. Part 2, Person for culinary

creativity, considers how personal characteristics can impact on culinary creativity development. Part 3 Press to culinary creativity, look at how political, economic social, technological factors can impact on culinary creativity. Part 4, Product and Process (training and education for culinary creativity), asks what are the gaps between the views of academics and industry and how education and training can impact on culinary creativity development.

Table 3.7 Delphi Round 1- questionnaires outline

| Delphi 1         | Category                   | Question Number | Total Questions |
|------------------|----------------------------|-----------------|-----------------|
| Principle        | Define Culinary Creativity | 1-11            | 11              |
| Person           | Internal                   | 12-17           | 6               |
| Press            | External                   | 18-23           | 6               |
| Product, Process | Training and Education     | 24-38           | 15              |

#### ***3.5.4.2 Data Collection-Modified Delphi Technique***

The first round of data collection consisted of a set of structured questions developed by the researcher. Participants were asked to use a Likert-type rating scale to prioritize items and also to add their comments and suggestions. The second round questionnaire was generated from the first round questionnaire with additional items. This was followed by the third round, until all questionnaires reached the predetermined level of consensus. Nelson (2002:7) notes that “Altschuld (1993) found that “three iterations were usually sufficient because not enough new information was gained to warrant the cost of more iteration”.

This research applied a modified Delphi technique as Phase Three to identify research and evaluation priorities for culinary education and training utilizing the knowledge of 16 experts. The modified Delphi questionnaire was distributed in two rounds. For the first round, 16 experts responded to a Likert style survey that rated items on a five-point scale from very unimportant to very important. They were also asked to provide comments and suggestions on the subject.

The first round of modified Delphi questionnaire was divided into four sections: 1. Defining culinary creativity, 2. Internal impact factors (Person), 3. External impact factors (Press) and 4. Training and education (Process and Product), with a total of 38 questions. For the second round, the 16 experts evaluated the accuracy of the mean scores from the first round questions by using a five-point scale from very unimportant to very important, as well as an extra five items added from the comments and suggestions provided in the first round using the same instrument. This was followed by a second round of modified Delphi questionnaire, with a total of 7 questions which included 2 questions that did not reach consensus within two sections: external impact factors and training and education, plus 5 extra questions which were proposed by experts during 1<sup>st</sup> round questionnaires. Consensus levels were reached after the second round of data collection.

### **Meaning of consensus**

According to Linstone and Turoff (1975 cited in Powell 2003) there seems to be no specific rules for establishing when consensus is achieved, although the final round will typically demonstrate convergence of opinion, with the dispersion of participants' comment lessening with each round. There are various ways to define consensus: setting a percentage level; according to stability of responses between rounds; and according to inter-quartile ranges. Some studies (Williams and Webb, 1994; Beech, 1997) adopted percentage setting to determine consensus. On the other hand, Duffield (1993 cited in Powell, 2003:379) defined "consensus according to stability of responses between rounds. A number of studies appear to leave interpretation of consensus entirely to the reader" (Lindeman 1975, Bond and Bond 1982, Gabbay and Francis, 1988, Hartley 1995, Gibson 1998 cited in Powell, 2003). Lastly, a mere common approach is based on an inter-quartile range score of less than 1.2 (Zeliffand Heldenbrand, 1993 cited in Custer et al., 1999).

The first round questionnaire was sent out to 16 experts with email and mail and the return rate was 100%, then the second round questionnaire was sent out to the same 16 experts with email and mail and the return rate is 93.75%.

Table 3.8 Example of modified Delphi question:

| <i>Section1</i>          | <i>Define Culinary Creativity</i>                                  | <i>Not important</i> ↔ <i>Very important</i> |   |   |   |   |
|--------------------------|--|--|---|---|---|---|
| Q1                       | Culinary creativity is required to build from culinary foundation. | 1  | 2 | 3 | 4 | 5 |
| Comments and Suggestions |  |  |   |   |   |   |

### 3.6 SAMPLING

Purposive sampling and probability sampling techniques are generally applied in a mixed methods study. There are some similarities and differences between these two techniques. Both techniques are designed to provide samples, which will answer the research issues under investigation. In addition, both techniques are concerned with issues of generalizability to an external context or population, such as transferability or external validity (Teddlie and Yu, 2007).

Purposive sampling technique are also named purposeful sampling, nonprobability sampling and qualitative sampling (Teddlie and Yu, 2007). The purposive sampling technique is normally designed to elicit a small number of cases which will yield the most information about a specific phenomenon. By contrast, probability sampling is also called scientific sampling, random sampling, and quantitative sampling (Teddlie and Yu, 2007). Probability sampling is planned to pick a large number of cases that are representative of the population of interest.

Probability sampling frames are formally planned and represent a distribution with a large number of observations, usually at least 50 units. On the other hand,

“purposive sampling frames are normally casually based on the expert judgment of the researcher or some available resource identified by the researcher, typically 30 cases or less” (Teddlie & Yu, 2007:83). Teddlie and Tashakkori (2009:184) suggest that, in purposive sampling, saturation occurs when the addition of more units does not result in new information which can be applied in research development. In addition, “Saturation is the general rule used for purposive sampling, whereas representativeness is the general rule for probability sampling”.

This study builds on the use of a researcher-selected expert panel based on a purposive approach, consisting originally of 36 senior industry and academic chefs in Taiwan and reduced to 16 for the Phase Three of the study. An "expert panel" is a specially constituted group selected to address a specialist area. Expert panels are usually made up of independent specialists recognised in the research field, usually as a mechanism for synthesising their views and experience, bringing their range of viewpoints, in order to arrive at overall conclusions. Expert panels are particularly appropriate for issues that require highly technical knowledge and/or are highly complex and require the synthesis of experts from different disciplines (in this case, Chinese and Western cuisine). The method is not designed to actively involve a random sample of the broad constituency from which participants are drawn, ie. the total culinary community in Taiwan (Yousuf, 2007). To a great extent, the expert panel draws its credibility from the status, expertise and experience of its participants. Expert panels are a means of arriving at a value judgement on a particular theme, in this case culinary creativity in Taiwan.

This research applies an expert panel approach to achieve the three-phase mixed methods purposes. With very focused and deliberate sampling of Western and Chinese cuisine chefs in Taiwan, this research is seeking the meaning of culinary creativity from experienced and professional chefs within academia and industry in order to explore their opinions in relation to training for culinary creativity. Experts are selected based on their professional experiences and current related work in the culinary industry and academia. On the other hand, alternative samples comprised of normal line cooks and restaurant chefs as participants may not be able to generate

such rich data from interviews as the expert participants. Predominantly, participants contribute their perspectives based on their culinary industry and academic experiences. In addition, the researcher undertook three pilot interviews with younger generation chefs with the same research questions in which it became evident that the respondents did not have sufficient experience and acquired insight to contribute effectively to the research project. By contrast, well experienced industry and academic chefs were able to share their knowledge and perspectives in this specific topic generously. Consequently, expert participants were considered appropriate for this research.

The selection of the experts for this research was based on the researcher's own position within the research community of high-end chefs in Taiwan (see 3.9). This community is a relatively new phenomenon in Taiwan in that the international-standard culinary industry is still immature and consists of a small group of industry practitioners and university/ college teachers, all of whom also have industry experience in their own right. This community is well known to the researcher. A list of those involved in the industry who meet criteria based on experience at the 5\* level was drawn up by the researcher and this formed the basis for the formation of 36 person panel. The panel is not intended to be 'representative' of the whole culinary community in Taiwan but is reflective of the top-end, experienced community. The selection approach adopted accounts for the gender and age imbalance within the expert panel within which all members are male and of mature age.

A purposive sampling strategy, designed to form the requisite expert panel, applies to this research, with very focused and deliberate selection of Western and Chinese cuisines' chefs in Taiwan in order to fill in the story line of the core categories and the proposed relationships between categories (Easterby-Smith et al., 2001). This will be achieved by choosing suitable chefs within Western and Chinese cuisines that fit the criteria of the research, as well as using contacts in the industry, academia and friendship circles in order to gain access to achieve representativeness and comparability of samples within the two cuisines (Teddlie and Tashakkori, 2009).

Thus, a snowball sampling (chain sampling) technique is applied. According to Kemper, Stringfield and Teddlie (2003:283) “snowball sampling involves taking advantage of circumstances and events as it arises while undergoing the data collection process. It involves using informants to ascertain cases that would be useful to include in the study. This method uses insider knowledge to maximize the chance that the units included in the final sample are strong cases to include in the study” (Kemper et al., 2003:283).

Based on the specific purpose of educating and training for culinary creativity, a purposive sampling strategy is used to focus on depth in culinary creativity development based on individual chefs’ background and working experience. By utilizing chefs’ opinions and experience as expert judgments, the form of data focuses on narrative rather than the numeric data. With the requirement for a large number and random style of sampling, probability sampling strategy is required to be formally planned and based on application of mathematical formulae which may not be as suitable for purposive sampling strategy with this particular group.

Therefore, with purposive sampling technique and snowball sampling technique, 30 to 36 participants are expected to participate in Phase One and Phase Two in this study. Participants are chosen according to their working experience in upscale restaurants and five star hotels, their experience in national and international competitions, and involvement in serving as a member of cookery committee in Labour Affairs, Taiwan. For industry participants, this research set a parameter of 20 years industry working experience and holding at least an executive chef position as the basic considerations. For academic participants, this research sets similar considerations as industry participants with holding Assistant Professor positions or above because these positions require long working experience in high profile hotels and international award achievements.

### *Phase Three - the modified Delphi method*

There are two main concerns with an expert panel: qualifications of experts and panel size (Powell, 2003). The main attribute of panellists is their expertise or knowledge ability (Rowe & Wright, 1999). Skulmoski et al. (2007:10) note that

*“the Delphi participants should meet four “expertise” requirements: (1) Knowledge and experience with the issue under investigation, (2) capacity and willingness to participate, (3) sufficient time to participate in the Delphi, and (4) effective communication skills” (Adler & Ziglio, 1996).*

*Powell (2003:378) notes that*

*“the Delphi does not call for expert panels to be representative samples for statistical purposes. Representativeness, it seems, is assessed on the qualities of the expert panel rather than its numbers”.*

Panel size depends on the scope of the problem and resource availability (Delbecq et al. 1975, Fink et al. 1991, Hasson et al. 2000 cited in Hsu and Standford, 2007). The panel sizes can range from 10 to 1685 (Reid, 1988 cited in Hsu and Standford, 2007). Delbecq et al. (1975 cited in Hsu and Standford, 2007) suggest that 10-15 subjects could be sufficient if the background of the Delphi subject is homogeneous”. Murphy et al. (1998 cited in Powell, 2003) believe that the more participants there are the better the reliability of judgement. However, there is very limited evidence relating sample sizes to the reliability and validity of consensus process. In Phase Three, the modified Delphi technique, 12 to 16 participants are expected to participate. Experts are chosen from Phase One and Phase Two participants to serve as expert panel to help the consistency of the surveys. Accordingly, their achievements in industry and academia and, in addition, their willingness to participate in this research is also taken to consideration.

### 3.7 DATA ANALYSIS

The third type of sequential mixed analysis, iterative sequential mixed analysis, was applied in this research analysis. This is typical for sequential research that has more



than two phases. It involves initial qualitative (QUAL) research questions, followed by quantitative (quan) research questions in an emerging mixed method design, and which is followed by one more round of quantitative (quan) research questions (Teddlie and Tashakkori 2009). The first phase of qualitative research analysis involves forming groups of attributes and themes (4Ps model) through qualitative analysis follow by confirmatory statistical analysis using quantitative data that is available (second phase). The emergent themes are indicators of sub constructs related to the general construct of culinary creativity development.

### **3.7.1 In-Depth Interview**

“The process of data analysis involves making sense out of text and image data” (Creswell, 2009:183). Further, Creswell notes that the process required to represent the data, and make an interpretation of its meaning is similar to peeling back the layer of an onion. “The iterative nature of QUAL data collection and analysis is different from most QUAN data analysis”. In QUAL research the data collection often continues while the analysis is on-going (Creswell, 2009:184).

36 interviews were transcribed in order to organize and prepare the data for analysis. First, interview data were divided between industry chef and academic chef data. After reading through all data, this was coded by hand into three main themes: defining culinary creativity, training and education, the gap between industry and academia. From each main theme, the data were developed into subthemes in order to have clear views to their interrelationship. Themes and sub-themes are made from interpretation of meaning of the data. By applying the obtained themes and specific statements from individual interviews, the researcher modifies them to fit into Phase Two, the AHP questionnaire underpinned qualitative findings.

### **3.7.2 Questionnaire-AHP**

#### **Sample and Reponses**

This research distributed AHP questionnaire to the same 36 interview participants from the culinary industry and academia as included in Phase One (as shown in

Table 3.9), achieving 34 responses and a return rate of 94.44%. By using Expert Choice software to analysis the AHP questionnaire, results show a total of 17 effective responses which include 7 adjusted matrix with inconsistency rate 0.00 (combined groups), 0.01 (industry) and 0.01 (academic group) respectively.

### Measurement-AHP

“The software program Expert Choice incorporates the AHP methodology and enables the analyst to structure the hierarchy and resolve the problem using relative or absolute measurement, as appropriate”(Saaty and Vergas, 2001:10).

*Firstly, researcher calculated the geometric means of the marked responses. Followed by the comparison matrix was input into the Expert Choice for producing local weights at each level of the hierarchy. These were then combined using an additive value model to produce a set of global weights or priorities for the alternatives. Finally, a sensitivity analysis was performed to determine the critical evaluation criteria that affect the selection strategy” (Huang et al., 2009:480).*

The inconsistency rate of this study has matched the requirement by AHP methodology that the inconsistency should under 0.1. According to Lee and Chan (2008:163), if C.R. (consistency ratio) has a value over 0.1, the expert is required to make a judgement on that matrix again to improve the consistency in rating. The main purpose of the inconsistency measure is not only to identify possible error in judgments and actual inconsistencies in the judgments themselves but also to represent logical inconsistency of judgment (Nguyen et al., 2010). The acceptable consistency ratio assist to ensure decision-maker reliability in determining the priorities of a set of criteria (Kabir and Sumi, 2010)

Table 3.9 AHP Responses

|          | Send out | Receive | Effective Responses |
|----------|----------|---------|---------------------|
| Industry | 18       | 18      | 9                   |
| Academic | 18       | 16      | 8                   |
| Total    | 36       | 34      | 17                  |

### 3.7.3 Questionnaire Delphi Analysis

This research adopts Delphi technique as the third phase of research process. From previous AHP method of 36 participants reduces to 18 participants as the sample size in Delphi technique. According to Okoli and Pawlowski (2004: 19), “the Delphi group size does not depend on statistical power, but rather on group dynamics for arriving at consensus among experts. Consequently, this research adopts the literature recommendation of 10-18 experts on Delphi panel. In terms of sampling selection for Delphi panel, experts are chosen from Phase One and Phase Two participants according to their qualifications in culinary industry, involvement in government (Labour Affairs) planning and experience in international training and competitions.

The Delphi method has been supported as a method of diminishing group pressures to conform with both increased consensus and increased conformity (Rowe and Wright, 1999). To analysis modified Delphi data, there are several statistical measures available which include

*“(1) determining the frequency distribution of panel responses for each item, (2) computing the mean value for each statement, (3) calculating the standard deviation for each statement, and (4) measuring the achievement of either consensus or stability for each statement” (Murry and Hammons, 1995:213).*

A primary objective of this study was to achieve consensus of panel responses on culinary creativity development statements. For this study, consensus was determined when an interquartile range score of less than 1.2 existed (Zeliff and Heldenbrand, 1993). “Interquartile range refers to the middle 50% responses for each statement (i.e., distance between first and third quartiles)” (Wicklein, 1993). For first and second rounds, 16 participants responded to a Likert style survey that rated items on a 5-point scale from very unimportant to very important and provide comment on the subject.

### 3.8 CHALLENGES AND LIMITATIONS OF THE RESEARCH METHODOLOGY

*“Mixed research involves the mixing of quantitative and qualitative methods or paradigm characteristics into research studies (Johnson and Onwuegbuzie, 2004,; Tashakkori and Teddlie, 1998, 2003). According to the fundamental principle of mixed research, it often should involve the combining of quantitative and qualitative methods, approaches, and concepts that have complementary strengths and no overlapping weaknesses (Brewer and Hunter, 1989; Johnson and Turner, 2003). This principle is meant to be viewed broadly; it is not limited to triangulation or corroboration. The words “complementary strengths” are meant to include all of the strengths of qualitative and quantitative research. Therefore, the principle can be used for the five traditional purposes of mixed research identified by Greene, Caracelli, and Graham (1989). By “complementary strengths” we are implying a putting together of different approaches, methods, and strategies in multiple and creative ways (Onwuegbuzie and Jonson, 2008:280).*

To assess the complex validity of mixed method findings, issues of representation, integration, and legitimation are the major concerns. The issue of representation refers to the difficulty in representation by words and numbers. The issue of legitimation refers to the difficulty in reaching findings and/or making inference which is credible, dependable, transferable and/or confirmable. In addition, mixed research methods combine quantitative and qualitative strength. However, both methods have their own weakness which can create a further threat to the integration (Onwuegbuzie and Jonson, 2008).

According to Creswell and Clark (2007) there are some potential threats to the validity of sequential designs in mixed methods research (Table 3.10). From data collection issues, selecting same or different sample groups, sizes and instruments are the major potential threats to sequential design. Further, they indicate that depending on whether explanatory, exploratory or embedded styles of sequential design are employed, there are some ways to minimize the threat of potential issues. This research applied the sequential exploratory design to achieve its research purpose. These particular participants, industry chefs and academic chefs, were required to follow-up, to evaluate and confirm the results within the three phases of research.

Table 3.10 Potential Threats to the Validity of Sequential Designs in Mixed Methods Research

| Sequential Designs (Explanatory, Exploratory, Embedded)   | Minimizing the Threat   |
|---|---|
| Data collection issues  |   |
| 1. Selecting the same or different individuals for the qualitative and quantitative data collection | 1. Select the same individuals for an explanatory Design and different individuals for Exploratory Design |
| 2. Using the same samples sizes for the qualitative and quantitative data collection                | 2. Use large sample for quantitative and small sample size for qualitative                                |
| 3. Not choosing participants for the follow-up who help explain significant results                 | 3. Choose same individuals for qualitative follow-up and quantitative first phase                         |
| 4. Not designing an instrument with sound psychometric (i.e., validity and reliability) properties  | 4. Use rigorous procedures for developing and validating the new instrument                               |
| Data analysis issues  |   |
| 1. Choosing weak quantitative results to follow up on qualitatively                                 | 1. Choose significant results or strong predictors to follow up on  |
| 2. Choosing weak qualitative findings to follow up on quantitatively                                | 2. Use major themes as the basis for the quantitative follow-up   |
| 3. Not addressing validity issues   | 3. Address both quantitative and qualitative validity   |

Source: (Creswell and Clark, 2007:148)

### **Bias and limitations**

With three-phase mixed methods, sequential exploratory strategy, this research aims to apply three methods to cover the weaknesses and enhance the strength of each method. However, there are some possible biases and limitations in this research. Although, biases cannot be totally eliminated, they should be recognized and their implications acknowledged and accepted (Remenyi et al., 1998). First, this research

applied the same samples sizes for three phases of research methods, QUAL-quant-quant which can be an issue for mixed methods design. According to Creswell and Clark (2007), the standard answer to mixed methods sampling is that the quantitative sample (preferable randomly selected) will not be the same as the qualitative sample (preferably purposefully selected). However, with sequential data collection design, the qualitative and quantitative data collections are correlated to each other, not independent, which means it is possible to build one on the other.

Secondly, Phase One, the qualitative research cannot generalize responses to whole target populations. Face-to-face interviews provide indirect information filtered through the views of interviewees, and the researcher's presence may bias responses, and not all people are equally articulate and perceptive (Creswell, 2009).

Thirdly, Phase Two, quantitative method of the AHP questionnaire survey can be problematic and complicated for respondents to know how to answer properly. Although some difficulties arose from two participants, nevertheless, all participants were able to do their best to take time to answer the survey and returned it within a short period of time.

Fourthly, the major concern of Phase Three, modified Delphi questionnaire survey is the qualifications of experts (Powell, 2003) which can be considered as biased and limited. With the researcher's own personal industry and academia connections, experts were carefully reviewed and considered in terms of their achievements and experience in the culinary industry in order to achieve the research purpose.

Lastly, natural biases and limitations are language barriers and translation. This research fieldwork was undertaken in Taiwan in which the three Phases of research methods are conducted in Chinese. The researcher is a non-native English speaker so to present this research in English can naturally produce language barriers and translation limitations. To address translation issues, the researcher works closely with native English speaker to do proof reading in order to present the construction of nuance and meaning of data in the research process.(Address translation issues)

### 3.9 PERSONAL REFLECTIONS

This section addresses the development of this research and its links to the researcher's professional background and vision for this study.

#### **3.9.1 Where does a journey begin? (Professional background)**

Looking back now at the researcher's professional background, as an international cooking judge and trainer in the Worldskills competition, and the international Abilympics competition, it has been a rather long journey to the research as it is now presented. The researcher began this culinary journey in Taiwan, then the USA and finally the UK.

##### **Taiwan**

When the researcher was seven years old, her wish was to become a chef. She has been cooking in the kitchen since she was ten years old. Gradually, cooking skills were developed from preparing lunch for factory employees everyday with the family. The proper kitchen training began at the researcher's vocational senior high school, studying restaurant management. Meanwhile, she was chosen to represent her school at a national cooking competition. Then, the researcher started to work in restaurants and hotels without pay during week days after school and at weekends for 3 years. The training in the restaurants and hotels was like an apprentice position, washing pots, cleaning the kitchen and doing very simple work to assist cooks. During three years of apprentice training, the researcher won second place in the regional cooking competition, followed by first place in the national cooking competition. In the third year, the researcher gave up university enrolment to work as a trainee in two well-known five star hotels for one year in order to win the following year's national competition and represent Taiwan for an international competition (The Worldskills Competition, France 1995). A year later, the researcher was selected and trained for another ten months to represent Taiwan to attend the competition in Lyon, France.

## **USA**

The researcher was recommended by the Worldskills judge to enrol, for a bachelor degree in The Culinary Institute of American (CIA), New York, USA in 1997. During three years and two months in CIA, the researcher gained many precious awards, working experience, and a scholarship. She won first place with a 5000 US\$. Prize in the *Tomato Recipe Contest* among 144 participants within USA and Canada, as well as the first place with 1000 US\$. Prize in the *Turkey recipe contest*. After an internship in the Four Seasons Hotel, Boston, the researcher worked as part-time private chef to cater upscale dining and parties which not only built up confidence in cooking skills but also client connections. Before graduating with a bachelor degree, researcher won the 8000 US\$ scholarship for attending the *cucina e cultura programme* which was sponsored by Italian Trade Commission to study Italian cooking, history and culture for 5 months in CIA. After graduating from this programme in CIA, the researcher got two job offers, as a well-paid private chef and as chef de parti in the Ritz-Carlton Hotel, New York City. When her family objected, the researcher returned to Taiwan and began a new culinary life.

## **Taiwan-UK**

Within a week of returning from USA, the researcher unexpectedly began an academic career in vocational senior high school and also part time in the university, meanwhile, working as a restaurant menu designer to create new menus and promotions. A year later, the researcher was invited to join a restaurant corporation as a chef for a fine dining restaurant. The researcher worked as a chef despite family objections. Mainly, at that time most kitchens were male dominated in Taiwan. With long working hours and few female workers, the family encouraged the researcher to advance her study in the culinary field.

The researcher decided at the last minute to enrol for a master degree in hospitality management in the University of Brighton. A year later, the researcher returned to Taiwan and while continuing her academic career at university, joined various TV cooking programmes, wrote two cookery books, co-authored two cookery books and



a series of cookery DVDs, and also worked for a consultancy company for restaurant operations.

### **3.9.2 The journey from a proposal to dissertation**

During her academic life, the researcher was given the award of chief judge for a national cooking competition and invigilator for cookery certification by the Council of Labour Affairs, Taiwan. From academic teaching and competitions observing the experiences of others, the researcher realized there are some issues among students, school and industry.

First, from academia, during the one year internship programme, some students had difficulties fitting into the industry. Further, students criticized differences between school and industry education and training. Students experienced the reality of industry work. Consequently, only a very low percentage of students would return to industry. Second, from observing cooking competitions, most young competitors, lacked their own thoughts about cooking, but could follow exactly their teachers' ideas. The results in them missing the ability to solve unexpected problems such as changing ingredients, or the contest module.

With nearly six years of academic working experience, the researcher began to think about issues and wished to understand what academia and industry could provide to lead and inspire students in their culinary education development. Linking to academia and competition experiences, the researcher recognized that creativity has played a key role in leading trends in culinary industry, as well as in cooking competitions. At the same time, academia still remained embedded in the traditional teaching method of spoon-feeding students. More specifically, the researcher looked to explore the role of applied creativity in culinary education and industry.

Fortunately, the researcher received a scholarship from the Ministry of Education, Taiwan, as well as acceptance from the University of Strathclyde to advance a Ph.D study in the topic of Education and Training for the Hospitality Industry.

### 3.9.3 Dissertation writing

During the Ph.D study, the researcher was required to return to Taiwan to host the national cooking competitions and Abilympic cooking competitions twice a year. This allowed the researcher to have opportunities to discuss the research topic with industry and academia chefs.

The researcher took advantage of her professional industry and academic connections and support to achieve this study. She knows most participants from industry, academia and competitions. From the industry chef connections, the researcher was able to contact well-known five star hotel general managers and executive chefs, sous chefs, and upscale restaurant owners and chefs. Most industry chefs have known the researcher for over ten years. Snowball sampling was, therefore, applied in this research. Some participants were introduced through academic friendship. The researcher approached them by email to introduce participants to the research purpose and the researcher's portfolio to gain connection and trust. Subsequently, within a short period of time, the researcher was able to arrange interviews with them.

One of the Chinese cuisine Assistants Professor Huang noted,

*“after I received your email and CV, I immediately phone you to get contact with you. I hardly accept any research interviews, mainly they just don't understand this field. I think you will understand better than any other researcher in culinary field”.*

Chinese cuisine Assistant Professor Kuo knows the researcher through competitions. He stated: *“I know you will be the first one to earn the Ph.D with culinary research in our circle”.*

Chinese cuisine Assistant professor Tseng saw this is an interesting topic and he encouraged the researcher to reveal the participants' thoughts on culinary creativity. He suggested this could be a book to share with culinary students. Western cuisine Assistant Professor Horng, notes that the researcher has a strong background in

culinary education and industry and that this research can be interpreted from a professional culinarian perspective.

Participants show their enthusiasm to support this research where they think the researcher is part of them in the culinary industry, and not an outside researcher. Many participants note that culinary academia and industry are required to make changes in order to improve the overall quality of the culinary industry and academia. Hence, with support from academia and industry chefs, the researcher gained the confidence and trust needed from participants to accomplish this research. This was greatly appreciated. With the honour of gaining access to academia and industry participants in this research, the researcher sought to do her best to take these valuable findings from participants' trust to produce a good quality of culinary creativity research.

#### **3.9.4 Mirroring reflections**

With nearly nine years of experience in judging national and international culinary competitions, the researcher learned that culinary competitions reflect current culinary market trends. Looking back now at the researcher's own competition experience in 1995, the tasks and trends were rather different from those of current competitions. Traditional dishes used to be emphasized through dramatic presentation. In contrast, within the current trend of competitions, the contestants are allowed to put own creativity into tasks. In addition, the contestants now tend to have more natural style of presentations.

In the 41st Worldskills competition in London, contestants were offered special ingredients and advanced equipment to assist in their production, such as lecithine and xanthane for molecular creations and vacuum packing for low heat cooking. These special ingredients and equipment are part of current trends in the culinary industry. In culinary competitions, contestants are judged on their preparation (mise en place, hygiene), presentation, taste (texture, temperature, flavour, harmony) and creativity. Contestants have to have the ability to produce creative and practical dishes that can

be made in industry kitchens in order to achieve the aims of the competition. Thus, culinary creativity has to produce practical and saleable preparations which can be applied in mass production in the industry.

Last year (2011), the researcher took seven months off for maternity leave, at the same time, also training two competitors to represent Taiwan to attend the 41<sup>st</sup> Worldskills competition, London and The 8<sup>th</sup> International Abilympics competition, Korea. The researcher was able to apply some part of the research literature and findings to train competitors to develop their creativity in competitions.

At the beginning of the training programme, the researcher applied the basic 4Ps model of creativity to understand the competitors' background and share some participants' experiences to inspire their culinary creativity development. For example, in the competition, the product is considered the first impression by most judges. In addition, personal hygiene and skills, presentation (appearance), flavour harmony and combination, and creativity are considered the key points of judgement. Creativity can be present in appearance and flavour in combination in the culinary product. However, research findings show that market acceptance is a key factor in culinary creativity. Market acceptance includes various clients demands and commercial value. The researcher understood that Western cuisine flavours in Taiwan tend to have lighter seasoning compared with most Asian and Western countries. Therefore, flavour combination development was placed as top priority to train competitors. In addition, commercial value was also taken into consideration in the training process which means the product has to be able to make a profit in the reality of the culinary industry. As a result, the task has to be practical and creative.

The researcher represented Taiwan as an expert and judge in both competitions. One competitor won the excellence award in the 41<sup>st</sup> Worldskills competition (Oct 2011) among 34 competitors, and the other won the first place in the 8<sup>th</sup> Abilympic competition (Sep 2011). During each competition, the researcher got opportunities to discuss with judges of 34 nationalities about their culinary creativity development and experience. She found most opinions to be similar to the findings of this study

which gives assurance in this research. For example, in the Worldskills competition, the Thai expert (Jaturon Sunyaphong) who is the food innovation and quality assurance director for Yum restaurants International Co. gave his thoughts. He is in charge of developing new products for the global brands of A &W, KFC, Pizza Hut, Taco Bell and Long John Silvers. He noted that creativity is very important to the culinary industry. That is his job. He thinks the final goal of culinary creativity is to make a profit and satisfy customers. This supports the researcher's findings.

Looking back at these three and half years of a research journey, the researcher appreciates the support of her supervisor and department to attend conferences and submit journal publications (Appendix 8). The researcher is looking forward to incorporating current research and extending it to different aspects for future study.

It has been a pleasure to be able to combine a professional career with a passion for the culinary arts into this research. Connecting culinary academic and industry chefs' perspectives of culinary creativity development, this research aims to explore the role of applied creativity in the culinary industry in order to structure culinary creativity development in culinary education and to inspire more culinarians to devote their passions to the culinary industry. Based on international competition judging and training experiences, the researcher is hoping to present valid and legitimate research into training for culinary creativity, and the role of formative education. In addition, this research can benefit the improvement of further culinary education and training development and extend to cross cultural study.

The researcher always has a vision of operating a professional culinary school in Asia. She will take this research as a milestone and apply what is learnt in this research to continue devoting her passion in her culinary education journey.

### **3.9.5 Recognising the politics of identity**

The researcher is very conscious of the influence which her own professional background and political identity have had upon the execution of this research and

upon the interpretation which is placed upon data and research outcomes. The politics of identity relate to arguments that focus upon the self interest and perspectives of self-identified social interest groups and ways in which a researcher's values and perspectives may be shaped by aspects of their identity through race, class, religion, gender, sexual orientation or traditional dominance. In the case of this study, the politics of identity relate to the researcher's professional training, working experience and, most importantly, membership of an elite group of chefs within the Taiwanese culinary community as an international judge.

Reflecting on this political context, it is clear that the researcher's identity have acted in both positive and, potentially, negative ways in this study. On the positive front, it is clear that ready access to the expert group or panel was predicated upon membership of this elite group, the researcher was clearly 'one of us' and could approach respondents in the certain knowledge of agreement to participate in the study. Familiarity also facilitated a level of engagement and openness in the responses given by participants - it is certainly debatable whether an 'objective outsider' would have gained the quality of responses which were forthcoming for this study. The corollary, is that the researcher's politics of identity may also mean that she was rather too close to her participants and, rather than 'going native' in the research, was already wholly immersed in the elite culinary community in Taiwan and that this status may have impacted upon her objectivity as a researcher. On reflective balance, this researcher would argue that the benefits in this regard outweigh the potential limitations that might have arisen.

### 3.10 CONCLUSIONS

This chapter outlined the research methodology and the methods applied for collecting data for the study. The three-phase, sequential exploratory, mixed methods study was applied in this research to answer the research questions. The semi-structure, in-depth interviews were the first phase in allowing the researcher to explore the linkage between the culinary industry and academia in terms of culinary creativity development. After its collection, interview data was coded, transcribed

and themed to develop to the second phase AHP questionnaire to refine the various opinions. Subsequently, the third phase of research was developed from interview and AHP findings to evaluate and confirm with previous findings and answer research questions by a group of experts. Thus, the research findings are presented in the next three chapters (Chapter Four, Chapter Five and Chapter Six).

## Chapter 4 RESEARCH FINDINGS FROM INTERVIEWS

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### 4.1 INTRODUCTION

This chapter reports the individual interview findings. With a total of 36 participants from the Western cuisine and Chinese cuisine industry chefs as well as academic educators, participants share their views of culinary creativity in upscale hotels and restaurants, and also training and education for creativity development. The chapter includes three main sections, defining culinary creativity, training and education, and the gaps between the culinary industry and academia. Table 4.1 addresses each section with the main questions. The main findings of interviews are carried to the next research stage of the Analytical Hierarchy Process (AHP) method and presented in chapter five.

### 4.2 PROFILE OF PARTICIPANTS

Interview participants were divided into two main cuisines, Chinese cuisine and Western cuisine and two main fields, academic and industry. There are a total 36 participants who each have over 20 years of industry experience and some full time and part time teaching experience (Table 4.2). The majority of participants hold cooking competition judge positions and experience.

First of all, the academic field is drawn from public and private universities and training centres. There are 6 participants who are teaching in culinary arts management and 10 participants who are teaching in hospitality management. Although majors are slightly different, all 16 participants specialize in either Chinese cuisine or Western cuisine. Furthermore, participants who are teaching in culinary arts management have more related culinary courses than participants who are teaching in hospitality management and hotel management. All academic participants have either retired or have previously held management positions from industry and transferred to the academic field.



Secondly, the industry group includes 17 participants working in five star hotels and holding either chef, executive sous chef, executive chef or general manager positions. 4 participants who are working in privately owned restaurants include 3 participants who are owners of the restaurant and 1 participant who is the executive chef in the restaurant group. Industry participants all have various part-time teaching experiences.

Lastly, each participant is coded as academic (A) or industry (I), followed by cuisine type Chinese cuisine (C) or Western cuisine (W) and along with the number of participants in each category. For instance, AC1 represents an academic in Chinese cuisine and chef number 1, while IW5 represents industry in Western cuisine and chef number 5. (For further detail of participants, please refer to appendix 1 and 2).

Table 4.1 Participants

| <i>Field</i>                    | <i>Code</i>  | <i>Total</i> | <i>Job</i>  | <i>Description</i>                |
|---------------------------------|--------------|--------------|---|-----------------------------------|
| Academic/<br>Chinese<br>Cuisine | AC1-<br>AC9  | 9            | Public University 3<br>Private University<br>6                                | Public: Chinese Culinary Arts 1   |
|                                 |              |              |   | Public: Hospitality Management 2  |
|                                 |              |              |   | Private: Chinese Culinary Arts 3  |
|                                 |              |              |   | Private: Hospitality Management 2 |
|                                 |              |              |   | Private: Hotel Management 1       |
| Academic/<br>Western<br>Cuisine | AW1-<br>AW7  | 7            | Public University 2<br>Public Training<br>Centre 1<br>Private University<br>4 | Public: Western Culinary Arts 2   |
|                                 |              |              |   | Public: Hospitality Management 1  |
|                                 |              |              |   | Private: Hospitality Management 4 |
| Industry/<br>Chinese<br>Cuisine | IC1-IC7      | 7            | Five star Hotel 6<br>Private own<br>Restaurant 1                              | Teaching experience: 7            |
|                                 |              |              |   | No Teaching experience: 0         |
| Industry/W<br>estern<br>Cuisine | IW1-<br>IW13 | 13           | Five star Hotel 10<br>Private own<br>Restaurant 3                             | Teaching experience: 10           |
|                                 |              |              |   | No Teaching experience: 0         |
| Academic<br>+ Industry          |              | 36           |   | Teaching Experience 36            |

Table 4.2 Interview Themes and Questions

|   |   |
|---|---|
| <p>Defining Culinary Creativity</p>       | <ul style="list-style-type: none"> <li>• What is nature of culinary creativity in the hospitality industry?</li> <li>• What is the role of applied creativity in the upscale culinary industry?</li> <li>• What is the difference between culinary creativity and creativity in general?</li> <li>• What are the differences between Western cuisine and Chinese cuisine chefs' perspective of culinary creativity and development?</li> </ul>  |
| <p>Training and Education</p>             | <ul style="list-style-type: none"> <li>• Is it possible to train for culinary creativity?</li> <li>• How does culinary creativity fit into curriculum design in education?</li> <li>• Is there a different structure of creativity development in training and educating within the two main cuisines?</li> <li>• What are the internal impact factors to the culinary creativity process?</li> <li>• What are the external impact factors to the culinary creativity process?</li> </ul> |
| <p>Gaps between Industry and Academia</p> | <ul style="list-style-type: none"> <li>• What are the gaps between academia and industry perspectives in terms of creativity training development?</li> <li>• What can industry do to enhance creativity development?</li> <li>• What can academia do to enhance creativity development?</li> </ul>   |

### 4.3 CULINARY INDUSTRY IN TAIWAN

#### 4.3.1 The nature of culinary creativity in the hospitality industry

##### *Taiwan Food Culture*

In early Taiwan food culture, with agriculture as the main economic resource, there was not much creativity involved in food operations; customers were looking for big

portions and cheap costs to fill their appetites (AC5). Moreover, AC5 shared the view that the example of the nature of the environment helped Haaka people (one of the main groups of people in Taiwan) to develop their own distinct flavour in preserving vegetables during the agricultural age (1959-1972).

*Mustard leaf is a common vegetable which is harvested and cooked during Chinese New Year. The special taste of mustard leaf is initially bitter becoming sweet to represent the meaning of life. After harvesting large amounts of mustard leaf, Hakka people create five kinds of preservation methods into five different names for this mustard leaf which are widely used in Chinese cuisine (AC5).*

With political and economic change in Taiwan, AC5 said by contrast, current customers seek high quality and elegant meals to satisfy their palates which is the aim of the restaurant business (IC4). Culinary creativity is required to match current trends in order to create higher economic value (IW10). For instance, 20 years ago, Dover sole Meuniere was a very popular dish in Taiwan Western cuisine. However, with changing dietary trends, now it's hard to find this dish on the menu (IW7). On the other hand, most participants agreed that customers are seeking healthy and natural food preparation, instead of over seasoning and unnatural ingredients. In addition, being environmentally friendly is also a concern to some participants, IW1 pointed out that some pricey ingredients, like shark fin in Chinese cuisine and foie gras in Western cuisine, which are not friendly to animals may not be as popular as before. Also, many participants put great emphasis on using local produce to reduce unnecessary pollution from air miles.

#### ***4.3.1.1 The Nature of Culinary Creativity***

The nature of culinary creativity plays an interactive role among creators (chefs), organizations and customers where culinary creativity can lead trends in food fashion, meet the demands of the market, and also make profits. Culinary creativity can be developed from many aspects, for example, ingredients, knife skills, presentation and cooking methods. Moreover, culinary creativity can also be combined with regional (local) culture to spark creativity at a higher level. Most of

the participants agreed that culinary creativity is a very significant business strategy for survival in the hospitality industry.

*It also depends on what type and level of restaurant. For example, culinary creativity in hotels and high end restaurants may not as important as popular (mid-level) restaurants (AC2).*

The purpose of culinary creativity is divided into internal and external aspects. For the internal aspects, the purpose of culinary creativity is to develop a chefs' talent and self-achievement and for the organization to make maximum profit for their long term operation. As far as the external aspects are concerned, culinary creativity is necessary to meet market demand and satisfy customers in order to create a competitive business strategy. As two participants reported,

*Culinary creativity has to be accepted by the current market which is unlike paintings and artworks in that over time these can still be recognized and evaluated by people and be referred to as creative works, whereas, culinary creativity has a time limitation (IW10, IW2).*

#### **4.3.2 What is the role of applied creativity in the upscale culinary industry?**

Culinary creativity involves more skills and techniques than creativity in general. Most participants stated that culinary creativity builds on the fundamentals and basic principles of cooking which include knife skills, food science and knowledge, sanitation and hygiene, cooking methods and history in order to develop ideas and turn these into creativity. However, one participant (IW2) did not agree that creativity has to be built up from traditions. He emphasizes that building up from traditions may restrain creativity development.

#### **4.4 DEFINE CULINARY CREATIVITY**

Some of the participants stated that they felt culinary creativity is difficult to achieve. Most of the time, culinary creativity is more like combining different elements into a new dish, rather than starting from nothing.

*A creative dish can be defined broadly and more specifically, one is the cuisine itself, and the other is the packaging. Firstly, it is difficult to achieve culinary creativity. Actually, we are just combining other*

*elements into a dish. For example: A+B+C, then you take off B and add D. I think it's more like a combination (IW2).*

*I am afraid to talk about creativity. I think creativity is big and I would dare to say that I have creativity. I think creativity has to be accepted by customers and the market (AC2).*

To summarize, most participants' reported that culinary creativity is based on the foundations of traditional cuisine by adding various elements in order to extend and escape from culinary traditions and satisfy customers.

Table 4.3 The Role of Applied Creativity in Culinary Industry and Academia

|                 | <i>Industry</i>  | <i>Academic</i>   |
|-----------------|--|---|
| Chinese Cuisine | <p>IC3: There is no direction for creativity. However, you need to use your fundamentals to create without forgetting your origins.</p> <p>IC4: Creativity should be developed from foundation with reasonable changes.</p>  | <p>AC2: Destroy something to create a better one.</p> <p>AC1, AC4: Creativity should be refined from traditions without losing original flavours and should satisfy customers.</p> <p>AC5, AC6, AC9 : Creativity is based on foundation and personal elements (experience).</p> <p>AC8: Creativity is developed from stress which is a survival strategy.</p>     |
| Western Cuisine | <p>IW1, IW2, IW7 : Creativity is developed from fundamentals, not necessary from traditions. But it should be able to be challenged and last forever.</p> <p>IW3: Creativity is a commercial behaviour. Usually, you need to develop from your concept.</p> <p>IW4, IW5: Creativity is based on fundamental profession and keeps</p> | <p>AW2: Culinary creativity is to destroy and create a better one with a reasonable sense (principle).</p> <p>AW3: Creativity is to develop from traditions and feasibility.</p> <p>AW4: Culinary creativity should keep its original traditions.</p> <p>AW5, AW7: With basic skills and knowledge, culinary creativity has to enhance with its own character</p> |

Table 4.3 The Role of Applied Creativity in Culinary Industry and Academia

|  | <i>Industry</i>   | <i>Academic</i>                     |
|--|---|-------------------------------------|
|  | <p>the original components in order to blend with the local culture. A creative person should also understand market demand.</p> <p>IW9: Using local ingredients combined with its cuisine’s origin in order to create value and meet market demand.</p> <p>IW12: Escape from tradition and create a new product.</p> | <p>and make a valuable product.</p> |

#### 4.4.1 The difference between culinary creativity and creativity in general

According to all participants, there are two main characteristics (Figure 4.1) which are considered to define the nature of culinary creativity: ‘market’ (time limitations and commercially driven), and ‘person’ (practical experience and professional skills). Most participants pointed out that comparing culinary creativity and creativity in general highlighted some similarities and some differences. However, all participants agreed that the ultimate aim of both culinary creativity and creativity is to be accepted by customers or the public.

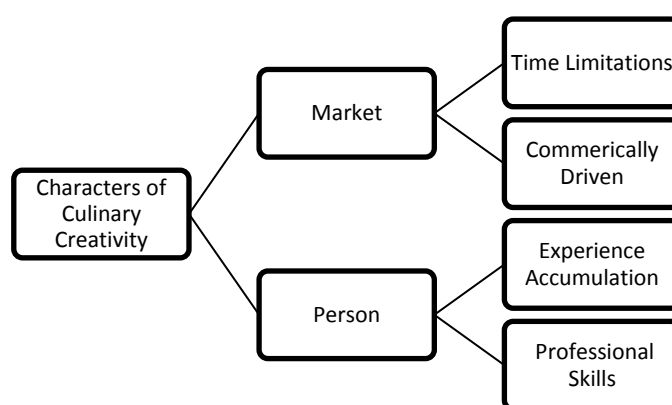


Figure 4.1 Characteristics of Culinary Creativity

#### **4.4.1.1 Market**

Market is like a stage to chefs where their culinary creations can be presented and promoted. However, the market is also very critical about the reality of culinary creations. All of the participants confirmed that the final goal of culinary creativity is to be accepted by the market.

*As a chef, I need to know my market demand. If in this city, everyone likes to eat spicy food and the flavour of creation is mild, this may not be accepted by customers. On the other hand, if the current trend is for healthy cooking and my creation is heavy in flavour this may limit its success. Therefore, the market is a very important element to a chef's creativity where a chef can develop creations according to location, to source and age of customers and to market demand. (IW10).*

#### *Time*

Time imposes a limitation on culinary creativity, which does not appear to affect other types of creativity to the same extent. Some of the participants (IW2, IW10) stated that time limitations are a characteristic of culinary creativity which means it is required to be accepted by the current market within a short period of time. If the creation is not accepted by the market it is not successful, where success is typically measured by making profit and giving customer satisfaction. Feasibility was also reported to be a concern to some of the participants. Culinary creation should be saleable without involving too much increase in labour. Therefore, the market, time limitations and feasibility are crucial elements in culinary creativity.

*Unlike other arts, like architecture or music, culinary creativity has very short shelf life unlike for example, Michaelangelo's David sculpture which was created between 1501-1504, and will stand in the museum forever (IW2).*

*If your culinary creation is not accepted by the market within that period of time, then this can't be called creativity. A painter's creation may not be accepted by people when he is alive. However, people can still evaluate this painter's artwork after he/she is dead (IW10).*

### *Commercially Driven*

The participants agreed that culinary creativity is driven by commercial sense which means its purpose is to make a profit and gain customer satisfaction. They admit that without making a profit and gaining acceptance from customers, there is no point to inspire culinary creativity. More importantly, culinary creativity should be practical to prepare in actual commercial kitchens in order to gain customers' acceptance.

*It will not be called creativity, if the creation is not making profit and satisfying customers (IW5).*

*We are combining our local produce, winery, and handmade paper art gallery into our creative signature dishes which is not only of benefit to our restaurant business but also our local business (IC4).*

A creative person should understand market demand and consider cost control in order to plan a new creation. Too high a cost will not attract customers to try a new creation (IW4). Depending on the brand of hotel, restaurant and its theme, some creativity may be limited and constrained from organizational business strategies and directions. To some five star chain hotels, culinary creativity may not be the first priority in kitchen operations (AC2). Most hotels have their annual plans and promotions which may not require each kitchen outlet to develop their creations (IC2, IW3). To some theme restaurants, culinary creativity is required to match operational themes in order to create suitable products to match the restaurant (IC4). Some participants also stated that decisions to put this creation into the menu or not depended on the owner's taste (IC3, IC5). However, participants who are restaurant owners demonstrate more flexibility and control over their creativity development. Participants agreed that culinary creativity has to be considered alongside many other factors, for example: location, customers' preference, theme, and culture.

*Working in a five star hotel chain, most creations are from our executive chef team and also their sister hotels food promotions. My job is to transform these creations and promotions into business ideas. My job does not really involve much culinary creativity (IW7).*



*Sometimes, I like to add some new elements into my dishes. However, my boss (CEO) will restrain some of my creations. He does not like over exaggerated creations. Some loyal customers would also object to my creations, if they prefer the original dishes (IC3).*

To summarize, culinary creativity is based on the considerations of restaurant theme, location, target market, and final profit margin. It seems that higher management position (such as CEO and owner) can influence the creativity directions and decisions. Hence, creativity in the upscale restaurants and hotel is commercially driven which is unlike most creativity in general.

#### **4.4.1.2 Person**

Participants agreed culinary creativity puts emphasis on techniques in which experience accumulation and professional skills are vital, in their career development. Experience accumulation and professional skills include food knowledge, management, and cooking techniques where chefs can excel in their learning and experiences and move into a higher level of career. Experience accumulation from the culinary industry is a major source of advancing culinary creativity.

IW5 gave the example of cutting vegetables from 10 times to 1000 times accumulating the experience in how to cut efficiently and precisely. It is the same as preparing a dish. Therefore, this participant thinks that experience accumulation is a key to developing culinary creativity. This is echoed by AW1 who thinks, that to develop culinary creativity is similar to how the Chinese learn to do traditional Chinese painting. First of all, you need to learn how to imitate to cook, followed by continuous practice. When you cook over 100 times, you can naturally experience the key elements of a dish. Therefore, good foundation skills can enhance your creativity development and reduce your practice time. Professional skills are the foundation of the culinary vocation. Without professional knowledge and skills, it is difficult to learn to cook professionally and properly. A dish can be prepared by one, two or the whole team of kitchen staff which is similar to playing music (IW8).

*A song can be sung as a solo, chorus and other ways to express the flavour of this song, which is similar to cooking. You can cook a*

*traditional dish with various combinations; however, the outcome has to depend on your experience and skills so that you know what elements can be combined well and that work together ( AWI).*

#### **4.4.2 The differences between the perspective of Western cuisine chefs and Chinese cuisine chefs' regarding culinary creativity and development**

*The difference between Western cuisine and Chinese cuisine in culinary creativity*

Most of the participants stated that a cuisine has its own traditions, cultural background and history behind it. However, in both Western cuisine and Chinese cuisine the development of creativity should have similar elements. Both sets of chefs consented that culinary creativity is one of the strategies to survive within this competitive industry. They also agreed environmental factors (political, economic, social and technological) and the two main characteristics of culinary creativity, the market (commercially driven and time limitations) and the person (experience accumulation and professional skills) play an important role in culinary development.

*Both cuisines have the same purpose which is to satisfy hunger, and provide nutrition. The only differences are location, presentation, and eating habit (food culture). For instance, using a fork to eat spaghetti versus using chopsticks to eat noodles, both can create a different dining experience and presentation (IW5).*

Most participants (34/36) agreed that Chinese culinary creations adopt many elements from Western cuisine. For example: when Chinese cuisine presented in the Western way, because Chinese cuisine is usually presented in a large dish for a whole table (10-12 persons). To dine in the Western way means to present one portion with a small plate per person. This presentation is widely used in most fine dining Chinese restaurants in Taiwan. On the other hand, it is also very common to see Western cuisine restaurants use a variety of cultural cooking methods and ingredients. For example: Italian restaurant chefs adopt Japanese cuisine techniques by serving raw fish with extra virgin olive oil and volcano pink salt which keeps the origin of Italian cuisine and adds a new twist of technique. Moreover, many Western cuisine restaurants like to use oriental ingredients and also use a diverse variety of Asian cooking techniques in their culinary creations. For example, using wonton

skin to wrap seafood. The differences between Chinese cuisine and Western cuisine chefs' perspectives in culinary creativity are geographic and culturally-based which includes original cooking traditions, cooking utensils, produce, eating habit and living styles.

*Chinese cuisine can be prepared with one wok and one steamer whereas Western cuisine requires many different kinds of equipment. Chinese cuisine chefs think they have the real skills and technique. However, they are not as creative as western chefs (AC8).*

*Chinese cuisine places emphasis on cooking methods whereas western cuisine places more value on its own original cooking traditions (AC5).*

Hence, both Chinese cuisine chefs and Western cuisine chefs have many similarities and some differences in culinary creativity development. However, their final goal remains to be accepted by their markets and satisfy their customers.

## 4.5 TRAINING AND EDUCATION

### **4.5.1 Is it possible to train for culinary creativity?**

Most participants agreed that it is possible to train for culinary creativity in the education system. However, one phenomenon of the current culinary industry and education system requires more attention from government policy, the industry and academic parties. It is to reconsider meeting the needs of supply and demand on the culinary work force.

#### ***4.5.1.1 Education-Recruitment system***

Due to the rapid development of hospitality and culinary education in Taiwan, the recruitment system is unlike most foreign culinary schools by adopting individual applications based on working experience and educational background. It is based on students' examination results and willingness to choose different subjects and schools throughout Taiwan. However, if the student does not reach the standard

required he/she will find himself offered a place in other schools, with different subjects.

Educators in hospitality education are still deficient in terms of practical experience and professional knowledge. In Taiwan, hospitality education is considered a popular and new subject, not many educators have a related degree and background. Most educators come from a management background, food science background, or have retired from the industry. Only a few educators have food and beverage background education with practical experience.

Most participants agreed that it is possible to train for culinary creativity which can be improved and changed from both educational and industry aspects (Figure 4.1). In recent years, hospitality education has been a popular field in bachelor and associate degrees in Taiwan. Participants stated that hospitality education has been improving the quality of the overall hospitality industry in Taiwan.

From the culinary academic aspect, to train and educate for culinary creativity has three key factors, students, educators, and the curriculum which are also related to government education policy.

#### ***4.5.1.2 Student***

All participants agreed that culinary education should focus on cooking principles, foundation skills and techniques. Participant AW4 pointed out that beside teaching students cooking principles, ethics is also a very important element to students career development.

Table 4.4 Issues of Education system

| <i>Academic Participants</i>   | <i>Industry Participants</i>   |
|--|--|
| <ol style="list-style-type: none"> <li>1. Low birth rate, Over-caring family</li> <li>2. Not willing to learn</li> <li>3. Students' quality declined.</li> </ol> | <ol style="list-style-type: none"> <li>1. Lack of motivation and interest</li> <li>2. Lack of foundation and experience</li> <li>3. Students expect high position after graduating from school.</li> </ol> |

(1) From an Academic Perspective

From the perspectives of the academic participants, they pointed out some serious concerns about students in academic learning. With well-developed information technology, participants agreed that the young generation have more opportunities to absorb new creations and techniques. However, they worry that students without a strong foundation and skills may easily lead in the wrong direction of learning.

(AW1). With a declining birth-rate in Taiwan, parents pay more attention to their children. Many students do not know or understand what they want for their future. Some of them are strongly influenced by their family to study for a culinary degree against their will. This means students are not willing to learn. As well as, this, the quality of students is declining (AC4).

*Students' quality has decreased. Too many schools competing so that schools cannot ask too much from students. In 1993, when teaching in private schools students were a similar level as current public schools. Mainly, because of reduced birth rate of students, now students in school are more like our customers (AC4).*

(2) From the Industry Perspective

From the perspectives of industry participants, they pointed out some issues about student internships and industry careers that did require more attention from academics. Firstly, due to the students' recruitment system, some students did not aim to study this field. When these students come to industry for their internship, they lack motivation and interest to learn which is a waste of both students and industry staff time in teaching and training. Secondly, industry chefs pointed out that students lack of fundamental skills and experience from school education. Thirdly, many students are expecting to work in a management position after graduating from school.

*When I work as executive chef in a hotel, I often have some graduate students who have cooking licence B level and are seeking a sous chef position. I think students need to realize that being a sous chef not only giving a requires having cooking licence, but more importantly, they need to have a strong foundation and accumulation of experience (AC2).*

*I have experience of a newly graduated student came to work in my kitchen. He could not adjust to my kitchen layout. I think the reality of industry is still different to academic (IC4).*

*We have many internship students in our kitchens. Some interns are expecting to cook on the stove without working on any preparations, pick up orders from the storage room, or clean the refrigerator. We think students can still learn from basic jobs, for instance, if you clean the refrigerator, you know how to 'first in first out' and also how to store your products properly (IW7 and IW1).*

To summarize, with 100% enrolment rate in the universities, the quality of students has decreased. There is a mismatch between students and the reality of the culinary industry which leads to some issues in culinary education, such as the recruitment system. Indirectly, students who do not wish to study in this subject can impact on other students' learning environment and, therefore, on their creativity development.

#### **4.5.1.3 Educators**

Secondly, relating to educators' experience, from perspectives of industry participant IW3, who points out that school educators should cooperate and communicate with industry in order to achieve better understanding among the three parties (industry, school and students). He even proposes that educators should also spend some time doing a short internship in industry to understand the industry world and learn more professional knowledge to teach students. When he had a chance to host some hospitality and culinary educators to do short term internships in his hotel, he was shocked that most educators did not even know where tenderloin comes from, not to mention ignorance of other practical cooking skills.

The dichotomy is that educators are divided into theoretical and practical parties. With strong theoretical background, educators have little or no practical experience, whereas practical background educators have strong experience but a more limited education background, and this creates some conflict between them. Therefore, AW5 and AC3 propose that both theoretical and practical educators should work together by putting their strength into creativity. They believe that will benefit culinary education.

*By combining department educators' specialities, culinary, and food science, we form a team to research on culinary creativity (AW5).*

*I think academic has more time to research on culinary creativity. If we can combine theoretical and practical educators to work together, I believe we can benefit to both academic quality and industry expectations (AC3).*

#### 4.5.2 How does culinary creativity fit into curriculum design in education?

##### 4.5.2.1 Curriculum design

From the perspectives of industry and academic participants, the curriculum should be a tool with which to work with industry in order to educate suitable fresher (graduate students) to meet industry’s demands. When asking participants about how to enhance the curriculum in order to improve student creativity, most participants focused on arts (culinary arts, living arts), food culture, and ethics courses. As well as, this, they emphasise that foundation courses are still required for instance, for product identification, knife skills, language courses and related areas. Lastly, budgets for cookery courses are a major limitation to some educators and part time industry educators. Most participants stated that culinary creativity may be placed in the last year of a bachelor degree when students return from their internship and have more sense of how a professional kitchen should be. However, some participants stated that culinary creativity is unnecessary within the curriculum, that, students required more foundation skills. In addition, some felt that over emphasis on culinary creativity may be misleading and affect their grasp of the foundations and traditions of culinary cuisine.

Table 4.5 Issue of Curriculum Design

|  |
|--|
| <p>Emphasis on:</p> <p>1. Foundation Courses</p> <ul style="list-style-type: none"> <li>• Foundation courses</li> <li>• Morality</li> <li>• Food culture</li> <li>• Product ID</li> <li>• Knife skills</li> <li>• Language</li> </ul>  |
| <p>2. Art course</p> <ul style="list-style-type: none"> <li>• With Various professions in art faculties</li> </ul>   |
| <p>Issues concern:</p> <p>1. Cooking licence course</p> <ul style="list-style-type: none"> <li>• Expectation and reality in culinary industry</li> <li>• Cooking licence leading course design (oriented)</li> <li>• Cooking licence menu are not practical in industry</li> </ul> |
| <p>2. Budget for cooking courses (practical courses)</p> <ul style="list-style-type: none"> <li>• Limited teaching</li> </ul>  |

#### **4.5.2.2 Art Courses**

Most participants agreed that arts courses should be included in culinary education. Some participants agreed that culinary creativity is similar to painting, in that it is required to start with imitation of the masters to understand the feeling of creating. Moreover, the principles of art are similar to the principles of cooking which can enhance creations at an advanced level.

*Most of schools provide art courses to culinary students. However, art teacher may only have some specific specialties, which cannot fulfil to a whole semester of courses. Therefore, I think art course should be offered by two art teachers in order to teach various aspects of arts (AC2).*

*Many painters draw in front of the original paintings in Paris, Le Louvre). They are trying to learn more by copying. But, actually, they are trying to imitate the feeling of drawing at that moment. To learn the principle of that painting, I think we need to learn not the external but the internal principle. Cooking is the same as painting. How you gonna present the dish and you need to have your own structure of principle. You need to know the principle behind it, not just imitate the cooking method (IW2).*

#### **4.5.2.3 Foundation Course**

Most participants stated that the bachelor degree course can include some culinary creativity courses in the last year (senior year) of study. However, some participants disagreed about the place of any creativity courses in education. They think that students need to accumulate more experience to build their creativity. Too much focus on creativity may mislead them, so that they are not able to focus on developing a solid foundation. All participants emphasise that foundation courses are the most important in culinary education.

Ethics education is also emphasised by most participants, it should be placed as a part of the foundation course. Participants stated that without a good sense of right and wrong, students do not have the positive thinking to develop their careers.



*Foundation should be placed in the beginning of courses (principle, colour..) step by step. I began my job as a dish washer and pot washer. I learn my taste from here when I used my fingers to taste the remaining sauces from the fry-pan and pots. But, before I leave this job, I still do not know what that sauce is. Finally, I found that is Hollandaise sauce by reading books. I think the foundation course can eliminate people who are not suitable for this industry. However, our education is starting to teach students how to cook before they know how to hold a knife properly. Invisible value (principle, colour and foundation) needs to be given more attention (IW2).*

*In Taiwanese education, from the food and beverage aspect, the curriculum committee (ministry of Education) has no professionals to lead the professional. This has highly impacted on academic teaching and students learning. For instance, the entrance exam for tourism and food and beverage majors used to require kitchen and baking knowledge, food sanitation and nutrition exams. But, now it only requires cocktail making and table service course exams (AW2).*

#### **4.5.2.4 Cooking Licence Course**

The cooking licence is a common requirement which senior high school and university level students gain before graduating from school. The benefit of the cooking licence is that it is also the requirement for the kitchen industry.

The issues of the Chinese cuisine cooking licence to Chinese industry and academic chefs are

- (1) Cooking licence requirements leading the orientation of course design (oriented)
- (2) The cooking licence menu is not practical in industry

Firstly, the cooking licence is one of the evaluations for department and school performance by the Ministry of Education, which leading academic chefs are required to teach as a course. On the other hand, the majority of students have already received the cooking licence which causes repetition of the same courses and students losing interest in learning. Hence, some industry participants stated that even if students receive some cooking licence education at levels B and C, they are

still required to work in a basic position. Receiving a level B licence does not ensure that a person has the capability to be a sous chef or chef de parti.

*It is difficult to plan this course in some ways, due to students having different learning backgrounds. The Chinese cuisine cooking licence is also a requirement which leads to a complicated way to plan our Chinese cuisine course. In my opinion, I try not to teach Chinese cuisine cooking licence as a course, I tell my students to practice by themselves. I prefer to teach more practical and advanced levels in my Chinese cuisine course. For instance, banquet menu, and local specialities (AC2).*

*Due to the school focus on teaching Chinese cuisine cooking licence course, students can easily pass level B and C exams. Whereas, industry chefs cannot pass the exams easily because there are too many signs that industry chefs are not good at taking exam (IC3).*

Secondly, a majority of university level Chinese cuisine and Western cuisine courses begin with the cookery licences. However, students have various senior high school backgrounds. If a student graduates from vocational high school with this field of study as most do they will have achieved this level of expertise already (Chinese cuisine, Western cuisine, and bakery). On the other hand, students who do not graduate with the same subjects might not have any cooking licence. Therefore, AC2 indicated that pressure from schools and the variety of prior skills in student backgrounds, leads to difficulties in structuring teaching to meet students' needs. Thirdly, the menu of Chinese cuisine cooking licence has changed most traditional dishes to healthy and impractical dishes which are not common in the market.

*Chinese cooking licence is losing the traditional taste which may mislead future chefs to be ignorant of traditions and authentic flavours. I think the Chinese cooking licence menu is decreasing its standard (IC3).*

#### **4.5.2.5 Budget for cooking course**

Most private academic participants and some industry participants pointed out that school budgets for hands-on cookery courses are very limited which constrains educators' teaching plans. For instance, with a limited budget to plan for cookery courses, educators can order only inexpensive ingredients to meet the school budget.

However, unlike the private universities, students in the public universities have more opportunities to use restaurant and hotel level ingredients. Therefore, the budgets for cookery courses are a major concern and limitation to some educators and part time industry educators.

*In my own part time academic experience, due to the budget limitation, most school cannot offer any restaurant and hotel level ingredients. Most of the time, I have to bring some ingredients from my restaurant to show students and demonstrate. Without good ingredients how can you teach students what are the good ingredients? (IW2)*

### **4.5.3 Is there a different structure of creativity development in training and education within the two main cuisines?**

#### **4.5.3.1 Academic**

Curriculum design in both Western and Chinese cuisine do not have any significant differences. Some participants stated that there are too many general education courses which constrain students' foundation learning from progressing in the culinary field. In Taiwan, students are also required to take general education courses which occupy a portion (23% from one university) in curriculum design (AC9). Unlike in China, UK and USA, some culinary schools offer related field in general education courses, not as broad as in Taiwan. The main difference of general education is that it is mostly in hospitality management, culinary arts managements degrees are under university and college, unlike foreign culinary schools which can offer specific courses related to the professions (IW5).

#### **(1) Internship programmes**

A major concern is the length of internship programmes from both academic and industry perspectives. The internship programme is considered to be a platform between academia and industry which is also a way of filling the gap between the two (IW2). By investigating students' learning progress and industry's feedback, academics can adjust particular course designs to fit into students' learning outcomes and industry's demands.

Most schools offer students internships from six months to one year depending on the school's curriculum design. This is during their junior year of the bachelor degree.

(2) Schools offer:

- a. only six months on campus internship
- b. six months on campus plus six months industry internship
- c. one year industry internship.

From academic participants' perspectives, the internship is a great opportunity to place students' academic learning into a practical context where students can experience the reality of industry working life and also learn to take on various responsibilities and tasks.

From industry participants' perspective, participants prefer students to have a one year internship in which students have the opportunities to experience the four seasons of hotel and restaurant outlets operations with different themes and functions. Also, students can work in different stations and shifts.

#### ***4.5.3.2 Industry***

From a culinary industry aspect, to train and educate for culinary creativity also has three key elements, HR (human resources), organization, and employees. As the purpose of industry aims to operate businesses successfully and make a profit, therefore, to train and educate for culinary creativity has to underlie each operation's theme and strategy.

Firstly, in terms of organization, the direction and positioning of an organization has a high impact on culinary creativity development. Most industry chefs agreed that their organizations are fully supportive of their culinary creativity in various ways. Depending on the size of the organization and their business strategy, some industry chefs reported that hotels offer cross training opportunities (including cross-

section/department training and cross-hotels local/ overseas training), monthly theme ingredients cooking competitions, international promotions and the chance to attend international cooking competitions to encourage staff to put more thought and effort into their professions. Some industry chefs from restaurants shared that their business owners offer overseas restaurant and school training, overseas and local restaurant and hotel tastings, and Michelin star chef promotions to inspire their creativity to higher level. However, one industry chef (IW11) pointed out that the level of organisational support depends on business performance and overall economic status. Therefore, from an industry perspective, organizational direction and strategy are the most impact factors to train and educate chefs' creativity.

*Each month, we offer cooking competition for each outlet to create a new dish and to be evaluated by general management team with great prizes. The awarded dish will be presented in our chef's special section to test in the restaurant and then we will place this on our banquet menu (IW9).*

*Each year, the general manager offers 2 million NT. to all of my kitchen outlets for encouraging staff creativity and awards staff for gaining prize from international cooking competitions (IC2).*

Secondly, according to the size of the organization and its business strategy, HR departments play an important role in providing various practical training courses to their staff. Most hotel chefs stated that they receive various training courses and on-job-training from HR departments. These include cost control, communication skills, and language skills, and each outlet (kitchen and front of house) manager would offer wine courses and other related service skills courses. Regarding culinary creativity development courses, most participants stated that normally when you are in the position of sous chef or chef you have more opportunities to do cross training and overseas training. This does not necessarily focus on creativity, however. After training most chefs agreed that they gain new knowledge which helps them to create new dishes.

*Before, I only know how to cook delicious dishes to satisfy my customers. The hotel offers management, language, computer and personal*

*development courses which enhance my ability and confidence to lead my staff (IW12).*

*To educate and train our employees, we are doing the same level as hotel training. Each month, the cook needs to write a SOP with 5 receipts. Every three months, we offer cooking courses, as well as presentation of new dishes to train our staff to present and evaluate new creations (IW2).*

Thirdly, with respect to employees, participants agreed that employees themselves are also vital to culinary creativity development which depends on their career goal, attitude and personal characteristics. This depends on each organization's system. Some organizations have a mentor system which can lead to new staff understanding the operating system within a short period of time. Some participants (IW3, IW5, AW1, IW13, IW12) pointed out that mentors/trainers are very important because that can influence their behaviour, cooking style, and attitude to their profession. One participant (IW2) mentioned that his mentor had a positive influence on his career development. However, he thought that if you do not meet the right trainer, you were wasting your time. Therefore, a proper trainer should understand your target and your future (IW3). Of course, the employee himself also needs to have a very clear picture. Trainers can give you direction, but more importantly, it's you alone who can determine your learning.

*Job and interest are two different things. To do a job with interest which can create new things. However, if it is only treated as a job then there is not much motivation and sparks (IW12).*

*A cook should understand the principle of cooking, the character of ingredients and cooking skills and method, and have experience. To develop a good cook should go through three stages: 1. with the right mentor who can bring you knowledge and profession; 2. Timing: short term to long term and the ratio. Your accumulation of experience is from this ratio. For instance, you cut this vegetable 10 times to 1000 times. 3. Environment which includes your attitude, methods, and the way to handle things. For instance, working in Paris, Taipei and Tainan are all different, you may use sweetbread in Taipei, but you may never use this in Tainan (IW5).*

#### 4.5.4 What are the internal impact factors to culinary creativity process?

From internal impact factors, this research adopted Claxton (2006) approach to the characteristics of creativity through the acronym CREATE (curiosity, resilience, experimenting, attentiveness, thoughtfulness, and environment setting) to investigate what are the personal characteristics for developing culinary creativity. Participants pointed out several personal characteristics that can appear in creative people. They all agreed with the character of CREATE in various ways. Furthermore, they pointed out that personal characteristics are related to family support and personal passion for cooking (AC2). Beside these characters, some participants stated that creativity may have some underlying factors in different persons and context. With internal strength and proper training, participants believe that creativity can be developed to a competitive position. Most participants acknowledge that culinary creativity is related to certain levels of inherent ability which have the power to enhance creativity development. Furthermore, participants also pointed out that sensitivity is very important in culinary creativity development where chefs make sensitive judgments to understand food combinations and techniques, as well as market demands. Culinary creativity development has to have support from supervisors and customers. Therefore, the ability to discern and develop a creative style within the social context of the target market is a skill which is crucial to every chef's confidence.

##### Curiosity:

*To be creative, first of all you need to have curiosity to find out the new ingredient and understand ingredient in order to know how to prepare and present the best flavor of this ingredient (IC3, AW6).*

##### Resilience:

*Resistance, both internal and external is the obstacle in developing creativity. Creativity is the current social value of each industry. Greater creativity has more value. For instance, molecular cuisine, it costs nothing, but, it can create a high value. Therefore, a creative chef should have a flexible attitude in order to accept new things (IW10).*

## Experimenting

*Not to reject others creations and learn from others with an open mind (AC5).*

## Attentiveness

*Culinary arts are very time consuming you are required to devote yourself to learn various skills and knowledge. Therefore, attentiveness is very important in each learning stage (IW12).*

## Thoughtfulness

*Cooking is like being a decent person; it requires having thoughtfulness, passion and concentration in order to cook well (AC9).*

*A creative chef should have thoughtfulness, an open mind, and sharing attitude in order to improve himself (AW2).*

## Environment setting

*Not satisfied with current status and always looking for a challenge (AW2).*

*A creative person should constantly make progress and overcome environmental challenges in order to gain agreement (identity) from others (AW3).*

## Sensitivity

*Sensitivity is a feeling which can be from thinking, point of view and other taste buds to have unique sensitivity (IW10). I think a creative dish is required to have at least both flavour (taste) and presentation (AW4).*

To summarize, participants affirmed the characteristics of creativity through the acronym CREATE (Claxton, 2006). In addition, they stated that sensitivity and self-actualization to the trends in the culinary industry and creativity development is important to their culinary creativity development. They also believed that culinary creativity is related to certain levels of inherited ability. Person is very important to IW3 in order to interview with new kitchen staffs. By talking with interviewee's family background and star sign he can quickly have a rough idea of the type of job for this interviewee. Furthermore, he always considers staff member's star signs in order to assign them to different task.



#### **4.5.5 What are the external impact factors to the culinary creativity process from an environmental perspective?**

This research adopts PEST (political, economic, social and technology) by Middleton (2003) as the basis for identifying environmental impact factors to investigate how environmental factors influence culinary creativity development. Political, economic, social and technological factors show various levels of impact on culinary creativity development.

Table 4.6 The Impact of PEST to Culinary Creativity

|               |   |                                    |
|---------------|---|------------------------------------|
| Political     | · | Government policy and relationship |
| Economic      | · | Economic Performance               |
| Social        | · | Culture                            |
|               | · | Family Background                  |
|               | · | Food Trend                         |
|               | · | Food Culture                       |
|               | · | Career Recognition                 |
|               | · | Language                           |
| Technological | · | Western Cooking Technique          |

##### ***4.5.5.1 Political Factors***

Taiwan has a sensitive relationship with mainland China and this political factor illustrates some minor impact on culinary creativity development. Also, depending on the policies of the leading political parties there are different levels of impact on the ingredients available from other countries. Taiwan removed martial law in 1987; the political position assisted more business interaction between Taiwan and other countries and also allowed more imports from other countries. Most participants stated that political status does influence the culinary industry. Furthermore, which political party leads the city and the country also impacts on the tourism business from mainland China. For instance, Taichung City belongs to KMT (Kuo Min Tang) party which is more mainland China friendly so, this can create business for Taichung restaurants and hotels. By contrast, Kaohsiung belongs to the DPP (Democratic Progressive Party) which is an advocate for Taiwan independence. This

means that some Chinese tourists are unwilling to go to this city. IW9 also pointed out the political impact on their hotel business, in terms of their menu creation to fit with foreign tourists' tastes.

*One year, a state banquet was hosted in Tainan which is famous for milkfish. To mainland Chinese tourists, milkfish tastes more earthy and it is difficult to pick out the fish bones. Instead of serving a piece of fillet, I created milkfish balls (fish mouse) which improved the presentation and also eliminated the earthy taste and difficulty of the fish bones (IW9).*

The political environment can have more positive impacts on culinary creations.

*In history, Taiwan was under European settlement from Dutch, Spanish, and Japanese settlers, which introduced a mixture of food culture influence on Taiwan food culture development (AW1).*

In some ways, the political environment is limited to tourism business strategy to attract foreign tourists to Taiwan to taste the dishes and creations in Taiwanese cuisine.

#### **4.5.5.2 Economic Factors**

Economic factors are a major concern to industry chefs. IW5 pointed out that a well-managed economy can directly impact on a nation's food culture because the many business interactions open market sources for food culture. Participants stated that when the stock market is doing well this is a good sign for the culinary industry. They also agreed that the development of culinary creativity is subject to market demand and the difficulties related to market competition, organizational support, budget control and the availability of ingredients.

When the economy is doing well, you can create from expensive ingredients, However, it is also possible to use common ingredients to change customers' perceptions and taste.

*The macro environment is very important to business operation. It may not be an obstacle to your creativity, but it can impact on your creativity. If the macro environment is not doing well, we need to adjust ourselves, for instance, to create a lower cost menu and be more conservative on the high cost menu. Creativity should not stop at any time, only if you can meet the market demand. Even in lean firms, creativity should continue to meet the market demand. (IW10).*

With a good economic performance in the macro environment, business operations can be fully supportive in culinary creativity development.

*When the economy is doing well, any type of restaurant can make a profit easily. Just like China now, the economy is booming, everywhere is full of people wanting to spend their money. Therefore, the economy is very important to restaurant operation (IW10).*

*With the opening of mainland China tourism to Taiwan, and their economy is booming, many tourists come to Taiwan. Every day, I have hundreds and hundreds of Chinese tourists coming to my restaurants to taste my local creation specialties (IC4).*

*In the macro environment, when the economy is doing well you can use luxury ingredients to create a new dish, whereas, when the economy is not doing well you can use common ingredients to create a dish and be accepted by the market (IC3).*

To summarize, economic factors are closely aligned to culinary creativity development, especially to industry participants. Chefs can develop their creativity according to economic performance to determine their strategies for market. Hence, they state that creativity should continuously develop to suit various economic statuses, such as low cost products in economic downturns.

#### **4.5.5.3 Social Factors**

Culinary creativity has to develop from the origin and traditions of food culture (IW3) by adding local (regional), historical and cultural elements to merge diverse food cultures. Participants agreed that their creativity has to depend on food trends and culture in order to be accepted by the local market. Some participants pointed out that across the limitations of country borders, cross-cultural culinary communication

can form boundary less creative cooking style.

To summarize, from the participants' perspective of how the social environment impacts on their culinary creativity: food trends (customers' attitudes, wealth age, gender, work and leisure), food culture (lifestyle changes), career recognition and language are the key areas for consideration.

#### (1) Culture

Participants articulated various views of how culture can impact on culinary creativity development which can be divided into macro and micro cultural perspectives. Firstly, from a macro cultural perspective, participants stated that a country's economic performance, national identity, living style, and regional art are part of the cultural environment influencing their culinary creativity development. Most participants expressed the view that to learn how to cook a dish is to understand where the dish comes from and the story behind it in order to have a good understanding of that dish.

*I would start to learn the background of the dishes, how the ingredients are grown, their culture, and the local history. You need to understand the cultural background and the history behind the recipe, if you want to cook properly. You should have the desire to find out in details. The origin of its culture represents their living style and background. Culture is close to a life style. This nurturing style keeps people alive. Living is to keep people alive. The desire to improve your quality of life is influenced by your country and family's economy abilities (AC5).*

Many industry participants stated that they combine their regional culture, arts and specialties into their culinary creativity to produce new local specialties and in this way raise the profile of their region. They stated that the cross-industry alliance not only benefits their business but also promotes their local industry and tourism.

*A good food culture is a sign that city or country is doing well with a thriving business sector and strong economy, whereas a poor country can only maintain the basic requirements. In Taiwan, it should be appreciated that after time of declaring Martial law (1987) we could receive the ingredients from other countries, so the culinary industry could progress well (IW5).*

*Our braised pork belly in paper is one of our creations which has lasted last for over 10 years and it has been widely reported by local and oversea medias. What is special in this dish is the combination of paper manufactured locally, local artists, and ingredients which represent our regional specialties. We use water bamboo shells to make paper with local artists' painting on the paper and local special Shaoxing rice wine to braise pork belly. This made our restaurant well known in Taiwan and all over Asia. This is our selling point. We applied our local culture to our culinary creativity. We have a front house captain who specializes in explaining the story behind each dish (IC4).*

Most chefs like to visit a local market when they enter a new country. Some chefs like to understand the new culture by reading the history, learning their language, and working together.

*When I was hosting a well-known chef from France who came to our hotel to do promotion in Taiwan, the first thing that was asked by the French chef was to take him to a fabric market where he could investigate the local culture by discovering the various local fabric patterns and colours (AW5).*

Secondly, from the micro cultural perspective, participants agreed that culture represents a chef's background from where he/she can develop his/her creativity. Especially, family culture plays a vital role in influencing what we eat, how we eat and how we cook. The well-known pastry chef *Pao Chun Wu* was the champion in Coupe Louise Lesaffre 2010 (International Bakery World Cup) in France. His emphasis is on using local ingredients and adding family comfort food ideas to develop his creativity to the international stage.

*Lastly, IW10 stated that the real culinary creation should be able to last forever like music and artworks which builds on cultural foundations. Without culture, there is no culinary creativity. Culture represents to your own background (AC2).*

When comparing food and beverages in Eastern and Western culture, it can be seen that due to the different culinary systems and consumer demands, both cultures have diverse levels of, and development in terms of culinary creativity. For instance, with

the culinary creativity products in Western culture there is better quality and quantity, in terms of books and TV shows. Hence, the evaluation systems of food and beverage, such as restaurant guides, like the Michelin food guide in Western culture have built a strong trusted and reputation. It is agreed by most of participants that Western culinary creativity is more advanced than any other cuisines.

For most participants, culture can inspire and lead culinary creations higher levels. Many industry participants stated that their restaurant and hotel promotions are all related to their culture. Sometimes culture is “an invisible spirit” which can influence and guide a country and family into a different set of living styles.

## (2) Family Background

Most participants stated that their family backgrounds have played an important role in influencing their culinary creativity development. All participants indicated that to work in the culinary industry was not their goal in life. None of the participants stated a culinary career as their first choice of work. There is only one participant who graduated from vocational senior high school with a major in restaurant management. Mainly, because of their economic status, or because they could not find a suitable job or have family members working within the industry, they were obliged to start work in the culinary industry.

*I started my job as a male nurse with a very low salary. Then, I work as a driver in a bread company. During my break, I helped out in the kitchen to do some simple work. Then, I start my culinary career here (IW5).*

*In early 1970, I couldn't find a job. I began as a driver to deliver artisanal lightings. One day, I delivered to a Japanese restaurant and then I start my apprentice job there (IW8).*

*There are over 13 people in my family who work in the culinary industry. They influenced on my career choice (IW2).*

Some participants began their jobs as caretakers, drivers, vehicle technicians and so on. Most participants started their culinary career from the basic apprenticeship and worked all the way up to chef, owner, executive chef, and general manager positions. The majority of academic participants are retired from the culinary industry or have transferred in to academic fields.

#### *The Impact of Family Background on Culinary Creativity*

Most participants have experience in international and national cooking competitions. Some participants pointed out that after planning complicated culinary dishes, they would like to think of something simple and tasty which their family called ‘comfort food’. Many participants mentioned that their mother was the most influential person in their culinary creativity development. The well-known example in Taiwan is pastry chef *Pao Chun Wu*. He stated that this championship is for his mother who raised him at a very difficult time. The main feature of his bread (fermented rice and dried lychee bread) was created and inspired from a sweet soup (sweet fermented rice soup with rice ball) made by his mother for her family to overcome the cold winter seasons (Wu and Liu 2010). Family background not only impacts on culinary creativity development but also on personality.

#### (3) Food Trends

Changing from agriculture to industry and information technology as the main economic strength in Taiwan, means people have improved their living style to a better quality. Similarly, customers are also changing their dietary habits from large portions of inexpensive food to higher quality and more costly food. With trends of the dietary revolution, customers are now more conscious of a healthy diet and also follow Western cultural influences of fast food and slow food. Therefore, these have become the creative directions of most participants.

*A fast food chain is the perfect example of how the social environment impacts on culinary creativity. The development of fast food chains can operate so well around the world, mainly because our current environment impacts on customers' dietary habits (IW10).*

#### (4) Food culture

The implications of European settlement in Taiwan have also brought a rich food culture to mix with local culture. AW2 pointed out the well-known dish of ‘Coffin’ was created by a local chef who prepared this dish with local ingredients and presented it in a distinctive way. This became a famous local dish in Tainan. The ‘Coffin’ specialty is similar to a Western hot appetizer, vol au vent. Instead of using puff pastry to make a box for filling with cream of chicken liver and other ingredients, the chef uses toast to make a box and fills it with his local way of cream of chicken liver. Therefore, AW2 indicates that food culture has great impact on culinary creativity.

*Culinary creation is an interaction between chef and customer by leading and introducing new creations to them in order to satisfy customers’ palate (AW1).*

#### (5) Career recognition

However, in terms of recognition of chef as a profession (career), due to social-cultural differences, Chinese culture chefs have greater limitations in developing their creativity. They pointed out that, in Chinese culture people think that cooking is a low status and greasy job which cannot compare with that of scholars, doctors, and businessmen. Therefore, a culinary career has not been well recognized in Chinese culture. Most participants agreed that culinary career recognition has been improving gradually since culinary education began in Taiwan. As well as, this, the booming economic environment has brought more business to the culinary industry which also improves customers level of understanding of culinary arts. More importantly, participants pointed out that to develop culinary career recognition should start from chefs themselves, in their attitude and self-actualization toward this profession.

*Some kitchen staffs’ attitude to their profession is to get the job done and work from day to day which will not move their career to higher level (IC4).*

*The difference between a chef and a cook is how you treat your career. A chef creates the art of cuisine and a cook cooks for a living. Chefs should have their core value of the philosophy of their profession (IC4).*



## (6) Language

Most participants agreed that their creativity has many influences from Western cuisine and some from Japanese cuisine. By reading foreign gourmet magazines, cook books, watching foreign TV cookery shows and undertaking online research, language is seen to be one of the key factors to enhance their new knowledge and profession. In addition, it is also an advantage for career development, especially if working within international hotel chains.

Most participants stated that they spend time in learning foreign languages to assist them in understanding the trends in Western and Japanese cuisine, as well as opening opportunities to work in foreign countries (Japan, France, Holland and America). For instance, participants learn French, English, Japanese and Cantonese. Most Western cuisine participants learn English followed by French and Japanese. Most Chinese cuisine participants learn Japanese and Cantonese which is closest to Asian culture and cuisine.

Each different cuisine has its own way of presenting a menu. Language is a tool to help customers understand what to expect from their menu. In Chinese cuisine, the menu tends to use more classical Chinese words which are not easily understood by reading a menu. Mainly, large portions of Chinese menus are created from Chinese poems and old idiomatic phrases which may confuse customers. On the other hand, in Western cuisine, the menu tends to use English to inform about the main ingredients and cooking methods within a dish. This is simple and easy to understand.

Therefore, IW8 suggested:

*English is still the main communication language tool. I believe that using English as a key tool to translate all different kind of cuisine menus is a great benefit for promoting your cuisine.*

In terms of training and educating in culinary creativity, participants agreed that

language is relatively important in culinary education and industry. They pointed out that language should start at an early stage of education in order to stimulate its use as a tool.

#### ***4.5.5.4 Technological Factors***

The academic and Western cuisine industry participants agreed that technological factors play an important role in their culinary creativity processes. Some participants pointed out that culinary creativity is a combination of science and art and that the use of the scientific and artistic senses to change and enhance culinary creativity is a trend in the culinary industry.

By contrast, some Chinese cuisine industry participants, pointed out that Chinese cuisine can be prepared and completed with a wok, a cleaver, and a bamboo steamer which does not require any high technology to enhance their culinary creativity. They also pointed out that more important are your skills, technique and experience, not the equipment.

Nevertheless, some Chinese cuisine participants admitted that technology improves the consistency of kitchen preparation quality. They also agreed that Western cuisine has improved more over time while, Chinese cuisine has hardly changed at all. Even Western fast food chains can control quality and standards by using modern technology to ensure all products are suitable for each country's customs and traditions.

*IC3 thinks that new technologies in Western cuisine are designed by Western cuisine Chefs, whereas, Chinese cuisine technology is not designed by a Chinese cuisine chef nor by a designer who knows Chinese cuisine well. Therefore, he proposes that any new technology for Chinese cuisine should be developed by a chef who has a background of cooking and understanding what chefs' need.*

*Using various technologies can reduce labour and enhance productivity which I call work smart, not work hard (AW1).*

*The conventional oven (combi-oven) is a great invention of Western culture (cuisine). This technology assists Chinese cuisine chefs to work effectively. Now, any chefs can roast Peking ducks with simple instruction and less skill is involved in roasting techniques (IC3).*

Technological factors appear to have various levels of implication for creativity development in both Chinese and Western cuisines. It seems that Chinese cuisine chefs are rather conservative in terms of applying new technological equipment to their creativity development. By contrast, Western cuisine chefs adopt new technological equipment and new cooking techniques more often in support of their creativity development.

## 4.6 GAPS BETWEEN ACADEMICS AND INDUSTRY

### **4.6.1 What are the perceived gaps between academics and industry in terms of creativity training development?**

Participants highlighted various gaps between academics and industry perspectives in terms of how to educate and train for culinary creativity. The main difference is in function and purpose. Academia aims to educate students to fit with the demands of industry while following the Ministry of Education regulations. In contrast, industry aims to make a profit and sustain long term operations. This leads to a clear picture of academia and industry that tells a different tale. Academia has to satisfy both the Ministry of Education and also industry demand, on the other hand, industry has to satisfy their customers. Both academics and industry have completely different objectives which led to the participants pointing out many issues that require attention and adjustment in order to close the gap.

In terms of the gaps between industry and academia in the development of culinary creativity, cookery license-orientation and the lack of practical experience of academic teachers with non-industry backgrounds (food science etc.) are the main concerns to most participants.

Firstly, academic curriculum design is constrained by the cooking licenses menu.

Both industry and academic participants note this can be an obstacle to the development of culinary creativity in the curriculum design. The number of licenses is related to departmental and school evaluation outcomes towards future funding from government. However, most senior high school students have gained licenses before entering college education which causes a dilemma to educators as to whether to teach cooking licenses or not. In addition, some industry participants criticize the cooking license menu as neither practical to match the current industry trends nor focused on classical dishes. Consequently, students have expectations of holding a level B advanced cookery license which implies that the person is capable of working in a higher position in the culinary industry.

Table 4.7 Gaps between Industry and Academia

| <i>Code</i> | <i>Industry</i>   | <i>Code</i> | <i>Academia</i>   |
|-------------|---|-------------|---|
| IC4         | Students who graduate are not used to fitting into industry kitchens (hotel/restaurants), self-adjustment and also look for high positions.   | AC2         | <ol style="list-style-type: none"> <li>1. By setting up a high goal, academic is over emphasizing future careers (but, without focusing on future career, how can you attract students to come to this culinary education?)</li> <li>2. High school teaches similar courses to college level (cookery license B and C)</li> </ol> |
| IW1<br>IW7  | <ol style="list-style-type: none"> <li>1. Balance between theory and foundation skills.</li> <li>2. Should be divided into Western/Chinese/baking majors.</li> <li>3. Not focus on license teaching, should know what industry needs.</li> <li>4. Introduce the reality of industry (prep, cook, clean, pick up)</li> </ol> |             |   |
| IC6         | <ol style="list-style-type: none"> <li>1. Creativity should not be taught in school.</li> <li>2. Foundations are more important to learn in school. Academic teachers should have industry experience to teach in school.</li> </ol>  | AC5         | <ol style="list-style-type: none"> <li>1. Industry's purpose is to make profit, whereas academia is about advancing ideas at a higher level.</li> <li>2. Practical and theory are equally important in school education.</li> </ol>   |

Table 4.7 Gaps between Industry and Academia

| <i>Code</i> | <i>Industry</i>   | <i>Code</i> | <i>Academia</i>   |
|-------------|---|-------------|---|
| IW8         | <ol style="list-style-type: none"> <li>1. Knowing how to cook, but not good at teaching</li> <li>2. Knowing how to teach but not good at cooking.</li> <li>3. Knowing how to write but not good at teaching.</li> <li>4. Teacher should have a combination of skills of cooking, teaching, and writing</li> </ol> | AC3         | <p>Chapter 1 Industry is seeking to survive (revenue, budget pressure).</p> <p>Chapter 2 Academic: two main groups (practical and theory) should combine to work together.</p> <p>Chapter 3 Both industry and academia have different pressures. However, industry has very distinct pressure without business there is no business.</p> <p>Chapter 4 Academia should support industry to develop creativity.</p> |

Secondly, industry participants note that culinary education should focus more on foundation skills development rather than teach broad subjects. However, some participants point out the lack of practical experience of the academic teachers can lead to issues of culinary education quality. More importantly, inexperienced and non-industry educators cannot teach practical courses, not to mention these above foundation skills and for creativity development. Culinary creativity is not pure creativity, on the other hand is constructed in a commercial reality. Therefore, educators require relevant industry experience and skills in order to educate students and advance their profession.

Both academic and industry are under different pressures but must learn to work together in order to improve the whole culinary education and industry.

Some participants agreed that the students' internship programme can fill the gaps between academic and industry. Moreover, communication is a vital way to understand what industry and academia can offer and expect.

#### **4.6.2 What can industry do to enhance creativity development?**

Most well established hotels chains have been offering comprehensive and systematic training courses in various programmes and departments. Participants

agreed that depending on the type of the organization, most organizations provide various opportunities to kitchen staff to enhance their professional and management skills. While, some restaurants may not be able to offer training courses regularly to most staff, they may offer tailor-made programmes to management positions (chef and sous chef), for instance, restaurant visits and foreign training courses, as well as some foundation courses to non-management staff such as, SOP (standard operating procedure) menu writing courses and new dish development courses.

While the training courses are not disagreed only to enhance creativity development, most participants agreed that creativity develops from the accumulation of experience in an indistinguishable and gradual manner. Participants also agreed that training courses should be widely established for different levels of staff in order to improve their professionalism and loyalty to stay in the operation. Furthermore, training courses are related to organizational and economic performance.

*Industry (restaurants, and hotels) should constantly offer various training programmes to different levels of staff in order to motivate their passion for culinary development. From the respect of hotel, it should be according to positions that various courses are provided. For instance, apprentice positions can be divided to basic, intermediate and advanced by offering knowledge courses, skills course, mise en place courses and kitchen courses (cold kitchen-grade manager, hot kitchen-enmminter, saucier, patisserie). With a ladder training (apprentice-commis-chef de parti), positioning training, department training and cross training, this can enhance staffs' abilities in the profession, their career development and also strengthen loyalty to the hotel (IW5)*

*Training is a type of education. Education is surely important. In the Western point of view, Asian students are good at taking exams. However, if you ask him/her to create something individual that would be more difficult. Due to our different education system, we emphasis memorizing. When someone gives me an order I would follow the order, which cannot achieve mastery through a comprehensive study of the subject. I think education certainly can improve employees' creativity (IW10).*

#### 4.6.3 What can academia do to enhance creativity development?

Most participants pointed out that cooking is an inheritance from generation to generation. Some participants stated that creativity does not need to be accommodated in curriculum design, whereas, the majority of participants agreed that creativity development can be placed in the last year of a bachelor degree in order to introduce a flavour of culinary creativity as a development guideline. All participants agreed that students can learn through strong foundation courses, that culinary creativity can be naturally and gradually developed from that starting point. They also agreed that culinary creativity development builds on experience accumulation and professional skills. Thus, to summarize from participants' point of view of how academia can enhance creativity development, it is not 100% required place any particular culinary creativity courses into academic curriculum design. More importantly, strong foundation courses, professional skills and knowledge can enhance students' abilities to develop their creative sense.

*Academia should place foundation skills and professional knowledge as the priority in order to talk about culinary creativity (IW5).*

*Creativity is not  $1 + 1 = 2$  or  $A \text{ ingredient} + C + D \text{ seasonings} * S \text{ cooking method}$ . Culinary creativity should have its own central philosophy and cultural specialty (IC3).*

*Education should have a balance of theoretical and practical knowledge and skills in order to develop to fit into industry demand. Culinary technique is require time and experience accumulation (AC2).*

One participant proposed that to enhance creativity development from an academic aspect means changing the education system.

*Firstly, for vocational senior high school aspect, education focuses on developing students' interest and passion more like an apprentice position, by knowing how to hold a knife properly, basic skills and cleanliness In terms of curriculum design, vocational senior high school should also teach ethics, food safety and cost control, more importantly, attitude and behavior, kitchen knowledge and language skills. Secondly, bachelor degree should emphasis strong fundamental skills and*

*techniques, as well as management knowledge, more like mid-management position. In terms of curriculum design, the bachelor degree should start from preparation, process (food purchasing), and operational management (such as planning, marketing plan and hotel plan) (IW5).*

*Education style can highly impact on learning outcome. In Taiwan, education is not learned from foundation, and this may lead to students losing their interest and only gaining a diploma. This will mean they cannot find a job in the hospitality industry easily. Therefore, education can enhance theory and practical experience can enhance skills and techniques (IW12).*

*Competition: Competition inspires students to stretch their creativity development (AC5).*

#### 4.7 CONCLUSIONS

This research findings chapter reports rich data and assesses their implications for culinary creativity. It demonstrates that culinary creativity has some unique characteristics which may not appear in creativity in general. Firstly, both academic and industry participants confirm the importance of training for culinary creativity. Secondly, one of the key characteristics of culinary creativity is that it is commercially driven in that all new creation is required to be accepted by the current market within a short period of time in order to confirm its success. Thirdly, participants agreed that it is possible to train for culinary creativity within the education system and industry training. Lastly, in terms of gaps between academia and industry both parties have diverse objectives: academia aims to educate students to fit into industry demands and industry aims to make a profit and gain long term success.

Based on the interview findings, it appears that culinary creativity is influenced by culture because of its unique characteristics. Culinary creativity is commercially driven in that it has to be produced within time limitations in order to create and meet the market demand. More importantly, with applied creativity in the upscale hotels and restaurants, chefs are required to demonstrate their professional skills and



experience accumulation in order to have ability to develop their creativity. These distinct characteristics form a basic principle of applied creativity in the culinary industry. Rather than placing these distinctive elements into the origin 4Ps model, these elements can be distinctively applied to creativity in the culinary industry which can be differentiated from other creativity in general. It is because the culinary industry is a part of the service economy which is perishable in the culinary industry and cannot be compared with art works and creativity in general. Therefore, based on Rhodes's (1961) 4Ps model of creativity, the unique characters, Principle, of culinary creativity can be organized into the 5<sup>th</sup> P to a modified 5Ps model of culinary creativity: Person, Press, Product, Process and Principle. The findings will be applied to develop the AHP survey questionnaires by using 5Ps as the main themes with its relevant criteria in order to clarify and prioritize the components of culinary creativity from industry and academic chefs' perspectives.

## Chapter 5 RESEARCH FINDINGS FROM THE AHP (ANALYTICAL HIERARCHY PROCESS)

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### 5.1 INTRODUCTION

This chapter reports from the AHP (Analytical Hierarchy Process) survey findings. An AHP survey was conducted to verify how the participants perceived the relative importance of the evaluation criteria for culinary creativity. It was also used to clarify the modified 5Ps model of culinary creativity which emerged from the in-depth interviews. The three major levels of the AHP include the goal level (level 1), the objectives level (level 2), and the criteria level (level 3). The goal level is the first level which describes the key issues in this study, namely culinary creativity. The objectives level is the second level, which is a modified 5Ps model, comprising five aspects: Principle, Person, Press, Process, and Product. The criteria level is the third level which consists of 22 criteria. The AHP was used to identify the priorities of the objectives and the criteria level. Participants were asked to compare objectives and criteria with respect to culinary creativity. A set of 50 pairwise comparison questions was distributed to the 36 participants in order to conduct the AHP. The main finding will be address at the end of this chapter. The respondents' responses will be presented first, followed by complete AHP outcome, each objective with various criteria level comparisons and individual level comparisons between industry and academic participants' perspectives. Then, a brief discussion follows and conclusions will be drawn.

### 5.2 SAMPLE AND REPOSESES

The interview participants (Appendix 1 and 2) all proceeded to the 2<sup>nd</sup> phase of the research-quantitative method (AHP questionnaires). The AHP questionnaire was distributed to 36 participants from the culinary industry and academia (as shown in Table 5.1); 34 responses were received giving a response rate of 94.4 %. The Expert Choice software was used to analyse the AHP questionnaire. This yielded 17 effective responses which included 7 adjusted matrices with an inconsistency rate 0.0. If there was any matrix with an unacceptable consistency ratio (C.R.), i.e.

C.R.>0.1, the expert was required to make a judgment on that matrix again. In order to improve the consistency in ratings, the concept of pairwise comparison was explained to the experts (Lee and Chan, 2008). The inconsistency rate of this study matched the requirement of the AHP methodology, which was that the C.R. should be under 0.1. The main purpose of the inconsistency measure was not only to identify possible errors and actual inconsistencies in judgments themselves but also to clarify logical inconsistencies of judgment (Nguyen et al., 2010).

Table 5.1 Sample

|          | <i>Send out</i> | <i>Received</i> | <i>Effective Responses</i> |
|----------|-----------------|-----------------|----------------------------|
| Industry | 18              | 18              | 9                          |
| Academic | 18              | 16              | 8                          |
| Total    | 36              | 34              | 17                         |

### 5.3 AHP OUTCOMES FROM INDUSTRY AND ACADEMIC PERSPECTIVES

Table 5.2 shows the results of the priority of level 2 objectives (Principle, Person, Press, Process and Product, with respect to culinary creativity) and level 3 criteria from both industry and academic participants. These results indicate that the product with culinary creativity has the highest priority vector of 0.234, followed by Process (0.219), Person (0.212), Press (0.182) and Principle (0.153). The outcome shows that both groups of participants agree that Product is the most significant to culinary creativity and followed by Person, Press (environment) and Principle. This support by the majority of participants describes the idea of culinary creativity and is related to Product-oriented.

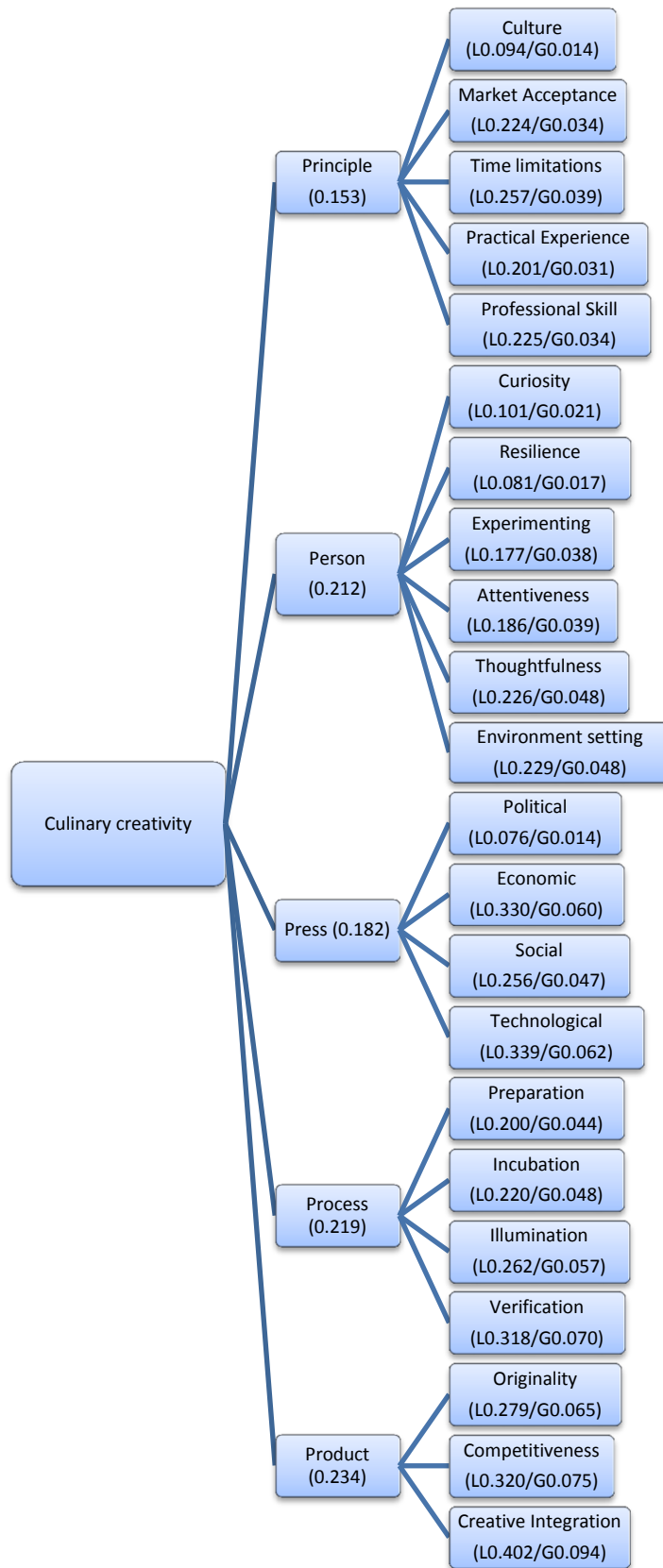


Figure 5.1 AHP Model-Outcome from Industry and Academic

The results of level 3 criteria with respect to Product indicate that creative integration has the highest local priority vector (0.402), followed by competitiveness (0.320), and originality (0.279). The outcome shows that both groups agree product-creative integration is the most important to culinary creativity and followed by product-competitiveness and product-originality.

The results of the level 3 criteria with respect to Process indicate that verification has the highest local priority vector (0.318), followed by illumination (0.262), incubation (0.220) and preparation (0.200). The result presents that in culinary creativity process-verification is the most significant followed by process-illumination, process-incubation and process-preparation.

The results of level 3 criteria with respect to Person indicate that environmental setting has the highest local priority vector (0.229), followed by thoughtfulness (0.226), attentiveness (0.186), experimenting (0.117), curiosity (0.101), and resilience (0.081). In terms of personal characteristics, the result shows that in culinary creativity environmental setting is the most essential followed by thoughtfulness, attentiveness, experimenting, curiosity and resilience. This outcome echoes some participants' points of views (4.4.4) that to develop chef's creativity requires them to overcome environmental challenges in order to gain recognition from others.

The results of level 3 criteria with respect to Press indicate that technological factors have the highest local priority vector (0.339), followed by economic (0.330), social (0.256), and political (0.076). In terms of environmental factors, the results show that technological factors are the most important to culinary creativity followed by economic, social and political factors. This outcome supports the views from academic and Western cuisine industry participants (4.4.5.4) as to how technological factors can assist them to develop their creations.

The results of level 3 criteria with respect to Principle indicate that time limitations have the highest local priority vector (0.257), followed by professional skills (0.225),

market acceptance (0.224), practical experience (0.201) and culture (0.094). In terms of Principle, the outcomes show that time limitations are the most significant to culinary creativity and followed by professional skills, market acceptance, practical experience and culture. This supports the interview findings (4.3.3.1) that culinary creativity is required to be accepted by the current market within a short period of time.

The result of level 3 criteria with respect to the results validate the application of the modified 5Ps model from creativity in general to culinary creativity and identified the priorities of culinary creativity.

#### 5.4 AHP OUTCOMES FROM INDUSTRY PERSPECTIVES

As shown in Table 5.3, the result of level 2 objectives (Principle, Person, Press, Process and Product) with respect to culinary creativity indicate that Person dimension of culinary creativity has the highest vector of 0.219, followed by Product (0.217), Process (0.208), Press (0.187) and Principle (0.170). This outcome shows that industry participants agree Person is the most significant in culinary creativity and is followed by Product, Process, Press and Principle. This finding echoes some industry participants' (4.5.4) point of views that placing the right person in the right position is more important than this creative product itself.

The results of level 3 criteria with respect to Person of culinary creativity indicate that experimenting has the highest priority vector of 0.233, followed by thoughtfulness (0.217), environmental setting (0.177), attentiveness (0.175), curiosity (0.131), and resilience (0.079). This result presents that industry participants agree in personal characteristics criteria, experimenting is the most essential in the culinary creativity, and followed by thoughtfulness, environmental setting, attentiveness, curiosity and resilience.

Table 5.2 AHP Outcomes from Industry and Academia

| Goal-<br>Industry and<br>Academic | Level 2<br>Objective | Priority<br>Vector | Priority<br>Vector | Level 3<br>Criteria      | Priority<br>Vector<br>Local | Priority<br>Vector<br>Local | Local<br>Priority/Global<br>Priority |
|-----------------------------------|----------------------|--------------------|--------------------|--------------------------|-----------------------------|-----------------------------|--------------------------------------|
| Culinary<br>Creativity            | Principle            | 0.153              | 5                  | Culture                  | 0.094                       | 0.014                       | 5/21                                 |
|                                   |                      |                    |                    | Market<br>Acceptance     | 0.224                       | 0.034                       | 3/17                                 |
|                                   |                      |                    |                    | Time<br>Limitations      | 0.257                       | 0.039                       | 1/14                                 |
|                                   |                      |                    |                    | Practical<br>Experience  | 0.201                       | 0.031                       | 4/18                                 |
|                                   |                      |                    |                    | Professional<br>Skills   | 0.225                       | 0.034                       | 2/16                                 |
|                                   | Person               | 0.212              | 3                  | Curiosity                | 0.101                       | 0.021                       | 5/19                                 |
|                                   |                      |                    |                    | Resilience               | 0.081                       | 0.017                       | 6/20                                 |
|                                   |                      |                    |                    | Experimenting            | 0.177                       | 0.038                       | 4/15                                 |
|                                   |                      |                    |                    | Attentiveness            | 0.186                       | 0.039                       | 3/13                                 |
|                                   |                      |                    |                    | Thoughtfulness           | 0.226                       | 0.048                       | 2/9                                  |
|                                   |                      |                    |                    | Environmental<br>Setting | 0.229                       | 0.048                       | 1/8                                  |
|                                   | Press                | 0.182              | 4                  | Political                | 0.076                       | 0.014                       | 4/22                                 |
|                                   |                      |                    |                    | Economic                 | 0.330                       | 0.060                       | 2/6                                  |
|                                   |                      |                    |                    | Social                   | 0.256                       | 0.047                       | 3/11                                 |
|                                   |                      |                    |                    | Technological            | 0.339                       | 0.062                       | 1/5                                  |
|                                   | Process              | 0.219              | 2                  | Preparation              | 0.200                       | 0.044                       | 4/12                                 |
|                                   |                      |                    |                    | Incubation               | 0.220                       | 0.048                       | 3/10                                 |
|                                   |                      |                    |                    | Illumination             | 0.262                       | 0.057                       | 2/7                                  |
|                                   |                      |                    |                    | Verification             | 0.318                       | 0.070                       | 1/3                                  |
|                                   | Product              | 0.234              | 1                  | Originality              | 0.279                       | 0.065                       | 3/4                                  |
|                                   |                      |                    |                    | Competitiveness          | 0.320                       | 0.075                       | 2/2                                  |
| Creative<br>Integration           |                      |                    |                    | 0.402                    | 0.094                       | 1/1                         |                                      |

The results of level 3 criteria with respect to Product of culinary creativity indicate that competitiveness had the highest priority vector of 0.381, followed by creative integration (0.314) and originality (0.306). This outcome shows that competitiveness of the culinary product is the most important in culinary creativity followed by product-integration and product-originality.

The results of level 3 criteria with respect to Process of culinary creativity indicate that verification has the highest priority vector of 0.322, followed by illumination (0.242), preparation (0.242), and incubation (0.194). This result demonstrates that in the process of culinary creativity, verification is the most significant followed by illumination, preparation, and incubation.

The results of level 3 criteria with respect to Press in terms of culinary creativity indicate that economic has the highest priority vector of 0.387, followed by technological (0.277), social (0.270), and political (0.066). This outcome shows that industry participants agree that economic factors are the most significant to their culinary creativity followed by technological, social, and political factors.

The results of level 3 criteria with respect to Principle of culinary creativity indicate that market acceptance has the highest priority vector of 0.258, followed by time limitations (0.237), professional skills (0.224), practical experience (0.191) and culture (0.089). This shows that industry participants agree that market acceptance is the most essential to their culinary creativity, and followed by time limitations, professional skills, practical experience and culture.

The result of level 3 criteria with respect to Product of culinary creativity indicate that competitiveness is the most important to culinary creativity and followed by Product-creative integration, Process-verification and Product-originality. On the other hand, the result of level criteria with respect to culinary creativity indicates that Press-political has the lowest weight and followed by Principle-culture and Person-curiosity.



Table 5.3 AHP Outcomes from Industry

| <i>Goal-Industry</i> | <i>Level 2 Objective (L/G)</i> | <i>Incon</i> | <i>Level 3 Criteria (L/G)</i> | <i>Incon</i> | <i>Local</i> | <i>Priority</i> |
|----------------------|--------------------------------|--------------|-------------------------------|--------------|--------------|-----------------|
| Culinary Creativity  | Principle<br>0.170             | 0.01         | Culture                       | 0.01         | 0.089        | 5               |
|                      |                                |              | Market Acceptance             |              | 0.258        | 1               |
|                      |                                |              | Time Limitations              |              | 0.237        | 2               |
|                      |                                |              | Practical Experience          |              | 0.191        | 4               |
|                      |                                |              | Professional Skills           |              | 0.224        | 3               |
|                      | Person<br>0.219                |              | Curiosity                     | 0.01         | 0.131        | 5               |
|                      |                                |              | Resilience                    |              | 0.079        | 6               |
|                      |                                |              | Experimenting                 |              | 0.223        | 1               |
|                      |                                |              | Attentiveness                 |              | 0.175        | 4               |
|                      |                                |              | Thoughtfulness                |              | 0.217        | 2               |
|                      |                                |              | Environment Setting           |              | 0.177        | 3               |
|                      | Press<br>0.187                 |              | Political                     | 0.02         | 0.066        | 4               |
|                      |                                |              | Economic                      |              | 0.387        | 1               |
|                      |                                |              | Social                        |              | 0.270        | 3               |
|                      |                                |              | Technological                 |              | 0.277        | 2               |
|                      | Process<br>0.208               |              | Preparation                   | 0.00         | 0.242        | 2               |
|                      |                                |              | Incubation                    |              | 0.194        | 3               |
|                      |                                |              | Illumination                  |              | 0.242        | 2               |
|                      |                                |              | Verification                  |              | 0.322        | 1               |
|                      | Product<br>0.217               |              | Originality                   | 0.01         | 0.306        | 3               |
|                      |                                |              | Competitiveness               |              | 0.381        | 1               |
| Creative Integration |                                | 0.314        | 2                             |              |              |                 |

## 5.5 AHP OUTCOMES FROM ACADEMIC PERSPECTIVES

As shown in Table 5.4, the results of level 2 objectives (Principle, Person, Press, Process and Product) with respect to culinary creativity indicate that Product of culinary creativity has the highest vector of 0.257, followed by Process (0.229), Person (0.206), Press (0.174) and Principle (0.134). The result shows that Product is the most significant in culinary creativity to academic participants.

The results of level 3 criteria with respect to Product of culinary creativity indicate that creative integration has the highest priority vector of 0.510, followed by competitiveness (0.251), and originality (0.240). This outcome shows that Product in culinary creativity, creative integration is the most important and followed by competitiveness and originality.

The results of level 3 criteria with respect to Process of culinary creativity indicate that verification has the highest priority vector of 0.309, followed by illumination (0.283), incubation (0.250), and preparation (0.158). This result shows that Process in culinary creativity, verification is the most essential to culinary creativity and followed by illumination, incubation and preparation.

The results of level 3 criteria with respect to Person of culinary creativity indicate that environment setting has the highest priority vector of 0.298, followed by thoughtfulness (0.227), attentiveness (0.193), experimenting (0.130), resilience (0.079), and curiosity (0.073). This outcome shows that personal characteristics and environment setting are the most significant to culinary creativity followed by thoughtfulness, attentiveness, experimenting, resilience and curiosity.

The results of level 3 criteria with respect to Press of culinary creativity indicate that technological has the highest priority vector of 0.415, followed by economic (0.266), social (0.234), and political (0.085). The result shows that technological factors are the most important to culinary creativity, followed by economic, social, and political factors.

Table 5.4 AHP Outcomes from Academia

| <i>Goal-Academic</i> | <i>Level 2 Objective (L/G)</i> | <i>Incon</i> | <i>Level 3 Criteria (L/G)</i> | <i>Incon</i> | <i>Local</i> | <i>Priority</i> |
|----------------------|--------------------------------|--------------|-------------------------------|--------------|--------------|-----------------|
| Culinary Creativity  | Principle<br>0.134             | 0.01         | Culture                       | 0.01         | 0.098        | 5               |
|                      |                                |              | Market Acceptance             |              | 0.187        | 4               |
|                      |                                |              | Time Limitation               |              | 0.279        | 1               |
|                      |                                |              | Practical Experience          |              | 0.209        | 3               |
|                      |                                |              | Professional Skill            |              | 0.226        | 2               |
|                      | Person<br>0.206                |              | Curiosity                     | 0.01         | 0.073        | 6               |
|                      |                                |              | Resilience                    |              | 0.079        | 5               |
|                      |                                |              | Experimenting                 |              | 0.130        | 4               |
|                      |                                |              | Attentiveness                 |              | 0.193        | 3               |
|                      |                                |              | Thoughtfulness                |              | 0.227        | 2               |
|                      | Press<br>0.174                 |              | Environment Setting           | 0.00         | 0.298        | 1               |
|                      |                                |              | Political                     |              | 0.085        | 4               |
|                      |                                |              | Economic                      |              | 0.266        | 2               |
|                      |                                |              | Social                        |              | 0.234        | 3               |
|                      | Process<br>0.229               |              | Technological                 | 0.00         | 0.415        | 1               |
|                      |                                |              | Preparation                   |              | 0.158        | 4               |
|                      |                                |              | Incubation                    |              | 0.250        | 3               |
|                      |                                |              | Illumination                  |              | 0.283        | 2               |
|                      | Product<br>0.257               |              | Verification                  | 0.02         | 0.309        | 1               |
|                      |                                |              | Originality                   |              | 0.240        | 3               |
|                      |                                |              | Competitiveness               |              | 0.251        | 2               |
|                      | Creative Integration           |              | 0.510                         | 1            |              |                 |

The results of level 3 criteria with respect to Principle of culinary creativity indicate that time limitations has the highest priority vector of 0.279, followed by professional skills (0.226), practical experience (0.209), market acceptance (0.187) and culture (0.098). The outcome shows that Principle in culinary creativity time limitations appears the most important and is followed by professional skills, practical experience, market acceptance and culture.

The results of level 3 criteria with respect to culinary creativity indicate that Product-creative integration is the most significant to culinary creativity and followed by Press-technological, Process-verification, Process-illumination, and Product competitiveness. (0.064). On the other hand, the results of level criteria with respect to culinary creativity indicates that Principle-culture has the lowest weight and followed by Press-political and Person-curiosity.

## 5.6 COMPARISON OF INDUSTRY AND ACADEMIC PERSPECTIVES TO AHP OUTCOME-LEVEL 2 OBJECTIVES

As shown in Table 5.5, the result of level 2 objectives for culinary creativity indicate that industry perceives Person has the highest vector of 0.219, followed by product (0.217), Process (0.208), Press (0.187) and Principle (0.170). By contrast, academia perceives that Product has the highest vector of 0.257, followed by Process (0.229), Person (0.206), Press (0.174), and Principle (0.134). The outcome demonstrates the industry participants agree Person is the most important to culinary creativity and followed by Process, Press and Principle. While academic participants agree Product is the most important to culinary creativity and followed by Process, Person, Press and Principle. Both industry and academic have the same perspective in terms of the lowest vector of principle and followed by Press. Principle (culture, market acceptance, time limitations, practical experience and professional skills) and Press (political, economic, social and technological) are predominate and are, largely, fixed.

Table 5.5 Priority of AHP level 2 criteria for culinary creativity

|   | <i>Industry</i>   | <i>Academic</i>   | <i>Combined</i>   |
|---|-------------------|-------------------|-------------------|
| 1 | Person (0.219)    | Product (0.257)   | Product (0.234)   |
| 2 | Product (0.217)   | Process (0.229)   | Process (0.219)   |
| 3 | Process (0.208)   | Person (0.206)    | Person (0.212)    |
| 4 | Press (0.187)     | Press (0.174)     | Press (0.182)     |
| 5 | Principle (0.170) | Principle (0.134) | Principle (0.153) |

### 5.7 COMPARISON OF INDUSTRY AND ACADEMIC PERSPECTIVES TO AHP OUTCOME-LEVEL 3

As shown in Table 5.6, the results of level 3 criteria for culinary creativity indicates that industry and academia have different views of the top 10 priorities. Industry results show that product-competitiveness has the highest vector of 0.082, followed by economic (0.072), creative integration (0.068). However, academic results show that product-creative integration has the highest vector of 0.131 followed by press-technological (0.072) and process-verification (0.071), both industry and academic product, press (environment) and followed by process.

This outcome shows that the top priorities of both groups are product-competitiveness, and product-creative integration. In terms of second priority, economic factors appear the highest concern to industry participants, whereas technological factors appear so for academic participants. In addition, the outcome shows that industry participants have three factors from Press (environment): economic, technological and social factors whereas academic participants only have technological and economic factors within their top 10 priorities.

From this, it can be summarized that industry focuses on the competitive product in a good economic environment and the ability to integrate creativity in sharing for maximum profit.

Table 5.6 Top 10 criteria for culinary creativity

| <i>Priority</i> | <i>Industry</i>                         | <i>Academic</i>                         | <i>Combined</i>      |
|-----------------|---|---|----------------------|
| 1               | Competitiveness<br>(L0.381/G0.082)      | Creative Integration<br>(L0.510/G0.131) | Creative Integration |
| 2               | Economic<br>(L0.387/G0.072)             | Technological<br>(L0.415/G0.072)        | Competitiveness      |
| 3               | Creative Integration<br>(L0.314/G0.068) | Verification<br>(L0.309/G0.071)         | Verification         |
| 4               | Verification<br>(L0.322/G0.067)         | Illumination<br>(L0.283/G0.065)         | Originality          |
| 5               | Originality<br>(L0.306/G0.066)          | Competitiveness<br>(L0.251/G0.064)      | Technological        |
| 6               | Technological<br>(L0.277/G0.052)        | Originality<br>(L0.240/G0.062)          | Economic             |
| 7               | Social<br>(L0.270/G0.050)               | Environment Setting<br>(L0.298/G0.061)  | Illumination         |
| 8               | Preparation<br>(L0.242/G0.050)          | Incubation<br>(L0.250/G0.057)           | Environment Setting  |
| 9               | Illumination<br>(L0.242/G0.050)         | Thoughtfulness<br>(L0.227/G0.047)       | Thoughtfulness       |
| 10              | Experimenting<br>(L0.223/G0.049)        | Economic<br>(L0.266/G0.046)             | Incubation           |

## 5.8 CONCLUSIONS

The findings from the AHP survey show some similarities and divergences between industry and academic participants. This chapter presents AHP findings in three aspects, industry and academia separately followed by a comparison of both perspectives. The key findings of AHP technique can be presented as two sections: objectives level (level 2) and criteria level (level 3).

The priority of objective level (Principle, Person, Press, Process and Product, with respect to culinary creativity), means that both groups of participants agreed that Product is the most important objective to culinary creativity which means that culinary creativity is a product-oriented process in upscale restaurants and hotels in Taiwan. From industry participants, Person is the most significant to the upscale culinary industry which indicates placing the right person in the right position is

more important than product itself. This supports the interview findings of (4.5.4) personal characteristics to culinary creativity development. On the other hand, academic participants argue that Product is the most important element in culinary creativity which contradicts the literature which argues that the focus should be on Process rather than Product.

In terms of criteria level findings, both group of participants agreed that product-integration and product-competitiveness are the most important to culinary creativity. In terms of environmental factors (Press) to culinary creativity, industry participants agreed economic factors are the second most important factor which supports the interview findings (4.4.5.2) and literature (2.5.1.2). Whereas, academic participants agreed that technological factors are the second important factor to applied creativity in the culinary industry.

These findings show the clear picture of two groups' perspectives of components of culinary creativity. The integration of interview and AHP findings into a modified Delphi questionnaire enhances the power of AHP and interviews by using it in an iterative sequence of individual questioning and anonymous feedback to elicit judgements from an expert panel. The following chapter (Chapter Six) will discuss in detail the modified Delphi method findings from experts' opinions.

## Chapter 6 RESEARCH FINDINGS FROM MODIFIED DELPHI METHOD

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### 6.1 INTRODUCTION

This chapter reports the modified Delphi findings. The modified Delphi questionnaire was developed and based on the interview and AHP survey findings in order to confirm industry and academic participants' perspectives in the development of culinary creativity. The questionnaire was conducted to ascertain the concerns of experts regarding culinary creativity and its development.

The modified Delphi questionnaire was distributed in two rounds. The 1<sup>st</sup> round is divided into four sections: 1. Defining culinary creativity, 2. internal impact factors (Person), 3. external impact factors (Press) and 4. training and education (Process and Product), with a total of 38 questions. This was followed by the 2<sup>nd</sup> round of the modified Delphi questionnaire, with a total of 7 questions which included 2 questions which did not meet the consensus within two sections: external impact factors and training and education, plus 5 extra questions which were proposed by experts during 1<sup>st</sup> round questionnaires.

This chapter will present a profile of the expert panel, round 1 questionnaire outline and findings, followed by round 2 questionnaire outline and findings. Lastly, there is a discussion and conclusion will be drawn.

### 6.2 PROFILE OF THE EXPERT PANEL AND RESPONSE

The expert panel consists of Chinese cuisine and Western cuisine experts in Taiwan. A total of 8 industry chefs with over twenty-five years of culinary industry working experience, and 8 academic educators with that same number of years of experience in the industry in management, all served on the Delphi panel. All experts have at least 25 years experience in either five star hotels or upscale restaurant corporations.



The 16 experts either currently, or used to, hold the positions of executive sous chefs or executive chefs in the culinary industry in Taiwan. All experts have highly regarded reputations and industry experience, as well as involvement in the national cooking licenses planning committees (Labour Affairs, Taiwan), and judging and giving expert opinions at national and international competitions.

The 16 experts are located all over Taiwan and its surrounding islands. 4 industry chefs in northern Taipei; 1 academic educator in north-west Hsin Chu; 2 academic educators and industry chefs in western Taichung; 1 industry general manager in south-west Tainan; 1 academic educator and 2 industry chefs in southern Kaohsiung, 1 academic educator in south-east Pengtung; 3 academic educators in eastern Hualien and 1 academic educator on the island of Penghu.

The first round questionnaire was sent out to 16 experts by email and postal mail and the response rate was 100%, followed by the second round questionnaire which was sent out to the same 16 experts by email and mail with a response rate was 93.75%.

Table 6.1 Process

| <i>Steps</i> | <i>Methods</i>  | <i>Participants</i> | <i>Response rate</i> | <i>Collecting Period</i>     |
|--------------|---|---------------------|----------------------|------------------------------|
| 1            | Modified Delphi 1 <sup>st</sup><br>Round:<br>38 questions       | 16                  | 100%                 | June 10 2010-June 24<br>2010 |
| 2            | Modified Delphi 2 <sup>nd</sup><br>Round :<br>2+5 new questions | 15                  | 93.75%               | July 6 2010-July 28<br>2010  |

The data analysis process included two primary components:

1. In the first and second rounds, 16 participants responded to a Likert style survey that rated items on a 5-point scale from strongly agree to strongly disagree and provided comment on the subject.

2. For this study consensus is determined when an interquartile range score of less than 1.2 exists (Zeliff and Heldenbrand, 1993). ‘Interquartile range refers to the middle 50% responses for each statement (i.e., distance between first and third quartiles)’ (Wicklein, 1993).

### 6.3 DELPHI QUESTIONNAIRE OUTLINE

The first round of Delphi questionnaires were developed from AHP five themes (Principle, Person, Press, Product and Process) shown as in Table 6.2, with a total of 38 questions. Part 1: principle of culinary creativity, to define and clarify whether or not culinary creativity is required to be built up from a foundation of skills, accumulation of experience and cultural background; what has been the process in advancing culinary creativity compared to music and arts; and what are the requirements for culinary creativity in the market. Part 2: personal characteristics in culinary creativity, how personal characteristic can impact on the development of culinary creativity development. Part 3: Press to culinary creativity, how political, economic social and technological factors can impact on culinary creativity. Part 4 training and education in culinary creativity, what are the gaps between academia and industry and how these can impact on culinary creativity development.

Table 6.2 Delphi Round 1- questionnaires outline

| <i>Delphi 1</i>     | <i>Category</i>            | <i>Question Number</i> | <i>Total Questions</i> |
|---------------------|----------------------------|------------------------|------------------------|
| Principle           | Define Culinary Creativity | 1-11                   | 11                     |
| Person              | Internal                   | 12-17                  | 6                      |
| Press               | External                   | 18-23                  | 6                      |
| Product,<br>Process | Training and Education     | 24-38                  | 15                     |

Table 6.3 Delphi Round 1-Question and Outcome

| <i>Delphi 1</i>   | <i>Mean</i> | <i>SD</i> | <i>Median</i> | <i>IQR</i> |
|---|-------------|-----------|---------------|------------|
| 1 Culinary creativity is required to be built from a culinary foundation.   | 4.75        | 0.44      | 5.00          | 1          |
| 2 Culinary creativity is required to be built from the accumulation of experience.  | 4.75        | 0.44      | 5.00          | 1          |
| 3 Culinary creativity is required to be built from a cultural background.   | 4.31        | 0.60      | 4.00          | 1          |
| 4 Culinary creativity is similar to creativity in general (music or painting). The principle difference is that culinary creativity has time limitations. | 4.12        | 1.14      | 4.00          | 1          |
| 5 Music and art are creations, culinary creativity is a development.  | 4.18        | 0.98      | 4.00          | 1          |
| 6 Culinary creativity is required to be accepted by the market.   | 4.87        | 0.34      | 5.00          | 0          |
| 7 Culinary creativity is required to have a sense of the aesthetic.   | 4.68        | 0.48      | 5.00          | 1          |
| 8 Culinary creativity is required to encompass colour, smell and taste.   | 4.81        | 0.40      | 5.00          | 0          |
| 9 Culinary creativity is important to the hospitality industry.   | 4.43        | 0.62      | 4.50          | 1          |
| 10 Chinese and Western cuisine have a similar development of creativity, the only difference is culture.  | 4.18        | 1.05      | 4.00          | 1          |
| 11 Culinary creativity should be able to be tested through the market.  | 4.43        | 1.03      | 5.00          | 1          |
| 12 Personal characteristic can impact on the development of culinary creativity.  | 4.37        | 0.72      | 4.50          | 1          |
| 13 Creativity is inherent.  | 3.93        | 1.00      | 4.00          | 0          |
| 14 Personal motivation can impact on culinary creativity.   | 4.56        | 0.51      | 5.00          | 1          |
| 15 Personal expertise can impact on culinary creativity.  | 4.62        | 0.50      | 5.00          | 1          |
| 16 Personal creative thinking skill can impact on culinary creativity.  | 4.75        | 0.45      | 5.00          | 1          |
| 17 Motivation, expertise and creative thinking skills are indispensable in the development of culinary creativity.  | 4.75        | 0.45      | 5.00          | 1          |

Table 6.3 Delphi Round 1-Question and Outcome

| <i>Delphi 1</i>   | <i>Mean</i> | <i>SD</i> | <i>Median</i> | <i>IQR</i> |
|---|-------------|-----------|---------------|------------|
| 18 Political factors can impact on development of culinary creativity.  | 3.06        | 1.00      | 3.00          | 2          |
| 19 Economic factors can impact on culinary creativity development.  | 4.18        | 0.75      | 4.00          | 1          |
| 20 Social factors can impact on culinary creativity development.  | 4           | 0.82      | 4.00          | 2          |
| 21 Technological factor can impact on the development of culinary creativity.   | 3.87        | 0.72      | 4.00          | 1          |
| 22 Culinary creation is required to develop from its own food culture origins in order to be accepted by customers.                                     | 4.43        | 0.73      | 5.00          | 1          |
| 23 Eastern and Western social culture have different perspectives of the culinary profession and this impacts on their culinary creativity development. | 4.31        | 1.14      | 5.00          | 1          |
| 24 Training can bring out culinary creativity (depends on personal characteristics each outcome differs).   | 4.56        | 0.51      | 5.00          | 1          |
| 25 The gap between academia and industry is the mismatch between student expectation and the reality of industry.                                       | 4.25        | 0.68      | 4.00          | 1          |
| 26 The gap between academia and industry is student lack of foundation skills and practical experience.   | 4.68        | 0.48      | 5.00          | 1          |
| 27 The gap between academic and industry is apparent in the cookery licence exam which does not meet industry requirements.                             | 4.75        | 0.45      | 5.00          | 1          |
| 28 The gap between academia and industry lies in the lack of practical experience of the academic teachers.   | 4.63        | 0.62      | 5.00          | 1          |
| 29 The gap between academia and industry is academic staff's ability to teach.  | 4.50        | 0.73      | 5.00          | 1          |
| 30 The gap between academia and industry is the mismatch of parents' and students' perspectives of the hospitality industry.                            | 3.88        | 0.72      | 4.00          | 1          |
| 31 Culinary competition can identify  | 4.31        | 0.70      | 4.00          | 1          |

Table 6.3 Delphi Round 1-Question and Outcome

| <i>Delphi 1</i>  | <i>Mean</i> | <i>SD</i> | <i>Median</i> | <i>IQR</i> |
|--|-------------|-----------|---------------|------------|
| creativity.  |             |           |               |            |
| 32 Training and education can enhance concepts of creativity.  | 4.50        | 0.63      | 5.00          | 1          |
| 33 Practical training in education course can enhance creativity development.  | 4.37        | 0.50      | 4.00          | 1          |
| 34 Professional educators can lead and inspire students' creativity.   | 4.56        | 0.51      | 5.00          | 1          |
| 35 Theory and practical liaison system can inspire students' creativity.   | 4.56        | 0.51      | 5.00          | 1          |
| 36 Hospitality education should not adopt general examination result to distribute students. It should be considered with regard to a student's own interest and will. | 4.75        | 0.45      | 5.00          | 1          |
| 37 Vocational senior high school (hospitality education) should focus on: foundation and theory, for example: sanitation and hygiene; attitude and responsibility.     | 4.50        | 1.03      | 5.00          | 1          |
| 38 College level (hospitality education) should focus on: developing mid-level management skills.  | 4.75        | 0.45      | 5.00          | 1          |

## 6.4 DELPHI 1

The first Delphi probe questionnaires were sent by both email and post with return postage and envelopes to 16 experts. Most experts returned the questionnaires by post, only a few preferred to use email to answer the questions within 2 weeks. The purpose of the Delphi method is to achieve expert consensus. From the first round of the Delphi method, 36/38 statements reached consensus with IQR less than 1.2. 2/38 statements still have not reached consensus so these continued into the 2<sup>nd</sup> round of Delphi method with an extra five questions proposed by panellists.

### 6.4.1 Delphi 1 Finding-Industry and Academic

As shown in Table 6.3 part 1, principles of culinary creativity (Q1-Q11), a total of 11 questions reached consensus with an IQR under 1.2. Standard deviations in this section are 8/11 under 1.0, and 3/11 between 1.0-1.1. It can be summarized that experts agree that culinary creativity is an aesthetic, and the combination of colour, smell and taste which is required for exam passes and acceptance by the market in order to succeed. To build up culinary creativity requires fundamental skills, experience and an appropriate cultural background. Culinary creativity in upscale restaurants and hotels is similar to creativity in general and the only limitation is time in terms of production and durability.

Part 2, personal characteristics of culinary creativity (Q12-17), a total of 6 questions reached consensus with IQR scores of under 1.2. Standard deviations in this section are under 1.0. It can be summarized that experts agree personal characteristics, motivation, expertise and skills variously can impact on culinary creativity development.

Part 3, Press of culinary creativity (Q18-23), of a total of 7 questions only 4/7 reached consensus with IQR scores under 1.2. 2/7 have not reached consensus with an IQR over 1.2. Standard deviations in this section are under 1.2. It can be summarized that experts agree economic and technological factors can impact on development of culinary creativity. On the other hand, there is uncertainty about how much political and social factors can impact on creativity development. Experts also agree that culinary creation needs to develop from its own food culture origin in order to be accepted by customers. Thus, Eastern and Western social cultures have different perspectives of the culinary profession and these impact on their culinary creativity development.

Part 4, education and training of culinary creativity (Q24-38), out of a total of 15 questions 14 reached consensus with an IQR under 1.2. It can be summarized that the gaps between academia and industry are: 1.students achieving a cookery license exam cannot expect to meet industry requirements; 2.academia has caused high expectations for students of their future career which causes a discord with industry.

Experts agree training and education can enhance creative concepts and that hospitality education should not adopt use of the general examination results to place students. It should consider students' own interests and ambitious. Lastly, vocational senior high school (hospitality education) should focus on foundation and theory and college level should focus on developing mid-level management position skills.

Table 6.4 Comparison- Delphi 1Part 1 Q1-Q11

|    | <i>Mean</i> |          | <i>SD</i> |          | <i>IQR</i> |          |
|----|-------------|----------|-----------|----------|------------|----------|
|    | Academic    | Industry | Academic  | Industry | Academic   | Industry |
| 1  | 4.88        | 4.75     | 0.35      | 0.46     | 0          | 1        |
| 2  | 4.88        | 4.63     | 0.35      | 0.52     | 0          | 1        |
| 3  | 4.25        | 4.38     | 0.71      | 0.52     | 1          | 1        |
| 4  | 4.12        | 4.13     | 0.99      | 1.36     | 1          | 1        |
| 5  | 4.38        | 4.00     | 0.52      | 1.31     | 1          | 1        |
| 6  | 4.75        | 5.00     | 0.46      | 0.00     | 1          | 0        |
| 7  | 4.75        | 4.63     | 0.46      | 0.52     | 1          | 1        |
| 8  | 4.88        | 4.75     | 0.35      | 0.46     | 0          | 1        |
| 9  | 4.50        | 4.38     | 0.53      | 0.74     | 1          | 1        |
| 10 | 4.13        | 4.25     | 0.64      | 1.39     | 0          | 1        |
| 11 | 4.50        | 4.38     | 0.53      | 1.41     | 1          | 1        |

#### 6.4.2 Delphi 1 Finding-Industry and Academic comparison

As shown in Table 6.4, defining culinary creativity from academic and industry perspectives indicates similar outcomes in terms of mean, and IQR. The only difference is with respect to Q5, Q10 and Q11 where standard deviations from industry perspectives show 50% higher scores than academic perspectives.

Table 6.5 Comparison- Delphi 1Part 2 Q12-Q17

|  | <i>Mean</i> | <i>SD</i> | <i>IQR</i> |
|--|-------------|-----------|------------|
|--|-------------|-----------|------------|

|    | Academic | Industry | Academic | Industry | Academic | Industry |
|----|----------|----------|----------|----------|----------|----------|
| 12 | 4.38     | 4.38     | 0.74     | 0.74     | 1        | 1        |
| 13 | 4.13     | 3.75     | 0.64     | 1.28     | 1        | 1        |
| 14 | 4.75     | 4.38     | 0.46     | 0.52     | 1        | 1        |
| 15 | 4.63     | 4.63     | 0.52     | 0.52     | 1        | 1        |
| 16 | 4.75     | 4.75     | 0.46     | 0.46     | 1        | 1        |
| 17 | 4.75     | 4.75     | 0.46     | 0.46     | 1        | 1        |

As shown in Table 6.5, personal characteristics of culinary creativity presents similar outcome in terms of mean, standard deviation and IQR from industry and academic perspectives. The only difference is the standard deviation for Q13 where industry perspectives shows a 50% higher score than academic perspectives.

Table 6.6 Comparison- Delphi 1Part 3 Q18-Q23

|    | Mean     |          | SD       |          | IQR      |          |
|----|----------|----------|----------|----------|----------|----------|
|    | Academic | Industry | Academic | Industry | Academic | Industry |
| 18 | 3.13     | 3.00     | 0.83     | 1.20     | 2        | 1        |
| 19 | 4.13     | 4.25     | 0.64     | 0.89     | 1        | 2        |
| 20 | 4.00     | 4.00     | 0.76     | 0.93     | 1        | 1        |
| 21 | 4.00     | 3.75     | 0.76     | 0.71     | 1        | 1        |
| 22 | 4.13     | 4.75     | 0.83     | 0.46     | 2        | 1        |
| 23 | 4.50     | 4.13     | 0.76     | 1.46     | 1        | 2        |

As shown in Table 6.6, Press of culinary creativity presents various answers in terms of mean, standard deviation and IQR from industry and academic. Q18, Q22, and Q23 show dispersive outcome on standard deviation and IQR between academic and industry group.

Q20 and Q21 have similar outcome by two groups. This section has four questions showing IQR score over 1.2 which do not meet the consensus. These questions will proceed to the second round Delphi survey of experts in order to re-evaluate their answers and feedback.



As shown in Table 6.7, training and education in culinary creativity, most questions in this section show similar outcome in terms of mean, standard deviation, and IQR between academic and industry group. Q29 shows a standard deviation from academia that is 50% higher than industry and IQR over 1.2 which does not meet the consensus.

Q36 and Q37 present similar outcome in mean and IQR, the only differences are that industry shows over 50% higher score on standard deviation than academia.

Table 6.7 Comparison- Delphi 1Part 4 Q25-Q38

| <i>Delphi</i> | <i>Mean</i> |          | <i>SD</i> |          | <i>IQR</i> |          |
|---------------|-------------|----------|-----------|----------|------------|----------|
|               | Academic    | Industry | Academic  | Industry | Academic   | Industry |
| <i>R1</i>     |             |          |           |          |            |          |
| 24            | 4.50        | 4.63     | 0.53      | 0.52     | 1          | 1        |
| 25            | 4.25        | 4.25     | 0.71      | 0.71     | 1          | 1        |
| 26            | 4.63        | 4.75     | 0.52      | 0.46     | 1          | 1        |
| 27            | 4.63        | 4.88     | 0.52      | 0.35     | 1          | 0        |
| 28            | 4.50        | 4.75     | 0.76      | 0.46     | 1          | 1        |
| 29            | 4.25        | 4.63     | 1.16      | 0.52     | 2          | 1        |
| 30            | 3.88        | 3.88     | 0.64      | 0.83     | 1          | 1        |
| 31            | 4.50        | 4.13     | 0.76      | 0.64     | 1          | 1        |
| 32            | 4.25        | 4.50     | 0.71      | 0.76     | 1          | 1        |
| 33            | 4.38        | 4.25     | 0.52      | 0.71     | 1          | 1        |
| 34            | 4.63        | 4.50     | 0.52      | 0.53     | 1          | 1        |
| 35            | 4.50        | 4.63     | 0.53      | 0.52     | 1          | 1        |
| 36            | 4.625       | 4.38     | 0.52      | 1.41     | 1          | 1        |
| 37            | 4.75        | 4.25     | 0.46      | 1.39     | 1          | 1        |
| 38            | 4.75        | 4.75     | 0.46      | 0.46     | 1          | 1        |

## 6.5 DELPHI 2

The 2<sup>nd</sup> round of Delphi method survey consists of 9 questions which include 5 questions from 1<sup>st</sup> feedback and 4 questions from 1<sup>st</sup> round with IQR over 1.2 within press, training and education sections. Each participant received anonymous feedback from the 1<sup>st</sup> round in order to provide the interaction necessary for experts to reconsider their judgments (Tavana, 1993:326). The 2<sup>nd</sup> round surveys were sent out to 16 experts. 15 experts responded by post and email.

Table 6.8 Delphi Round 2- questionnaire outline

| <i>Delphi 2</i>   | <i>Category</i>                  | <i>Question Number</i> | <i>Total Questions</i> |
|-------------------|----------------------------------|------------------------|------------------------|
| Press             | External                         | 1-2                    | 2                      |
| Process , Product | Training and Education           | 3                      | 1                      |
|                   | Views from 1 <sup>st</sup> round | 4-8                    | 5                      |

Table 6.9 Delphi Round 2 Questions and Outcomes

| <i>Delphi 2</i>  | <i>Mean</i> | <i>SD</i> | <i>Median</i> | <i>IQR</i> |
|--|-------------|-----------|---------------|------------|
| 1 Political factors can impact on the development culinary creativity  | 3.36        | 0.74      | 3             | 1          |
| 2 Social factor can impact on the development of culinary creativity.  | 4.07        | 0.47      | 4             | 1          |
| 3 Lecturers in academic faculties should have both a theoretical and practical background.                               | 4.67        | 0.62      | 5             | 1          |
| 4 Culinary creativity required a strong foundation and good understanding of ingredients in order to advance creativity. | 4.80        | 0.41      | 5             | 1          |
| 5 Culinary creativity should be  | 4.47        | 0.64      | 5             | 1          |

Table 6.9 Delphi Round 2 Questions and Outcomes

| <i>Delphi 2</i>   | <i>Mean</i> | <i>SD</i> | <i>Median</i> | <i>IQR</i> |
|---|-------------|-----------|---------------|------------|
| structured from an understanding of social and cultural background.   |             |           |               |            |
| 6<br>In the process of culinary creativity unsuccessful experiments experience can enhance creativity development.        | 4.40        | 0.51      | 4             | 1          |
| 7<br>Culinary creativity can be developed through training however, personal characteristics can influence on motivation. | 4.33        | 0.82      | 4             | 1          |

### 6.5.1 Delphi 2-Finding

As shown in Table 6.9. 7 questions reached the consensus with IQR range scores of 1.

*Q1 Political factors can impact on culinary creativity development.*

The results show 1/15 expert chose disagree, 8/15 experts choose neither agree nor disagree and 6/15 experts choose agree and strongly agree.

*Q2 Social factors can impact on culinary creativity development*

The results show a high score in mean value, and low in standard deviation which indicates that most experts agree on the statement and also meet the consensus requirement of less than 1.2.

*Q3 Lecturers in academic faculties should have both theoretical and practical background.*

The results show high in mean value 4.66, and low in standard deviation 0.61 which means most experts agree on the statement. It meets the consensus with IQR less than 1.2.

*Q4 Culinary creativity required a strong foundation and good understanding of ingredients in order to advance creativity.*

The results show high in mean value 4.8, and low in standard deviation 0.41 which means most of experts agree on the statement. It meets the consensus with IQR less than 1.2.

*Q5 Culinary creativity should be structured from an understanding of social and cultural background.*

The results show high in mean value 4.47, and low in standard deviation 0.63 which means most experts agree on the statement. It meets the consensus with IQR less than 1.2.

*Q6 In the process of culinary creativity unsuccessful experiments experience can enhance creativity development.*

The results show high in mean value 4.4, and low in standard deviation 0.51 which means most experts agree on the statement. It meets the consensus with IQR less than 1.2.

*Q7 Culinary creativity can be developed through training however, personal characteristics can influence on motivation.*

The results show high in mean value 4.33, and low in standard deviation 0.81 which means most of experts agree on the statement. It meets the consensus with IQR less than 1.2.

Table 6.10 Comparison- Delphi Round 2

| <i>Delphi<br/>R2</i> | <i>Mean</i> |          | <i>SD</i> |          | <i>IQR</i> |          |
|----------------------|-------------|----------|-----------|----------|------------|----------|
|                      | Academic    | Industry | Academic  | Industry | Academic   | Industry |
| 1                    | 3.38        | 3.43     | 0.52      | 0.98     | 1          | 1        |
| 2                    | 4.13        | 4.00     | 0.35      | 0.58     | 0          | 0        |
| 3                    | 4.63        | 4.71     | 0.74      | 0.49     | 1          | 1        |
| 4                    | 4.75        | 4.86     | 0.46      | 0.38     | 1          | 0        |
| 5                    | 4.50        | 4.43     | 0.76      | 0.53     | 1          | 1        |
| 6                    | 4.50        | 4.29     | 0.53      | 0.49     | 1          | 1        |
| 7                    | 4.50        | 4.14     | 0.53      | 1.07     | 1          | 1        |

### 6.5.2 Delphi 2 Findings Industry and Academic comparison

As shown in Table 6.10, all statements reached consensus by academic and industry experts within the 2<sup>nd</sup> round.

Q7 shows similar outcomes between the two groups of experts, however, industry experts show 50% higher scores in standard deviation than academic experts. This implies that industry has more diverse opinions regarding this statement.

## 6.6 CONCLUSIONS

The Modified Delphi technique has been applied to determine needs in culinary education and training which help to identify the role of applied creativity in culinary education and also to identify industry perspectives. Of a total of 43 questions for round 1 and round 2 surveys, all questions reached a consensus. To summarize the main theme of questions, firstly, with regard to Principles of culinary creativity, experts agreed that creativity is required to be built up from a cultural background with practical experience and professional skills, as well as the cuisine's traditions in order to be accepted by the market. Both Chinese and Western cuisines espouse similar development process for creativity, the only difference is culture. People from different culture background can evaluate creativity in various aspects, such as usefulness and novelty (De Dreu, 2010).

Secondly, in terms of the Person in culinary creativity, experts agreed that creativity is partially inherited. Personal characteristics can influence the development of creativity, for example: motivation. Moreover, experts agreed that motivation, expertise and creative thinking skills are indispensable in the development of culinary creativity which supports the component of creativity by Amabile (1996).

Thirdly, in terms of Press in culinary creativity, experts agreed that economic and technological factors could have higher influence on culinary creativity development than political factors. From social factors, Eastern and Western social culture have different perspectives of the culinary profession and this impacts on their creativity development.

Lastly, training and education of culinary creativity, experts agreed that culinary creativity is important to industry and education. The culinary education should begin with strong fundamental skills and knowledge in order to advance and inspire student' creations. Moreover, the educational environment and the quality of educators are also very important to culinary education development.

This chapter addresses the findings from the modified Delphi technique within four main categories. The following chapter (Chapter Seven) will present a discussion linking the three phases of findings and to the literature.

## Chapter 7 DISCUSSION

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### 7.1 INTRODUCTION

The purpose of this study was to explore the development of culinary creativity from the perspectives of both industry and academic participants in order to inform the development of future education and training. This chapter discusses the three-phase research findings and compares these to previous research by answering four main research questions:

5. What is the role of applied creativity in the upscale culinary industry?
6. What are the implications of personal characteristics and environmental factors on culinary creativity development?
7. What are the implications of training as a mediator in the culinary creativity development process?
8. What are the gaps between academic and industry perspectives in creativity training development?

The present study addressed the important role of applied creativity in the culinary industry. By investigating the impact factors on the development of culinary creativity and the gaps between the academic and industry perspectives, this research aims to ascertain whether training can mediate the development process of culinary creativity or not.

The finding of this research focus on 5 star hotels and upscale restaurants in the Taiwanese culinary industry in order to demonstrate a clear picture of the role of applied creativity in the culinary industry. In addition, these findings present both industry and academic participants' points of view in looking to the future of culinary education and training. According to Hrong and Hu (2006), chefs can be considered as artists. This research found that chefs are not like pure artists. From an industry point of view, culinary artists are contemporary commercial artists who are not only required to have the sense of art, but also have to meet the current market trend to adjust their creations to meet or create the market demand in order to achieve required revenue and profit levels. In addition, from a culinary education

perspective, the finding contribute to an understanding of applied creativity in culinary education within Taiwanese culture. Besides enhancing art-related courses, this research proposes that culinary education should begin with fundamental skills and professional knowledge in order to develop students' creativities thoughts into practical and commercial products. More importantly, culinary education and industry should be interlinked together where theories meet applications in order to improve the quality and the level of the culinary industry in Taiwan.

## 7.2 ANSWERS TO THE RESEARCH QUESTIONS

### 7.2.1 What is the role of applied creativity in the upscale culinary industry?

The nature of the culinary industry demonstrates that culinary creativity has an important role in business strategy. Culinary creativity can be considered as a form of artistic expression by a chef within the constraints of certain conditions. A majority of participants considered themselves as culinary artists with some degree of food science knowledge underpinning their art. This outcome supports Preston and Birg (1988), Hegarty and O'Mahony (2001), and Horng and Hu (2006) who noted chefs can be seen as culinary artists. All participants indicated various perspectives of how creativity is considered an important strategy in the culinary industry. To some extent, creativity in the culinary industry is a fashion (Horng and Hu, 2006), which can lead and change people's taste buds (AC10). In addition, IC3 indicated that real culinary creation should be able to last for a long period of time (from generation to generation). He gave the example of some classic Chinese dishes, such as Kung Pao Chicken and Longjin Tea Shrimps. However, AC2 noted that culinary creations happened at different levels and themes of restaurants. He stated that culinary creativity in hotels and upscale restaurants may not be as important as popular (mid-level) restaurants. This outcome contradicts Ottenbacher and Gnoth (2005) who hold that Michelin restaurant chefs strive for culinary innovation to achieve success. Mainly, hotels and upscale restaurants have demonstrated high quality and standard in culinary production. All participants agreed the final goal of culinary creativity is to satisfy customers and made a profit in order to survive in this



competitive industry, and this corresponds with the views of Ottenbacher and Gnoth (2005), and Horng and Lee (2009). In addition, Peterson and Birg (1988) propose that chefs are like 'commercial artists'. This research argues that within the time limitations and customer-orientation constraints, chefs can be considered to be contemporary commercial artists who have to meet current market demand and achieve profit goals for their organizations.

#### ***7.2.1.1 Character of Culinary creativity***

The findings of this study demonstrate that the characteristics of culinary creativity are constrained by market (market acceptance, time limitations) and person (practical experience and professional skills) factors. From the market perspective (market acceptance and time limitations), chefs have limited time to create culinary products which are required to meet market demand in a commercial sense. The market perspective (market acceptance and time limitations) is parallel to the notion of time as one of the critical factors that impact on market reaction according to Getz and Lubart (2009), and Peterson and Birg (1988). Moreover, participants noted that the market is not only the culinary market in general but also reflects regional/local market demand. Some participants noted that, depending on the type of cuisine and source of customers, chefs are required to understand market demand in order to present proper creations to the market. From the person perspective (practical experience and professional skills), to ignite culinary creativity, chefs are required to have experience and professional skills in order to spark their creativity and be appreciated by customers. The majority of Chinese cuisine participants emphasised the importance of practical experience to their creativity development. On the other hand, Western cuisine kitchens adopt SOP (standard operations procedures) by which the formula for recipes is given so that they can easily prepare the components of a dish (AC9). For example, a Caesar salad can be simply prepared by a trainee or a line cook, whereas, a Chinese cuisine kitchen might have difficulties in building a SOP system. Essentially, Chinese cuisine tends to present one dish to share with a table of people (10-12 people). For example, to cook a whole fish, a chef has to consider the individual size of the fish in order to determine the deep-frying

temperature and timing. This has to rely on the chef's experience (AC9). On the other hand, Western cuisine presents a single portion per person, which can be prepared by a line cook with SOP recipes. As a consequence, the accumulation of practical experience could contribute to a chefs' culinary creativity development. The expert panel strongly agreed that the accumulation of both practical experience and professional skills are the basic elements of culinary creativity development. This outcome agrees partially with Horng and Lee (2009) that culinary creativity is a skill-oriented discipline. However, this research argues that practical experience appears as an important element in the development of culinary creativity.

### ***7.2.1.2 Defining Culinary Creativity***

From the literature, the only definition of creativity in the culinary industry is that of Chossat and Gergaud (2003) who state that "in the French culinary tradition, creativity is the refinement of classical or traditional culinary art" (Horng and Hu, 2006:376). Following this, Ottenbacher and Harrington (2007) discuss commercialization in the case of a Michelin-starred restaurant, where chefs focus on customer satisfaction and long-term reputation rather than food cost or profit margin.

Some aspects are similar to earlier literature. For instance, AC2, and AW2 defined culinary creativity as to destroy and create a better entity, similar to Werthimer (1954 cited in Taylor, 1988), while, some research participants saw culinary creativity as to create from fundamentals, (traditional and/or original) without missing the essence. Perhaps they noted culinary creativity as a type of rearrangement of traditional or classical dishes. This reflects the importance of culinary foundations. Similarly, Harmon (1955 cited in Taylor, 1988:118) illustrates this as "any process by which something new is produced an idea or an object, including a new form or arrangement of old elements". In addition, this outcome corresponds with the notion of an "addition to existing stored knowledge of mankind" proposed by Rand (1952 cited in Taylor, 1988:118).

Some participants demonstrated different views of culinary creativity. For example, AC8 argued that “culinary creativity is developed from stress, which a chef must be able to deal with in order to survive”. This can be explained in the reality of the culinary industry as a competitive service industry. Chefs are obliged to develop a new creation constantly. Experts agreed that with a successful culinary creation, a chef can be the leader of that field of expertise. This outcome supports the notion of Stierand and Lynch (2008). For example, Chef Adrià (the restaurant owner of elBulli in Spain) advances culinary development by incorporating scientific aspects into a ‘new cooking’ (molecular cuisine) so that it became a top creative cuisine trend worldwide (Stierand and Lynch, 2008). More importantly, participants pointed out that culinary creations should be able to survive the challenge of time and last forever. To some chefs, culinary creativity is a refinement and recombination process, which supports the definition by Chossat and Gergaud (2003). To a majority of chefs, culinary creativity is built upon the fundamentals, which are inspired by cultural background and traditions. However, IW2 conceded that to create from tradition may constrain creativity development. All chefs agreed that culinary creativity is developed from the foundations of skills and experience in order to present original and competitive products, satisfy customers and make a profit. To elaborate on the previous literature definitions, this research argues that culinary creativity can be defined as based on the foundation of traditional cuisine with additional elements which extend and emerge from culinary traditions and satisfy customers.

The AHP findings contributed to understanding perspectives of industry and academia participants in prioritizing elements of Principle (Table 7.1). The findings from both industry and academic participants illustrated that time limitations were the most important of the five characters of Principle in culinary creativity, followed by professional skill, market acceptance, practical experience and culture.

In terms of comparing industry and academic participants, the findings demonstrated several differences. Industry chefs presented market acceptance as the most important factor to their creativity development followed by time limitations,

professional skills, practical experience and culture, whereas, academia chefs presented time limitations as the most important followed by professional skill, practical experience, market acceptance and culture.

The results reveal that both industry and academic participants agreed that the culture factor is part of who they are, therefore, it is the least important factor in culinary creativity development. Industry participants agreed that professional skills, practical experience and culture are the basic requirements to develop culinary creativity. More importantly, market acceptance and time limitations are crucial factors, which reflect their creativity development realistically with feedback (customers satisfaction and making profit).

Conversely, academic participants did not consider market acceptance as the top key factor within the education setting. Instead of market acceptance, time limitations were considered the first key factor, followed by professional skills and practical experience. Perhaps academia participants considered these factors according to their current status, as educators. In academia, the success of culinary creativity is measured by the ability to develop a dish within strict limits of time. Time limitations acts as a determinant in cookery competitions and the cookery licence examination to ascertain the final results. Consequently, time limitations to academic participants is a basic rule (principle/discipline) of culinary education and to industry participants to be accepted by the market is the critical factor.

Table 7.1 AHP-Prioritize Principle of Culinary Creativity from Industry and Academia

|   | <i>Industry</i>      | <i>Academia</i>      | <i>Combined</i>      |
|---|----------------------|----------------------|----------------------|
| 1 | Market Acceptance    | Time Limitations     | Time Limitations     |
| 2 | Time Limitations     | Professional Skills  | Professional Skills  |
| 3 | Professional Skills  | Practical Experience | Market Acceptance    |
| 4 | Practical Experience | Market Acceptance    | Practical Experience |
| 5 | Culture              | Culture              | Culture              |

### **7.2.3 What are the implications of personal characteristics and environmental factors on culinary creativity development?**

This section discusses personal characteristics and includes the evaluation and prioritization of its elements, followed by environmental factors (Press).

Environmental factors consist of four main elements: political, economic, social, and technological factors. Within social factors, there are culture, family, education, organizational climate and market aspects to be discussed.

#### ***7.2.3.1 Personal Characteristics***

In terms of personal characteristics, all participants indicated similar perspectives.

They agreed that personal characteristics can influence creativity development: curiosity, resilience, experimenting, attentiveness, thoughtfulness and environmental setting, which support the CREATE literature by Claxton (2006). Furthermore, sensitivity is considered a key personal characteristic in culinary creativity development. This includes internal and external aspects. In terms of the internal aspects, it is the sensitive judgement of ingredients and flavour combination, professional knowledge and technique. In terms of external sensitivity, chefs are required to understand market trends and demand in order to satisfy customers' expectations. The sensitivity dimensions of culinary creativity development is consistent with Horng and Lee (2006:5). In addition, participants IW3 and AW1 indicated that they always take applicants' personal characteristics and star signs as a consideration during interviews. They mentioned that they do apply some characteristics of the star signs to assist them to plan work and achieve their goals and standard of quality.

From the AHP data, industry and academic participants have different perspectives in terms of prioritizing the elements in personal characteristics to culinary creativity development (Table 7.1). Industry participants place experimenting as the first priority followed by thoughtfulness, environment setting, attentiveness, curiosity and resilience, while, academic participants placed environment setting as the first priority, followed by thoughtfulness, attentiveness, experimenting, resilience and

curiosity. From the sequence of personal characteristics to culinary creativity development, it can be seen that experimenting to develop a new creation in the culinary industry is of great importance. Academic participants noted that environmental setting can influence personal characteristics towards creativity development. Both groups have different purposes, industry participants aim to continuously experiment in order to present a culinary creation, while academia participants aim to educate students in their environment and would hope to influence personal characteristics to develop culinary creativity. Thus adaptability to environment is considered more vital to academia.

From the expert panel, it was agreed that applied creativity in the culinary industry is a partially inherited characteristic\*. In terms of personal characteristics, motivation, expertise and creative thinking skills are indispensable in culinary creativity development. This supports Amabile (1996) who presents the components of creative performance as consisting of domain relevant skills, creativity relevant skills and task motivation. In addition, she notes that creative thinking depends to some extent on personality characteristics and social environment which can influence the development of creativity. As a result, applied creativity in the culinary industry is closely related to personal characteristics. The findings clearly demonstrate how both industry and academic participants have different views in evaluating the elements of personal characteristics. In addition, it can be seen how different personal characteristics can effect on their performance in the culinary industry. However, these elements are also closely related to other factors, for example environmental factors.

Table 7.2 AHP-Prioritize Personal Characteristics from Industry and Academia

|   | <i>Industry</i>     | <i>Academia</i>     | <i>Combined</i>     |
|---|---------------------|---------------------|---------------------|
| 1 | Experimenting       | Environment Setting | Environment Setting |
| 2 | Thoughtfulness      | Thoughtfulness      | Thoughtfulness      |
| 3 | Environment Setting | Attentiveness       | Attentiveness       |
| 4 | Attentiveness       | Experimenting       | Experimenting       |
| 5 | Curiosity           | Resilience          | Curiosity           |
| 6 | Resilience          | Curiosity           | Resilience          |

### ***7.2.3.2 Environmental Factors***

Press (environmental factors) involves the environment in which the creation is located, that is, the creative environment (or climate or situation or place). The findings contribute to the understanding of environmental factors to culinary creativity development from both industry and academic perspectives. These consist of four main factors: political, economic, social and technological approaches.

Economic factors are placed as the first priority from an industry perspective and followed by technological, social and political, while the technological factor is placed as the first priority from an academic perspective, followed by economic, social and political. That the economic factor is the most important factor to industry chefs can readily be explained. A majority of industry chefs noted the importance of the macro and micro economy in relation to their culinary creativity development, and this supports Ottenbacher and Gnoth (2005) that the hospitality product is most frequently considered with financial measures of performance.

To some extent, economic factors are also related to organizational and academia training plans. A majority of chefs noted that when the economy is doing well, their organizations send chefs to be trained in various famous restaurants and hotels. Whereas, when the economy is not doing well, their organizations tend to organize internal training programmes within the hotel. In addition, IW4, and IC3 stated that economic factors impact on their restaurant menu planning and marketing

promotions, so indirectly influence culinary creativity development. They gave the example of a hotel selling expensive and inexpensive lunch boxes during different economic conditions. Even though economic factors cannot be controlled by organizations and culinary industry, experts agreed that economic factors relate to internal organizational human resource development plans and restaurant menu plans, and to external market demand. Kozbelt et al. (2010) stress similar notions that creative ideas and behaviours are impacted upon by market forces and cost-benefit analysis.

Technological factors are placed as the first priority from the academic perspective. With continuously new technologies, this factor plays an important role in culinary creativity development. Participants stated that kitchen equipment and Internet communications have a major impact on their culinary creativity development. The Internet communication findings confirm with Horng and Lee (2006) who note that information technology for communication, transportation, food culture and marketing are becoming more diversified. However, this research claims that technological factors in the culinary equipment generate and benefit creativity development.

Internet communication has demonstrated tremendous benefits to the culinary industry. A majority of participants indicated that the Internet communication assists them to gain a sense of current trends in the culinary industry worldwide. In addition, they used Internet communication to interact and share with chefs of other nationalities. Moreover, they use it to search for their culinary inspirations. Participants indicated that the culinary industry is more open-minded in sharing knowledge than before with the Internet improving communication. They can search new ideas and try other chefs' recipes and ideas to advance their knowledge of culinary fashions.

In terms of culinary equipment improvements, the majority of academia and Western cuisine industry participants agreed that the role of technological factors is significant. They stated that culinary creativity is the combination of science and art,



and rising technological improvements to produce creations of consistent quality. In addition, technological improvements can also reduce labour costs and energy efficiency. This outcome corresponds to the findings of Bond and Huston (2003). The technological factor can impact on a firm's strategy at three levels: product, process and administration. The most common technological equipment is combi-oven (multifunction oven), which is extensively used in most modern Western cuisine kitchens and in academia. IC4 pointed out that this type of technology was used by the famous Peking Duck Restaurants, Quan Jude Group in China. "When they came to our hotel to do Peking Duck promotion, they only brought their computer programme to set up in our combi-oven" (IC4). This demonstrates how advanced technology can reduce the obstacles to promoting world cuisines. Unlike most participants, some Chinese cuisine participants (IC1, IC3, AC8, AC4) indicated that Chinese cuisine can be prepared without any high technology, only a wok and a steamer. They emphasised that preparing Chinese cuisine requires only genuine skills and experience. In terms of technological equipment, Western cuisine kitchens tend to have modern technological equipment to assist the kitchen industry. However, this is not so in Chinese cuisine kitchens. Participant IC3 pointed out that technological equipment for Chinese cuisine is required to be designed by Chinese cuisine chefs in order to understand a chef's demands. However, so far there is no specific new equipment for Chinese cuisine kitchens.

Perhaps it can be explained that to cultivate a Chinese cuisine chef the emphasis is on the accumulation of practical experience and skills in various stations: cutting board station, cooking station, cold station and dessert station. Unlike the Western cuisine kitchen setting, work in the Chinese cuisine kitchen is organized in a different way, for example different cooks do cutting and cooking. If a person is in charge in cutting (cutting board station), he will not cook at all. In the same way, if the person is in charge of cooking, he will not cut at all. Each station consists of two to three people, depending on the size of the restaurant. Head of cutting or cooking is considered the same position as chef de parti in a Western cuisine kitchen (IC3). They focus on a particular task which allow them to specialize. AC5 noted the different cultural background, and how Chinese cuisine emphasizes cooking methods

and requires experience, whereas Western cuisine emphasizes each original cooking tradition. According to IC3, the only way to become a Chinese cuisine chef is to learn from other station techniques and skills by observing surreptitiously. This outcome supports Horng and Hu (2008) that the hierarchy system of holding back a trick is a concern to some Chinese cuisine chefs. Thus, to become a Chinese cuisine chef, it tends to require a long period of time in accumulating experience and skills, whereas, the Western cuisine kitchen setting is a systematic route. Usually, the cook starts to work in the cold station, followed by the soup station and the main station. Once in the position of chef de parti and/or sous chef, he/she can start a new job in different restaurant as sous chef or as chef (IC3).

Thus, it can be understood that Western and Chinese cuisines have different emphasis in terms of cultivating a chef. A Western cuisine chef is cultivated by training in different stations, accumulating different skills whereas a Chinese cuisine chef is cultivated by working at the first position in a cutting or cooking station. Western cuisine kitchens demonstrate an open-minded learning environment with SOP recipes. On the other hand, Chinese cuisine kitchens demonstrate a conservative learning environment. This research confirms that technological factors have positive implications to culinary creativity development.

### ***7.2.3.3 Social Factors***

#### **(1) Culture**

The findings confirm that culture is part of the origin of culinary creativity development. It also represents a chef's background and history. The Western cuisine participants in this study are Chinese and, therefore, present their perspectives from a different culture to interpret their profession and knowledge in Western cuisine. It seems that these Western cuisine participants have more open minds to learn and adapt from the essence of Western cuisine by reading history, listening to music and learning its language. Compared to Western chefs learning Western cuisine, these Western participants build up their professions from their

Chinese cultural background that stimulates their vision of Western cuisine differently.

Participant AC5 noted that culture is close to life-style which compares to Geertz (1973) who notes that culture is about the attitudes toward life. A majority of participants indicated that cultural background is relatively close to their creativity development which is parallel to the notion of De Dreu (2010). Culture to culinary creativity development can be understood at three levels: as a learning platform to chefs, as a business strategy to organizations, and as a meaningful tool (value) to customers. Some participants stressed that culture is the starting point of their culinary learning. They like to know a dish from its cultural background and link it to its origin, which can assist them to have a comprehensive understanding of a dish. In addition, participants applied culture as a business strategy to their restaurant and hotel promotions. Participants stress all the promotions are related to culture as a theme, whether it is a domestic cultural promotion or an international cultural promotion. “We invited a Michelin restaurant chef from France to do the Southern France cuisine promotion” (IW4). Moreover, culture is a vital element of the culinary industry, which provides extra value to customers by integrating historical and local information. This outcome supports Ottenbacher and Harrington (2007) who indicated that culture can offer valued-added to the customer. In addition, some participants emphasised localization of their culinary creativity development by incorporating local specialities to promote their local culture as their focus selling point. Therefore, culture is mostly an intangible element to the chef, the organization and the customer. However, it deeply influences culinary creativity development.

## 5. Family

Family background and style demonstrate positive implications to the development of culinary creativity, which support the notion of Horng and Lee (2009) and Amabile (1996). A culinary career was not the first choice of most participants. Some participants noted that they entered this industry because of their family influence in the business. They admitted that they all had a preference for other career choices. However, their families demonstrated great influence on their

decisions. In the same way, Fine (1996) discusses culinary family connections between European countries and the United States. A European family tends to have positive influences to follow in their footsteps, whereas the American family tends not to encourage following that same career. This outcome reveals that in Chinese culture, the culinary family connection demonstrates similar characteristics to the European family.

IW3 stressed that by understanding an employee from their family background can help the chef to have a rough idea about his/her ability in terms of culinary creativity development. He gave the example of comparing two members of staff from utterly different family backgrounds and regions whose creations can be distinct from each other. There is the well-known story of the Bakery World Cup champion Chef Wu who grew up in a single parent family with poor conditions of living. His creation was inspired by his mother who made him a sweet dessert soup for cold winter day. He applied similar ingredients to his bakery creation and won the championship. Correspondingly, this supports Simonton (2010) that adverse family background and events can develop creative distinction.

### (3) Education

Most participants suggested that the educational environment, initial teacher inputs and curriculum design are key elements to culinary education and its future development. An open learning environment appeared to be the concern of most participants which concurs with the views of Amabile (1996) and Horng and Lee (2009) that an open climate has a positive impact on students' learning. IW12, IW10 and AW1 compared the Western and Taiwan education environment. They noticed that Taiwan education is more conservative than Western education. They noted that Chinese students are good at taking exams but lack independent creative thinking.

Importance of the initial teacher that students face was brought up by most participants. They observed that teacher can influence students' behaviour, attitudes and learning styles. In terms of curriculum design, participants strongly agreed that culinary education should focus on fundamental courses and balance both theoretical

and practical skills and knowledge. IW2 noted that education can begin with imitating like painting, that the student can learn the basic principles of cooking and knowledge. Besides emphasising professional foundation courses, many participants pointed out that culinary education should also highlight ethics, language and aesthetics in order to enhance the foundation of future creativity development. These suggestions run parallel to the notion of Hu et al. (2006) who summarized 12 aspects in culinary education. Participants agreed ethics related to students' moral conduct, which is vital to personality development. A language course was considered as boosting culinary education learning. Most participants indicated that language is a tool to assist them to explore the culinary world. Most Western cuisine participants learned English, Japanese or French. Most Chinese cuisine participants learned Cantonese, Japanese or English. Participants agreed English is still a priority for writing menus and searching for new ideas from foreign books, magazines and online. The aesthetics course is to introduce students to a sense of appreciation in art. Participants noted that an aesthetic course can consist of music and art depending on the background of lecturers in order to give comprehensive aesthetic appreciation. Beside family influences, education is a direct way to influence a students' attitude, behaviour and learning. Therefore, the educational environment (Amabile, 1996), educators and curriculum design (Hu et al., 2009) are relatively significant to students' creativity development.

#### (4) Organizational climate

All participants agreed that organizational climate could genuinely influence their creativity and career development. Most participants had positive experience of support by their organizations to train in foreign countries: Hong Kong, Thailand, Japan, America, Holland, France and so on. They admitted that economic factors can influence organizational training programmes. Although training programmes were not purposely designed for culinary creativity, participants agreed that they did indirectly impact on their creativity development. However, they agreed that training programmes are also related to position in the organization and its policy which can allocate training within the organization, both domestic and international. Some participants pointed out that organizations gave them freedom and autonomy to

develop their culinary creativity and, in this, they support Ottenbacher and Harrington (2007) and Horng and Lee (2009). In addition, this positive outcome supports Amabile (1996) who proposes the KEY scale for the work environment inventory. Some hotels have trainer /buddy systems which will help new staff to fit into an organization. Some participants pointed out that the trainer's attitude and behaviour can have implications for new trainees and staff. On the other hand, IC3 pointed out that some Chinese cuisine kitchens still have issues with respect to hierarchical systems and a tradition of 'holding back a trick' which limits young chefs in developing their culinary skills. This supports concerns expressed by Horng and Lee (2009). This research confirms that organizational climate is a direct environment that may influence culinary creativity development and in this supports the conclusions of Puccio and Cabra (2010).

In terms of a reward system in the culinary industry, participants pointed to a majority of leading hotels and some upscale restaurants in Taiwan provide a reward system to encourage staff to advance their culinary development. These are for example, from individual to teams, from kitchen to kitchen competition, national and international competition rewards. This supports Amabile (1996:240) who argues that "competition with outside groups may have a positive effect on the creativity of work team". Participants agreed that a reward system can support kitchen staff to continuously progress their learning. Nevertheless, the first priority is to achieve the organizational goal of profitability. This outcome supports Gupta and Singhal (1993) who note a reward system is to motivate personnel to achieve organizational goals of productivity and profitability. Career development should match an employee's long-term career goals with organizational goals. Furthermore, participants agreed that organizational training programmes and reward systems can result in a stronger and more committed workforce (Smolensky and Kleiner, 1995).

(5) Market

This research confirms that the culinary industry has time limitations within a commercially driven market which can crucially influence the success of a culinary creation. This outcome supports Getz and Lubart (2009) who note that timing affects the development of creativity in the market. IW5 pointed out two main considerations that influence his creations before presenting them to the market: what is the opportunity point of this creation in the market? What do I expect to be the outcome of this creation? These considerations are similar to Ottenbacher and Gnoth (2005) who proposed three essential factors for hospitality innovation: market selection, market responsiveness and marketing synergy. As a result, IW10 pointed out that chefs should have a strong foundation of skills and understand market demand in order to produce a solid creation and meet demand.

#### (6) Political

The sensitive relationship between Taiwan and Mainland China, has some impact, as a political factor on culinary creativity development. The political situation has implications for the availability and transportation of ingredients and the opening of the market to Chinese tourism.

Availability of ingredients was considered a major concern to most respondent chefs. Beef in Taiwan is mainly imported from the USA and Australia. A majority of chefs agreed that USA beef is better quality. After 2003, the incidence of mad cow disease in USA closed the market, although Taiwan re-opened to USA beef imports in 2009. Recently, a high percentage of US beef has contained the drug Paylean which is banned in the European Union due to health concern ([channelnewsasia.com](http://channelnewsasia.com)). After the presidential election in Taiwan, the assistant secretary of state for East Asia has been trying to persuade Taiwan to change its policy in order to import more beef to the Taiwan market. Here, the political factor demonstrates its influence on availability of culinary ingredients, thus potentially influencing the development of culinary creativity.

Transportation used to be an issue in some regions of Taiwan. Some chefs mentioned particular ingredients, like vegetables and more rare ingredients that used

to take a long time being transported by ship to Taiwan. With the closer relationship to China, world transportation is much more convenient than before. Now, more direct flights and fewer shipping transfer stops have reduced the travelling time. In addition, AW1 noted how changing the policy in the macro environment can also affect profit which influences culinary creativity development. Exchange rate fluctuation is one example of this.

The opening of the market to Chinese tourism has brought a boom to the tourist industry. Many hotels and restaurants offer special promotions to Chinese tourists. Because Taiwan is differently governed and relations are sensitive, Chinese tourists are eager to try the presidential “state banquet” to experience the authentic Taiwanese taste. IW9 noted that for this event his hotel has to not only purposely create the original state banquet fit for Chinese tourists, but also has to slightly adjust it to suit Chinese tastes which they never would for their local (domestic market) customers. These findings confirm how changing of Taiwan government policy, and its new leadership have influenced the culinary industry in two aspects, transportation issues and in the developmental creative responses, this corresponding with the conclusions of Puccio and Cabra (2010).

The findings of personal characteristics, social and technological factors demonstrate various levels of implications to culinary creativity development and this supports the views of Horng and Lee (2009).

#### **7.2.4 What are the implications of training as mediator in the culinary creativity development process?**

This research confirms that training as a mediator can enhance the development process of culinary creativity, through industry training programmes and academic research and development. Experts agreed that creativity can be in part inherited. However, training can bring out culinary creativity. They affirmed that culinary creativity requires to be built from a culinary foundation, the accumulation of experience, and a cultural background.



#### **7.2.4.1 Industry**

Participants agreed that training as a mediator can benefit the process of developing culinary creativity, especially on-the-job training in the industry. Some participants noted that, after accumulating experience and skills, on-the-job training can specifically train an individual to achieve their objectives. This outcome supports the idea that a training programme can motivate staff to have confidence to face new challenges (Wong and Peng, 2003, Ogilvie and Simms, 2009) and enhance competitive pressures within the business (Pratten, 2006). In addition, participants agreed training at least partly (Getz and Lubart, 2009) “can push less creative people into an acceptance of creativity and a willingness to plan with new concepts” (Coate and Jarratt, 1944:14) as well as enhancing competitive pressures within the business (Pratten, 2006). Similarly, the findings relating to training confirm Roffe’s (1999) views who saw creativity training as a benefit to an organization in four aspects: general, corporate strategy, corporate culture and creativity climate. As a result, training programmes can be advantageous to both organizational profitability and employee commitment.

#### **7.2.4.2 Academia**

The main focus on culinary creativity should be placed in the last year of the curriculum of a college degree. Few participants disagreed on the place of creativity courses within the academic curriculum. Mainly, they were concerned that students’ lack of experience and knowledge might cause confusion and give the wrong impression about creativity development. Instead of focusing on creativity, they suggested academia could provide basic courses which are related to creativity development. Educational courses can highly influence the future of culinary creativity development. Most participants indicated, a preference for, the last year of a college degree, when students return from internship programmes, their behaviour and thinking are much more mature than before. Thus, to foster creativity in the culinary curriculum, educators should gradually encourage students to be open-minded and adventurous. Some participants noted this would be like an experimental course rather than one purposely called “culinary creativity”.

The origin of the 4Ps model was proposed by Rhodes (1961) to apply to creativity in general. This research found that beside the 4Ps model, within the distinct characteristics of the culinary industry, Principle can be considered an important element of culinary creativity. As a result, a modified 5Ps model was proposed within this study. This outcome is acknowledged by constructing a model of culinary creativity to explain that it is part of creativity in general. The 5Ps model illustrates major factors in the development of culinary creativity. It can be advanced through training from industry and educating in academia in order to reach the final goal of creativity.

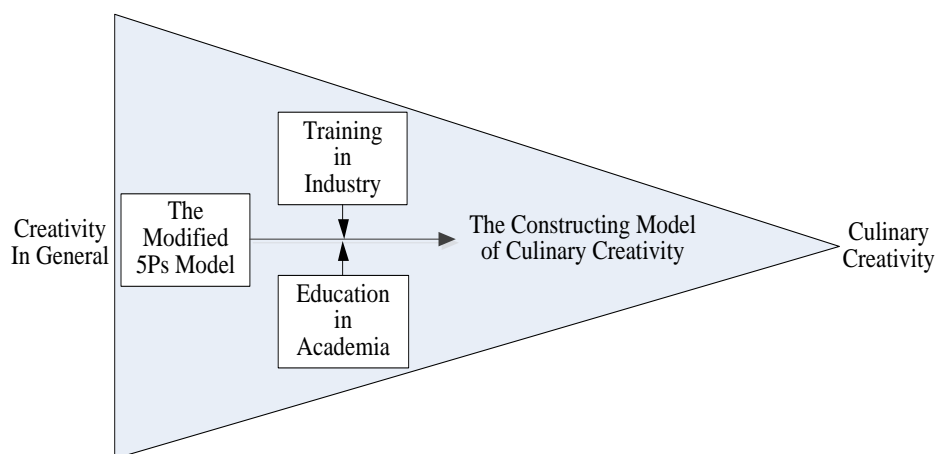


Figure 7.1 The Constructing Model of Culinary Creativity<sup>4</sup>

### 7.2.5 What are the gaps between academic and industry perspectives in creativity training development?

This research question addresses the findings of AHP and a modified Delphi technique. From the AHP method's findings, participants prioritized the elements of the 5Ps model, which assisted in revealing the separate perspectives of industry and academia. This follows a comparison of both perspectives. Moreover, the modified

<sup>4</sup> Source: Peng, K.L., Lin, M.C. and Baum, T. (2012)

Delphi technique findings reveal the gaps between academic and industry perspectives.

In terms of the 5Ps model findings from both groups, Product was chosen as the first priority in culinary creativity development, followed by Person, Process, Press, and Principle. The culinary product is the most obvious element because it appeals to customers' first impressions. In addition, all participants agreed that the product should have the characteristics of creative integration, competitiveness and originality. The findings revealed that creative integration is most significant to culinary creativity, followed by competitiveness and originality. Mainly, creative integration is the type of refinement that is required to fit into market demands and lead to customer satisfaction. Thus, product can be understood to be a first priority to both groups.

Person is chosen to be the first priority from an industry perspective, whereas Product is chosen to be the first priority by academic participants. From the perspective of business, maintaining a product of consistently high quality means having the right person in the right position producing a competitive product. The findings agreed with Ottenbacher and Harrington (2007) who note that the human factor (employees) plays a more important role in the innovation of fine dining than product innovation itself.

On the other hand, from the academic perspective, Product is chosen to be the first priority thus challenging the existing literature (for example, Runco 2008) From an educational perspective, Process is more important than Product. It is, Runco (2008) claims, a Process that is applied in developing creative Products. He states that education should enhance and enable the potential of the individual with noticeable creative performance.

In terms of the importance of Process to culinary creativity development, the four steps of the creative process (preparation, incubation, illumination and verification) (Wallas1926) were evaluated by participants. Both academic and industry groups

illustrate a similar outcome. They agreed that verification is the first priority and is followed by illumination, incubation and preparation. Verification is the ability to evaluate and determine a culinary creation which is an essential stage before presenting it to the market. Similarly, verification is rated highly in academia, where, even though it is unnecessary to output culinary creations, they must educate students to know how to value a product and understand its character. Thus, for everyone the creative process can be nurtured and encouraged by training and this finding supports Tardif and Stenberg (1988) and other authors such as Langly and Jones, Schank, Taylor and Torrance.

In terms of the Press and Principle factors, both main factors highlighted important implications for culinary creativity development (as already noted in section (7.2.2) in respect to Research Question 2).

From an academic perspective, culinary education trains and educates students from fundamental to professional skills and knowledge in order to have the ability to be creative and be accepted by the market. It follows that they have the task of inspiring students to develop creativity in the process (preparation, incubation, illumination, and verification). Academia focus on the outcomes of culinary education and process development, while industry focuses on the whole operation of the business, which includes human resource management, competitive products and product development.

From an expert panel, in the modified Delphi technique, the findings confirmed several factors which could be possible explanations for the gaps between industry and academia.

Firstly, there is a mismatch because the bright future in the industry as promised by academic achievement and a common reality in the industry.

With the popularity of TV cooking shows, parents and students have a positive vision of future career possibilities. In the same way, this issue supports the notion of

Severson (2007) that TV celebrity chefs have given a positive image to culinary education and the industry. However, students and parents are not aware of the nature of the culinary industry environment (Pratten, 2003). Some participants pointed to cases of their interviews with graduate students where students expect to be able to apply for at least semi-management position, chef de parti or sous chef in the industry on the basis of their cookery licences. However, participants noted that unless the applicant had worked in a similar position in a restaurant, the newly graduated student would have to work in a basic position. This outcome confirms the notion of Müller et al (2009:167) who found that

*“students enter culinary education with expectation of the experience they will gain and the skills/knowledge they will master. After graduation, they discover how prepared they are for a culinary career. Similarly, employers expect students to enter the work place with specific skills and abilities”.*

Participants pointed out that culinary education has gradually improved the culinary industry, in terms of the quality of employee. They agreed that with a culinary degree, an employee has a basic knowledge of management and professionalism which can fast track their rise in to the industry. In addition, a qualified employee has a better opportunity to be promoted to a higher position. This supports Johnson et al. (2005) who compared two routes to becoming a chef, discussing that academic graduates with a culinary degree opened their restaurants at a younger age than those with a traditional apprenticeship in industry. Therefore, during students’ academic learning, the educator should clearly establish an understanding of the culinary industry and its reality. In this way, graduate students can be fully prepared with confidence and motivation to work from a basic position.

Secondly, the gap between academia and industry lies in the lack of practical experience of the academic teachers.

With the ever-increasing culinary and hospitality schools, faculty members with similar culinary and hospitality backgrounds are rare. A majority of faculty members are from non-hospitality-related backgrounds, so they cannot fully demonstrate practice and theory. Participants pointed this out as a possible gap between academia

and industry. Mainly, students were not satisfied with their academic learning experience. In addition, industry chefs complained that academia did not teach the foundation skills. IW5 pointed out that 80% of graduates are not willing to continue their career in the culinary industry, mainly because academics are not professional enough to educate students. Both dilemmas can possibly decrease students' motivation and confidence to work in the culinary industry. As a result, it can be suggested that practical hands-on courses should be taught by fully-experienced industry chefs/managers. In the meantime, participants suggested academic faculties should take part in short-term internships to enhance their experience in culinary reality.

Thirdly, the gap between academia and industry is apparent in the cookery licence exam, which does not meet industry requirements.

The cookery licence qualification involves three aspects: student, academia and industry. The enrolment system in Taiwan for college level education results in students being distributed according to their examination results and willingness to choose different subjects and schools throughout Taiwan. Thus, not all enrolled culinary students have chosen to come to this subject of study. In addition, students come from various background of educations, such as normal senior high schools and vocational schools. Vocational students normally have grades one to three of level C cookery licences which means they have already learnt the basic skills and knowledge of these qualifications. Normal senior high school students may not have had the opportunity to learn related courses before entering university level education. Thus, the imbalance of student backgrounds leads to difficulties in planning for curriculum design as well as teaching in class. The findings suggest that perhaps schools could adopt the practice of Western countries where there is commonly a private enrolment system. In this way, schools can attract students with the motivation for studying in the culinary profession.

The cookery licence drives students to expect that it will bolster their application for a management position. However, the cookery licence is only a basic requirement for

the industry. The qualification is not a guarantee for a higher position in industry. While some participants were concerned about the relationship of the cookery licence to the budget for practical courses, a majority of participants noticed that the national cookery licence had a high impact on curriculum design. Mainly, because the number of students with cookery licences was counted as one of the university evaluation elements that can influence the rating of the department and also future governmental funding to the school. As a result, the cookery licence is a common requirement for students to gain before graduating from school. This means that educators are required to build the cookery licence into curriculum design to assist students to pass the licence exam. Perhaps, academia could offer a selective module for the cookery licence course so that students could choose according to their wishes. This could avoid repeating similar courses from vocational senior high school.

In the Chinese cookery licence exam, Chinese cuisine participants pointed out that cookery licence menus are not practical or authentic in the current culinary industry which undermines the meaning of taking the qualification. Yet some participants indicated that the budget for practical cookery courses can constrain educators' curriculum design. They also pointed out that the cookery licence and budget can limit students' culinary development. Perhaps experts could suggest to Taiwan Labour Affairs to adjust the Chinese cookery licence menu to gain recognition from academia and industry. In terms of the budget for practical cookery courses, educators should enter into discussion with their schools to resolve this issue.

Fourthly, experts agreed that there is a gap between academia and industry in the students' lack of foundation skills and practical experience. Experts agreed culinary creativity could be taught, and depending on personal characteristics each outcome would probably differ. However, more importantly, all participants stated culinary education should focus on foundation skills and practical experience development. Unlike singing and painting, cooking requires a basic understanding of cooking principles in order for students to advance to creativity. In terms of senior high school and college levels of education, experts agreed vocational senior high school

(hospitality education) should focus on: foundation, theory, which would include sanitation and hygiene, attitude and responsibility. At college level, the focus should be on developing mid-level management skills. Participants pointed out that internship programmes can close the gap between academia and industry. These programmes can benefit students not only to experience the culinary industry but also to put academic learning into practice. Additionally, academia and industry can work together to understand supply and demand factors in the labour market in order to offer a suitable programme to fit industry requirements.

Both AHP and modified Delphi techniques revealed the gaps between academia and industry from different angles. From a 5Ps model of AHP method, the findings confirmed from both the academia and industry perspective that, above all, creativity in the culinary industry is product-driven. From a modified Delphi technique, the expert panel agreed that there are some possible gaps between academia and industry. Firstly, the gap between academia and industry is that academia builds expectations in students and parents which are not met in the reality of industry. Secondly, the gap between academia and industry lies in the lack of practical experience of the academic teachers. Thirdly, the gap between academia and industry is apparent in the cookery licence exam, which does not meet industry requirements. Fourthly, experts agreed that the gap between academia and industry is highlighted in the students' lack of foundation skills and practical experience. Moreover, participants noted that industry is seeking to survive and make a profit, whereas academia is about advancing ideas at a higher level. Both industry and academia have different missions to achieve. Still, there are some alternative ways to close the gaps which require both to work together.

### 7.3 CONCLUSIONS

This chapter discusses the three phases of the findings and their links to literature, linked to consideration of the four research questions. The results provide some



insights into new directions for planning culinary creativity development, particularly within academia.

The role of creativity is considered to be a key business strategy for organizations and is product-driven in the culinary industry in Taiwan. Applied creativity in the culinary industry has distinctive characteristics which are different from creativity in general. In addition to the original 4Ps model of creativity (Rhodes, 1961), this research proposes the distinctive characteristics of culinary creativity to include a 5<sup>th</sup> principle: market acceptance, time limitations, practical experience, professional skills and culture. The 5Ps model of applied creativity in the culinary industry emphasizes the idea that culinary creativity requires a foundation of skills and experience to satisfy time limitations as well as create and meet the market demand. Thus, culinary creativity can be defined as being based on a foundation of traditional cuisine with various additional elements which build upon and extend culinary traditions so as to satisfy customers.

The AHP technique was used to prioritize and evaluate the components of the 5Ps model (Principle, Person, Press, Process and Product) of culinary creativity in academic and industry participants. In terms of personal characteristics and environmental factors of culinary creativity development, the findings confirmed there is a close relationship between them, which can affect creativity development. Based on the modified Delphi findings, this research confirmed that for applied creativity in the culinary industry, chefs are required to have motivation, expertise and creative thinking skills to develop their creativity. This is supported by the components of creative performance (Amabile, 1996).

In Phase Three, a modified Delphi technique adopts the expert panel to achieve its research purpose. This research acknowledges the potential issues of the expert as a concept. As recently as 20 years ago, there are only few international hotels in Taiwan and the industry was very immature. It is only in the last 10 years that local hotels and international hotels have slowly emerged and a recognisable international industry has been established. Therefore, there were not many well-trained and

experienced experts in Taiwan. The expert panel for this research are considered the elite group in Taiwan's culinary industry, able to provide informed opinion and offer a close-look at applied creativity in the culinary industry.

This research clarified the intermediate role of education and training, which can enhance the quality and quantity of culinary creativity. This research confirmed that culinary creativity can be developed through training and education. Lastly, this research uncovered several factors in the gaps between academia and industry which requires academia, industry and the government to work together in order to reduce the gaps and enhance the quality of culinary education in academia and industry. Thus, the research conclusions are presented in the next chapter (Chapter Eight).

## Chapter 8 CONCLUSIONS

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### 8.1 INTRODUCTION

This chapter leads study to a conclusion with consideration of the research questions for this research, theoretical and practical contribution of this study, limitations of the study, recommendations for further research and final reflections.

The aim of this research is to investigate training for culinary creativity through formative education in upscale hotels and restaurants in Taiwan. Based on the perspectives of industry and academic participants, this research seeks understanding of the role of applied creativity in the culinary industry and the implications of personal characteristics and environmental factors on the development of culinary creativity. In addition, this study seeks to investigate the impact of training as a mediator in the culinary creativity development process, by exploring gaps between academic and industry perspectives of creativity training and development.

From a position of philosophical pragmatism, this research applied three-phase sequential exploratory mixed methods to achieve its research aims and address its research questions. By applying a qualitative inductive approach, Phase One sought to explore the nature of culinary creativity with in-depth and semi-structure interviews. Findings from Phase One were used to develop Phase Two, an AHP questionnaire survey, to prioritize and evaluate participants' thoughts of culinary creativity. Finally, in Phase Three, a modified Delphi technique was employed to provide better understanding of the AHP and interview findings from a group of experts. The purpose of applying mixed methods was to distil and ascertain participants' opinions and thoughts on the development in culinary creativity. The research questions addressed in this research are as follows:

- What is the role of applied creativity in the upscale culinary industry?
- What are the implications of personal characteristics and environmental factors on culinary creativity development?
- What are the implications of training as a mediator in the culinary creativity development process?

- What are the gaps between academic and industry perspectives in creativity training development?

The findings indicated that the role of applied creativity in the upscale culinary industry has played a key role in the culinary revolution, which is considered as a leading trend to change customers' taste and dining experience. The role of applied creativity in the culinary industry has its own distinct characteristics, for example time limitations and market acceptance, which are acquired through building blocks of professional skills and experience. These distinct characteristics present the unique basic principle of creativity development in the culinary industry. To summarize participants' perspective of culinary creativity, that is based on the foundation of traditional cuisine by adding various elements in order to extend and escape from culinary traditions and satisfy customers. In terms of training, participants agreed that culinary creativity can be developed through training and education. Regarding gaps between industry and academia, this research reveals several possible factors which are a mismatch between students and the reality of industry, lack of practical experience of the educators, mismatch between cookery license qualifications and the industry requirements, and students lacking in foundation skills and practical experience.

The study contributes to an understanding of the role of applied creativity in the upscale culinary industry from the perspective of academic and industry chefs in a Chinese cultural context, specifically Taiwan. The 5Ps model explains the elements of culinary creativity development, which is applicable to enhance its value in culinary educational settings. This study provides evidence to show how training as a mediator in the culinary creativity process plays a significant role in culinary creativity development.

The research identified that gaps between industry and academia in the development of culinary creativity, cookery license-orientation and the lack of practical experience of the academic teachers with non-industry backgrounds (food science etc.) are the main concerns to most participants. This research extends understating

of creativity in the culinary industry which can be beneficial to culinary education for cultivating future chefs and improve the level of culinary industry.

## 8.2 CONTRIBUTION TO KNOWLEDGE

The purpose of this research was to investigate the role of training for creativity in the culinary industry, specifically the role of formative education. This research makes a valuable contribution at a number of levels, theoretical and practical. The study was distinctive because it used multiple research methods to assist the researcher to understand better the different aspect of culinary creativity development and to explore the gaps in creativity training between academic and industry perspectives.

### 8.2.1 Theoretical Contributions of the Research

This research has revealed valuable insights into the elements and relationships that influence creativity development in the culinary industry from the perspectives of industry and academia. This theoretical contribution could not be achieved through building upon existing knowledge. The majority of the literature relates to creativity in a general sense, with very limited empirical work on culinary creativity.

**The first objective was: to explore the role of applied creativity in the upscale culinary industry.**

This study contributes to understanding the role of applied creativity in the upscale culinary industry which has an important role in business strategy. To some extent, creativity in the culinary industry is a fashion (Horng and Hu, 2006) which can gradually lead customers' tastes to a different level in trends such as molecular cuisine. The consequences of culinary creativity can stand the test of time and challenging fashions. For example, sauce Hollandaise is one of the mother sauces which is still a classic and basic sauce to apply for many variations in Western cuisine. To extend this discussion, Peterson and Birg (1988) noted that chefs are like commercial artists. This research argues that, within the limitations of time and

customer-orientation, chefs can be considered as contemporary commercial artists who have to present their creations to meet current market demand and achieve profitability in the organization in order to survive in this competitive industry.

### **(1) The Characteristics of Culinary Creativity**

This study identified that the characteristics of culinary creativity are constrained by market acceptance (Getz and Lubart, 2009), time limitations (Peterson and Birg, 1988), professional skills (Horng and Lee, 2009) and practical experience. This study claims that practical experience is considered as an essential element in the development of culinary creativity. In particular, without standard operating procedure in Chinese cuisine kitchens, practical experience appears to be rather more important to Chinese cuisine chefs than Western cuisine chefs. In addition, both cuisine participants agreed that Chinese and Western cuisine have a similar development process in terms of creativity, the only difference is with respect to culture.

### **(2) Defining Culinary Creativity**

The only definition of creativity specifically relating to the culinary industry is that by Chossat and Gergaud (2003) who note that “in French culinary tradition, creativity is the refinement of classical or traditional culinary art” (Horng and Hu, 2006:376). To extend from Chossat and Gergaud (2003), culinary creativity as a type of rearrangement and addition to existing traditional or classical dishes that reflect the importance of foundation skills and experience. In addition, culinary creativity is commercially driven, which is a requirement to meet market demand and customer satisfaction. Therefore, this research proposes that culinary creativity is based on the foundation of traditional cuisine by adding various elements in order to extend and emerge from culinary traditions and satisfy contemporary customers.

### **(3) The 5Ps Model of Culinary Creativity**

Based on the distinctive characteristics of culinary creativity, the original 4Ps model (Person, Press, Process, Product) of creativity by Rhodes (1961) cannot fully satisfy

understanding of creativity in the culinary industry. Evidently, creativity in the culinary industry has its distinct characteristics: culture, time limitations, market acceptance, professional skills and practical experience. Culture is the origin of culinary creativity development. Culinary creativity is developed from fundamental skills and practical experience within limitation of time in order to be accepted by the current market. Accordingly, these five distinct characteristics, Principle, are considered as base element from culinary creativity. With support evidence from interviews (Chapter Four), a 5Ps model (Person, Press, Process, Product, and Principle) was proposed and verified in this research. The 5Ps model explains the key elements of culinary creativity development, which is applicable to enhance its value in the development of culinary creativity.

In terms of prioritizing the components of Principle, market acceptance appears the most important to the development of culinary creativity from industry participants whereas time limitations appears the most important to academic participants. This outcome illustrates that market acceptance is where customers satisfaction and profitability come from, which is directly to feedback from culinary creations. Conversely, in academia, success of culinary creativity is measured by the ability to develop a creation within strict limits of time. Time limitations acts as a determinant in cookery competitions and the cookery licence examination to ascertain the final results. As a result, time limitations is a basic discipline of culinary education in academia while market acceptance is the basic requirement of culinary creation to the industry.

**The second objective was: to investigate the influence of personal characteristics and environmental factors on culinary creativity development.**

Pervious literature relating to culinary creativity focused on personal characteristics, social and technological factors (Horng and Hu, 2008, Horng and Lee, 2009). Furthermore, this research argues that political and economic factors also demonstrate various levels of implications for the development of culinary creativity.

### **(1) Personal Characteristics**

In terms of prioritizing personal characteristics, experimenting appears to be the first priority to the industry participants whereas environmental setting appears to be the most important for academic participants. Thus this research claims that culinary creativity to the industry chefs focuses on developing new creations (experimenting) whereas to the academic chefs it focuses on adaptability to the environment. This research argues that culinary creativity is partly an inherited characteristic.

### **(2) Environmental Factors**

This research reveals that environmental factors (political, economic, social and technological) have various implications for the development of culinary creativity.

Firstly, in terms of prioritizing four environmental factors (political, economic, social and technological factors) in relations to the development of culinary creativity, economic factors appear to be the most significant to industry participants whereas technological factors appear to dominate for academic participants.

Economic factors are revealed as vital in the culinary industry, and mainly relate to internal organizational strategy, direction of creativity development and organizational human resource development plans as well as to external market demand.

Secondly, technological factors can enhance the development of culinary creativity. To extend technological factors from Horng and Lee (2006), this research contributes that culinary equipment can assist the development of culinary creativity, as well as produce consistent quality in creations. In addition, it can also reduce labour costs and energy efficiency.

Thirdly, this research addresses five elements within social factors includes culture, family, education, organizational climate, and market. Culture and family factors appear to extend the understanding of culinary creativity.



(a) Culture

This research reveals that culture in terms of culinary creativity development can be understood at three levels: as a learning platform to chefs, as a business strategy to organizations and as a meaningful tool (value) to customers. To the chef, culture is the origin of culinary creativity development which is related to a chef's background and history. Culture is also a starting point of a chef's culinary learning by exploring the culture behind its cuisine which leads chefs to have a comprehensive understanding of a dish in order to develop their own interpretation of creativity. To the organization, culture is a strategy for promoting culinary products. To customers, culture provides extra value by integrating historical and local information to produce meaningful value.

(b) Family

In terms of culinary family connections in Chinese culture this demonstrates an inclination to follow in footsteps. Similarly, Fine (1996) discusses that the European culinary family has a high influence to follow the footstep, whereas American culinary family tends not to encourage following the same career. More importantly, this culinary family connection was implications for their creativity and career development. Participants point out that they have been develop a critical taste of good food and sensitivity of the market which leads them to fit into the culinary industry faster than people who come from a non-culinary family. Thus to extend this discussion, the Chinese culinary family connection demonstrates a similar tendency to that in Europe to follow in the footsteps which enhances their confidence to advance their creativity.

Lastly, political factors are considered the least important to environmental factors. Mainly, the culinary industry and academia have no control of these factors. This research reveals that government policy and leadership demonstrate influence on creativity in the culinary industry, such as ingredient availability and the open market to Chinese tourism.

**The third objective was: to investigate the impact of training as a mediator in the culinary creativity development process.**

This research reveals that creativity in the culinary industry is product-oriented which is required to meet the market demand and the organizational profitability. Product is considered the most important to academia perspective, which challenges the existing literature by Runco (2008) who notes that from an educational perspective, Process is more significant than Product. He claims that education should enhance and enable the potential of the individual with noticeable creative performance. Both industry and academic participants agree that culinary creativity is product-oriented which indicates the importance of training for culinary creativity towards conclusion of the study period.

In terms of prioritizing the four steps of creative Process (preparation, incubation, illumination and verification) by Wallas (1926), both industry and academia participants illustrate a similar outcome. Verification appears the most important and followed by illumination, incubation and preparation. Verification is a step before presenting culinary creation to the market that chefs are required to have ability to evaluate and ascertain the culinary creation. Correspondingly, academic educators are needed to educate students how to value a culinary product and understand its character.

This research reveals that culinary creative product should have the characteristics of originality, competitiveness and creative integration. In terms of prioritizing the components of Product, creative integration to culinary creativity is the most important followed by competitiveness and originality. It is because culinary creativity is more like a refinement and rearrangement. Creative integration can demonstrate the creation of essence of culinary creativity, in terms of skills, flavour harmony and final presentation. Once creative integration is achieved, naturally this culinary creation has its own originality to become a competitive product in the market.

**The fourth objective was: to explore gaps in creativity training development between academic and industry perspectives.**

This research reveals two factors, which could be possible factors in the gaps between industry and academia. Firstly, the gap between academia and industry lies in the lack of practical experience of the academic teachers. With the ever-increasing culinary and hospitality schools, faculties with similar culinary and hospitality backgrounds are rather insufficient (Yang, 2012). A majority of faculties are from non-hospitality-related background, so they cannot fully illustrate culinary practice and theory. Consequently, the quality of educators is the key success of culinary education, which can influence students in developing their culinary creativity. Secondly, the gap between academia and industry is apparent in the cookery licence exam, which does not meet industry requirements. Both academia and industry confirm that the cookery licence qualification is considered as a constrained factor to the development of culinary creativity. Mainly, the number of qualifications are relate to the rating to the school and department which can influence future governmental funding. As a result, the cookery licence menu is planned in the curriculum that students are required to achieve the basic C level in order to achieve the graduate requirement. A majority of participants found cookery licence does not practically authentic or match with current market menu. In addition, students expect that level B qualification can assist them to work in the culinary industry at least chef de parti position which does not meet industry requirement. Thus to place the cookery qualification into curriculum is not only occupy the whole semester of cookery courses but also prohibit students to learn other foundation skills to develop their creativity. As a result, the cookery licence qualification does not meet industry requirements, which is considered the gap between academia and industry to constrain the culinary creativity in the curriculum design.

This study contributes an understanding of gaps between academia and industry which can be summarized that academia is required to have well-experienced culinary educators in order to enhance students' foundation skills and practical experience for future culinary development. The cookery license qualification does

not meet the industry expectation, which is required to modify to match with current market and without missing the traditions in order to be taught in academia and be accepted by industry.

### **8.2.2 Practical Implications of the Research**

This research presents a rich account of the role of applied creativity in the upscale culinary industry. It offers insight into how industry and academic participants perceive the development of culinary creativity from the role of formative education, and illustrates relevant impact factors to its development. This study explores the gaps in creativity training between industry and academic perspectives, specifically highlighting the challenges and opportunities for future educational planning.

The research identified that the role of applied creativity in the upscale culinary industry is considered as a business strategy. Culinary creativity has its own distinct characteristics and its final goal is to satisfy customers, meet market demand, and create profitability to the organization in order to survive in this competitive industry. Culinary creativity demonstrates many benefits not only to customers and organizations but also to chefs and the overall status of the culinary industry.

In terms of practical implications of the study, the researcher uses her own interpretation as a culinary educator, international judge and chef to present what creativity means to the culinary industry and academia within Chinese culture. Overall the culinary industry in Chinese culture is progressively moving from a conservative to an open-minded industry. Especially, culinary creativity is changing and improving because industry chefs are required to open their minds to absorb new trends of culinary fashion in order to ignite their creativity. Still, in Chinese cuisine kitchens, conservative career development, a hierarchical system, and 'holding back a trick' (Horng and Hu, 2008) exist in the current industry. These issues mean that Chinese cuisine cannot progress as fast as Western cuisine. The progress of Chinese cuisine still remains embedded in the same techniques and skills unlike Western cuisine which utilizes modern technologies to improve culinary creation and product

consistency. In addition, standard operations procedures in the Western cuisine kitchen are extensively applied which enhances adaptability to produce consistent products and extend their learning to know how to prepare dishes properly.

Consequently, organizational culture is critical to the development of culinary creativity. Depending on the strategy and attitude of the organization to culinary creativity, chefs can be encouraged or discouraged to develop their creativity. A majority of participants indicated that their hotels and restaurants tend to encourage their creativity development through periodic kitchen-to-kitchen competitions through to the national and international level. One participant noted that a creative dish should be able to be placed on the menu and produced in a practical kitchen. This demonstrates that in a practical sense, culinary creativity is commercially driven. It should be able to be reproduced and adjusted to meet market demand and satisfaction. On the other hand, not all of the organizations support culinary creation. The theme of the restaurants and organizational strategies are different, for example, it may be a traditional Chinese fine dining restaurant. However, without integrating creative thought into product, chefs cannot make progress in their culinary profession. As a result, culinary creativity should still be encouraged at various levels and is needed in order to survive in this competitive industry.

From an academic viewpoint, school is a place to nurture future chefs. This research confirmed that training can act as a mediator to bring out creativity. Therefore, culinary education plays an important role to develop future chef creativity through the learning process. Besides focusing on the fundamental skills and professional knowledge, curriculum design should demonstrate a balance of theoretical and practical courses. Educators should be familiar with the current industry developments in order to introduce and inspire students' creativity development.

In addition, in the educational environment in Taiwan, students tend to passive obedience in their learning which leads them missing their own opinions in developing creative ideas and solving problems. This is often seen in culinary competitions where students lack their own independent ideas, and mainly depend on

their teachers. When changing the competition task or ingredients, students tend to lose their adaptability and flexibility to accomplish their final products.

Perhaps parents and educators in Chinese culture are likely to be over caring of their children and students, which raises the issue of active learning and independent thinking abilities. Therefore, to foster students to have independent problem solving skills and active learning environment are vital to culinary creativity development. Without a doubt, culinary education has gradually improved the status of the culinary industry. Culinary academia and industry should closely interconnect to share its resources and knowledge in order to reduce the gaps between them.

The role of applied creativity in the upscale culinary industry is a vital business strategy, which can be presented from creative service to culinary creations. The example of the well-known hot pot restaurants in Taiwan, where they subvert the image of typical hot pot dining by establishing their own special 90-degree bow to their service to customers, providing a Zen style of ambience and offering authentic and creative hot pot which customers to queue every day. In addition, they offer competitive benefits (annual bonus from 7 months to 16 months of salary) to their employees to reduce the high labour turnover rate, which is considered one of the best organizations to work for in the Taiwanese culinary industry. This demonstrates that creativity can be formed in any type and level of restaurants from food to service. More importantly, organizations should provide a positive and supportive climate to motivate their employees to advance their creativity in order to create a demand, satisfy customers' needs and achieve organisational goals.

### 8.3 APPLIED RECOMMENDATIONS

This research purposely investigated applied culinary creativity from both academia and industry to seek an understanding of the role of applied creativity in the upscale culinary industry and how future education and training can meet industry demand. To culinary industry in Taiwan, this research makes the following suggestions:

- Provide a positive work environment. For example, some hotels encourage staff to attend national and international competitions. Competitions and rewards can stimulate creativity development and yield a more original menu.
- Provide appropriate training and education for different levels of staff. For example, chef de parti should have basic menu planning skills and kitchen management skills. HR can set up courses for specific employees to enhance their abilities to develop their skills.

To culinary academia in Taiwan, this research makes the following suggestions:

- Schools should strike a balance between practical and theoretical courses.
- Culinary educators should continuously update their knowledge and skills to educate students with current industry trends.
- Both academia and industry should closely communicate so as to improve the status of the culinary industry and nurture more talented chefs. For example, academia should invite industry managers and chefs to plan their curriculum, internship programmes and job fairs.

#### 8.4 LIMITATIONS OF THE STUDY

There are certain limitations to this study and it is suggested that some of these limitations may offer opportunities for future research.

The first limitation relates to the same sample of respondents within the three Phases of this mixed methods study. This research applied the same sample of respondents for Phase One qualitative method and Phase Two quantitative method. Mainly, this study begins with an exploratory study and applies the interviews to Phase Two to prioritize the elements of culinary creativity. With a sequential data collection design, both data are interconnected which means it is possible to build one on the other. In addition, the sample of respondents either currently or used to work in five star hotels and upscale restaurants, which may offer a better working environment and wilder benefits than mid-level restaurants.

The second limitation relates to qualitative methods that cannot represent whole target populations. This research applied face-to-face interviews to provide information filtered through the views of interviewees. The researcher's

interpretation of these views may bias responses and not all participants are equally articulate and perceptive (Creswell, 2009).

The third limitation relates to Phase Two quantitative methods of AHP, the major concern of this method is the complicated style of the questionnaire. This can be problematic and confusing for participants to understand how to answer properly.

The fourth limitation relates to the Phase Three quantitative method of modified Delphi technique, the major concern of this method is the qualifications of the experts (Powell, 2003). With the researcher's own personal industry and academic connection, experts were carefully reviewed and considered with their achievements and experience in the culinary industry in order to achieve the research purpose. However, the qualification of experts can be considered as potential bias and limitation.

The last limitation relates to language barriers and translation. This research fieldwork was collected in Taiwan in which three phases of research methods were conducted in Mandarin and Taiwanese. The researcher is non-native English speaker so to present this research in English can face the impact of language barriers and translation limitations.

## 8.5 RECOMMENDATION FOR FURTHER RESEARCH

According to Horng and Hu (2008), research into creativity in the culinary field has been limited. Therefore, for further research in this field, it can be recommended focusing on four main fields: type of cuisine, industry, academia, and cross-culture study.

Firstly, further research recommendations include the focusing on either the culinary industry or culinary education context. In the culinary industry context, the further research can investigate three perspectives, chefs, customers and restaurants. In the culinary education context, the focus could be on comparison of graduate students



and current students' expectations of culinary education and culinary creativity learning outcomes.

Secondly, by replicating the study, further research recommendations are to apply the approach in different cultural contexts and/or through cross-cultural comparison. However, this will require having strong industry and academic connections in order to achieve this in different cultural settings.

Lastly, by applying different methods, further research might explore the 5Ps model from different perspectives. For example, through use of other multi-criteria decision making methods, such as the ANP (Analytical Network Process). ANP is a generic structure of AHP that allows for more complex interdependent, relationships and feedback among elements in the Hierarchy (Satty, 2001 cited in Sipahi and Timor, 2010). By applying the ANP technique, further research can investigate from different angle and have more flexibility to adjust research with feedback and weighting of elements.

## 8.6 FINAL REFLECTIONS

Food is considered as a reflection of the distribution of power within social structures (Mennell, 1985, cited in Reliey, 2000). The culinary industry can be a part of the tourism industry and the tourism industry may be considered as a part of creative industries. The logically connection between cuisine and tourism is based on the degree that cuisine is part of social culture and national identity (Reliey, 2000) and the role that food plays in the touristic experience.

Creative industries are increasingly significant to today's national economies and are becoming a crucial factor underpinning global competitive advantage (Scottish Enterprise, 1999). The vision of creative industries is to "have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property" (Scottish Enterprise, 1999:4). By combining local culture and culinary creativity, cuisine can

serve as a booster to enhance and promote the tourism industry. The conclusion draws the blueprint of a vision of culinary creativity.

This research draws attention to the important role of creativity in the upscale culinary industry which underpins the distinctive characteristics of culinary creativity. Culinary creativity is required to be built from a culinary foundation and the accumulation of experience that encompasses colour, smell and taste and a sense of the aesthetic. The final goal of culinary creativity is to satisfy customers and make a profit in order to survive in a competitive culinary industry. This research argued that within time limitations and customer-orientation, chefs can be considered as contemporary commercial artists who have to meet the current market demand and achieve profit for organizations. In terms of defining creativity in the culinary industry, it can be seen that culinary creativity is based on the foundations of traditional cuisine by adding various elements in order to extend and escape from culinary traditions and satisfy customers.

Through this research it was recognized that the original 4Ps model of creativity by Rhodes (1961) cannot fulfil the characteristics of creativity in the culinary industry. Mainly, culinary creativity requires specific skills and experience in order to produce a creation, which can meet market demand and create profit. Based on the distinct characteristics of the culinary industry, a modified 5Ps model was proposed and tested through AHP technique. The results assist the researcher to analyse industry and academia separately followed by a comparison of both perspectives in terms of prioritized and evaluated the components of culinary creativity.

This research highlights the gaps of culinary creativity between industry and academia from different angles, which develops an important understanding in the planning of culinary education. As a consequence, culinary education needs to work alongside government policy, academia and industry in order to close the potential gaps between academia and industry. Lastly, culinary education and culinary training are vital in building and nourishing creativity development which would be beneficial to advance the level of the workforce in the culinary industry.

Additionally, culinary education can improve the quality and quantity of culinary creation in the future.

Looking back at this research journey, the researcher learned many things during this journey, not only in the field of culinary education, but also reconnecting with industry and improving research skills and techniques. At this moment, she felt this journey is a looking through a different set of lenses which opens her view of looking at this world differently.

The researcher appreciated participants' support and their valuable time to reveal much of their work through openness to this research. Based on her professional background within the culinary industry and academia, she hopes that the interpretation of this research can provide legitimate and valid research into training for culinary creativity and the role of formative education. In addition, this research can contribute to industry and academia debate about training in culinary creativity. Lastly, the researcher hopes this milestone can be a part of a contribution to construct training for culinary creativity for a better quality of culinary education and improve the level of the culinary industry.

As an international culinary judge and expert, the researcher is looking forward to take this research as the first step and to extend it to the international level. In addition, the researcher is hoping to apply this research to a survey to the experts and contestants from all over the world in the Workskills Competition 2014 in Germany in order to gain understanding from different cultural perspectives.

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## APPENDIX 1: ACADEMIC PARTICIPANTS

| <i>Code</i> | <i>Gender</i> | <i>Expert</i> | <i>Current<br/>Position</i> | <i>Industry/<br/>Academic<br/>Experience</i> | <i>Achievement</i>  |
|-------------|---------------|---------------|-----------------------------|--|---|
| AC1         | Male          | √             | Head of<br>Department       | A: 3Years<br>I: 40Years                      | Cookery Licence Committee<br>Executive Chef   |
| AC2         | Male          | √             | Assistant<br>Professor      | A: 6 Years<br>I: 28 Years                    | Cookery Licence Committee   |
| AC3         | Male          | √             | Assistant<br>Professor      | A: 2 Years<br>I: 40 Years                    | Cookery Licence Committee<br>Chinese Taipei Food Show<br>Committee<br>Executive Chef Director of<br>FandB<br>Trained in Japan |
| AC4         | Male          | √             | Assistant<br>Professor      | A: 6 Years<br>I: 37 Years                    | Cookery Licence Committee<br>Presidential Chef<br>Chef  |
| AC5         | Male          | √             | Professor                   | A: 14<br>Years<br>I: 47 Years                | Cookery Licence Committee<br>Taiwan Top 10 Technician   |
| AC6         | Male          |               | Assistant<br>Professor      | A: 7 Years<br>I: 22 Years                    | Cookery Licence Committee<br>Chef   |
| AC7         | Male          |               | Assistant<br>Professor      | A: 12<br>Years<br>I: 20 Years                | Cookery Licence Committee<br>Chef   |
| AC8         | Male          |               | Associate<br>Professor      | A: 7 Years<br>I: 40 Years                    | Chinese Taipei Food Show<br>Committee<br>Cookery Licence Committee<br>Cookery Judge<br>Executive Chef Trained in              |

| <i>Code</i> | <i>Gender</i> | <i>Expert</i> | <i>Current<br/>Position</i> | <i>Industry/<br/>Academic<br/>Experience</i> | <i>Achievement</i>   |
|-------------|---------------|---------------|-----------------------------|--|--|
|             |               |               |                             |  | Japan  |
| AC9         | Male          |               | Assistant<br>Professor      | A: 7 Years<br>I: 35 Years                    | Cookery Licence Committee<br>Cookery Judge<br>Taiwan Top 10 Technician   |
| AW1         | Male          | √             | Assistant<br>Professor      | A: 5 Years<br>I: 35 Years                    | Cookery Licence Committee<br>Cookery Judge<br>Executive Chef Trained in<br>France  |
| AW2         | Male          | √             | Associate<br>Professor      | A: 14<br>Years<br>I: 25 Years                | Cookery Licence Committee<br>Intentional Cookery Judge<br>Trained in the Culinary<br>Institute of America<br>Executive sous Chef |
| AW3         | Male          | √             | Associate<br>Professor      | A: 10<br>Years<br>I: 30 Years                | Cookery Licence Committee<br>International Cookery Judge<br>Chief of Taiwan Culinary<br>Academy<br>Executive Chef                |
| AW4         | Male          |               | Professor                   | A: 7 Years<br>I: 37 Years                    | Cookery Licence Committee<br>Cookery Judge<br>Chef   |
| AW5         | Male          |               | Associate<br>Professor      | A: 7 Years<br>I: 23 Years                    | Executive Chef<br>Trained in Group<br>PualBocus, UFM Thai<br>cooking school  |
| AW6         | Male          |               | Trainer                     | I: 25 Years                                  | Cookery Licence Committee  |



| <i>Code</i> | <i>Gender</i> | <i>Expert</i> | <i>Current<br/>Position</i> | <i>Industry/<br/>Academic<br/>Experience</i> | <i>Achievement</i>                                 |
|-------------|---------------|---------------|-----------------------------|--|--|
|             |               |               |                             |  | Cookery Judge                                      |
| AW7         | Male          |               | Assistant<br>Professor      | I: 22 Years                                  | Cookery Licence Committee<br>Cookery Judge<br>Chef |

## APPENDIX 2: INDUSTRY PARTICIPANTS

| <i>Code</i> | <i>Gender</i> | <i>Expert</i> | <i>Current Position</i>       | <i>Industry/<br/>Academic<br/>Work Experience</i> | <i>Achievement</i>   |
|-------------|---------------|---------------|-------------------------------|---|--|
| IW1         | Male          | √             | Chef                          | I: 25 Years                                       | Cookery Licence<br>Committee   |
| IW2         | Male          | √             | Executive<br>Chef             | I: 25 Years                                       | Cookery Licence<br>Committee   |
| IW3         | Male          | √             | Executive<br>Chef             | I: 26 Years                                       |  |
| IW4         | Male          | √             | Director of<br>Culinary Dept  | I:23 Years  | Trained in France  |
| IW5         | Male          | √             | General<br>Manager            | I:38 Years  | Trained in<br>Thailand, France   |
| IW6         | Male          |               | Chef                          | I:25 Years  |  |
| IW7         | Male          |               | Chef                          | I: 26 Years                                       |  |
| IW8         | Male          |               | Owner                         | I: 40 Years                                       | Best Tepanyakki<br>in Taiwan   |
| IW9         | Male          |               | Manager/<br>Executive<br>Chef | I: 26 Years                                       | Cookery Licence<br>Committee<br>Cookery Judge                            |
| IW10        | Male          |               | Owner                         | I: 39 Years                                       | Trained in<br>Australia, USA,<br>Canada and Swiss<br>International Judge |
| IW11        | Male          |               | Chef                          | I: 28 Years                                       |  |
| IW12        | Male          |               | Chef                          | I: 22 Years                                       |  |
| IW13        | Male          |               | Executive<br>Sous Chef        | I:24 Years  |  |

|     |      |   |                   |             |   |
|-----|------|---|-------------------|-------------|---|
| IC1 | Male | √ | Executive<br>Chef | I: 36 Years | Chinese Taipei<br>Food Show<br>Committee<br>Executive Chef<br>Presidential Chef |
| IC2 | Male | √ | Executive<br>Chef | I :45 Years | Chinese Taipei<br>Food Show<br>Committee  |
| IC3 | Male | √ | Executive<br>Chef | I:36 Years  | Cookery Judge<br>Trained in Hong<br>Kong  |
| IC4 | Male |   | Owner/Manger      | I: 25 Years | Best Regional<br>Restaurant   |
| IC5 | Male |   | Chef              | I: 23 Years | Trained in Hong<br>Kong   |
| IC6 | Male |   | Chef              | I: 22Years  | Trained in Hong<br>Kong   |
| IC7 | Male |   | Executive<br>Chef | I: 37 Years | Cookery Judge   |

## APPENDIX 3: INTERVIEW QUESTIONS

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### Defining Culinary Creativity

- What is nature of culinary creativity in the hospitality industry?
- What is the role of applied creativity in culinary industry?
- What is the difference between culinary creativity and creativity in general?
- What are the differences between Western cuisine and Chinese cuisine chefs' perspective of culinary creativity and development?

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### Training and Education

- Is it possible to train for culinary creativity?
- How does culinary creativity fit into curriculum design in education?
- Is there a different structure of creativity development in training and educating within the two main cuisines?
- What are the internal impact factors to the culinary creativity process?
- What are the external impact factors to the culinary creativity process?

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### Gaps between Industry and Academia

- What are the gaps between academia and industry perspectives in terms of creativity training development?
  - What can industry do to enhance creativity development?
  - What can academia do to enhance creativity development?
-

## APPENDIX 4: AHP QUESTIONNAIRE SAMPLE (CHINESE)

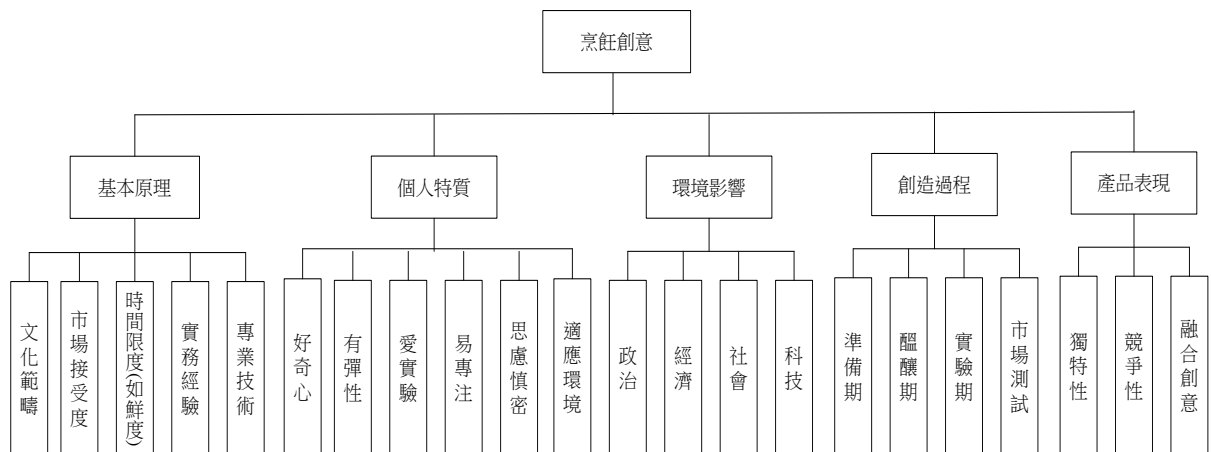
### 烹飪創意 AHP 問卷

親愛的陳主廚，您好，

本問卷為一份學術性問卷，欲借重您在餐飲業界的專業知識與經驗深入分析烹飪創意，研究成果期能為餐飲業界帶入更多元更精緻的創意元素，亦期能為餐飲教育與訓練造就更多的創意人才；您的意見至為重要，並深深感謝您的指教。

後學

林明珠敬上



圖一、本問卷之烹飪創意架構圖

本問卷填寫**參考範例**：

**直觀的比較左右兩邊的因素，那邊重要往那邊勾選，愈重要則愈靠近該因素。**

- 若您認為主廚的養成為「經驗」比「技巧」**稍微**重要，則將”v”填靠「經驗」。

| 準則 A | 準則 A 較重要 ← 一樣重要 → 準則 B 較重要 |     |     |     |     |     |     |     |     | 準則 B |
|------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|
|      | 9:1                        | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |      |
| 技巧   |                            |     |     |     |     | v   |     |     |     | 經驗   |

- 若您認為主廚的養成為「經驗」與「技巧」**一樣**重要，則將”v”填靠中間處。

| 準則 A | 準則 A 較重要 ← 一樣重要 → 準則 B 較重要 |     |     |     |     |     |     |     |     | 準則 B |
|------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|
|      | 9:1                        | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |      |
| 技巧   |                            |     |     |     | v   |     |     |     |     | 經驗   |

- 若您認為主廚的養成為「技巧」比「經驗」**重要很多**，則將”v”填靠「技巧」。

| 準則 A | 準則 A 較重要 ← 一樣重要 → 準則 B 較重要 |     |     |     |     |     |     |     |     | 準則 B |
|------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|
|      | 9:1                        | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |      |
| 技巧   | v                          |     |     |     |     |     |     |     |     | 經驗   |

### 本問卷正式填寫開始

表 1 主廚創意準則分析-5Ps 模式

| 準則 A | 準則 A 較重要 ← 一樣重要 → 準則 B 較重要 |     |     |     |     |     |     |     |     | 準則 B |
|------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|
|      | 9:1                        | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |      |
| 基本原理 |                            |     |     |     |     |     |     |     |     | 個人特質 |
| 基本原理 |                            |     |     |     |     |     |     |     |     | 環境影響 |
| 基本原理 |                            |     |     |     |     |     |     |     |     | 創造過程 |
| 基本原理 |                            |     |     |     |     |     |     |     |     | 產品表現 |
| 個人特質 |                            |     |     |     |     |     |     |     |     | 環境影響 |
| 個人特質 |                            |     |     |     |     |     |     |     |     | 創造過程 |
| 個人特質 |                            |     |     |     |     |     |     |     |     | 產品表現 |
| 環境影響 |                            |     |     |     |     |     |     |     |     | 創造過程 |
| 環境影響 |                            |     |     |     |     |     |     |     |     | 產品表現 |
| 創造過程 |                            |     |     |     |     |     |     |     |     | 產品表現 |

表 2 主廚創意準則分析-基本原理項目

| 準則 A              | 準則 A 較重要 ← 一樣重要 → 準則 B 較重要 |     |     |     |     |     |     |     |     | 準則 B            |
|-------------------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|
|                   | 9:1                        | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |                 |
| 文化範疇<br>(如中、西餐文化) |                            |     |     |     |     |     |     |     |     | 市場接受度           |
| 文化範疇              |                            |     |     |     |     |     |     |     |     | 時間限度<br>(如食物鮮度) |
| 文化範疇              |                            |     |     |     |     |     |     |     |     | 實務經驗            |
| 文化範疇              |                            |     |     |     |     |     |     |     |     | 專業技術            |
| 市場接受度             |                            |     |     |     |     |     |     |     |     | 時間限度<br>(如食物鮮度) |
| 市場接受度             |                            |     |     |     |     |     |     |     |     | 實務經驗            |
| 市場接受度             |                            |     |     |     |     |     |     |     |     | 專業技術            |
| 時間限度<br>(如食物鮮度)   |                            |     |     |     |     |     |     |     |     | 實務經驗            |
| 時間限制              |                            |     |     |     |     |     |     |     |     | 專業技術            |
| 實務經驗              |                            |     |     |     |     |     |     |     |     | 專業技術            |

表 3 主廚創意準則分析-個人特質

| 準則 A | 準則 A 較重要 ← 一樣重要 → 準則 B 較重要 |     |     |     |     |     |     |     |     | 準則 B |
|------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|
|      | 9:1                        | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |      |
| 好奇心  |                            |     |     |     |     |     |     |     |     | 有彈性  |
| 好奇心  |                            |     |     |     |     |     |     |     |     | 愛實驗  |
| 好奇心  |                            |     |     |     |     |     |     |     |     | 易專注  |
| 好奇心  |                            |     |     |     |     |     |     |     |     | 思慮慎密 |
| 好奇心  |                            |     |     |     |     |     |     |     |     | 適應環境 |
| 有彈性  |                            |     |     |     |     |     |     |     |     | 愛實驗  |
| 有彈性  |                            |     |     |     |     |     |     |     |     | 易專注  |
| 有彈性  |                            |     |     |     |     |     |     |     |     | 思慮慎密 |
| 有彈性  |                            |     |     |     |     |     |     |     |     | 適應環境 |
| 愛實驗  |                            |     |     |     |     |     |     |     |     | 易專注  |

| 準則 A | 準則 A 較重要 ← 一樣重要 → 準則 B 較重要 |     |     |     |     |     |     |     |     | 準則 B |
|------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|
|      | 9:1                        | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |      |
| 愛實驗  |                            |     |     |     |     |     |     |     |     | 思慮慎密 |
| 愛實驗  |                            |     |     |     |     |     |     |     |     | 適應環境 |
| 易專注  |                            |     |     |     |     |     |     |     |     | 思慮慎密 |
| 易專注  |                            |     |     |     |     |     |     |     |     | 適應環境 |
| 思慮慎密 |                            |     |     |     |     |     |     |     |     | 適應環境 |

表 4 主廚創意準則分析-環境影響

| 準則 A | 準則 A 較重要 ← 一樣重要 → 準則 B 較重要 |     |     |     |     |     |     |     |     | 準則 B |
|------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|
|      | 9:1                        | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |      |
| 政治環境 |                            |     |     |     |     |     |     |     |     | 經濟環境 |
| 政治環境 |                            |     |     |     |     |     |     |     |     | 社會環境 |
| 政治環境 |                            |     |     |     |     |     |     |     |     | 科技環境 |
| 經濟環境 |                            |     |     |     |     |     |     |     |     | 社會環境 |
| 經濟環境 |                            |     |     |     |     |     |     |     |     | 科技環境 |
| 社會環境 |                            |     |     |     |     |     |     |     |     | 科技環境 |

表 5 主廚創意準則分析-創意過程

| 準則 A | 準則 A 較重要 ← 一樣重要 → 準則 B 較重要 |     |     |     |     |     |     |     |     | 準則 B |
|------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|
|      | 9:1                        | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |      |
| 準備期  |                            |     |     |     |     |     |     |     |     | 醞釀期  |
| 準備期  |                            |     |     |     |     |     |     |     |     | 實驗期  |
| 準備期  |                            |     |     |     |     |     |     |     |     | 市場測試 |
| 醞釀期  |                            |     |     |     |     |     |     |     |     | 實驗期  |
| 醞釀期  |                            |     |     |     |     |     |     |     |     | 市場測試 |
| 實驗期  |                            |     |     |     |     |     |     |     |     | 市場測試 |



表 6 主廚創意準則分析-產品表現

| 準則 A | 準則 A 較重要 ← 一樣重要 → 準則 B 較重要 |     |     |     |     |     |     |     |     | 準則 B |
|------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|
|      | 9:1                        | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |      |
| 獨特性  |                            |     |     |     |     |     |     |     |     | 競爭性  |
| 獨特性  |                            |     |     |     |     |     |     |     |     | 融合創意 |
| 競爭性  |                            |     |     |     |     |     |     |     |     | 融合創意 |

## APPENDIX 5: AHP QUESTIONNAIRE SAMPLE (ENGLISH)

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Example : To choose a restaurant service vs. location. If you think location is more important, you can tick toward location. The closer to location means location is more important.

The intensity of importance:

|   |                        |
|---|------------------------|
| 1 | Equal importance       |
| 3 | Moderate Importance    |
| 5 | Strong Importance      |
| 7 | Very Strong Importance |
| 9 | Extreme Importance     |

By ticking  $\surd$  1:9, this table indicates that location is 9 point (the most important) and service 1 (the least important).

| A       | A More Important ← Equal Important → B More Important |     |     |     |     |     |     |     |         | B        |
|---------|---|-----|-----|-----|-----|-----|-----|-----|---------|----------|
|         | 9:1   | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9     |          |
| Service |   |     |     |     |     |     |     |     | $\surd$ | Location |

By ticking  $\surd$  1:1, this table indicates that service and location are equally important.

| A       | A More Important ← Equal Important → B More Important |     |     |     |         |     |     |     |     | B        |
|---------|---|-----|-----|-----|---------|-----|-----|-----|-----|----------|
|         | 9:1   | 7:1 | 5:1 | 3:1 | 1:1     | 1:3 | 1:5 | 1:7 | 1:9 |          |
| Service |   |     |     |     | $\surd$ |     |     |     |     | Location |

By ticking  $\surd$  9:1, this table indicates that service is 9 point (the most important) and location is 1 point (the least important).

| A       | A More Important ← Equal Important → B More Important |     |     |     |     |     |     |     |     | B        |
|---------|---|-----|-----|-----|-----|-----|-----|-----|-----|----------|
|         | 9:1   | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |          |
| Service | $\surd$   |     |     |     |     |     |     |     |     | Location |

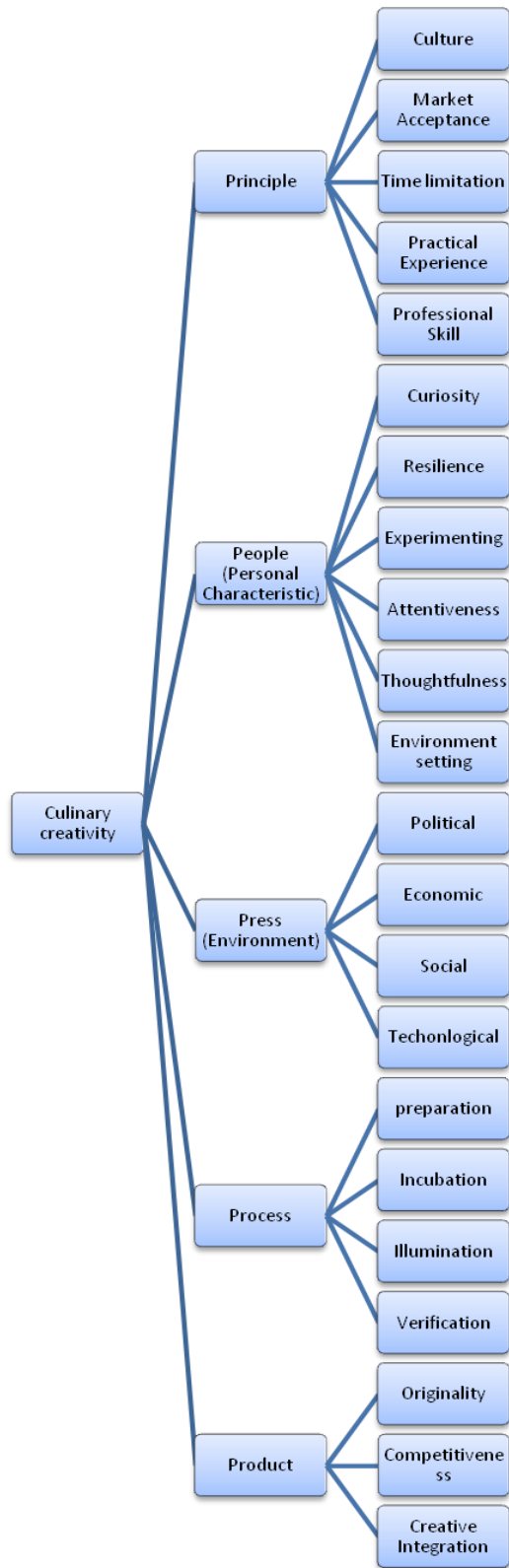


Figure A5-1 Research Framework

-----Start this AHP questionnaire-----

Chart1 Culinary creativity 5Ps analysis

| A          | A More Important ← Equal Important → B More Important |     |     |     |     |     |     |     |     | B          |
|------------|---|-----|-----|-----|-----|-----|-----|-----|-----|------------|
|            | 9:1   | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |            |
| Principle  |   |     |     |     |     |     |     |     |     | People(PC) |
| Principle  |   |     |     |     |     |     |     |     |     | Press      |
| Principle  |   |     |     |     |     |     |     |     |     | Process    |
| Principle  |   |     |     |     |     |     |     |     |     | Product    |
| People(PC) |   |     |     |     |     |     |     |     |     | Press      |
| People(PC) |   |     |     |     |     |     |     |     |     | Process    |
| People(PC) |   |     |     |     |     |     |     |     |     | Product    |
| Press      |   |     |     |     |     |     |     |     |     | Process    |
| Press      |   |     |     |     |     |     |     |     |     | Product    |
| Process    |   |     |     |     |     |     |     |     |     | Product    |

Chart 2. Culinary creativity-Principle

| A       | A More Important ← Equal Important → B More Important |     |     |     |     |     |     |     |     | B                    |
|---------|---|-----|-----|-----|-----|-----|-----|-----|-----|----------------------|
|         | 9:1   | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |                      |
| Culture |   |     |     |     |     |     |     |     |     | Market Acceptance    |
| Culture |   |     |     |     |     |     |     |     |     | Time Limitation      |
| Culture |   |     |     |     |     |     |     |     |     | Practical Experience |
| Culture |   |     |     |     |     |     |     |     |     | Professional Skill   |

|                      |  |  |  |  |  |  |  |  |  |                      |
|----------------------|--|--|--|--|--|--|--|--|--|----------------------|
| Market Acceptance    |  |  |  |  |  |  |  |  |  | Time Limitations     |
| Market Acceptance    |  |  |  |  |  |  |  |  |  | Practical Experience |
| Market Acceptance    |  |  |  |  |  |  |  |  |  | Professional Skill   |
| Time Limitations     |  |  |  |  |  |  |  |  |  | Practical Experience |
| Time Limitations     |  |  |  |  |  |  |  |  |  | Professional Skill   |
| Practical Experience |  |  |  |  |  |  |  |  |  | Professional Skill   |

Chart 3. Culinary creativity-People (Personal Characteristic)

| A          | A More Important ← Equal Important → B More Important |     |     |     |     |     |     |     |     | B                   |
|------------|---|-----|-----|-----|-----|-----|-----|-----|-----|---------------------|
|            | 9:1   | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |                     |
| Curiosity  |   |     |     |     |     |     |     |     |     | Resilience          |
| Curiosity  |   |     |     |     |     |     |     |     |     | Experimenting       |
| Curiosity  |   |     |     |     |     |     |     |     |     | Attentiveness       |
| Curiosity  |   |     |     |     |     |     |     |     |     | Thoughtfulness      |
| Curiosity  |   |     |     |     |     |     |     |     |     | Environment Setting |
| Resilience |   |     |     |     |     |     |     |     |     | Experimenting       |
| Resilience |   |     |     |     |     |     |     |     |     | Attentiveness       |
| Resilience |   |     |     |     |     |     |     |     |     | Thoughtfulness      |
| Resilience |   |     |     |     |     |     |     |     |     | Environment Setting |

|                |  |  |  |  |  |  |  |  |  |                        |
|----------------|--|--|--|--|--|--|--|--|--|------------------------|
| Experimenting  |  |  |  |  |  |  |  |  |  | Attentiveness          |
| Experimenting  |  |  |  |  |  |  |  |  |  | Thoughtfulness         |
| Experimenting  |  |  |  |  |  |  |  |  |  | Environment<br>Setting |
| Attentiveness  |  |  |  |  |  |  |  |  |  | Thoughtfulness         |
| Attentiveness  |  |  |  |  |  |  |  |  |  | Environment<br>Setting |
| Thoughtfulness |  |  |  |  |  |  |  |  |  | Environment<br>Setting |

Chart 4. Culinary creativity-Press (Environment)

| A         | A More Important ← Equal Important → B More Important |     |     |     |     |     |     |     |     | B             |
|-----------|---|-----|-----|-----|-----|-----|-----|-----|-----|---------------|
|           | 9:1   | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |               |
| Political |   |     |     |     |     |     |     |     |     | Economic      |
| Political |   |     |     |     |     |     |     |     |     | Social        |
| Political |   |     |     |     |     |     |     |     |     | Technological |
| Economic  |   |     |     |     |     |     |     |     |     | Social        |
| Economic  |   |     |     |     |     |     |     |     |     | Technological |
| Social    |   |     |     |     |     |     |     |     |     | Technological |

Chart 5. Culinary creativity-Process

| A            | A More Important ← Equal Important → B More Important |     |     |     |     |     |     |     |     | B            |
|--------------|---|-----|-----|-----|-----|-----|-----|-----|-----|--------------|
|              | 9:1   | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |              |
| Preparation  |   |     |     |     |     |     |     |     |     | Incubation   |
| Preparation  |   |     |     |     |     |     |     |     |     | Illumination |
| Preparation  |   |     |     |     |     |     |     |     |     | Verification |
| Incubation   |   |     |     |     |     |     |     |     |     | Illumination |
| Incubation   |   |     |     |     |     |     |     |     |     | Verification |
| Illumination |   |     |     |     |     |     |     |     |     | Verification |

Chart 6. Culinary creativity-Product

| A               | A More Important ← Equal Important → B More Important |     |     |     |     |     |     |     |     | B                       |
|-----------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-------------------------|
|                 | 9:1   | 7:1 | 5:1 | 3:1 | 1:1 | 1:3 | 1:5 | 1:7 | 1:9 |                         |
| Originality     |   |     |     |     |     |     |     |     |     | Competitiveness         |
| Originality     |   |     |     |     |     |     |     |     |     | Creative<br>Integration |
| Competitiveness |   |     |     |     |     |     |     |     |     | Creative<br>Integration |



APPENDIX 6: MODIFIED DELPHI TECHNIQUE  
QUESTIONNAIRE (CHINESE)

| 專家意見問卷第一回 |    |  | 1     | 2   | 3  | 4  | 5    |
|-----------|----|--|-------|-----|----|----|------|
|           |    |  | 非常不重要 | 不重要 | 普通 | 重要 | 非常重要 |
| 烹飪創意      | 壹  | 烹飪創意之定義  |       |     |    |    |      |
|           | 1  | 烹飪創意需要建立在烹飪的基礎上                                  | 1     | 2   | 3  | 4  | 5    |
|           | 2  | 烹飪創意需要經驗的累積                                      | 1     | 2   | 3  | 4  | 5    |
|           | 3  | 烹飪創意需要建立在文化背景上                                   | 1     | 2   | 3  | 4  | 5    |
|           | 4  | 烹飪創意和一般創意（如音樂或畫作）是大同小異（相似）的，唯烹飪創意是有其時間上（易腐性）的限制。 | 1     | 2   | 3  | 4  | 5    |
|           | 5  | 一般而言音樂藝術是創造，烹飪創意是研發                              | 1     | 2   | 3  | 4  | 5    |
|           | 6  | 烹飪創意需要被客人（市場）所接受                                 | 1     | 2   | 3  | 4  | 5    |
|           | 7  | 烹飪創意需要美感   | 1     | 2   | 3  | 4  | 5    |
|           | 8  | 烹飪創意需要色香味俱全                                      | 1     | 2   | 3  | 4  | 5    |
|           | 9  | 烹飪創意對餐飲業是重要的                                     | 1     | 2   | 3  | 4  | 5    |
|           | 10 | 中餐，西餐等烹飪創意發展是相似的，不同的是文化不同。                       | 1     | 2   | 3  | 4  | 5    |
|           | 11 | 烹飪創意是可以經得考驗的。如：龍井蝦仁，東坡肉等。                        | 1     | 2   | 3  | 4  | 5    |
| 其他建議      |    |  |       |     |    |    |      |

|      |    |                                |   |   |   |   |   |
|------|----|--------------------------------|---|---|---|---|---|
|      |    |                                |   |   |   |   |   |
| 內在   | 貳  | 內在因素對於烹飪創意之影響                  |   |   |   |   |   |
|      | 12 | 人格特質可以影響烹飪創意的發展                | 1 | 2 | 3 | 4 | 5 |
|      | 13 | 創意是人以生俱來的特質                    | 1 | 2 | 3 | 4 | 5 |
|      | 14 | 個人的工作動機是可以影響烹飪創意               | 1 | 2 | 3 | 4 | 5 |
|      | 15 | 個人的專業知識是可以影響烹飪創意               | 1 | 2 | 3 | 4 | 5 |
|      | 16 | 個人創意技巧是可以影響烹飪創意                | 1 | 2 | 3 | 4 | 5 |
|      | 17 | 工作動機，專業知識，創意技巧在烹飪創意上是缺一不可的     | 1 | 2 | 3 | 4 | 5 |
| 其他建議 |    |                                |   |   |   |   |   |
| 外在   |    | 外在因素對於烹飪創意之影響                  |   |   |   |   |   |
|      | 18 | 政治因素會影響烹飪創意的發展                 | 1 | 2 | 3 | 4 | 5 |
|      | 19 | 經濟因素會影響烹飪創意的發展                 | 1 | 2 | 3 | 4 | 5 |
|      | 20 | 社會因素會影響烹飪創意的發展                 | 1 | 2 | 3 | 4 | 5 |
|      | 21 | 科技因素會影響烹飪創意的發展                 | 1 | 2 | 3 | 4 | 5 |
|      | 22 | 烹飪的創意必須要在原有的飲食文化上去作變化，才能被顧客所接受 | 1 | 2 | 3 | 4 | 5 |
|      | 23 | 東西方社會的文化對廚師職業的尊重，影響了東西方主廚創意的發展 | 1 | 2 | 3 | 4 | 5 |
| 其他建議 |    |                                |   |   |   |   |   |

|      |    |                                  |   |   |   |   |   |
|------|----|----------------------------------|---|---|---|---|---|
|      |    |                                  |   |   |   |   |   |
| 教育訓練 | 肆  | 烹飪創意與教育訓練                        |   |   |   |   |   |
|      | 24 | 烹飪創意是可以被訓練而成（唯個人特質不同，效果不同）       | 1 | 2 | 3 | 4 | 5 |
|      | 25 | 學界和業界的落差之一是學界將學生未來目標設立太高         | 1 | 2 | 3 | 4 | 5 |
|      | 26 | 學界和業界的落差之一是學生的基礎實務不足             | 1 | 2 | 3 | 4 | 5 |
|      | 27 | 學界和業界的落差之一是考取烹飪證照考取無法表示符合業界需求    | 1 | 2 | 3 | 4 | 5 |
|      | 28 | 學界和業界的落差之一是師資的實務經驗               | 1 | 2 | 3 | 4 | 5 |
|      | 29 | 學界和業界的落差之一是師資的教學能力               | 1 | 2 | 3 | 4 | 5 |
|      | 30 | 學界和業界的落差之一是來自於家長和學生心態不正確         | 1 | 2 | 3 | 4 | 5 |
|      | 31 | 烹飪競賽可以提升創意的認同感                   | 1 | 2 | 3 | 4 | 5 |
|      | 32 | 教育訓練可以增進創意的觀念                    | 1 | 2 | 3 | 4 | 5 |
|      | 33 | 教育課程之實務訓練有助於創意的發展                | 1 | 2 | 3 | 4 | 5 |
|      | 34 | 專業教育者的引導可以啟發學生的創意                | 1 | 2 | 3 | 4 | 5 |
|      | 35 | 理論與實務的產學合作可啟發學生的創意               | 1 | 2 | 3 | 4 | 5 |
|      | 36 | 餐旅教育不應該以用學測分發學校，應以學生本身興趣及個人意願為考量 | 1 | 2 | 3 | 4 | 5 |
|      | 37 | 高職教育的重點：基礎與理論，如：衛生安全，態度與責任感      | 1 | 2 | 3 | 4 | 5 |
|      | 38 | 大專院校教育的重點：培養中階幹部，管理，行銷，語言能力      | 1 | 2 | 3 | 4 | 5 |
| 其他建議 |    |                                  |   |   |   |   |   |

|  |  |
|--|--|
|  |  |
|--|--|

| 基本資料 |  |
|------|--|
| 性別   | <input type="checkbox"/> 男 <input type="checkbox"/> 女  |
| 年齡   | 歲  |
| 年資   | 業界年學界年   |
| 教育程度 | <input type="checkbox"/> 高中 <input type="checkbox"/> 專科 <input type="checkbox"/> 大學 <input type="checkbox"/> 研究所以上 <input type="checkbox"/> 其他 |
| 廚藝專長 | <input type="checkbox"/> 中餐 <input type="checkbox"/> 西餐 <input type="checkbox"/> 日本料理 <input type="checkbox"/> 烘培 <input type="checkbox"/> 其他  |

APPENDIX 7: MODIFIED DELPHI TECHNIQUE  
QUESTIONNAIRE (ENGLISH)

|  |   | 1 Very unimportant | 2 Unimportant | 3. Neither unimportant nor important | 4. Important | 5. Very important |
|--|---|--------------------|---------------|--------------------------------------|--------------|-------------------|
| <b><i>Define culinary creativity</i></b> |   |                    |               |                                      |              |                   |
| 1  | Culinary creativity is required to be built from a culinary foundation.   | 1                  | 2             | 3                                    | 4            | 5                 |
| 2  | Culinary creativity is required to be built from the accumulation of experience   | 1                  | 2             | 3                                    | 4            | 5                 |
| 3  | Culinary creativity is required to be built from cultural background.   | 1                  | 2             | 3                                    | 4            | 5                 |
| 4  | Culinary creativity is similar to creativity in general (music or painting). The principle difference is that culinary creativity has time limitations. | 1                  | 2             | 3                                    | 4            | 5                 |
| 5  | Music and art are creation, culinary creativity is a development.   | 1                  | 2             | 3                                    | 4            | 5                 |
| 6  | Culinary creativity is required to be accepted by the market.   | 1                  | 2             | 3                                    | 4            | 5                 |
| 7  | Culinary creativity is required to have a sense of the aesthetic.   | 1                  | 2             | 3                                    | 4            | 5                 |
| 8  | Culinary creativity is required to encompass colour, smell and taste.   | 1                  | 2             | 3                                    | 4            | 5                 |
| 9  | Culinary creativity is important to the hospitality industry.   | 1                  | 2             | 3                                    | 4            | 5                 |
| 10                                       | Chinese and Western cuisine have a similar development of creativity, the only difference is  | 1                  | 2             | 3                                    | 4            | 5                 |

|                                 |   |   |   |   |   |   |
|---------------------------------|---|---|---|---|---|---|
|                                 | culture.  |   |   |   |   |   |
| 11                              | Culinary creativity should be able to be tested through the market.   | 1 | 2 | 3 | 4 | 5 |
| Suggestions:                    |   |   |   |   |   |   |
| <b><i>Internal Factors:</i></b> |   |   |   |   |   |   |
| 12                              | Personal characteristic can impact on the development of culinary creativity.                                   | 1 | 2 | 3 | 4 | 5 |
| 13                              | Creativity is inherent.   | 1 | 2 | 3 | 4 | 5 |
| 14                              | Personal motivation can impact on culinary creativity.  | 1 | 2 | 3 | 4 | 5 |
| 15                              | Personal expertise can impact on culinary creativity.   | 1 | 2 | 3 | 4 | 5 |
| 16                              | Personal creative thinking skills can impact on culinary creativity.  | 1 | 2 | 3 | 4 | 5 |
| 17                              | Motivation, expertise and creative thinking skills are indispensable in the development of culinary creativity. | 1 | 2 | 3 | 4 | 5 |
| <b><i>External Factors:</i></b> |   |   |   |   |   |   |
| 18                              | Political factor can impact on the development of culinary creativity.  | 1 | 2 | 3 | 4 | 5 |
| 19                              | Economic factor can impact on the development of culinary creativity.   | 1 | 2 | 3 | 4 | 5 |
| 20                              | Social factor can impact on the development of culinary creativity.   | 1 | 2 | 3 | 4 | 5 |
| 21                              | Technology factor can impact on the development of culinary creativity.   | 1 | 2 | 3 | 4 | 5 |
| 22                              | Culinary creation is required to develop from its own food culture origin in order to be accepted by customers. | 1 | 2 | 3 | 4 | 5 |
| 23                              | Eastern and Western social culture have different perspectives of the culinary profession and this              | 1 | 2 | 3 | 4 | 5 |

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
|   | impacts on their culinary creativity development.   |   |   |   |   |   |
| Suggestions:  |   |   |   |   |   |   |
| <b><i>Culinary creativity to training and education</i></b> |   |   |   |   |   |   |
| 24  | Training can bring out culinary creativity (depend on personal characteristics each outcome differs)                    | 1 | 2 | 3 | 4 | 5 |
| 25  | The gap between academia and industry is the mismatch between student expectation and the reality of industry.          | 1 | 2 | 3 | 4 | 5 |
| 26  | The gap between academia and industry is student lack of foundation skills and practical experience.                    | 1 | 2 | 3 | 4 | 5 |
| 27  | The gap between academia and industry is apparent in the cookery licence exam which does not meet industry requirement. | 1 | 2 | 3 | 4 | 5 |
| 28  | The gap between academia and industry lies in the lack of practical experience of the academic teachers.                | 1 | 2 | 3 | 4 | 5 |
| 29  | The gap between academia and industry is academic staffs' ability to teach.   | 1 | 2 | 3 | 4 | 5 |
| 30  | The gap between academia and industry is the mismatch of parents and students perspectives of the hospitality industry. | 1 | 2 | 3 | 4 | 5 |
| 31  | Culinary competition can identify creativity.   | 1 | 2 | 3 | 4 | 5 |
| 32  | Training and education can enhance concepts of creativity.  | 1 | 2 | 3 | 4 | 5 |
| 33  | Practical training in education courses can enhance development of creativity.  | 1 | 2 | 3 | 4 | 5 |
| 34  | Professional educators can lead and inspire students' creativity.   | 1 | 2 | 3 | 4 | 5 |
| 35  | Theory and practical liaison systems can inspire students' creativity.  | 1 | 2 | 3 | 4 | 5 |

|  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| 36   | Hospitality education should not adopt general examination result to distribute students. It should be considered with regard to a students' own interest and will. | 1 | 2 | 3 | 4 | 5 |
| 37   | Vocational senior high school (hospitality education) should focus on: foundation and theory, for example: sanitation and hygiene; attitude and responsibility.     | 1 | 2 | 3 | 4 | 5 |
| 38   | College level (hospitality education) should focus on: developing mid-level management skills (management, marketing, language skills)                              | 1 | 2 | 3 | 4 | 5 |
| Suggestions:   |   |   |   |   |   |   |
| <input type="checkbox"/> Male <input type="checkbox"/> Female  |   |   |   |   |   |   |
| years old  |   |   |   |   |   |   |
| Industry (y)      Academic(y)  |   |   |   |   |   |   |
| <input type="checkbox"/> Senior High <input type="checkbox"/> Senior High <input type="checkbox"/> Bachelor degree <input type="checkbox"/> Master and above <input type="checkbox"/> others |   |   |   |   |   |   |
| <input type="checkbox"/> Chinese cuisine <input type="checkbox"/> Western cuisine <input type="checkbox"/> Japanese cuisine <input type="checkbox"/> Bakery <input type="checkbox"/> Others  |   |   |   |   |   |   |



## APPENDIX 8: PUBLICATION LIST

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### CONFERENCE:

Lin, M.C.\*, Baum, T. and Peng, K.L. (2011/10). *Training for Culinary Creativity-the Role of Formative Education from Chinese Culture Perspectives*. Paper presented at the 29th EuroCHRIE Conference.

Lin, M.C.\*, Baum, T. and Peng, K.L. (2010/05). *Training for culinary creativity, an exploratory Study from Chinese culture perspectives*. Paper presented at the 2010 Asia Tourism Forum, 784-800, Taiwan. (ISBN: 978-957-28376-6-5)

Peng, K.L., Lin, M.C.\* and Baum, T. (2010/01). *Service Innovation in Hospitality Human Resource Management Website*. Paper presented at the 2nd International Conference on Computer Modeling and Simulation, China. (EI) (ISBN: 978-0-7695-3941-6)

Peng, K.L. and Lin, M.C.\* (2009/06). *Synergy and Ethic Issues of Using RFID in Casino*. Paper presented at IADIS Multi Conference on Computer Science and Information Systems 2009, 181-186, Portugal. (EI) (ISBN: 978-972-8924-86-7)

Lin, M.C.\*, Baum, T. and Peng, K.L. (2009/05). *The Impacts of Personality Traits and Training on Chef's Creativity, A Case Study of Two TV Celebrity Chefs in UK*. Paper presented at CHME (Council for Hospitality Management Education) 18th Annual Research Conference, 1-10, Brighton, UK. (ISBN: 978-1-905593-64-4)

### JOURNALS:

Peng, K.L., Lin, M.C.\* and Baum, T. (2012). The Constructing model of culinary creativity: A mixed methods approach. *Quality and Quantity*. (Accepted, SSCI, ISSN: 0033-5177)

Peng, K.L., Lin, M.C.\* and Peng, K.H. (2011). A Brief Construction on Innovative e-Learning System Based on Intelligent Materials. *Advances in Intelligent and Soft Computing*, 105, 89-94. (ISSN: 1867-5662)

Peng, K.L. and Lin, M.C.\* (2009). Developing a Quality Assurance Scheme for the Tourist Industry: A Managerial Perspective. *International Journal of Management*, 26:1, 40-50. (ISSN: 0813-0183)