

*Full Length Research Paper*

# Learning satisfaction for culinary students: The effect of teaching quality and professional experience

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**This study used questionnaires to explore the correlation between the teaching quality of culinary educators with professional experience and the learning satisfaction of their students. The results indicated that teaching qualification, type and number of professional licenses held, and participation in continuing professional education significantly affected teaching quality, and that educators' work experience significantly affected students' learning satisfaction. The professional experience had a moderating effect on the relationship between teaching quality and students' learning satisfaction. The findings could be applied to culinary educators' learning and development.**

**Key words:** Teaching quality, learning satisfaction, professional experiences.

## INTRODUCTION

Professionalism is an important aspect of the service industry. Thus, culinary educators must integrate the needs and expectations of the culinary profession into the culinary curriculum. Brown (2003) stated that a fundamental objective of teaching is to integrate professional experience into educational courses. Based on this, educators must use professional experience to integrate theory and practice (Orland-Barak and Yinon, 2007), use professional internships to enhance students' practical experiences, and further cultivate the professional skills required by employers in their students (McCarthy, 2005).

Lin and Chang (2010) stated in their study of the practical teaching abilities of educators that newly employed teachers should have a certain number of years of practical experience, and that current teachers should cooperate with innovation incubation centers and industry-academia research projects to improve their

practical teaching skills and professional experience. Further, they stated that educators should use a collaborative approach to teach professional resources in order to expand the industry-academia cultivation model and implement student internship programs. Despite turbulent economic times around the world, the hospitality industry continues to experience growth, the employment in the hospitality industry is expected to rise. A growing demand for hospitality employees can be translated into a growing demand, more hospitality department in university has established in Taiwan. The hospitality department students were increased to 17 thousands from 2010 to 2012 (Ko, 2012). To meet both educational and professional needs, vocational and technical colleges in Taiwan had added faculty with relevant professional experience for the students to learn from and to further improve teaching quality, in order to provide a seamless connection

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between industry and academia (Lin, 2006). Moreover, whether these experienced teachers have excellent teaching quality to satisfy the students is also discussed in this paper. In addition to comprehensive pre-service training, educators must participate in self-learning activities such as working in industry to expand and update their professional experience and maintain teaching quality (Tsao, 2011). Relevant studies had further shown that the level of professional experience of culinary educators is positively associated with their teaching quality, as well as their influence on student learning effectiveness and career development (Lin, 2007; Wang et al., 2010). Culinary educators are central to culinary education. Culinary educators must constantly engage in self-learning to increase their professional knowledge and teaching abilities, and they must balance school policies and student learning expectations in order to improve culinary teaching quality and student learning satisfaction. Few studies in Taiwan had investigated the learning satisfaction of students in culinary courses or addressed the issue of culinary course teaching quality. One objective of this study was to investigate whether the amount of professional experience would impact educators' teaching quality. Another objective of this study was to assess the impact of culinary educators' professional experience on teaching quality, as measured by students' learning satisfaction.

## LITERATURE REVIEW

### Teaching quality

Travers (1981) proposed that the needs for teaching quality vary with the times. Wilson (1988) suggested that it is necessary to provide students with appropriate teaching programs, instruction, and assessments of practical abilities according to their background. In addition, educators are expected to use their professional teaching abilities to analyze students' needs based on teaching objectives and to use appropriate teaching materials, teaching approaches, and self-developed assessment tools to teach students. Moreover, educators are expected to be well prepared for teaching in order to develop appropriate teaching content and courses that enable students to achieve the teaching objectives (Chiu, 2005). Yu (2010) suggested that educators should meet students' needs during the teaching process and use appropriate teaching materials and approaches based on their personal teaching professionalism to achieve the students' learning objectives. Pavilina et al. (2011) stated that three aspects affect teaching quality, including overall teaching quality, teaching quality of the school, and teaching quality of the educator. Factors of the influence on these aspects likely include the educators and students themselves, the education and teaching purposes, the teaching objectives, the teaching materials

used in the courses, the teaching approaches and techniques, the learning environment, and the administrative support. Ko and Chiu (2011) used a Delphi questionnaire to investigate the teaching quality indicators of culinary educators. The results showed that the teaching quality indicators comprise: (1) education and professional competencies, including educational theories and relevant knowledge, teaching implementation, student counseling, course planning, classroom management, teaching assessment, feedback and professional growth; (2) culinary expertise, including educators' culinary professional knowledge, skills and attitudes addressing culinary and cooking knowledge, innovation capacity, basic skills, management capability, and attitude performance; (3) industry-university partnerships, which especially enable effective communication, thereby promoting means for continuing improvements in program quality; and (4) professionalism and attitude of education in terms of the educators' teaching-related beliefs, attitudes, and ethics. This study defined teaching quality in terms of how well educators utilize personal professional skills and preparation and follow the economic efficiency and organizational performance of the school in order to meet the expectations of learners from different backgrounds and develop appropriate teaching approaches, teaching materials, and assessment tools.

### *Professional experience*

As it is very important for students to acquire internship experience, most hospitality education students participate in one or more professional internship programs. Educators adjust their professional capabilities and competencies based on changing market needs and expectations to ensure students are prepared for their impacts and challenges. New learning and teaching approaches required educators to synthesize this information to prepare students for actual conditions in the current work environment (Brown and Lankard, 2000). Powell (2005) suggested that most college graduates have received insufficient instruction from educators with professional experience. Educators with inadequate practical professional experience may fail to teach content most relevant to the needs of the current work environment. As a result, graduates will have failed to receive the information and training expected by prospective employers, and thus will be less competitive in the employment marketplace. Features of educators with professional experience included (Brown and Lankard, 2000; Bennett et al., 1998; Maurer, 2000): (1) the ability to integrate work-related knowledge into the classroom; (2) the ability to design courses using professional information; (3) the ability to understand the needs of various relevant career paths and provide students with appropriate career-related advice; (4) the

ability to observe how theories relate to practice and assess students' suitability for specific job categories; and (5) the ability to expand the opportunities for industry-academia cooperation. Having professional experience enables educators to help students understand the importance of mastering work competencies, adopt positive work attitudes, and learn teamwork (Giddens and Stasz, 1999). School-industry cooperation may facilitate the development of courses that are more substantive and relevant to students' post-graduation needs (Bloom, 1999). Green et al. (2004) stated that educators with practical experience are better able to incorporate practical examples into classroom education. Educators with professional teaching and professional work experience were in a good position to integrate theory and practice (Epsztejn et al., 2001).

Schools in Taiwan increasingly required newly hired educators to have at least several years of professional employment experience. Moreover, schools were including consideration of teaching effectiveness in evaluations and private school subsidy indicators. Further, schools are making curricula increasingly practical in nature, organizing student field trips to companies, and providing employee retention with pay to establish a complete technical report and an upgrade mechanism (Lin and Chang, 2010).

Universities require research-qualified staff, yet many hospitality management academics had limited or recent industry experience; hence, the need exists for industry engagement to enhance the quality of the service delivery. In a previous study on the relationship between professional experience and teaching competency in vocational school educators, Tsao (2011) defined the professional experience of educators according to the number of years holding a hospitality-related license, the number of years working in the industry, experience participating in hospitality-related competitions, and professional continuing education experience. Peng (2001) found a positive relationship between holding a hospitality-related license and professional skill competency among culinary educators. Chiu and Yang (2005) discussed the positive impact of the role model effect, noting that educators who compete in hospitality-related competitions may be strongly positive role models for students. Schools value educator experience in hospitality-related competitions as well as educator guidance and cultivation of student competitors in these competitions (Tsao, 2011). Professional experience was an educator's collective practical experiences in the food and beverage and related sectors. The teaching quality of educators may be improved by strengthening these practical experiences (Lin, 2007; Wang et al., 2010). Lin (2006) proposed three sources of professional experience for educators: (1) actual industry work experience; (2) frequent participation in industry-sponsored activities such as presentations, industry-academia projects, innovation incubation center work,

workshops, and seminars; and (3) linking in-class teaching with industry service. Tsao (2011) found that continued professional education is a channel for educators to improve teaching quality and update their professional experience.

Based on the above, this study defined professional experience for educators as including actual industry work experience, holding professional licenses, participation in competitions, and continuing professional education.

### ***Learning satisfaction***

Learning satisfaction was defined as the satisfaction of learners with the learning process and learning performance. In general, learning satisfaction was used as an indicator for assessing learning effectiveness (Marki et al., 2000). Using learning satisfaction for self-criticism and feedback while inspecting the extent to which learning objectives and ideal outcomes had been achieved is a type of self-evaluation. Learning satisfaction was one of the key factors of learning outcomes (Huang, 2014). Barr and Tagg (1995) indicated that the issue of teaching effectiveness in higher previously considered educator-specific factors only such as teaching approach, course materials, and the learning process of students. Yu (2006), in a study of factors affecting learning achievement, identified learning satisfaction as a valid indicator of student learning effectiveness. Learning satisfaction was an important indicator for educators to assess the degree to which teaching objectives have been achieved, as well as their level of teaching quality. Because teacher-student interactions were concentrated in the classroom setting, the classroom was the best venue for assessing students' learning effectiveness (Airasian and Abrams, 2003). In the school setting, educators should use at least one test with acceptable reliability and validity to assess learning effectiveness. Kogan et al. (2010) used widely-administered instruments to evaluate teaching methods for the improvement of faculty teaching and student learning outcomes.

Student learning in a virtual environment required several support mechanisms, including good teachers and faculty and the course design, in order for the students to feel satisfied and learn efficiently. Learning satisfaction and learning attitude were both the key metrics to evaluate learning effectiveness. There were many factors that affect the learning satisfaction and learning effectiveness of students, including the students themselves, the teacher, the curriculum and the learning environment (Huang, 2014). Huang (2014) referred to learning satisfaction to evaluate the learning effectiveness of respondents. Learning satisfaction in this study included teaching process (or learning process) and curriculum design.

### **The relationship among teaching quality, professional experience, and learning satisfaction**

Mounce et al. (2004) found that the teaching quality of educators with practical experience is significantly higher than those without. Bennett et al. (1998) found that educators with practical experience possess abundant professional knowledge and skills, and their courses better meet current employer needs and improve students' learning effectiveness. Bottge and Osterman (1998) found that assisting educators in using their practical experience in the classroom and cooperating with professional internship programs may increase these educators' professional competencies and confidence, improve their teaching quality, and help students better adapt to future workplace needs and expectations. Kunney (1989) suggested that teaching affects practice. Connecting teaching to practice helps students understand new principles and theories and better prepare for the workplace. Kaplan (1989) found that the practical experience of educators can improve student learning effectiveness in the teaching process. Lin (2006) found students with hospitality-related work experience are more satisfied with learning effectiveness and develop better plans for future study and employment. Teacher quality was also an important factor that affects students' performance. Although the teaching profession has always enjoyed recognition and status, effects to make it an attractive career choice for young students remain ongoing (Huang, 2014).

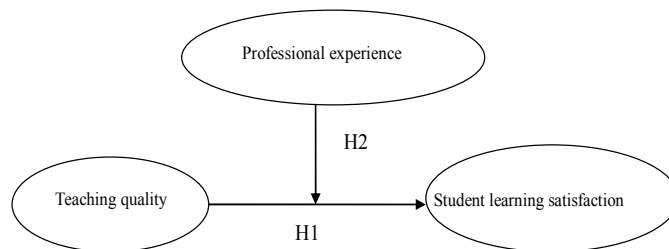
Brown and Lankard (2000) suggested that professional work experience directly benefits teaching effectiveness, with the degree of benefit stronger in technical subjects than in non-technical subjects. In cooperative learning situations, educators who teach technical subjects were more likely to become models for students' emulation than those who teach non-technical subjects. Educators with professional experience had greater confidence in their own teaching, and the learning achievements of their students are higher (Ping and Liao, 2009). Luft (1999) pointed out that the professional experience of educators helps foster and improve teaching skills and offers a broader platform to provide students with new concepts. Therefore, it was hypothesized that learning satisfaction was affected by teaching quality.

Based on the above, this study found that relevant professional experience was widely considered a prerequisite to improving educators' teaching quality. This suggested that professional experience and teaching quality were positively correlated. Therefore, this study proposed the following hypotheses:

*H1: Educator teaching quality and student learning satisfaction were positively correlated.*

*H2: The professional experience of educators had a moderating effect on teaching quality and student learning satisfaction.*

This study used teaching quality as an independent



**Figure 1.** Research framework.

variable and student learning satisfaction as the dependent variable to investigate whether a significant correlation existed between the two. Further, this study used professional experience as a moderating variable to investigate whether teaching quality had a moderating effect on student learning satisfaction. Figure 1 illustrates the research framework.

## **METHODOLOGY**

### **Sample and data collection**

This study recruited culinary teachers from the hospitality-related departments of colleges and universities in Taiwan as participants. To avoid the potential effect on different of the participants' self-assessed teaching satisfaction and students' self-assessed learning satisfaction, this study collected paired samples from seven schools and performed an independent sample t test on learning satisfaction from the returned questionnaire data of the teachers and students to test whether there was any difference between the teachers' and students' self-assessments (Table 1). The results of this test showed no difference; therefore, the learning satisfaction of students in this study was considered equivalent to the teachers' self-assessment result. The samples were culinary teachers who were selected from across Taiwan using convenience sampling. This study first identified colleges willing to participate in the study. After explaining the research objectives to the director or teachers of the hospitality departments in person and obtaining their consent, the researcher sent the questionnaires to each school either in person or by mail. In addition, the researcher requested the director and teachers of the departments to help distribute and return the questionnaires. The researcher reminded them to send back the questionnaires approximately one week after distribution to increase the return rate. Of the total 168 questionnaires distributed to the teachers, 138 were returned and included in analysis, giving a valid return rate of 82.1%.

### **Measures**

The questionnaire content designed for this study included three parts: 1) an evaluation of teaching quality, including professional educational ability, professional culinary ability, and professional educational spirit and attitude; 2) an evaluation of learning satisfaction; and 3) the students' basic personal data, including their professional experience. The items in all scales were rated using a five-point Likert-type scale, with answers ranging from 1 (strongly disagree) to 5 (strongly agree). This study used three scales, which are explained as follows.

The teaching quality scale for culinary teachers was based on the findings of Ko and Chiu (2011). Fourteen measurement items of

**Table 1.** Analysis on the mean, standard deviation, and difference test of learning satisfaction of paired samples.

College	Subjects	Mean	SD	t value	p value
A	Teachers (3 questionnaires)	4.40	.529	.583	.563
	Students (41 questionnaires)	4.17	.637		
B	Teachers (6 questionnaires)	4.30	.109	.997	.324
	Students (44 questionnaires)	3.97	.784		
C	Teachers (9 questionnaires)	4.13	.424	.448	.655
	Students (64 questionnaires)	4.03	.650		
D	Teachers (20 questionnaires)	4.35	.400	1.422	.159
	Students (59 questionnaires)	4.15	.572		
E	Teachers (5 questionnaires)	4.04	.536	.700	.486
	Students (83 questionnaires)	3.88	.471		
F	Teachers (11 questionnaires)	4.25	.566	1.940	.057
	Students (55 questionnaires)	3.84	.647		
G	Teachers (8 questionnaires)	3.87	.212	-.771	.444
	Students (52 questionnaires)	4.00	.462		

teaching quality were loaded onto three factors, including professional educational ability, professional culinary ability, and professional educational spirit and attitude. Bentler and Chou (1987) suggested reducing the 14 measurement items to three constructs for optimal structural equation modeling analysis. The Cronbach's  $\alpha$  obtained for the three constructs were 0.933, 0.915, and 0.927, respectively, showing good reliability.

Learning satisfaction was assessed using the self-evaluated learning satisfaction questionnaire of Ko (2012). Cronbach's  $\alpha$  for all scales was 0.701.

Professional experience was assessed using the teacher professional experience scale of Tsao (2011) and Lin (2006). This scale included four dimensions: work experience, holding hospitality-related licenses, experience participating in hospitality-related competitions, and self-continuing professional development (CPD). This study also included an additional item from Lin and Chang (2010) on the implementation period of industry-academia cooperation.

Professional experience was calculated based on the participants' basic information, such as professional experience, number of licenses held, experience participating in hospitality skill competitions, assisting students in participating in these competitions, and participation in continuing professional education. This study referred to Tsao (2011), Lin (2006) and Lin and Chang (2010), and asked three scholars and three senior staff in educational circles to make a judgment of the score range for individual professional ability. The total possible scores ranged from 1 to 4 for each item, and each stage was presented as a dummy variable. The scores for the items were then summed (Table 2). The total scores reflected the professional experience of the study participants, and they were positively correlated with professional experience.

### **Data analysis**

The collected data were analyzed using the Statistical Package for Social Sciences (SPSS), version 18.0. The quantitative statistical methods used included reliability analysis, factor analysis, and descriptive statistical analysis.

## **RESULTS**

### **Descriptive analysis**

As shown in Table 3, most of the participants were males (76.8%). In terms of education level, 8.0% were vocational/senior high school graduates or below, 22.5% were college graduates, and two-thirds (69.6%) were above university graduates. In terms of age, 34.8% were aged 31-40, and the largest age group was 41-50 years of age (36.2%). In terms of teaching years, the largest group had been teaching for 1-6 years (39.1%). In terms of years of working experience in the hospitality industry, 40.6% of the respondents had over 20 years of relevant work experience. Most participants held one or more hospitality-related licenses/certificates. Two-thirds (67.4%) had participated in hospitality technique competitions, and nearly three-quarters (73.9%) had assisted students in participating in hospitality technique competitions. Most had taken continuing professional

**Table 2.** Professional experience scale.

Item	Group score (point)	Source
Professional experience		
	Less than 1 year	1 *
	2. 1 to 4 years	1 *
	3. 4 to 8 years	2 *
Work experience in hospitality industry	4. 8 to 12 years	3 *
	5. 12 to 16 years	3 *
	6. 16 to 20 years	4 *
	7. More than 20 years	4 *
Hospitality-related licenses/certificates		
	No license	1 *
	One class C certificate	1 *
	More than two class C certificates	2 *
	One class B certificate	3 *
	More than two class B certificates	4 *
Experience participating in hospitality-related competitions		
	Never	1 *
	At least once annually	4 *
	At least once every three years	3 *
	Once in many years	2 *
Experience assisting students in participating in hospitality-related competitions		
	Never	1 *
	At least once annually	4 *
	At least once every three years	3 *
	Once in many years	2 *
Participation in continuing professional education		
	Never	1 *
	Once semi-annually	4 *
	Once annually	3 *
	Once in many years	2 *
Duration of industry-academia cooperation		
	Never	1 ★
	Once annually	4 ★
	Once every two years	3 ★
	Once every three years	2 ★
	Once in many years	1 ★

Note: \* denotes items adapted from the scale developed by Tsao (2011). ★ denotes items adapted from the scale developed by Lin and Chang (2010).

education and participated in industry-academia cooperation projects.

#### ***Effect of professional experience on teaching quality and learning satisfaction***

#### ***Effect of work experience on teaching quality and learning satisfaction***

As shown in Table 4, although years of work experience

did not significantly affect teaching quality, it did significantly and positively affect students' learning satisfaction.

#### ***Effect of the number and type of teaching licenses held on teaching quality and learning satisfaction***

The type and number of teaching licenses correlated positively with both professional culinary competence and professional spirit and attitude. As shown in Table 5, the

**Table 3.** Descriptive statistical analysis on participant profiles.

Personal background variables		N	(%)	Personal background variables				
Gender	Male	106	76.8	Teaching qualifications	Full-time	37	26.8	
	Female	32	23.2		Full-time technical	43	31.2	
Education level	Vocational/senior high school	11	8.0	Part-time	22	15.9		
	College	31	22.5		Part-time technical	36	26.1	
	University	32	23.2		No license	13	9.4	
Age (years)	Graduate institute (or above)	64	46.4	Hospitality-related licenses/certificates	One class C certificate	11	8.0	
	Under 30	6	4.3		More than two class C certificates	28	20.3	
	31-35	20	14.5		One class B certificate	63	45.7	
	36-40	28	20.3		More than two class B certificates	23	16.7	
	41-45	30	21.7		Never	45	32.6	
	46-50	20	14.5		Hospitality competition participation experience	At least once annually	36	26.1
	51-55	28	20.3		At least once every three years	20	14.5	
Years of teaching	60 and above	6	4.3	Once >3 years	37	26.8		
	Less than 1 year	12	8.7	Never	36	26.1		
	1 to 3 years	24	17.4	Experience assisting students participating in hospitality competitions	At least once annually	76	55.1	
	3 to 6 years	30	21.7		At least once every three years	9	6.5	
	6 to 9 years	17	12.3	> Annually	17	12.3		
	9 to 12 years	24	17.4	Never	13	9.4		
	12 to 15 years	12	8.7	Continuing professional education	Semiannually	42	30.4	
	More than 15 years	19	13.8		Annually	54	39.1	
	Less than 1 year	13	9.4		> Annually	29	21.0	
	Work experience in hospitality industry	1 to 4 years	13	9.4	Never	28	20.3	
4 to 8 years		15	10.9	Once annually	68	49.3		
8 to 12 years		13	9.4	Industry-academia cooperation	Once every two years	15	10.9	
12 to 16 years		11	8.0		Once every three years	7	5.1	
16 to 20 years		17	12.3		> 3 years	20	14.5	
> 20 years	56	40.6						

professional culinary competence of educators with at least two class C certificates, any class B certificate, or at least two class B certificates was better than that of educators who had no license or a class C certificate. This result was consistent with the findings of Green et al. (2004), who suggested that licenses demonstrate development of human potential and may contribute to improved culinary learning approaches, learning attitudes, and techniques. They further recommended using license attainment as a valid reference in hiring new employees. However, this study found that different license acquisition statuses did not significantly affect

students' learning satisfaction.

### ***Effect of continuing professional education on teaching quality and learning satisfaction***

As shown in Table 6, the professional culinary competence of educators who participated in professional continuing education was better than that of those who did not. This result is consistent with the finding of McCarthy (2005), suggesting that the preparation, assessment, strategies, and overall effective teaching

**Table 4.** Effect of participants' years of work experience on teaching quality and learning satisfaction.

Variable	Work experience	N <sup>a</sup>	Mean	SD	F value	Scheffe
Professional teaching competence	Up to 4 years	26	4.10	.49	1.699	No difference
	4 to 8 years	28	4.07	.52		
	8 to 16 years	28	4.24	.42		
	More than 16 years	56	4.26	.35		
Professional culinary competence	Up to 4 years	26	4.24	.51	2.160	No difference
	4 to 8 years	28	4.20	.46		
	8 to 16 years	28	4.38	.45		
	More than 16 years	56	4.41	.32		
Professional teaching and spirit and attitude	Up to 4 years	26	4.22	.50	.480	No difference
	4 to 8 years	28	4.27	.51		
	8 to 16 years	28	4.31	.50		
	More than 16 years	56	4.35	.43		
Total dimension of teaching quality	Up to 4 years	26	4.23	.45	.907	No difference
	4 to 8 years	28	4.21	.42		
	8 to 16 years	28	4.31	.42		
	More than 16 years	56	4.34	.32		
Students' learning satisfaction	Up to 4 years	26	3.52	.51	9.96*	(3),(4)>(1)
	4 to 8 years	28	3.88	.75		
	8 to 16 years	28	4.15	.56		
	More than 16 years	56	4.21	.48		

Note: <sup>a</sup>N = 138; \*  $p < 0.05$ .

behavior of educators who participate in continuing education seminars were better than those of educators who did not. However, this study found that continuing professional education had no significant impact on professional teaching competence, professional teaching spirit and attitude, or student learning satisfaction.

Furthermore, participation experience in competitions, assisting students in participating in competitions, and implementing industry-academia cooperation projects did not significantly affect teaching quality and learning satisfaction.

#### **Correlations among teaching quality, learning satisfaction, and professional experience**

This study used the correlation coefficients among research variables obtained by Pearson correlation analysis to assess the correlations among teaching quality, learning satisfaction, and industry experience, and a positive correlation between teaching quality and learning satisfaction was identified. Therefore, H1 was supported. The students who reported the highest levels of learning and satisfaction also reported the highest levels and quality of interaction with the instructor and with other students. The students who reported that their instructors provided prompt and high quality feedback and clear expectations for success also reported the highest levels of satisfaction and learning. Teven and McCroskey (1997) suggested that students' perception of

their teacher as good has positive influence on their assessment of satisfaction from learning.

An examination of the correlation between professional experience and learning satisfaction showed no correlation between teaching quality and professional experience. The teachers with high professional experience had relatively high professional culinary competence, but further education in other educational fields could be required so as to improve the teaching quality (Table 7).

#### **Moderating effect of professional experience on teaching quality and student learning satisfaction**

This study used hierarchical regression analysis to investigate the moderating effect of the participants' professional experience on teaching quality and student learning satisfaction. This study standardized teaching quality and professional experiences, and then divided the analysis of the moderating effect into four stages. In the first stage, gender, education level, age and years of teaching were included as control variables to perform regression analysis on student learning satisfaction. In the second stage, the antecedent variable of teaching quality was included to analyze student learning satisfaction. In the third stage, a moderator variable was included to analyze student learning satisfaction. In the fourth stage, the interaction between teaching quality and professional experience was included to perform



**Table 5.** Impact of participants' different license acquisition statuses on teaching quality and learning satisfaction.

Variables	License/certificate	N <sup>a</sup>	Mean	SD	F value	Scheffe
Professional teaching competence	No license or class C certificate	24	3.99	.55	2.215	No difference
	At least two class C certificates	28	4.21	.47		
	Any class B certificate	63	4.21	.397		
	At least two class B certificates	23	4.30	.317		
Professional culinary competence	No license or class C certificate	24	4.04	.557	5.191*	(2),(3),(4)>(1)
	At least two class C certificates	28	4.45	.337		
	Any class B certificate	63	4.36	.367		
	At least two class B certificates	23	4.38	.417		
Professional teaching spirit and attitude	No license or class C certificate	24	4.06	.56	4.003*	(4)>(1)
	At least two class C certificates	28	4.29	.39		
	Any class B certificate	63	4.31	.50		
	At least two class B certificates	23	4.52	.226		
Total teaching quality dimension	No license or class C certificate	24	4.11	.48	2.342	No difference
	At least two class C certificates	28	4.32	.36		
	Any class B certificate	63	4.29	.38		
	At least two class B certificates	23	4.40	.27		
Students' learning satisfaction	No license or class C certificate	24	3.72	.68	2.857	No difference
	At least two class C certificates	28	3.91	.73		
	Any class B certificate	63	4.12	.50		
	At least two class B certificates	23	4.08	.58		

Note: <sup>a</sup> N = 138 \*p<0.05.

regression analysis and assess whether professional experience moderated the relationship between teaching quality and student learning satisfaction.

As shown in the regression model in Table 8, the explained variance ( $R^2$ ) was 0.336, and the change in the value of the explained variance ( $\Delta R^2$ ) was 0.300. Moreover, the regression coefficient for teaching quality and professional experience reached significance ( $\beta=0.177$ ,  $p<0.05$ ), suggesting that professional experience had a moderating effect on the relationship.

As shown in Figure 2, this study further investigated the correlation between teaching quality and student learning satisfaction under different levels of professional experience. The results demonstrated a significant and positive association between the participants' profes-

sional experience and the two variables of teaching quality and students' learning satisfaction. This study also found that limited or no professional experience had a slightly positive effect on teaching quality and students' learning satisfaction. Therefore, it was found that more professional experience with high teaching quality significantly improves students' learning satisfaction. Therefore, the empirical data in this study supported H2. Professional experience has the effect of moderating teaching quality and learning satisfaction. When the teaching quality is low, professional competence has less of an impact on learning satisfaction. Similarly, when teachers have relatively high teaching quality and professional experience, the learning satisfaction will be significantly improved.

**Table 6.** Impact of participants' continuing professional education on teaching quality and learning satisfaction.

Variables	Professional continuing education status	N <sup>a</sup>	Mean	SD	F value	Scheffe
Professional teaching competence education	Never	13	4.03	.51	2.539	No difference
	Once semiannually	42	4.11	.46		
	Once annually	54	4.22	.40		
	> annually	29	4.34	.31		
Professional culinary competence education	Never	13	4.10	.46	3.262*	(4)>(1)
	Once semiannually	42	4.27	.43		
	Once annually	54	4.37	.41		
	> annually	29	4.48	.28		
Professional teaching and spirit and attitude	Never	13	4.06	.63	1.727	No difference
	Once semiannually	42	4.21	.54		
	Once annually	54	4.34	.43		
Total dimension of teaching quality	Never	13	4.06	.51	2.904*	No difference
	Once semiannually	42	4.20	.43		
	Once annually	54	4.31	.38		
Students' learning satisfaction	Never	13	4.15	.50	1.176	No difference
	Once semiannually	42	4.09	.53		
	Once annually	54	4.19	.50		
	> annually	29	4.31	.41		

Note: <sup>a</sup> N= 138; \*  $p < 0.05$ .

**Table 7.** Means, standard deviations, and correlations among constructs <sup>a</sup>.

Variables	Mean	SD	Teaching quality	Learning satisfaction	Professional experience
Teaching quality	4.29	.390	-		
Learning satisfaction	4.00	.618	.230***	-	
Professional experience	2.87	.615	.129	.344***	-

Note: <sup>a</sup> N = 138; \*\*\*  $P < 0.001$ .

## DISCUSSION

The participants in this study had greater than average work experience in their industry, and that the effect of this experience was more significant than that of other experience variables such as participating in competitions, assisting students in participating in competitions, and participating in industry-academia cooperation projects. Educators may thus benefit from professional internships, which are industry-based experiences that immerse educators in the operational priorities, challenges, and strategies of the host business (Lynn et al., 2007). McCarthy (2005) found that educators want professional development that provides helpful information to effectively connect classroom learning to the professional world. Internships help educators make their instruction more relevant to students through experiences that increase their knowledge of jobs and

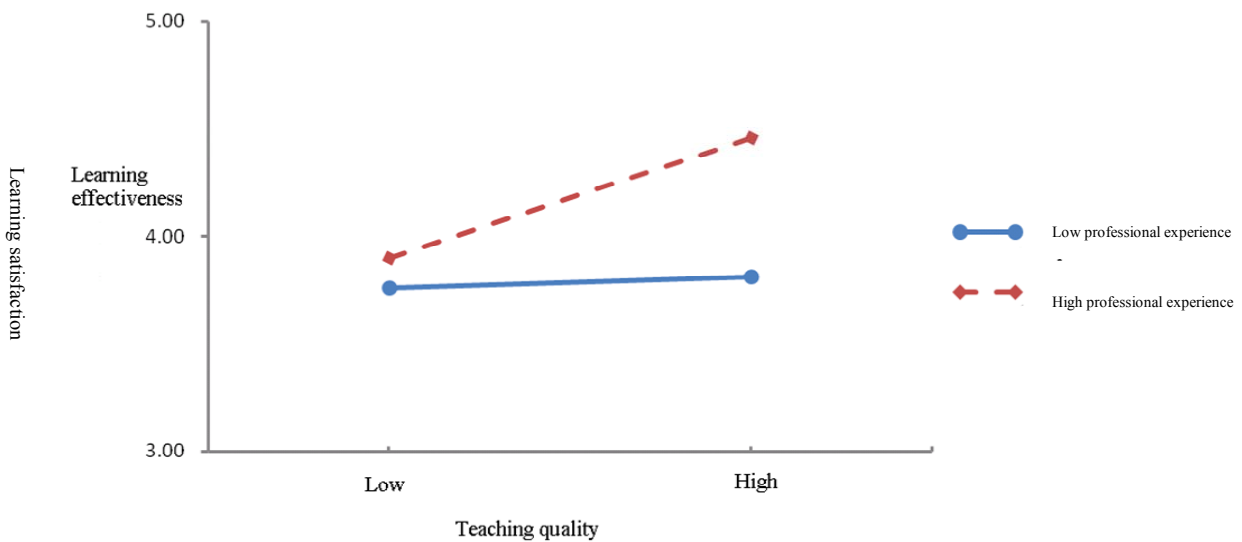
careers in the community, as seen in a comparative study of Taiwan and Australian vocational education, which highlighted that educators with business experience have better teaching performance than those without (Hsu et al., 2006).

The empirical results indicated that professional experience has a moderating effect on the relationship between teaching quality and student learning effectiveness. In other words, when teachers have low professional experience, the students' learning satisfaction will not have a significant relation with teaching quality; however, when teachers have high professional experience, the better the teaching quality, the higher the students' satisfaction will be. The level of professional experience correlates positively with teaching quality and students' learning satisfaction. However, this study also found that little or no professional experience had a slightly positive effect on teaching quality and students'

**Table 8.** Regression analysis of the effect of professional experience on teaching quality and learning satisfaction.

Variables	Learning satisfaction
Step 1: Control variables	
Gender	-.299**
Education level	-.139
Age	.121
Years of teaching	.220*
( $\Delta R^2$ )	.214***
Step 2: Antecedent variable	
Teaching quality	.176*
( $\Delta R^2$ )	.030*
Step 3: Moderator variable	
Professional experience	.264**
( $\Delta R^2$ )	.065**
Step 4: Interaction	
Teaching quality x professional experience	.177*
( $\Delta R^2$ )	.027*
$R^2$	.336
$\Delta R^2$	.300
F value	9.387***
Degree of freedom	7,130

Note: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ . N=138.

**Figure 2.** Moderating effect of professional experience on teaching quality and learning satisfaction.

learning satisfaction. The teaching quality of educators must be improved in order to enhance students' learning. Hertzman and Stefanelli (2008) found that educators perceived good teaching quality, such as supervisory skill, communication, and technical skill, as being most important to teaching quality.

In terms of professional spirit and attitude, educators should maintain instructional beliefs, attitudes, personal

morals, a passion for education, and regular advanced study in order to provide students with the latest and most correct knowledge and information. They should properly plan courses and select appropriate teaching materials. In the process of instruction, educators can observe differences among students and improve instruction according to the outcomes of multiple evaluations in order to teach students based on their

individual aptitudes. Aldridge and Rowley (1998) stated that, from the perspective of students, good quality education correlates with better learning opportunities, and that levels of satisfaction or dissatisfaction are strong predictors of learning success/failure. DeShield et al. (2005) stated that higher education institutions focus on identifying and satisfying the needs and expectations of students in areas such as academic achievement and learning facilities, and that the students' satisfaction positively influences their learning effectiveness.

In a modern society, new educators should have a certain number of years of practical experience. Further, in-service educators should regularly update and enhance their culinary knowledge and skills. Based on the results of this study, part-time educators with high skill levels, and educators with higher academic degrees may have professional culinary knowledge and skills superior to other educators. Thus, educators may work to improve their knowledge and skills through industry-academia cooperation projects, promoting collaboration with industry resources, and expanding the industry-academia cultivation model related to student internships. Concurrently, the academic performance of students in culinary courses may be enhanced through greater participation in academia-industry collaboration projects. The research literature reveals that continuous professional development is essential for teachers to review their learning needs and to acquire new knowledge, skills and competence (Snehi, 2011). Reese (2005) stated that educators must perceive and experience the practical demands of the workplace. Participation in full-time continuing education and/or internship programs (during summer breaks, for example) may help educators focus on the learning experience by being undisturbed by classroom responsibilities. Such opportunities can provide educators with hands-on experiences with new equipment and the technologies used in the workplace (Luft, 1999).

## Conclusion

The results indicated that teaching quality and learning satisfaction showed significant differences in teaching qualification, license acquisition and professional continuing education. Further, this study found that work experience significantly affected learning satisfaction. However, participation in competitions, assisting students in competitions, and the frequency of conducting industry-academia cooperation did not significantly affect teaching quality and learning satisfaction. This study found that teaching quality positively correlated with students' learning satisfaction. Further, it was found that professional work experience and certificates had the most significant effects on teaching quality and students' learning effectiveness. The professional experience has a moderating effect on the relationship between teaching quality and students' learning effectiveness.

## Limitations

While the authors did their best to maintain critical objectivity, this study has several limitations. One limitation is the small sample size, which limited the generalizability of the findings. Another limitation was the use of a self-assessment questionnaire to assess the participants' teaching quality and the students' learning satisfaction. Although a paired sample t test indicated that the students' perspectives were statistically similar to those of the educators, the authors recommend conducting a paired data study that enrolls educators as well as students, in order to obtain research data that is more accurate and objective. In addition, a dummy variable was used in this study to evaluate professional experience. Although experienced teachers and professionals in the education circles were invited to evaluate the intervals, it is possible that errors did exist. In the future, if there are sufficient teachers, the evaluation of the regulation results should be made by teachers with different professional experience.

Because many factors, such as learning climate and learning motive, affect students' learning satisfaction, this study recommends that future studies examine the effect of factor-related variability on learning satisfaction. Finally, this study used the single factor of learning satisfaction to evaluate students' learning effectiveness. Future researchers may consider objective factors such as academic grades, and further compare the moderating effects of different professional experience variables.

## Conflict of Interests

The authors have not declared any conflict of interests.

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