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Let's be a chef! The antecedents of chef's key competencies for vocational school students

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ABSTRACT

Chefs are considered a factor in the success of a culinary tourism business. Therefore, mastering the chef's key competencies (CKC) through vocational high schools is very important. Many studies have examined the competence of chefs. Still, the mechanism for getting key competency chefs involving industry commitment (IC), social support (SS), vocational teaching quality (TQ), and occupational self-efficacy (OSE) of culinary student chefs has not been discussed clearly. This study investigates the antecedents of the mastery of key chef competencies for vocational school students. This study involved 392 culinary students at seven vocational schools in Yogyakarta, Indonesia. Data was collected by proportional random sampling through a questionnaire. Amos 18 software is used for structural equation modeling (SEM) analysis. The study's results revealed that the mastery of the chef's critical competencies for students was directly and significantly influenced by IC, quality of vocational teaching, and OSE of chefs. In addition, chef OSE is a mediator on the influence of IC, SS, and quality of vocational teaching on mastering the chef's critical competencies for culinary students. This study's findings discuss in depth some of the implications for vocational education practitioners that are proposed for further improvement.

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1. INTRODUCTION

The growth of the food service industry continues to parallel the evolution of human needs. The provision of food services for the hospitality business is one of them. For instance, the number of international tourists visiting Indonesia climbed by 1.88%. In comparison, the average number of rooms utilized each night in all-star hotels in Indonesia in 2019 was 54.99% of the total number of rooms available [1], likewise affecting the delivery of food services. In addition, studies indicate that tourists allocate a substantial part of their travel budget—approximately one-third—on food-related experiences, underscoring the importance of culinary offerings in enhancing travel satisfaction and overall experience [2]. The 20%-30% of travel expenditures are spent on dining [3]. This situation encourages food suppliers, including hotels, restaurants, caterers, and other quality food producers, to compete to suit the gastronomic experience needs of tourists [4].

The quality of culinary products is crucial in determining visitor happiness [5]. According to scholars, the quality of the provided culinary products substantially impacts the satisfaction a tourist derives from a culinary tourism experience [6]. The quality of the cook or chef in the preparation of culinary products is crucial for the creation of high-grade culinary products. Therefore, preparing skilled chefs is

crucial to the growth of the culinary business, mainly through vocational education [7]. In Indonesia, the program for preparing chefs can be taught in vocational high schools. Vocational education is a style of education that focuses on educating skilled graduates for specific fields of employment [8]. However, vocational graduates have the highest unemployment rate depending on education.

In 2019, the unemployment rate increased by around 50,000 persons compared to the previous year, while the open unemployment rate decreased by 0.06 percentage points. According to the level of education, vocational high schools contribute the most to the open unemployment rate at 10.42%, the most significant percentage among all other levels of education [9]. The unemployment data for vocational high school graduates demonstrate that the actual condition of qualifications for vocational high school graduates has not met the needs of the world of work and has not been able to fulfill the purpose of vocational education, which is to assist individuals in identifying their suitability, readiness, and work capacity [8], [10]. In addition, job characteristics of the 21st century, such as increased automation and technology, have contributed to graduates' lack of readiness for the workforce.

There are several causes of the high unemployment rate among those with a high school diploma in a technical or trade area. One of the issues that vocational high schools face is that the vocational education system they were built on is no longer adequate to meet the needs of today's pupils [11]. Among these nonsensical requests is the training of workers for occupations that will be obsolete soon [12]. Furthermore, most schools are only able to develop human resources that can work in technical sorts of labor (regular and manual labor), and this has not yet led to preparing a workforce that works in top-level positions like management and the arts [13], [14]. Similarly, Mahfud *et al*. [15] found that many people who earn degrees in vocational fields feel unprepared to enter the workforce.

Furthermore, past research has shown that the competency gap between vocational education institutions and the needs of the world of work is the primary cause of the difficulties encountered by vocational education. Zopiatis [16] states that students often have difficulty applying what they have learned in the classroom to "real-world" scenarios. Meanwhile, Jauhari [17] states discrepancies between hotel sector needs and recruitment efforts regarding requisite skills have been found. Raybould and Wilkins [18] found a similar discrepancy between what the industry expects and what students think are the most critical abilities for graduates. For example, a study by Ayonmike and Okeke [19] found that those with degrees in vocational education were deficient in various essential competencies, the vast majority of which were broad abilities. In particular, research shows that many graduates lack critical practical experience, which is critical to success in a fast-paced environment, where creativity must align with market demand and profitability [20]. Entrepreneurs in the culinary industry have raised concerns that educational institutions often fail to equip students with the complex competencies needed to excel, including leadership, business acumen and effective managerial skills [21].

The study's preliminary research found that a variety of concerns surfaced outside those related to student competency, such as a perception that industry commitment (IC) was still subpar. The apprenticeship scheme is the only program involving the business world that has been executed successfully. While other initiatives, such as teaching factories and guest lecturers, may help students prepare for the working world, this one does not. The qualifications of recent graduates of culinary arts programs are sometimes subpar for other reasons as well. Student job choices are met with little social support (SS), vocational education falls short, and culinary school students lack confidence in their ability to succeed in the kitchen.

Referring to the empirical findings of past studies, vocational high schools must alter their educational system to be demand-driven. The demand-driven paradigm is the development of vocational high schools based on the needs of the business and industry sectors as vocational high school graduate consumers. Relevance or "link and match" efforts between the worlds of education and work can be made to prepare students, workers, and citizens for success in global skills competitions [22]–[24]. Relevance is a significant issue in the development of vocational education to prepare students, workers, and citizens for success in global skills competitions. Consequently, vocational high schools play a crucial role in training human resources with competitive and comparative advantages to compete and adapt to future demands.

The need for interdisciplinary skills in tourism is growing [25]. The term "interdisciplinary competence in the field of tourism" refers to the acquisition of skills and knowledge in the tourist industry that may be applied to completing tasks and duties in other related fields, such as the travel and hospitality industries. People require these essential skills for their professional and personal growth to adapt to an ever-evolving work environment. Mastery of core competencies provides a foundation for skill development in subsequent learning cycles [26], particularly in the context of professional skill acquisition. According to Tuparova *et al*. [27] and the European Commission [28], fundamental skills are essential for people to achieve happiness, grow as citizens, participate fully in society, find gainful employment, and advance in their professional lives. Critical competency development is also crucial for promoting sustainable growth and increasing opportunities for lifelong education [26].

Theoretically, essential competencies encompass not only a collection of knowledge but also a collection of skills, attitudes, and values [26]. According to Tuparova *et al*. [27], core competencies combine context-appropriate knowledge, abilities, and attitudes. The Minister of Manpower and Transmigration of the Republic of Indonesia stated that core competencies are the broad abilities required to meet performance criteria at the level of work required for the tasks and responsibilities of a specific job [29]. Thus, the chef's key competencies (CKC) are a collection of natural talents that serve as performance standards for fulfilling the chef's duty and responsibility.

Experts have different ideas about what makes up a chef's critical competencies. Study by Hu [30], for example, stated that an innovative chef needs to be good at product, culture, management, service, aesthetics, creativity, and technology. Other things you need to be a chef are attention to detail, business knowledge, cleanliness, creativity, cooking skills, the ability to make quick decisions, motivation, the ability to do more than one thing at once, organizational skills, and teamwork [31]. Allen and Iomaire [32] mentioned that a head chef needs to meet standards of professionalism, personality, leadership, management, and interaction with the work environment. The need for chefs to have key skills is critical in a world of work that is constantly changing. Even though many studies in the past showed how vital key competencies are for a chef's career, these studies were only able to identify them; they did not show how each chef could develop their key competencies.

Bandura [33] study of the social learning theory showed that student learning success, as measured by changes in behavior, is mainly affected by environmental factors and individual traits (personal). So, it is clear that developing key chef skills to achieve learning outcomes in schools needs to make sure that the education system works well at the same time between important factors like personal and environmental factors. Referring to this theory, the three dimensions of social learning theory are turned into five essential factors for developing key chef skills in vocational students: i) partner; ii) place; iii) process; iv) personal; and v) product, or the 5P vocational learning factor. In social learning theory, the first three factors show the environmental dimension. The personal factor shows the personal dimension, and the product factor shows the behavioral dimension.

First, the partner factor is the role of business or the community in activities for vocational learning, such as business commitment. Second is the place factor or social environment, which includes all the physical and social things that affect a person's development in the place where they learn [34]. For example, SS, learning culture, and learning climate are all things that make a place an excellent place to learn. Third, the process factor refers to the steps people take to make a set of changes in behavior that will happen as a result of learning. The quality of the teacher's teaching to help students master the learning outcomes is part of the process factor. Fourth, students' personalities play a role in learning to master a set of expected competencies. This factor has information about traits, personality, psychology, and intelligence. Lastly, the product factor in learning is seen as the result of learning activities, which are seen as changes in how students act. In this case, it can be shown by the skills or abilities gained through learning. It is thought that the importance of establishing essential competencies in vocational education institutions may produce human resources who are proficient in their disciplines and highly competitive in the global labor market. In numerous research, specialists have demonstrated the significance of fundamental skills for cooks [30]–[32], [35]–[39]. Future research must elucidate processes for generating or developing a CKC in individuals, particularly vocational high school students, based on identifying the CKC from earlier studies. This follow-up is essential for ensuring the availability of qualified chef candidates through vocational schools and the education system.

In addition, other studies reveal that the achievement of student learning outcomes in the form of achieving a set of competencies in vocational education is influenced by several significant factors, such as the commitment of the industry in the form of involvement [40]–[42], SS [43], [44], quality of vocational teaching [45], [46], and occupational self-efficacy (OSE) [47]–[49]. Developing chef's essential competences for vocational high school students is therefore regarded to necessitate a collaborative role involving IC, SS, quality of vocational instruction, and OSE. As a result, there is a pressing need for research into the interplay between industry dedication (partner), SS (place), instructional excellence (process), and individual confidence in one's ability to succeed in one's chosen profession (personal) and their impact on the formation of students' key competencies (products) in the culinary school. This was done to get a bird's-eye view of the main factors in shaping future chefs' fundamental skill sets. This study aimed to identify a framework for preparing culinary school students for the challenges they will face in the workplace of the twenty-first century by helping them acquire the necessary skills and knowledge. Culinary schools place a high value on students learning about the chef's key competence structure model so that they can send out competent and competitive graduates into the workforce. Figure 1 depicts the theoretical framework for this investigation.

Figure 1 is a conceptual model developed based on previous literature studies. A chef's competence is influenced by IC, SS, teaching quality (TQ), and OSE of vocational students. In addition, OSE also acts as a mediator on the effects of IC, SS, and TQ on chef competence. Furthermore, we believe several hypotheses need to be tested in this study, namely:

- H1: IC has a direct positive influence on the formation of key competency chefs in culinary school students.
- H2: SS has a direct positive influence on the formation of key competency chefs in culinary school students.
- H3: TQ has a direct positive influence on the formation of key competency chefs in culinary school students.
- H4: OSE has a direct positive influence on the formation of key competency chefs in culinary school students.
- H5: OSE mediates the effect of industrial commitment on the formation of key competency chefs in culinary school students.
- H6: OSE mediates the effects of SS on the formation of key competency chefs for culinary school students.
- H7: OSE mediates the effect of TQ on the formation of key competency chefs in culinary school students.

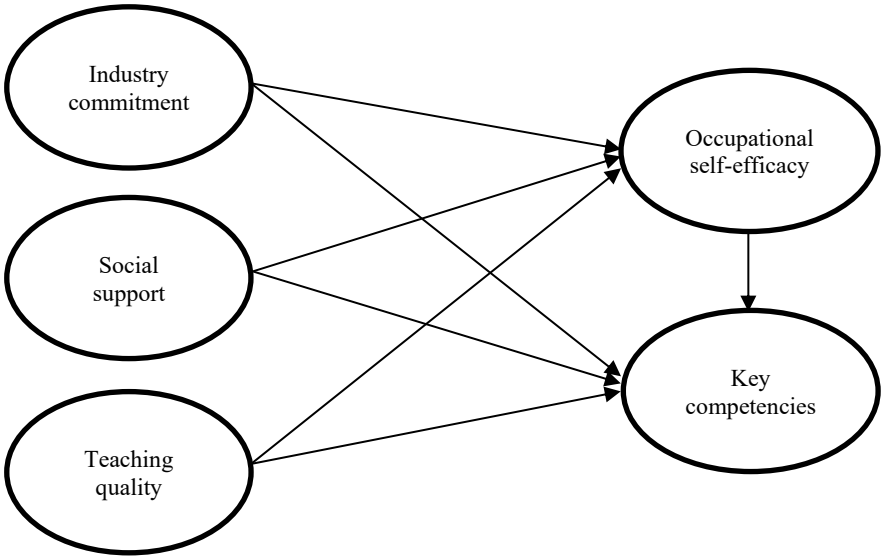

Figure 1. A hypothetical model for chef's key competency development

2. METHOD

This study uses a questionnaire as a data collection tool [50]. The data were collected using self-administered questionnaires, in which respondents answered the questionnaire questions without assistance from data collectors [51]. Questionnaires were delivered to respondents directly and taken back by data collectors. Respondents involved in data collection were 392 culinary school students from seven vocational high schools in Yogyakarta, Indonesia, as shown in Table 1. The criteria for students involved were third-grade students of vocational high schools for the Culinary Department in Yogyakarta who had participated in an internship program in the industry. Respondents filled in question items according to the questionnaire instructions without assistance from researchers or data collectors. Data collection for each variable is carried out using self-report. In other words, students rated their perceptions of IC, SS, quality of vocational teaching, OSE, and CKC.

Data on the CKC was revealed with the chef's key competency questionnaire, developed and adapted from the results of previous studies [32], [35], [36], [52]. The developed instrument consists of eight constructs: culinary skills, food hygiene and safety, creativity, aesthetics, interpersonal, business sense, leadership, and managerial. The eight key competencies are used as indicators in this study. Furthermore, each indicator is translated into smaller components. These components are the questions in the key competency questionnaire.

Table 1. Demographics of research respondents

Attribute	Category	N	Percentage (%)
Gender	Man	46	11.7
	Woman	346	88.3
Age	17 years old	185	47.2
	18 years old	197	50.3
	19 years old	8	2
	20 years old	2	0.5
Which school are you from?	State Vocational High School A	50	12.8
	State Vocational High School B	52	13.3
	State Vocational High School C	35	8.9
	State Vocational High School D	23	5.9
	State Vocational High School E	39	9.9
	State Vocational High School F	78	19.9
	State Vocational High School G	115	29.3

Meanwhile, the industrial commitment questionnaire revealed students' perceptions of industrial commitment, developed and adapted from previous studies [53], [54]. Referring to the study, there are essential indicators in revealing the industry's commitment: compensation, career opportunities, performance appraisal, involvement/participation, and empowerment. The description of each indicator into smaller components is adapted to the context of the learning environment in vocational schools. These components are the questions in the IC questionnaire.

Data on SS felt by students was revealed by the SS questionnaire, developed and adapted from Ray and Miller [55] instrument to measure SS from teachers, friends, and family. Furthermore, each of these indicators is described in the form of smaller support components, including teacher, friend and family support. In addition, the vocational TQ questionnaire revealed students' perceptions of TQ in vocational education were developed and adapted from a study conducted by Faraday *et al*. [56] regarding effective teaching and learning in vocational education. The study contains effective teaching and learning indicators in vocational education, including teaching models, teaching skills, teaching relationships, teaching contexts, and teaching reflection. Furthermore, each of these indicators is translated into smaller components.

The chef OSE questionnaire revealed the chef profession's OSE for students, developed and adapted from Zelenak's instrument [57]. Chef OSE for vocational students is explained through several indicators consisting of enactive experiences, modeling experiences, verbal or social persuasion, and emotional states. Furthermore, each of these indicators is translated into smaller components. These components form the questions in the cook OSE questionnaire. All questionnaires in this study used a Likert scale with five alternative answers: strongly agree, agree, neutral, disagree and disagree. The scoring weights used include strongly agree=5, agree=4, neutral=3, disagree=2, disagree=1.

We utilize SPSS version 20 to assure the validity and dependability of each variable's items. The Amos 18 program enabled us to do a structural equation modeling (SEM) analysis, which we employed to validate our hypotheses and models. First, the model's appropriateness is determined by comparing it to a set benchmark [58]. In addition, the derived p-value along the path of regression was examined to evaluate the research hypothesis at a significance level of 0.05. If the p-value is larger than 0.05, the hypothesis is deemed false; if it is less than 0.05, the hypothesis is deemed valid. To investigate the relevance of the involvement of social self-efficacy mediators in this study model, the bootstrapping confidence interval (CI) estimation method is utilized. This study uses 200 bootstrap samples and has a 90% confidence level.

3. RESULTS

3.1. Test the validity and reliability of the questionnaire

The validity test of the chef competency questionnaire, IC, SS, and quality of vocational teaching is shown in Table 2. All items in this study's questionnaire proved valid with the acquisition of Pearson correlation scores ranging from 0.267 to 0.736 (Sig.=0.000~0.041). In addition, Cronbach's alpha scores ranged from 0.744 to 0.908, which meant that all of the questionnaires in this study were reliable for measuring chef competence, IC, SS, and quality of vocational teaching.

3.2. Structural equation modeling analysis

SEM analysis was used to identify the antecedents of mastering key chef competencies for culinary school students. Based on the theoretical study, several critical antecedent factors were obtained in mastering the key chef competencies for students: IC, SS, quality of vocational teaching, and chef OSE. The first three factors, IC, SS, and quality of vocational teaching, act as exogenous variables. Meanwhile, the chef's OSE

acts as an endogenous variable and, at the same time, as a mediator between the relationship of the three exogenous variables to the CKC.

The results of the SEM analysis using SPSS AMOS 21 for Windows are shown in Figure 2. At a glance, the results of this analysis have shown a good fit model with the acquisition of goodness of index (GFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA) scores that meet the criteria. However, the Chi-square value is still too high (greater than 2.df), and this model can still be optimized by modifying it. Modifying the SEM model improves model fit better and increases the significance level of the regression path in the SEM model. This study's step of modifying the SEM model uses the Amos output reference on modification indices. Modification indices in Amos provide several suggestions to improve the model fit criteria.

Table 2. Questionnaire validity and reliability test results

Variable	Pearson correlation	Sig. (2-tailed)	Cronbach's alpha
Chef competence	0.267**~0.736**	0.000~0.041	0.908
IC	0.269**~0.702**	0.000~0.040	0.818
SS	0.405*~0.643**	0.000~0.001	0.744
Quality of vocational teaching	0.332**~0.679**	0.000~0.001	0.869
Chef OSE	0.387**~0.674**	0.000~0.001	0.894

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

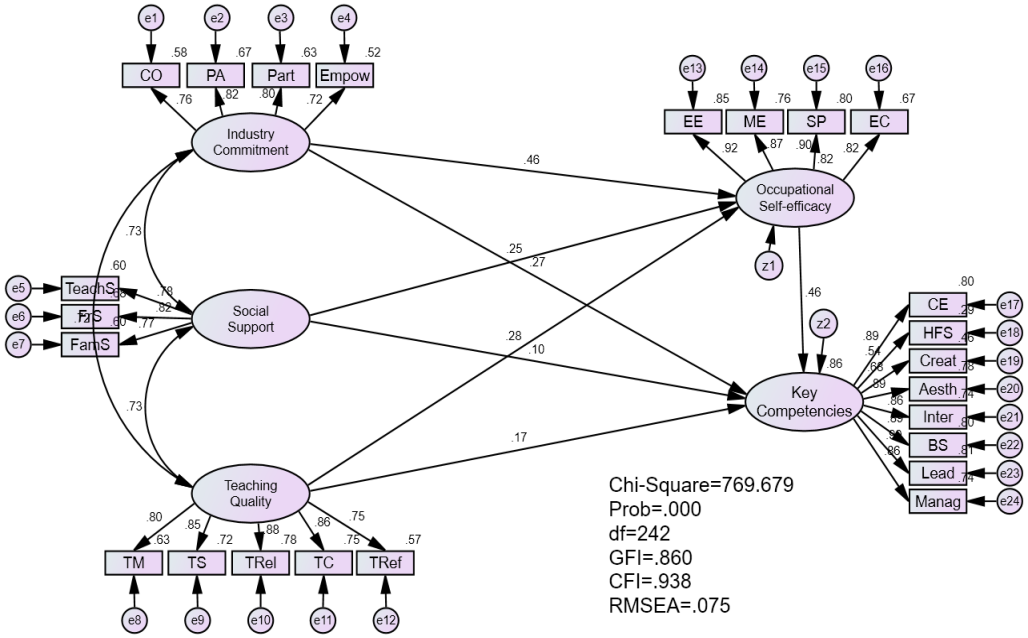

Figure 2. SEM analysis in the first model

After making several modifications to the SEM model by providing covariance paths for several error variables, as shown in Figure 3, the results of the SEM analysis on the modified model show that the acquisition of model fit criteria is better than the previous model. Although the Chi-square value is still above 2 df, several criteria have increased. The RMSEA value decreased by 0.007 in the modified model, which is close to close fit (RMSEA≤0.05). In addition, an increase in the model fit criteria was also experienced in the GFI and CFI criteria. The GFI value increased by 0.012, and the CFI value increased by 0.017.

The results of the SEM analysis on the modified model show good model fit results, as seen in Table 3. The fit model test in Table 3 shows that the Cmin/df, GFI, adjusted goodness of index (AGFI), RMSEA, Tucker-Lewis Index (TLI), CFI, and normed fit index (NFI) criteria provide a suitability index by the recommended limits. However, the Chi-square criteria, probability level, and root mean square residual (RMR) show that the criteria are not fit because they exceed the recommended limits. Overall, seven indices show the results of the fit model, and three indices show the model is not fit. Thus, it can be concluded that the entire SEM model regarding the structural model of chef mastery of key competencies for culinary school students is acceptable and has been tested empirically.

After obtaining good goodness of fit criteria in the full model and the assumptions of testing the hypothesis have been fulfilled, the research hypothesis is tested. They are testing the research hypothesis to determine the significance of the effect of exogenous variables on endogenous variables using the reference value of regression weights (p-value) in each regression path. In the context of this study, seven hypotheses will be tested by obtaining regression weights (p-values). The results of the regression test analysis on the seven hypotheses of this study are shown in Table 4.

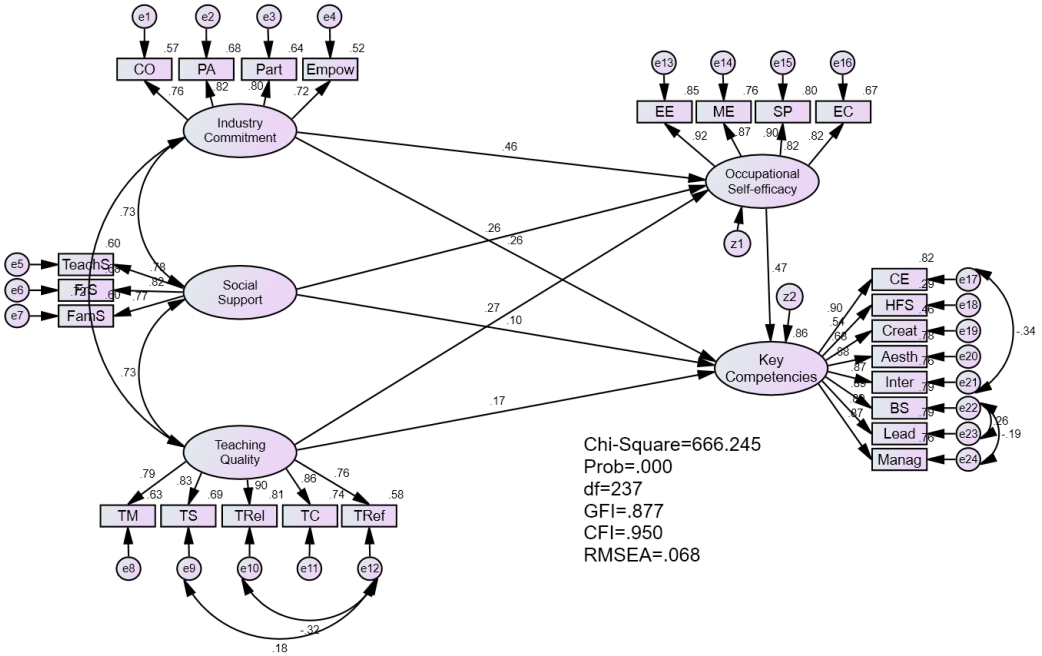

Figure 3. SEM analysis on the modified model

Table 3. SEM full model conformity index

Goodness of fit measure	Index value	Cut off-value	Note
df	237		
Chi-square of estimate model	666.245	<2 df	Models do not fit
Probability level	0.000	>0.05	Models do not fit
Cmin/df	2.811	≤5	Fit models
GFI	0.877	GFI≥0.9=good fit; 0.8≤GFI<0.9=marginal fit	Marginal fit
AGFI	0.844	AGFI≥0.9=good fit; 0.8≤AGFI<0.9=marginal fit	Marginal fit
RMSEA	0.068	≤0.08	Fit models
RMR	0.168	<0.05	Models do not fit
TLI	0.941	TLI≥0.9=good fit; 0.8≤TLI<0.9=marginal fit	Fit models
CFI	0.950	CFI≥0.9=good fit; 0.8≤CFI<0.9=marginal fit	Fit models
NFI	0.924	NFI≥0.9=good fit; 0.8≤NFI<0.9=marginal fit	Fit models

Table 4. Results of path analysis (standardized regression weights) of full model SEM

Regression path			Estimate	S. E	C. R.	P
IC	→	OSE	0.463	0.045	7.848	***
SS	→	OSE	0.259	0.078	4.285	***
TQ	→	OSE	0.274	0.116	5.114	***
OSE	→	CKC	0.467	0.086	6.394	***
TQ	→	CKC	0.171	0.119	3.671	***
IC	→	CKC	0.262	0.054	4.360	***
SS	→	CKC	0.097	0.079	1.879	0.060

***Very small p-value (smaller than 0.001).

The results indicate that IC has a significant direct positive effect on the mastery of CKC for culinary students (estimate=0.262; p-value<0.05; the first hypothesis is accepted). In addition, SS is proven to have a direct positive effect on the mastery of CKC for culinary students (estimate=0.097; p-value>0.05; the second

hypothesis is rejected). Another finding, testing the third hypothesis, assumes that the quality of vocational teaching significantly positively affects the mastery of CKC for culinary students. Based on the output of the SEM analysis with Amos in Table 4, the estimated value of the standardized regression weights is 0.171, and the p-value is very small (smaller than 0.001/***; the third hypothesis is accepted). We have also proven that chef OSE significantly has a direct positive effect on the mastery of CKC for culinary students (estimate=0.467; p-value<0.05; the fourth hypothesis is accepted).

Meanwhile, testing the significance of the role of the chef's OSE mediator in this research model uses the estimated bootstrapping CI analysis technique. This study used five hundred bootstrap samples with a 90% confidence level. This analysis technique tests the eighth, ninth, and tenth hypotheses. The results of the mediation role significance test with the bootstrapping method are shown in Table 5.

In the mediation test, our study shows that chef OSE significantly mediates the effect of IC on the mastery of CKC for culinary school students (estimate=0.216; p-value=0.002; CI=0.148~0.320; the fifth hypothesis is accepted). The type of mediation in this relationship is partial mediation. Furthermore, chef OSE was shown to significantly mediate the effect of SS on the mastery of CKC for culinary school students (estimate=0.121; p-value=0.005; CI=0.056~0.214; sixth hypothesis accepted). The type of mediation in this relationship is full mediation. And lastly, chef OSE also significantly mediates the influence of the quality of vocational teaching on the mastery of CKC for culinary school students (estimate=0.128; p-value=0.003; CI=0.072~0.211; the seventh hypothesis is accepted).

Table 5. Standardized effect and bootstrapping on full model SEM

Regression path			Standardized direct effect		Standardized indirect effect		Standardized total effect	
			Estimate	P-value	Estimate	P-value	Estimate	P-value
IC	→	OSE	0.463	0.003	-	-	0.463	0.003
SS	→	OSE	0.259	0.005	-	-	0.259	0.005
TQ	→	OSE	0.274	0.002	-	-	0.274	0.002
OSE	→	CKC	0.467	0.009	-	-	0.467	0.009
TQ	→	CKC	0.171	0.001	0.128	0.003	0.299	0.003
IC	→	CKC	0.262	0.003	0.216	0.002	0.478	0.002
SS	→	CKC	0.097	0.139	0.121	0.005	0.218	0.004

4. DISCUSSION

The role of culinary vocational high schools in preparing prospective professional workers in the culinary field has been in the spotlight. Culinary school is considered an essential program for preparing professional chefs through the education system. In addition, mastery of key chef competencies for vocational high school students is essential to becoming a professional chef. In this context, the CKC must be internalized through the education curriculum in vocational high schools. The achievement of student learning outcomes in the form of behavior change depends on two dimensions: the environmental dimension and individual characteristics [33]. Therefore, mastery of the CKC for culinary school students needs to ensure that the education system runs well simultaneously between important antecedent factors, which include personal and environmental dimensions.

The results of this study reveal that IC significantly has a direct positive effect on the mastery of CKC for culinary school students. These findings indicate that industry contributions in providing career opportunities, performance appraisal, participation, and student empowerment can improve culinary school students' mastery of key chef competencies. The industry's role in vocational learning is defined as the extent to which the industry's commitment is directly involved in preparing and developing human resources to enter the world of work. One form of IC in vocational high school learning is being involved in an apprenticeship program. The industry plays a vital role in developing students' competence in practicing fieldwork [41]. Previous study also revealed that IC to being involved in the learning process could provide real experiences, build career networks, and develop student skills not [40]. Industry involvement in vocational education is necessary to ensure the sustainability of vocational high schools. In addition, building partnerships with industry is one of the characteristics of the concept of work-based learning (WBL) [59].

Another finding is that SS does not significantly positively affect the mastery of the CKC for culinary school students. These results show different findings from previous studies. Theoretically, SS is believed to influence mastery of key chef competencies for vocational high school students. SS from teachers, peers, and parents can encourage positive academic outcomes and prevent negative psychological emergence during adolescence [60], [61]. Other studies also state that SS can affect their physical, mental, and social behavior [62]. This SS is a social resource that students feel for mastering their key chef competencies. Student SS sources include teachers, friends, and family. In addition, this SS includes tangible support, appraisal support, and belonging support. Several possibilities cause this to happen; namely, one of

the achievements of student's perceptions of their SS varies, and the teacher's source of support for student's mastery of key chef competencies is the highest. They are next, followed by the support of family and friends. This means that SS from teachers, friends, and family has not been able to significantly impact the mastery of key competency chefs for vocational high school students.

The study results show that the quality of vocational teaching significantly has a direct positive effect on the mastery of CKC for culinary school students. This finding reinforces the results of previous studies, which state that adequate TQ in vocational education is beneficial in achieving the expected learning outcomes [56], [63]. In this study, the quality of vocational teaching includes the extent to which teaching models, teaching skills, teaching relationships, teaching contexts, and teaching reflections are carried out by teachers in the teaching and learning process in class. Suppose you look at the loading factor gain for each indicator on the variable quality of vocational teaching. In that case, it is obtained that the teaching relationship indicator has the most significant contribution. The teacher's awareness to build attention, appreciation, interaction, and positive responses to students is essential. In principle, the main goal of building a teaching relationship between teachers and students is to obtain information on students' learning needs. Thus, teaching strategies must be developed based on student's learning needs.

We also found that chef OSE significantly positively affected the mastery of the CKC for culinary school students. This finding reinforces the results of previous studies, which stated that OSE has a significant role in performance [49]. In addition, OSE has been positively associated with professional performance, skills development, job involvement, positive attitudes toward the organization, and job satisfaction [64], [65]. In this study, OSE describes the extent to which students' confidence in mastering the chef's occupation. Students reported their chef OSE by self-reporting about reactive mastery experiences, modeling experiences, social persuasion, and emotional states related to chef occupations.

In addition, we prove that chef OSE significantly mediates the effect of IC on the mastery of CKC for culinary school students. This mediation role is partial mediation. The influence of industrial commitment to mastering the CKC by involving the chef's OSE as a mediator gives a more significant influence than without mediation. One form of IC to learning in vocational high schools is involvement in apprenticeship programs or on-the-job training. The students' work experience while apprenticing in the industry boosts their confidence to become skilled in the occupational chef. The routine of students doing chef's occupational tasks during the apprenticeship has encouraged them to be more confident in being able to work as chefs. And in the end, it will simultaneously influence the mastery of CKC for culinary school students.

Also, this study examines the mediating role of chef OSE on the effect of SS on the mastery of CKC for culinary school students. Our findings show that chef OSE significantly mediates the effect of SS on the mastery of CKC for culinary school students. Referring to previous findings in this study, SS from teachers, friends, and family did not directly affect the mastery of the CKC. However, this SS can shape students' confidence or self-efficacy toward work abilities in chef occupations. In the end, they can simultaneously encourage the mastery of key chef competencies for culinary school students. SS from teachers, peers, and parents can encourage the formation of positive psychology during adolescence [60], [61]. In addition, students will develop self-confidence and competence when they feel accepted by their peers [66]. These results also reinforce the findings of previous studies, which revealed that SS from teachers, friends, and school institutions influences students' ability expectations and simultaneously influences their behavior and performance [67]. Thus, it can be concluded that chef OSE can strengthen the effect of SS on the mastery of CKC for culinary school students.

Lastly, our study proves that chef OSE significantly mediates the effect of vocational TQ on the mastery of CKC for culinary school students. These results corroborate previous studies which state that teachers' teaching skills indirectly influence student learning outcomes through their psychological control [46]. Therefore, teachers must pay attention to the psychological aspects of students in the teaching process in class to support the achievement of planned student learning outcomes, namely in the form of mastering the CKC. Although the quality of vocational teaching influences the mastery of the CKC, the magnitude of the effect is not greater when involving OSE as a mediator. In other words, OSE plays a vital role in maximizing student learning outcomes by mastering the CKC. Good TQ will encourage the creation of positive student learning experiences that impact the formation of OSE and simultaneously on the development of key chef competencies for vocational high school students.

Thus, integrating student situational and personal aspects, including TQ factors, SS, IC, and chef OSE, is essential to optimize the mastery of CKC for culinary school students. Schools must strengthen these factors by involving various parties such as teachers, students, parents, and industry. Because, in principle, stakeholder synergy is an essential aspect of the success of learning objectives in vocational high schools. In particular, the role of vocational high schools in the culinary field is to realize skilled and superior human resources in the chef profession.

5. CONCLUSION

An understanding of the mastery of the CKC and how the forming factors are significant for vocational high school stakeholders, especially teachers and students. The results of this study answer the problems of previous studies that have not examined how to form a CKC. Mastery of a CKC is directly and significantly influenced by IC, quality of vocational teaching, and OSE of chefs. In addition, chef OSE is a mediator on the influence of IC, SS, and the quality of vocational teaching on the mastery of key chef competencies for culinary school students. The role of partial mediation is shown by the mediation of the chef's OSE on the influence of industrial commitment and the quality of vocational teaching on the mastery of the CKC for culinary school students. Meanwhile, the role of full mediation was shown by the mediation of chef OSE on the effect of SS on mastering key chef competencies for culinary school students.

The results of this study have implications for the importance of building integrated engagement between teachers, industry, family, friends, and students in vocational learning to achieve learning outcomes by mastering the CKC. The CKC in this study need to be internalized in curriculum development and implementation of learning in culinary schools. The development of the vocational high school curriculum does not only consider the needs of the industrial world as demand-driven but also needs to consider the needs of students for self-capacity development. Therefore, OSE becomes an essential personal aspect of supporting the mastery of CKC for culinary school students.

This research has several limitations. One of the limitations of this study is that this research uses self-report techniques to collect data, so there is a potential for bias. This is because students self-assess their mastery of key chef competencies, so this assessment has the potential to be biased and subjective. Therefore, further research needs to involve other respondents to confirm student answers. Other respondents, such as teachers, industry, or colleagues, can be involved to get more objective results. In addition, further research needs to involve respondents from the chef workforce as individuals directly involved in the chef's occupational tasks. Their involvement as respondents will enhance the context of research on occupational chefs.

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C : **C**onceptualization
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E : Writing - Review & **E**diting
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CONFLICT OF INTEREST STATEMENT

The authors declare that there is no conflict of interest regarding the publication of this research. All data collection and analysis were conducted objectively.

DATA AVAILABILITY

Derived data supporting the findings of this study are available from the corresponding author [BL], on request.

REFERENCES

[1] Central Bureau of Statistics, *Occupancy Rate of Hotel Room 2019*. Jakarta: BPS-Statistics Indonesia (in Indonesian), 2019. Accessed Sep. 24, 2022. [Online]. Available: https://www.bps.go.id/id/publication/2020/06/26/aec4b5c502efc9e93468b793/tingkat-penghunian-kamar-hotel-2019.html

[2] Roslina, H. Jimad, and A. Sari, "Intention to Revisit Culinary Tourism," in *Proceedings of the 3rd Universitas Lampung International Conference on Social Sciences (ULICoSS 2022)*, 2023, pp. 204–215, doi: 10.2991/978-2-38476-046-6_20.

[3] L. Paulsson, *Economic and employment effects of tourism in Skåne 2013*. Stockholm: Resurs TEM (in Swedish), 2014.

[4] C. Hall, "The consumption of experiences or the experience of consumption? An introduction to the tourism of taste," in *Food Tourism Around The* World, 1st ed., C. M. Hall, L. Sharples, R. Mitchell, N. Macionis, and B. Cambourne, Eds., London: Routledge, 2003, pp. 1–24, doi: 10.1016/b978-0-7506-5503-3.50004-x.

[5] R. D. Hernández-Rojas and N. H. Alcocer, "The role of traditional restaurants in tourist destination loyalty," *PLoS One*, vol. 16, no. 6, 2021, doi: 10.1371/journal.pone.0253088.

[6] M. Kristanti, R. Jokom, S. Wijaya, and D. C. Widjaja, "Culinary Experience Towards Behavioral of Domestic Tourists in Solo and Bandung, Indonesia," *Kinerja*, vol. 22, no. 2, pp. 186–199, Nov. 2018, doi: 10.24002/kinerja.v22i2.1813.

[7] S. Hudson, "North America," in *An international handbook of tourism education*, D. Airey and J. Tribe, Eds., Amsterdam: Elsevier, 2005, pp. 223–239.

[8] S. Billet, *Vocational education: Purpose, tradition and prospects.* New York: Springer, 2011.

[9] Central Bureau of Statistics, "Indonesian Labor Situation February 2019," (in Indonesian), 2019. Accessed Sep. 24, 2022. [Online]. Available: https://www.bps.go.id/pressrelease/2019/05/06/1564/februari-2019--tingkat-pengangguran-terbuka--tpt--sebesar-5-01-persen.html

[10] T. Mahfud, I. Siswanto, D. S. Wijayanto, and P. F. Puspitasari, "Antecedent factors of vocational high school students' readiness for selecting careers: A case in Indonesia," *Cakrawala Pendidikan*, vol. 39, no. 3, pp. 633–644, 2020, doi: 10.21831/cp.v39i3.32310.

[11] M. S. Tucker, "Standing on the Shoulders of Giants: An American Agenda for Education Reform," National Center on Education and the Economy (NJ3), 2011. [Online]. Available: https://eric.ed.gov/?id=ED522108

[12] M. Fullan and L. R. Miller, *Stratosphere: Integrating Technology, Pedagogy, and Change Knowledge*. Toronto, Canada: Pearson, 2012.

[13] B. Trilling and C. Fadel, *21st Century Skills: Learning for Life in Our Times*, 1st ed. San Francisco, CA: John Wiley & Sons, 2012.

[14] K. Vaughan, *Workplace learning: a literature review*. Auckland: The New Zealand Engineering Food & Manufacturing Industry Training, 2008.

[15] T. Mahfud, B. K. Jati, and Y. Mulyani, "Soft skill competency map for the apprenticeship programme in the Indonesian Balikpapan hospitality industry," *Journal of Technical Education and Training*, vol. 9, no. 2, pp. 16–34, 2017.

[16] A. Zopiatis, "Hospitality internships in Cyprus: a genuine academic experience or a continuing frustration?" *International Journal of Contemporary Hospitality Management*, vol. 19, no. 1, pp. 65–77, Feb. 2007, doi: 10.1108/09596110710724170.

[17] V. Jauhari, "Competencies for a career in the hospitality industry: an Indian perspective," *International Journal of Contemporary Hospitality Management*, vol. 18, no. 2, pp. 123–134, Feb. 2006, doi: 10.1108/09596110610646673.

[18] M. Raybould and H. Wilkins, "Over Qualified and Under Experienced: Turning Graduates into Hospitality Managers," *International Journal of Contemporary Hospitality Management*, vol. 17, no. 3, pp. 203–216, 2005, doi: 10.1108/09596110510591891.

[19] C. S. Ayonmike and B. C. Okeke, "Bridging the skills gap and tackling unemployment of vocational graduates through partnerships in Nigeria," *Journal of Technical Education and Training*, vol. 8, no. 2, pp. 1–11, 2016.

[20] P. M. C. Lin and T. Baum, "The Meaning of Applied Creativity in the Culinary Industry," *International Journal of Hospitality & Tourism Administration*, vol. 17, no. 4, pp. 429–448, Oct. 2016, doi: 10.1080/15256480.2016.1226153.

[21] E. Marinakou and C. Giousmpasoglou, "Chefs' competencies: a stakeholder's perspective," *Journal of Hospitality and Tourism Insights*, vol. 5, no. 1, pp. 205–229, Jan. 2022, doi: 10.1108/JHTI-06-2020-0101.

[22] P. Tynjälä, "Connectivity and Transformation in Work-Related Learning–Theoretical Foundations," in *Towards Integration of Work and Learning Strategies for Connectivity and Transformation*, M.-L. Stenstrom and P. Tynjälä, Eds., Dordrecht: Springer, 2009, pp. 11–37, doi: 10.1007/978-1-4020-8962-6_2

[23] A. G. Tamrin, S. Slamet, and S. Soenarto, "The link and match of the demand and supply for productive vocational school teachers with regard to spectrum of vocational skills in the perspective of education decentralization," *Jurnal Pendidikan Vokasi*, vol. 8, no. 1, p. 40, Feb. 2018, doi: 10.21831/jpv.v8i1.15135.

[24] M. Chankseliani, S. J. Relly, and A. Laczik, "Overcoming vocational prejudice: how can skills competitions improve the attractiveness of vocational education and training in the UK?" *British Educational Research Journal*, vol. 42, no. 4, pp. 582–599, 2016, doi: 10.1002/berj.3218.

[25] A. Zehrer and C. Mössenlechner, "Key Competencies of Tourism Graduates: The Employers' Point of View," *Journal of Teaching in Travel & Tourism*, vol. 9, no. 3–4, pp. 266–287, Dec. 2009, doi: 10.1080/15313220903445215.

[26] C. Dumitrescu, L. Drăghicescu, R. L. Olteanu, and A.-M. Suduc, "Key Competences for Sustainable Development – Aspects Related with SUSTAIN Project Activity," *Procedia - Social and Behavioral Sciences*, vol. 141, pp. 1101–1105, Aug. 2014, doi: 10.1016/j.sbspro.2014.05.185.

[27] D. Tuparova, M. Kaseva, and G. Tuparov, "Development of Key Competences through ICT in Primary School," *Procedia - Social and Behavioral Sciences*, vol. 116, pp. 2952–2956, Feb. 2014, doi: 10.1016/j.sbspro.2014.01.686.
[28] European Commission, "Proposal for a Council recommendation on Key Competences for Lifelong Learning," *European Commission*, 2018. Accessed Sep. 24, 2022. [Online]. Available: https://ec.europa.eu/education/sites/education/files/swd-recommendation-key-competences-lifelong-learning.pdf
[29] Decree of the Minister of Manpower and Transmigration of the Republic of Indonesia Number KEP.318/MEN/IX/2007 concerning the Determination of the Indonesian National Competency Standards for the Food and Beverage Service Sector of the Restaurant, Bar and Food Service Sub-Sector of the Food Service Industry, 2007. Accessed Aug. 24, 2018. [Online]. Available: https://peraturan.infoasn.id/keputusan-menteri-tenaga-kerja-dan-transmigrasi-nomor-kep-318-men-ix-2007/
[30] M.-L. M. Hu, "Developing a core competency model of innovative culinary development," *International Journal of Hospitality Management*, vol. 29, no. 4, pp. 582–590, Dec. 2010, doi: 10.1016/j.ijhm.2009.10.024.
[31] A. Doyle, "Chef Skills List and Examples," The Balance Careers, 2018. Accessed Aug. 24, 2018. [Online]. Available: https://www.thebalancecareers.com/chef-skills-list-2062369
[32] H. Allen and M. M. C. Iomaire, "Secrets of a Head Chef: Exploring Factors Influencing Success in Irish Kitchens," *Journal of Culinary Science & Technology*, vol. 15, no. 3, pp. 187–222, Jul. 2017, doi: 10.1080/15428052.2016.1225538.
[33] A. Bandura, *Social learning theory*. New York: General Learning Press, 1971.
[34] J. P. Chaplin, *Dictionary of Psychology*. New York: Dell Publishing Co., Inc., 2005.
[35] K. Birdir and T. E. Pearson, "Research chefs' competencies: a Delphi approach," *International Journal of Contemporary Hospitality Management*, vol. 12, no. 3, pp. 205–209, Jun. 2000, doi: 10.1108/09596110010309989.
[36] A. Zopiatis, "Is it art or science? Chef's competencies for success," *International Journal of Hospitality Management*, vol. 29, no. 3, pp. 459–467, Sep. 2010, doi: 10.1016/j.ijhm.2009.12.003.
[37] R. J. Harrington, "Chef as CEO: An analogy and teaching tool," *Journal of Culinary Science and Technology*, vol. 4, no. 1, pp. 39–52, 2005, doi: doi:10.1300/J385v04n01_06.
[38] K. Balazs, "Take One Entrepreneur: The recipe for success of France's great chefs," *European Management Journal*, vol. 20, no. 3, pp. 247–259, Jun. 2002, doi: 10.1016/S0263-2373(02)00040-3.
[39] M. Cheng and R. Bosselman, "An Evaluation of the Research Chefs Association's Bachelor of Science in Culinology® Core Competencies," *Journal of Hospitality & Tourism Education*, vol. 28, no. 3, pp. 127–141, Jul. 2016, doi: 10.1080/10963758.2016.1189831.
[40] C. Burns and S. Chopra, "A meta-analysis of the effect of industry engagement on student learning in undergraduate programs," *Journal of Technology, Management, and Applied Engineering*, vol. 33, no. 1, pp. 1–20, 2017.
[41] E. A. G. Castro, "Industry participation in developing competencies for employment success: Learnings from a 3-year OJT program of a Philippine higher education institution," in *Widyatama International Seminar (WIS)*, 2014, pp. 167–177.
[42] Y. K. P. Wan, I. A. Wong, and W. H. Kong, "Student career prospect and industry commitment: The roles of industry attitude, perceived social status, and salary expectations," *Tourism Management*, vol. 40, pp. 1–14, Feb. 2014, doi: 10.1016/j.tourman.2013.05.004.
[43] R. M. Bond, V. Chykina, and J. J. Jones, "Social network effects on academic achievement," *The Social Science Journal*, vol. 54, no. 4, pp. 438–449, Dec. 2017, doi: 10.1016/j.soscij.2017.06.001.
[44] G. de la Iglesia, J. B. Stover, and M. Fernández Liporace, "Perceived Social Support and Academic Achievement in Argentinean College Students," *Europe's Journal of Psychology*, vol. 10, no. 4, pp. 637–649, Nov. 2014, doi: 10.5964/ejop.v10i4.777.
[45] J. B. Azigwe, L. Kyriakides, A. Panayiotou, and B. P. M. Creemers, "The impact of effective teaching characteristics in promoting student achievement in Ghana," *International Journal of Educational Development*, vol. 51, pp. 51–61, Nov. 2016, doi: 10.1016/j.ijedudev.2016.07.004.
[46] A. Muntaner-Mas, J. Vidal-Conti, A. Sesé, and P. Palou, "Teaching skills, students' emotions, perceived control and academic achievement in university students: A SEM approach," *Teaching and Teacher Education*, vol. 67, pp. 1–8, Oct. 2017, doi: 10.1016/j.tate.2017.05.013.
[47] T. Seifert, "Understanding student motivation," *Educational Research*, vol. 46, no. 2, pp. 137–149, Jun. 2004, doi: 10.1080/0013188042000222421.
[48] M. Yusuf, "The impact of self-efficacy, achievement motivation, and self-regulated learning strategies on students' academic achievement," *Procedia - Social and Behavioral Sciences*, vol. 15, pp. 2623–2626, 2011, doi: 10.1016/j.sbspro.2011.04.158.
[49] F. Çetin and D. Aşkun, "The effect of occupational self-efficacy on work performance through intrinsic work motivation," *Management Research Review*, vol. 41, no. 2, pp. 186–201, Mar. 2018, doi: 10.1108/MRR-03-2017-0062.
[50] D. Ary, L. C. Jacobs, and A. Razavieh, *Introduction to research in education*, 6th ed. New York: CBS College Publishing, 1985.
[51] E. D. de Leeuw, *Choosing the Method of Data Collection*. New York: Lawrence Erlbaum Associates, 2008.
[52] T. Mahfud, M. N., Pardjono, and B. Lastariwati, "Validation of the chefs' key competencies questionnaire: A culinary student perspective," *Journal of Technical Education and Training*, vol. 12, no. 4, pp. 27–38, 2020, doi: 10.30880/jtet.2020.12.04.003.
[53] M. F. Y. Cheung and W. M. To, "Management commitment to service quality and organizational outcomes," *Managing Service Quality: An International Journal*, vol. 20, no. 3, pp. 259–272, May 2010, doi: 10.1108/09604521011041970.
[54] M. R. B. Rubel, N. N. Rimi, M.-Y. Yusliza, and D. M. H. Kee, "High commitment human resource management practices and employee service behaviour: Trust in management as mediator," *IIMB Management Review*, vol. 30, no. 4, pp. 316–329, Dec. 2018, doi: 10.1016/j.iimb.2018.05.006.
[55] E. B. Ray and K. I. Miller, "Social Support, Home/Work Stress, and Burnout: Who Can Help?" *The Journal of Applied Behavioral Science*, vol. 30, no. 3, pp. 357–373, 1994, doi: 10.1177/0021886394303007.
[56] S. Faraday, C. Overton, and S. Cooper, *Effective teaching and learning in vocational education*. London: LSN Learning, 2011.
[57] M. Zelenak, "Self-Efficacy in Music Performance: Measuring the Sources among Secondary School Music Students," Ph.D. dissertation, University of South Florida, Tampa, Florida, United States, 2011.
[58] J. Hair, W. Black, B. Babin, and R. Anderson, *Multivariate Data Analysis: A Global Perspective*, 7th ed. Upper Saddle River, NJ: Pearson Prentice Hall, 2010.
[59] L. Brennan, *Integrating work based learning into higher education: a guide to good practice*. Bolton: University Vocational Awards Council, 2005.
[60] C. K. Malecki and M. K. Demaray, "Social Support as a Buffer in the Relationship between Socioeconomic Status and Academic Performance," *School Psychology Quarterly*, vol. 21, no. 4, pp. 375–395, 2006, doi: 10.1037/h0084129.
[61] N. Garnefski and R. F. W. Diekstra, "Perceived Social Support from Family, School, and Peers: Relationship with Emotional and Behavioral Problems among Adolescents," *Journal of the American Academy of Child & Adolescent Psychiatry*, vol. 35, no. 12, pp. 1657–1664, Dec. 1996, doi: 10.1097/00004583-199612000-00018.

[62] S. Cohen, L. G. Underwood, and B. H. Gottlieb, *Social Support Measurement and Intervention*. Oxford: Oxford University Press, 2000, doi: 10.1093/med:psych/9780195126709.001.0001.
[63] R. H. Heck, "Teacher effectiveness and student achievement: Investigating a multilevel cross-classified model," *Journal of Educational Administration*, vol. 47, no. 2, pp. 227–249, 2009, doi: 10.1108/09578230910941066.
[64] M. D. Líbano, S. Llorens, M. Salanoval, and W. B. Schaufeli, "About the dark and bright sides of self-efficacy: workaholism and work engagement," *The Spanish Journal of Psychology*, vol. 15, no. 2, pp. 688–701, 2012, doi: 10.5209/rev_SJOP.2012.v15.n2.38883.
[65] T. Rigotti, B. Schyns, and G. Mohr, "A Short Version of the Occupational Self-Efficacy Scale: Structural and Construct Validity Across Five Countries," *Journal of Career Assessment*, vol. 16, no. 2, pp. 238–255, May 2008, doi: 10.1177/1069072707305763.
[66 J. T. Guthrie and A. Wigfield, "Engagement and motivation in reading," in *Handbook of Reading Research*, M. L. Kamil, P. B. Mosenthal, P. D. Pearson, and R. Barr, Eds., Mahwah, NJ: Lawrence Erlbaum Associates Publishers, 2000, pp. 403–422.
[67] S. Dupont, B. Galand, and F. Nils, "The impact of different sources of social support on academic performance: Intervening factors and mediated pathways in the case of master's thesis," *European Review of Applied Psychology*, vol. 65, no. 5, pp. 227–237, Sep. 2015, doi: 10.1016/j.erap.2015.08.003.

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