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Functional Literacy, Numeracy, Problem Solving and Their Impacts on Students' Culinary Skill Creativity at Culinary Vocational School

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Abstract: This study aims to analyze functional literacy, numeracy, problem solving skills and their impacts on students' culinary creativity at Culinary Vocational School.This study is a research of*explanatory survey method*. The population in this study is all eleventh graders (second-year students) ofCulinary Vocational Schoolin Malang Rayawho have done *Praktik Kerja Industri* (Industrial Work Practice). The sampling technique used was *purposive sampling*with the samples of 327 respondents. The instruments used in the research were *Guttman*-scale questionnaires for functional literacy and numeracy and *Likert*-scale questionnaires for problem solving and culinary creativity. The findings of the research show that functional literacy has no effects on culinary creativity. Meanwhile, information literacy has effects on culinary creativity; numeracy has no effects on culinary creativity; and problem solving has effects on culinary creativity.The coefficient value for functional literacy is -0,164, which means that every increase of one value of functional literacy variable will cause an increase of the value of culinary creativity as much as -0.164 with the assumption that other variables remain the same. The coefficient value for numeracy is 0.464, which means that every increase of one value of numeracy variable will cause an increase of the value of culinary creativity as much as 0.464 with the assumption that other variables remain the same. The coefficient value for problem solving is 0.687, which means that every increase of one value of problem solving variable will cause an increase of the value of culinary creativity as much as 0.318 with the assumption that other variables remain the same.Functional literacy, numeracy, and problem solving have effects on culinary skill creativity as much as 32.7%, and 67.3% is affected by other factors.

Keywords: skill, functional literacy, numeracy, problem solving, culinary skill creativity.

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I. INTRODUCTION

Jasa Boga(Culinary Services) is a skill competence under *Program Studi Keahlian Tata Boga, Bidang Studi Keahlian Pariwisata* (A Study Program of Culinary Expertise, Tourism Expertise Field of Study). The competence of culinary service expertise is to study the knowledge and the skills in the fields of processing, presenting, and serving food and beverages. The competence of culinary service expertise also prepares students to work in the work field managed by the agency or institutions of tourism, hotels, restaurants, catering and hospitals as well as prepare them to be enterpreneurs in the business field of food supply.

The objective of culinary expertise program as stated in the contents of the National Education System Act (also known as UU SPN), article 3 on The Objectives of National Education and the explanation of article 15, states that vocational education is secondary education that prepares students primarily to work in a certain field. Specifically, the objectives of culinary expertise program are to equip students with skills, knowledge, and attitudes in order to be competent in: 1) prosessing and serving continental cuisines, which consist of appetizers, main menu, and desserts; 2) processing and serving Indonesian cuisines, which consist of appetizers, staple foods (main menu), side dishes and desserts; 3) serving food and beverages in a restaurant or a hotel, as well as organize the dining tables and buffet tables; 4) processing and serving various non-alcoholic drinks; and 5) organizing the service operations of food and beverages in a restaurant (Directorate of PSMK). According to Lettmayr F., Christian (2012:15), vocational education is designed to enable students to develop practical skills, knowledge and understanding needed to work in a certain field. The World Economic Forum identifies around sixteen skills that students in the 21st century must have, which are described from 3 components, namely: the skill of literacy, competency, and character quality. Foundational literacy is the way in which students apply core skills to daily tasks. Competency is a thing related to how students approach complex challenges.

Meanwhile, character quality is how students are able to approach the changing environment (www.weforum.org). It is further described in the following figure.

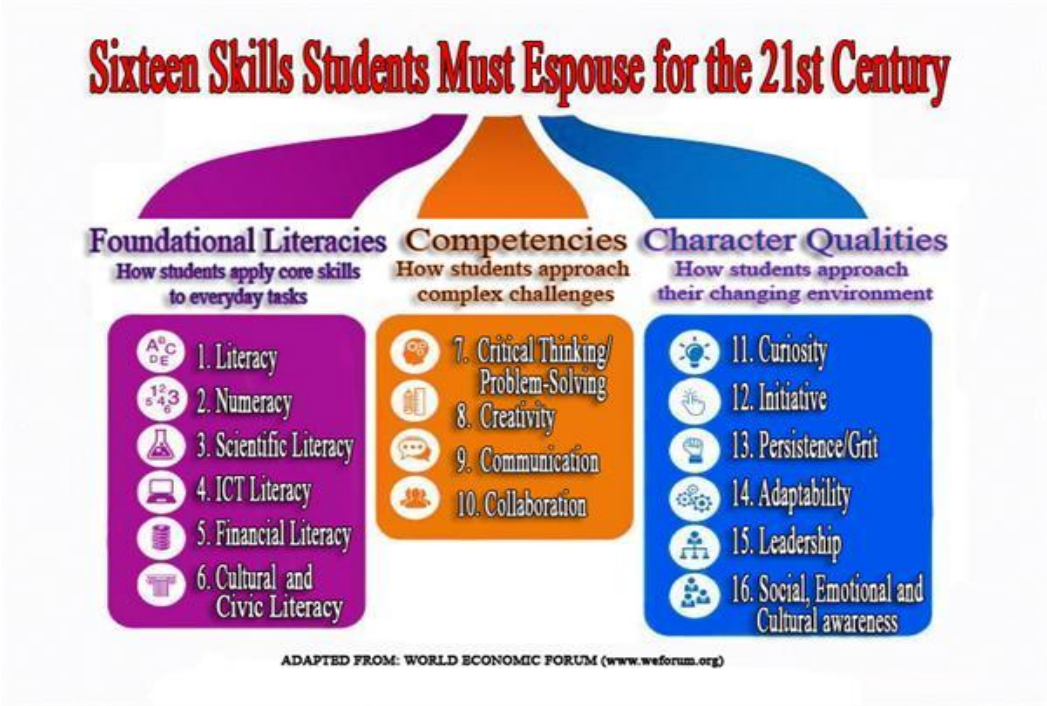

Figure 1. Sixteen Skills of the 21st Century

Functional literacy as basic literacy of reading and writing is related to culinary literatures such as reading and writing recipes as well as interpreting them into dishes. Numeracy skills are used to apply numerical concepts in various problems. Schools are the right place to improve students' knowledge and skills about basic numeracy skills. According to Follette, B. Katherine et al. (2015: 2), schools are a great place to enhance students' skills and attitudes towards mathematics. Various studies have shown the relevance of numeracy expanding to other fields, having the potential to alter life events, such as someone's skills to access employment or job opportunities (Kirsch et al., 1993; Charette and Meng, 1998) and making sound financial decisions (Gerardi et al., 2013).Similar to literacy, numeracy is also a basic skill related to numbers; in culinary, this skill is very meaningful, for instance, to be applied in terms of size, scale, cutting of ingredients, and dish portions, temperatures both in processing and serving, and price determination.The research findings by Giousmpasoglou, C., Marinakou, E., and Cooper, J. (2016), however, show that generally students prefer "avoiding math" and "avoiding writing".

Problem solving of an expert according to Stevenson (203: 148) has several similarities; the skills are connected to the domains, work or contexts, able to analyze problems at various levels of abstraction, and to take the principles of a problem. These principles are then used for the next or futher work as a direction through a search space to solve the problems efficiently. One of the components of the skills at various settings, including workplace settings, is hidden knowledge.

Creativity in culinary expertise and culinary arts according to Horng and Lee (2009) is creative culinary work that includes five senses, namely sight (color, style, decoration, and organization), taste (the taste of food/*meal taste*), smell (the aroma of the food and spices), touch (the dining atmosphere and environment), and hearing sense (the name of the culinary artwork). Culinary creativities comprise 10 items according to Lei, Meng (2010), which are: 1) basic knowledge of culinary science, 2) knowledge about desicison making, 3) the ability to use divergent thinking, 4) the ability to find creative ideas, 5) being skilled at culinary basic techniques, 6) being skilled at problem solving, 7) positive attitutes to create new ideas, 8) positive attitudes in accepting people's opinions, 9) positive attitudes towards the use of new ways in answering questions, and 10) positive and optimistic attitudes. Creativity in education is as important as literacy (Robinson, S.K.,2006).

The characteristics of vocational education according to Djohar (2007:1295-1297) are as follows: 1) it belongs to education that has the nature to prepare labor supply for employment; that is why the education orients towards graduates that can be marketed in the labor market; 2) the justification of vocational education is the existence of the real need of labor in business and industrial fields; 3) the learning experience provided through vocational education includes affective, cognitive, and psychomotoric domains applied in both work

situation that is simulated through the process of teaching and learning and the real work situation; 4) the success of vocational education is measured from two criteria, namely students' success at school (*in-school success*), andstudents' success outside the school (*out-of-school success*); the first criterion consists of students' success in meeting the culinary requirements, while the second criterion is indicated by the graduates' success or performance in the real world of work; 5) vocational education has a sensitivity/adaptability (*responsiveness*) towards the development of the world of work; that is why vocational education must be responsive and proactive towards the development of science and technology, by emphasizing on the efforts for adabtability and flexibility to face students' long-term career prospects; 6) workshops and laboratories are the main equipments in vocational education, to provide learning situations that can reflect the situation of the real world of work realistically and educatively; and 7) the cooperation between the institutions of vocational educations and industrial and business fields is a must, along with the high demands of the relevance of vocational education programs with the demands in the world of business and industries.

According to Rowley,Gill (2000: 16), the skill categories that are needed in various sectors, include the categories of technical and vocational skills, and skills as follows:

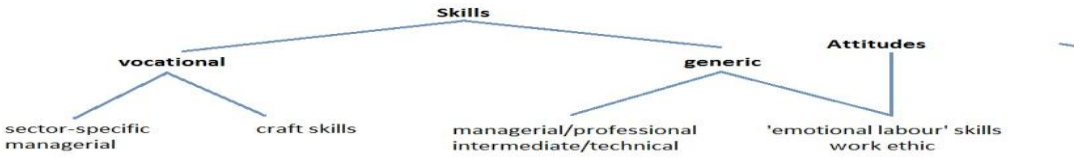

Figure 2. Skill Categories

Both traditional and professional cooking skills used to be underestimated, but in recent years there has been a shift in the status.Professionals draw attention to the development of gastronomy by involving different traditional gastronomic staff and opportunities to work. Restaurants as a partner for internship or apprenticeship are such education and trainings for students to learn and work with the cooking experts (the cooks). Trainings or internships with the experts are based on the new forms of reflective knowledge and learning process instead of traditional learning (Sporre, M.C et al., 2013: 189).In certain semesters, students ofCulinary Vocational Schoolare sent for industrial work practice in *Hotel Restoran dan Catering* (HORECA or Restaurant and Catering Hotel), to learn directly about culinary in real terms.Students will acquire sufficient technical skills and *soft skills*before becoming a workforce in the culinary field. In addition, according to Ternier, Sabrina (2010), understanding and measuring cooking skills and knowledge is a factor that affects the convenience of purchase and food consumption.

II. RESEARCH METHOD

This study is a research of *explanatory survey method*. The population in this study is all students of Culinary Vocational Schoolin Malang Raya (Malang City, Batu City, and Malang Regency) who have done *Praktik Kerja Industri* (Industrial Work Practice). The sampling technique used was*purposive sampling*with the samples of 327 respondents.

The instruments used in this study were *Guttman*-scale questionnaires for functional literacy and numeracy, and *Likert*-scale questionnaires for problem solving and culinary skill creativity. The instruments were tested for their feasibility incuding validity test using *Pearson'sproduct-moment* correlation and reliability test using *Cronbach alpha*, after which the data were then collected.

The collected data were first tested for classical assumptions including the tests of normality, multicollinearity, and heteroscedasticity. The normality test used *Kolmogorov-Smirnov Test* with the provision that if the significance value > alpha 0.05, then the data were normally distributed. The multicollinearity test used the test of*Variance Inflation Factor*and*Tolerance*, with the provision that if the *tolerance*value≥ 10 and/orequal to the VIF value < 10, then it could be concluded that there was no multicollinierity. The heteroscedasticity test could be seen with *Glejser*test,provided that if the significance value > 0.05, then there was no heteroscedasticity. The data that passed the classical assumption tests were then analyzed using multiple regression analysis.

III. FINDINGS

3.1 Classical Assumption Test

3.1.1Normality Test

Normality test was used to examine whetherin a regression model the dependent variable or the independent variable or both had normal distribution or not.Normality test was done by using *Kolmogorov-Smirnov Test*. Here is the result of the normality test.

Table 1. *Normality Test Results*

One-Sample Kolmogorov-Smirnov Test

		Functional Literacy	Numeracy	Problm Solving	Culinary Skill Creativity
N		327	327	327	327
Normal Parameter[a,b]	Mean	26.76	13.28	95.14	91.50
	Std. Deviation	5.074	4.325	21.657	29.874
Most Extreme Differences	Absolute	.100	.083	.217	.250
	Positive	.063	.050	.136	.132
	Negative	-.100	-.083	-.217	-250
Kolmogrov Smirnov Z		.613	.948	.748	1.110
Asymp. Sig. (2-tailed)		.847	.330	.630	.170

a. Test distribution is Normal

b. Calculated from data

Based on Table 1, the significance value for functional literacy is 0.847 > 0.05, for numeracy is 0.330 > 0.05, for problem solving is 0.630 > 0.05, and for culinary skill creativity is 0.170 > 0.05. Thus, it can be concluded that the data used in this study were normally distributed; i.e. they met the assumption of normality and thus can be used further.

3.1.2 Multicollinearity Test

Multicollinearity test aims to examine whether in the regression model was found a correlation between independent variables, while the good regression is the one in which there is no correlation between the independent variables. Here is the result of the multicollinearity test.

Table 2. *Multicollinearity Test Results*

Coefficients[a]

Model	Collinearity Statistics	
	Tolerance	VIF
1 Functional Literacy	.829	1.206
Numeracy	.824	1.214
Problem Solving	.794	1.259

a. Dependent Variable: Culinary Skill Creativity

Based on Table 2, the *tolerance*value ≥ 0.10 or equal to VIF < 10, then it can be concluded that there is no multicollinearity.

3.1.3 Heteroscedasticity Test

Heteroscedasticity test aims to examine whether there is any data inequality from one observation to another. Heteroscedasticity test can be seen with *Glejser*test;if the significance value ≥ 0.05, then there is no heteroscedasticity.

Table 3. Heteroscedasticity Test Results

Coefficents

		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	Constant	.8252	.265		3.115	.002
	Functional Literacy	-.0080	.008	-.063	-1.023	.307
	Numeracy	.0033	.009	.022	.353	.724
	Problem Solving	.0003	.000	.038	.678	.498

Dependent Variable: ABSRESID

Table 3 shows that the significance value for functional literacy is 0.307 > 0.05, for numeracy is 0.724 > 0.05, and for problem solving is 0.498 > 0.05. Thus, it can be concluded that there is no heteroscedasticity in the data used in this study; i.e. they meet the assumption of heteroscedasticity and thus can be used further.

3.2 The Effects of Functional Literacy, Numeracy, and Problem-Solving Skills on Culinary Skill Creativity

The results of the analysis of the effects of functional literacy, numeracy, and problem-solving skills on culinary skill creativity were as follows:

Table 4.*The Correlation between Functional Literacy, Problem Solving and Culinary Creativity*

Correlations

		Problem Solving	Culinary Skill Creativity
Functional Literacy	Pearson Correlation	.030	.022
	Sig. (2-tailed)	.590	.691
	N	327	327
Numeracy	Pearson Correlation	.097	.108
	Sig. (2-tailed)	.080	.051
	N	327	327

Table 4 reveals that the significance value for functinal literacy and problem solving is 0.590 > aplha 0.05, which shows that there is no significant correlation between functional literacy and problem solving. The significance value for functional literacy and culinary skill creativity is 0.691 > aplha 0.05, which shows that there is no significant correlation between functional literacy and culinary skill creativity. On the other hand, the significance value for numeracy and problem solving is 0.080 > aplha 0.05, which shows that there is no significant correlation between functional literacy and problem solving. The significance value for numeracy and culinary skill creativity is 0.080 > aplha 0.05, which shows that there is no significant correlation between functional lieracy and culinary skill creativity.

Table 5. *The Test Results of Functional Literacy, Numeracy, and Problem Solving towards Culinary Skill Creativity*

Anova

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	94712.988	4	23678.247	38.909	.000[a]
Residual		195344.5	321	608.550		
Total		290057.5	325			

a. Predictors: (Constant), Functional Literacy, Numeracy, Problem Solving

R Square : 0.327
Adjuted R Square: 0.318

Based on Table 5, it can be known that the significance value is 0.000 < alpha 0.05, which means that functional literacy, numeracy, and problem-solving variables have simultaneous effects on culinary skill creativity. The R-square value is 0.327, which means that functional literacy, numeracy, and problem solving have effects on culinary skill creativity as much as 32.7%, and the 67.3% is affected by other factors.

3.3 The Effects of Functional Literacy on Culinary Creativity, Numeracy on Culinary Creativity, and Problem Solving on Culinary Skill Creativity

The results of the analysis of the effects of functional literacy on culinary creativity, numeracy on culinary creativity, and problem solving on culinary skill creativity are as follows.

Table 6. *The Test Results of Functional Literacy on Culinary Creativity, Numeracy on Culinary Skill Creativity, and Problem Solving on Culinary Skill Creativity*

Coefficents

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	Constant	5.697	10.431		.546	.585
	Functional Literacy	-.164	.296	-.028	-.533	.580
	Numeracy	.464	.348	.067	1.331	.184
	Problem Solving	.687	.071	.499	9.701	.000

a. Dependent Variable: Culinary Skill Creativity

The*coefficients*in the table above show that the results of multiple linear regression analysis are that the value for functional literacy variable is -0.164, for numeracy variable is 0.464, andfor problem solving variable is 0.687. Hence, if they are put into the regression formula as a whole, the following equation will be obtained.
Y = (-0.164)X1 + (0.464)X2 + (0.687)X3

The coefficient value for functional literacy is -0.164, which means that every increase of one value of functional literacy variable will cause an increase of the value of culinary skill creativity as much as -0.164 with the assumption that other variables remain the same. The coefficient value for numeracy is 0.464, which means that which means that every increase of one value of numeracy variable will cause an increase of the value of culinary skill creativity as much as 0.464 with the assumption that other variables remain the same.The coefficient value for problem solving is 0.687, which means that every increase of one value of problem solving variable will cause an increase of the value of culinary skill creativity as much as 0.318 with the assumption that other variables remain the same.

The significance value for functional literacy is 0.580 > alpha 0.05, which means that functional literacy has no effects on culinary skill creativity. The significance value for numeracy is 0.084 > alpha 0.05, which means that numeracy has no effects on culinary skill creativity. The significance value for problem solving is 0.000 < alpha 0.05, which means that problem solving has effects on culinary skill creativity.

IV. DISCUSSION

4.1 The Effects of Functional Literacy, Numeracy, and Problem-Solving Skills on Culinary Skill Creativity of Students at Culinary Vocational School

Based on the findings, the study shows that numeracy and problem solving skills have simultaneous effects on culinary creativity. This is because several indicators of culinary skill creativity namely cultures, aesthetics, products, services, management, and creativity are affected by the three variables researched namely functional literacy skills, numeracy skills, and problem solving skills. Cooking competency is very important because it affects the reliability of oneself, nutritional knowledge, the behavior and the quality of food, as well as personal health. This also affects the preparation process of dining and consumption and is able to handle stressful situations (Ternier, Sabrina, 2010).Learning in the 21st century from various sources is: relevant to the world of students outside the class, that students are actively involved in learning, accommodating students' opinions, and encouraging as well as facilitating students to learn independently.The learning climate that encourages thinking and flexibility for students will enhance creativity and innovation. Cooking skills are fundamental to develop culinary skill creativity (Horng, S, J., and Lee, C.H., 2009).

4.2 The Effects of Functional Literacy Skills on Culinary Skills, Numeracy on Culinary Skills, and Problem Solving on Culinary Skill Creativity of Students at Culinary Vocational School

4.2.1 The Effects of Functional Literacy Skills on Culinary Skill Creativity at Culinary Vocational School

Based on the findings, this study shows that functional literacy has no effects on students' culinary creativity at Culinary Vocational School. Functional literacy has several indicators related to students' ability to read recipes, knowledge of basic culinary concepts, and serving interpretation. The three indicators are needed and, in fact, basic skills that must be possessed by students of Culinary Vocational School.

This means that when students do not have functional literacy skills, they will not directly be a culinary expert because there are other factors that determine or make someone a culinary expert such as numeracy skills and problem-solving skills of each student. Literacy skills involve more than just the ability to read, but are also interpreted as language skills including listening, speaking and writing. This skill also includes how to process information and think critically about various issues.

This is supported by the argument of Gorton, D. (2016), which states cooking functional literacy and the ability to prepare healthy food as fundamental life skills. The school curriculum teaches it and ensures that

all students have the ability to develop various skills in accordance with the demands of the curriculum. The importance of literacy in culinary is also exemplified by Vega, C. & Sanghvi (2012: 103); i.e. it is very important for cooks to understand complex phenomena in understanding various recipes of cakes, in which scientific insights can provide significant benefits.The process of cooking and baking in the field of culinary is a serious and systematic work. The view of the importance of literacy for students in this case including students of Culinary Vocational Schoolis that functional literacy is a prerequisite to study elsewhere. Students will be exposed to the variety and complexity of the texts, requiring adequate knowledge.

The ability to read and write is a basic skill for the future, in which they will work and live. While educators find ways to overcome challenges, this career and technical education program is continuously improved so that students can have relevant education in terms of both content and literacy strategies (ACTE: 2009). Culinary curriculum is competency-based and consists of a training package that providesa breadth of knowledge about various techniques, cooking and kitchen procedures (National Training Information Service, 2008; Fafeita & Lloyd, 2012). Papen (2005) articulates literacy as something that is not only a skill but also something that is learned and known by an individual, as well as as something that is done by an individual and thus literacy has meanings in an individual's life both at the workplace and in other environments. In this case, it can be said that literacy as social practice is more than just a skill.

4.2.2 The Effects of Numeracy Skills on Students' Culinary Skill Creativity at Culinary Vocational School

Based on the findings, this study reveals that numeracy skills has no effects on students' culinary creativity at Culinary Vocational School. This means that when students have numeracy skills, they will not directly be an expert in the field of culinary, which requires creativity, considering that there are other factors that determine or make someone a culinary expert.

Numeracy has several indicators related to students' ability to convert and calculate prices. This means that when students do not have numeracy skills, they will not be an expert in the field of culinary even though they have numeracy skills. To be an expert in the field of culinary, there are other factors that determine or make someone have expertise in the field of culinary. Culinary skills related to numeracy that requires numerical tasks when performing cooking activities related to food preparation also need to understand which type of heat transfer is appropriate as well as the temperature to cook certain cuisines. It is important in culinary industries to calculate operational costs from the selling prices, namely the actual cost of the food, including the accumulation of the sale costs.

Developing math skills of students of Culinary Vocational Schoolis important to equip them with basic knowledge needed for a career in the field of culinary expertise.In the hotel industries, Onyeocha. A.O.U., Anyanwu, Lynda A. et.al. (2015) state that the control of food cost is so important that it requires proper budgeting, cost calculation as controls and can limit the waste.The control of food production cost, if done correctly and in details in each production process, is functional in every food industry and is a way to improve the growth of industries. According to Shiner, Janice (2008: 23), the views on numeracy/calculating used for learning progess give an emphasis on students' needs to gain: 1) knowledge and understanding of mathematical concepts; 2) the ability to use mathematical knowledge to meet various needs of personal life, study, and work. Giousmpasoglou, C., Marinakou, E., Cooper, J. (2016) argue that numeracy is a specific skill; the ranks of numerical skills according to the order of importance relevant to the field of culinary include (a) skills that frequently appear in numeracy literatures such as proportion, reasoning, arithmetic; (b) skills that are often called in the context of literacy science such as reading charts and estimates.

Numerics related to food preparation and taught to students of Culinary Vocational School, includes the calculation of the number of recipes in accordance with the specifications written in the recipes. Scaling and measuring food ingredients and liquids should be in accordance with the recipes. The use of both electrical and non-electrical cooking utensils uses numerics in their operationals, requires skills in literacy and numeracy. Oberascher,Stamminger, and Pakula (2011) argue that major advances in the energy efficiency of equipment....are mainly generated by the development of refrigerator, freezer, and dishwasher designs. Cooking process like boiling is, for instance, hot drinks, soups and parboiling process; brewingfor automatic coffee making process, electrical appliance for *cooking potatoes*andelectrical tool for *boiling egg*.

4.2.3 The Effects of Problem Solving Skills on Culinary Skill Creativity at Culinary Vocational School

Based on the findings, this study shows that problem solving skills has effects on students' culinary creativity at Culinary Vocational School. This proves that problem-solving skills are really needed by all individuals, specifically by students of Culinary Vocational School. Problem-solving skills have several indicators related to students' ability to identify problems, analyze, find solutions, and make decisions.

The research finds that having the ability in functional literacy and numeracy skills is not necessarily a guarantee to be a creative individual in the field of culinary. However, when students know their inability of one

of the functional literacy skills, for instance, not knowing one of the recipes given along with their numeracy, or not understanding how to calculate prices from the recipes of the food they make, students can solve the problems by identifying the problems, analyzing, and finding solutions to make decisions; and thus, it can be said that students have creativity in culinary expertise. This means that problem-solving skills are positioned to be moderator variable of functional literacy skill and numeracy skill variables.

Problem-solving skill variable is an intervening variable because students can be considered creative in the field of culinary expertise without having to possess problem-solving skills. Nevertheless, when students also have problem-solving skills, the students become more creative in the field of culinary expertise. Problem solving is an important cognitive activity that penetrates many aspects of daily life, including solving problems at home, at school, and at work from simple to complex problems. Students of Culinary Vocational Schoolas future workforce in the operator levels are considered in needs to have problem-solving skills. The arguments ofNokes, Schunn, and Chi (2010) say that:

"Experts have more reliable and specific access than the novice for the procedures of problemsolving that have been practiced well. For simple problems, the experts make decisions faster and more accurately than the beginners. The research also shows that the experts and the novices use various kinds of strategies when solving simple problems. The experts tend to use forward-working strategies for well-practiced issues, while the beginners use backward-working strategies".

The knowledge of food preparation skills is a way that can safeguard individual's need of food, which has to be well-maintained from the nutritional perspectives to prepare food that meets the requirements in terms of quality and quantity. Indeed, nowadays the fulfillment of needs of food is not only provided by households but also by catering services or restaurants.The workforce in the field of culinary needs to understand the characteristics of consumers that will be the subjects of the service, so that the technical aspects of food processing and the aspects of nutrition need to be trainined to the students of Culinary Vocational School.Besides, improving cooking competence can improve the knowledge about nutrition better(Iomaire, M.C.M., Lydon, J, 2011).

Culinary art is one of the areas of Technical Vocational Education and Training (TVET), in which students should have probem-solving skills in the real world in addition to basic knowledge and technical skills. In order for culinary expertise to survive and compete in similar industries, it requires other skills to complete. Problem-solving skills are needed very much by business people but previous studies show that TVET students lack problem-solving skills. The graduates of culinary schools are expected to be able to identify problems and generate creative solutions at the workplace (Techanamurthy, U., Alias , N., DeWitt, D.,2015).Technical Vocational Education and Training (TVET) is tied to the tradition of teaching knowledge and skills for the world of work. UNESCO defines TVET as "aspects of educational process involves, in addition to general education, the study of related technology and science and the acquisition of practical skills, attitudes, understanding and knowledge related to work in various sectors of economic life" (UNESCO, 2014).

Education for all (EFA) mandates Education Act of 2005 on the objectives and the targets of education established by the Minister such as encouraging the development of basic knowledge and skills to everybody including: the skills in reading, listening, speaking, writing, numeracy, mathematics, analysis, problem solving, information processing, and computing (UNESCO, 2014: 28). The widely-recognized important working skills that are important for all educational sectors are the students' ability to think critically (Robinson, S.K :2013).
Creativity is a key to improve culinary expertise; the skills affecting culinary expertise are very important in developing culinary skill creativity.Basic skills of functional literacy, numeracy, and problem solving for students of Culinary Vocational Schoolespecially are fundamental in developing culinary skill creativity. Creativity in culinary expertise and culinary arts according to Horng and Lee (2009) is creative culinary work that includes five senses, namely sight (color, style, decoration, and organization), taste (the taste of food/*meal taste*), smell (the aroma of the food and spices), touch (the dining atmosphere and environment), and hearing sense (the name of the culinary artwork).

V. CONCLUSION

The conclusion of this study is that functional literacy and numeracy are parts of individual's basic skills. The ability to read recipes and measure the ingredients in a dish is one application of functional literacy and numeracy. Meanwhile, problem-solving skill is the ability to identify, analyze, and describe a problem or a group of problems, to consider contexts and impacts of a problem, apply the knowledge to propose and review various solutions, decide the most appropriate ones, and place the ways that are feasible for work. Indeed, creativity is a part of the skills needed for work related to culinary expertise for students at Culinary Service Expertise at SMK (Vocational High Schools).

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