



Development of Patisserie Gastronomy Expertise Competency Test Model in Teacher Professional Education of Vocational High School Culinary Program

Juwita Ria Rumondang[✉], Basyirun, Atiek Zahrulianingdyah

Universitas Negeri Semarang, Indonesia

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Abstract

The objectives of this study are to (1) produce the development of a competency test model of Patisserie Gastronomy Expertise in the Teacher Professional Education of the Gastronomy Program (Patisserie Gastronomy Expertise Competency Test Model); (2) analyze the instruments (modules and manuals) and (3) evaluate the model so that it meets the criteria for effective, practical, and well implemented. The method used in this research was Research and Development (R&D). The data source came from interviews and questionnaires towards 20 respondents consisting of 5 vocational school teachers of culinary skills competency, patisserie expertise, 5 gastronomy lecturers of UNNES, and 10 executive chef practitioners from Business and Industrial World). The results of the development of the competency test model of Patisserie Gastronomy Expertise Competency in the Teacher Professional Education of vocational culinary program (the Patisserie Gastronomy Expertise Competency Test Model) is a model guide book consisting (a) supporting theory; (b) The purpose of developing the model; (c) Tiered qualifications; (d) The structure and contents of the Patisserie Gastronomy Expertise Competency test model components; (e) Competency Standards and Basic Competencies of the Patisserie Gastronomy Expertise Competency Testing Model; (f) The Patisserie Gastronomy Expertise Competency test model approach; (g) Learning/training strategies and methods; (h) Guidelines for valuation; (i) Stages of processing; (j) Time of evaluation; (k) Assessment rubric; (l) Closing. While the competency test sets are: (a) Learning/training modules and tests with good criteria (3.69) and (b) sheets and ability and the rubric of assessment (justification) of training/test with good criteria (3.62).

INTRODUCTION

The teaching quality of teachers nationally is still below the minimum competency standard, even though the teacher has a very important role in the learning process. This proves that the teachers still need to improve their competency abilities, therefore instruments are needed to improve competencies, the more specific training and education for the teacher in accordance with Teacher Competency Test results (Ministry of Education and Culture, 2015). Education and training are very important in improving the quality of human resources in any country (UNESCO, 2015: 148). The results of observations conducted by gastronomy teachers of Patisserie expertise show that there are several problems that obstruct the learning process, they are lack of preparation in teaching, low mastery of teaching materials, lack of creativity in delivering material, and low professional competence of teachers, it is proven by the fact that the teacher does not have competency test certificates according to their fields. Mastery of expertise competencies is a necessity that must be owned by patisserie expertise teachers who educate students to produce graduates in the culinary field so that they are ready to enter the workforce both in the bakery shop, restaurant, cafe or entrepreneurship, and support government programs in developing the tourism sector. (Anwar, Rustaman & Widodo, 2012). This is in accordance with the aim of vocational education that produces graduates who are ready to work, entrepreneurial, intelligent, competitive, and have a national identity, and are able to develop local excellence and compete in the global market (Chong, 1989). Vocational Schools have a foundation of development, namely: (1) creating a balance between labor needs for industrial expansion; (2) fulfill the aspirations of public education; (3) fulfill the abilities needed for development in a broad sense which includes skills, intelligence and a healthy attitude to work (Sudana, Raharjo, 2015). One of the determinants is a competent teacher according to their field of expertise.

Professional competence is the ability of teachers in mastering knowledge in the fields of science, technology, and/or arts and culture, which at least includes mastery (a) extensive and in depth subject matter in accordance with the standards of the contents of educational unit programs, subjects, and/ or group of subjects to be taught; and (b) relevant concepts and methods of scientific discipline, technology, or art, conceptually coherent with the education unit program, subjects, and/or group of subjects to be taught (Handayani, Basyirun, & Endroyo, 2017) . According to the National Education Standards Agency (2006: 88) professional competencies are: The ability to master extensive and in-depth learning material covering: (a) concepts, structures, and scientific/technological /artistic methods that coherent with teaching material; (b) material in the school curriculum; (c) conceptual relationships between related subjects; (d) the application of scientific concepts in daily life; and (e) professional competition in a global context while preserving national values and culture (Hasanah, Syamwil, & Sudana, 2017).

Professionalism according to Kubow & Fossum (2003: 182) is interpreted as the ability/expertise of a person in a particular field and the authority and autonomy in determining his work. Meanwhile, according to Sanusi et.al (1991: 19) professionalism refers to the commitment of members of a profession to improve their professional abilities and continuously develop strategies used in doing work in accordance with their profession (Wahyudi & Supranoto, 2012).

Having competency expertise becomes the basis for guiding students in meeting expected competency standards. Student learning success is basically closely related to the ability and performance of teachers in mastering the subject matter that has been practiced professionally (Darmoko, 2017). Based on the Minister of National Education Regulation No 28 of 2009, the competency standards of expertise in the field of patisseries are as follows: (1) processing Indonesian cakes; (2) processing continental pastries; (3) preparing chocolate and chocolate candy; (4) making bread and cake products for special diets; (5) providing food and beverage services; (6) making desserts; (7) managing patisserie product business (Ermidawati, 2015).

Teacher Professional Education is one way to produce qualified prospective teachers, but in reality, there are several weaknesses where there is no expertise test to measure the competence of gastronomy teachers as productive teachers, moreover, that Family Welfare Education Study Program study program students are not given the authority to determine concentration of specific subjects, then the assessment of competency tests conducted is still in general and only assessed from pedagogical competencies. Starting from this weakness, development research is carried out, the purpose is (1) produce the development of a competency test model of Patisserie Culinary Expertise in Teacher Professional Education of Vocational Program (Patisserie Gastronomy Expertise Competency Test Model); (2) analyze the instruments (modules and manuals) and (3) evaluate the model so that it meets the criteria for effective, practical, and well implemented.

RESEARCH METHODOLOGY

The method used in this research was the Research and Development (R&D) method. Furthermore, the development of Patisserie Gastronomy Expertise Competency Test Model in Teacher Professional Education of gastronomy programs vocational senior high school was the main focus in this study. The object of research was SMK 7 Surakarta, practitioners in the field of patisseries, Department of Gastronomy Education, Faculty of Engineering-UNNES Semarang, while the key informants are students/ teacher candidates, lecturers/instructors and assessors.

This research follows the development stage of educational design (including learning /training & testing) of Plomp (1997: 5) which consisted of 4 phases, namely: (1) initial investigation phase; (2) design phase; (3) realization phase (construction); (4) test, evaluation, and revision phases. Initial investigations were carried out through interviews to uncover factual models in the ongoing Teacher Professional Education and collection of documents (curriculum, Indonesian National Work Competency Standards, and instruments in the form of competency test outline) as well as in-depth interviews, as well as direct observation of the object concerned. To obtain the information regarding the competency skills that need to be tested, it required the direct involvement of practitioners, professionals, and academics. The results of the initial investigation were used as a reference in making the initial design. The development carried out was on the points of expertise competency components based on the Minister of Education Regulation 28/2009 on Patisserie competency standards and only one competency was taken, namely preparing chocolate and chocolate candy. The results of the design were modules, manuals, and competency test instruments. This design was then tested on a limited basis to prospective gastronomy teacher assessed by the assessor.

RESULTS AND DISCUSSION

Model Development

This research is the result of the development of the Teacher Professional Education 2016 factual model with the following flow.

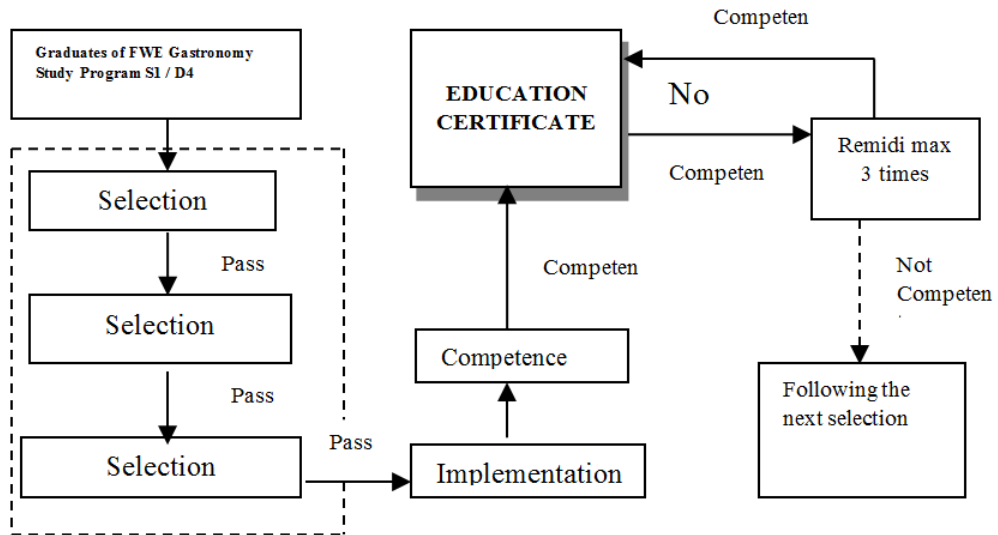


Figure 1. Teacher Professional Education 2016 factual model

This model has several weaknesses, such as there is no selection of teacher candidates from the competency requirements of productive teacher expertise on Patisserie Gastronomy Expertise Competency. This model is then developed and produced the final model as follows.

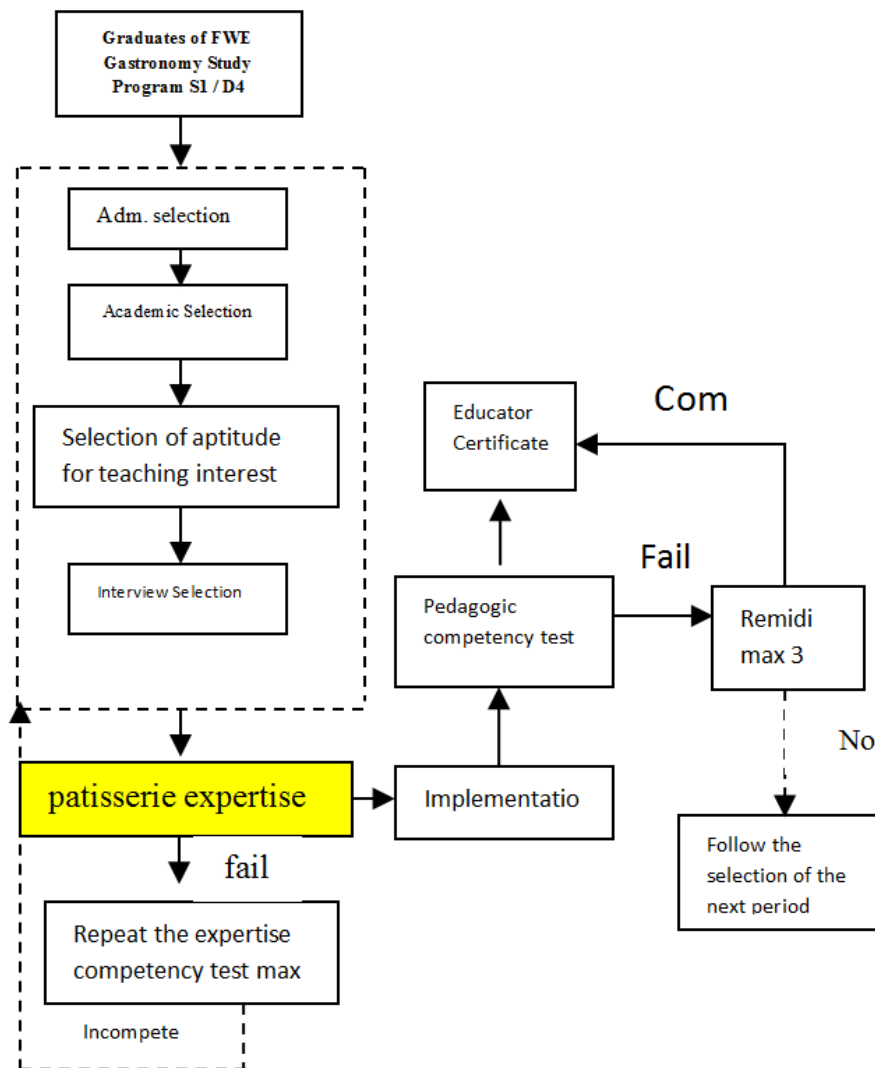


Figure 2. The Final Model of Food Gastronomy Expertise

This model provides a patisserie expertise competency test room as a prerequisite for participating in the Teacher Professional Education for productive prospective teachers of gastronomy patisserie.

Instrument Analysis

The results of limited trials on the model set and conducted by assessors show that the developed instruments are classified as very good on the competency test model products, module, and rubric used as listed in Table 1.

Table 1. Results of Instrument Analysis

Assessment Results	Limited Pre-Trial		Limited Trial	
	Mean	Criteria	Mean	Criteria
Patisserie Gastronomy Expertise Competency Test Model	3.23	B	3.74	A
Module	3.63	A	3.90	A
Rubric Justification	3.42	A	3.62	A

Source: Research Results in 2019

Where: A = Very Good B = Good

Model Evaluation

Evaluation of the developed model is seen from two aspects, they are effectiveness and implementation. The effectiveness of the model is obtained from limited trials and analyzed the level of validity, reliability, objectivity, and practicality, it shows very good quality, as listed in Table 2.

Table 2. Results of Assessment of Model Effectiveness in Limited Trials

Aspect	Participant	Instructor	Assessors	Average	Criteria
validity	3.76	3.71	3.71	3.73	A
Reliability	3.71	4.00	3.67	3.79	A
Objectivity	3.67	3.67	3.67	3.67	A
Practicality	3.71	3.50	4.00	3.74	A
Average	3.71	3.72	3.76	3.73	A

Source: Research Results in 2019

Where: A = Very Good B= Good

Table 2 shows that the Patisserie Gastronomy Expertise Competency test model set that has been developed has fulfilled the validation and reliability, objectivity and practicality standards, as it is proven by the average score at intervals of 3.25 to 4.00 in the very good category. Therefore, it can be concluded that the Patisserie Gastronomy Expertise Competency instruments are effective.

Implementation of the model based on limited trials is classified as very high with an average of 97.68%. Based on observations by 2 (two) rater or observers on the Patisserie Gastronomy Expertise Competency test model that was carried out in a limited trial, it turns out that the percentage of model observations observed by observer 1 (one) yields 98.85%, while observer 2 (two) produces 96.51%. The behaviour of test participants in limited trials is classified as very good, as listed in Table 3.

Table 3. Observation Data of Participant Training’s Behavior /test in the Limited Trial

Aspect	During the learning process		During competency test	
	Mean	Criteria	Mean	Criteria
Cognitive	3.57	A	3.64	A
Affective	3.50	A	3.58	A
Psychomotor	3.64	A	3.79	A
Total	3.53	A	3.62	A

Source: Research Results in 2019

Where: A = Very Good B= Good

The instructor's activity in the limited trial based on the evaluation by the observer is also classified as very good, with an average of 3.83 on a scale of 1-4, as listed in Table 4.

Table 4. Observation Data on Instructor Activities in Limited Trials

Observation aspect	Observer		Average	Criteria
	1	2		
Introduction	4.00	3.80	3.90	A
Core activities	3.50	3.75	3.63	A
Closing	3.75	4.00	3.88	A
Language use	3.50	4.00	3.75	A
General Observation	4.00	4.00	4.00	A
Average	3.75	3.91	3.83	A

Source: Research Results in 2019

Where: A = Very Good B= Good

The assessor activity in the limited trial activity is classified as very good with an average of 3.77 on a scale of 1-4, as listed in Table 5.

Table 5. Observation Data from Assessors' Activities in Limited Trials

Aspect	Observer		Average	Criteria
	1	2		
Before test	3.60	3.80	3.70	A
During test	3.25	3.63	3.44	A
Justification	3.60	3.80	3.70	A
Language use	4.00	4.00	4.00	A
General Observation	4.00	4.00	4.00	A
Average	3.69	3.85	3.77	SB

Source: Research Results in 2019

Where: A = Very Good B= Good

Knowledge testing for limited trial participants before and after the use of the model shows a significant improvement.

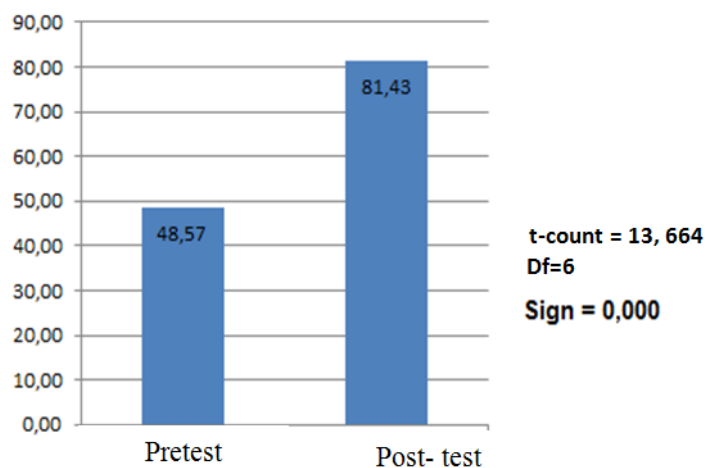


Figure 3. Bar Diagram of Knowledge Enhancement

The paired sample t-test results obtain a t-count of 13,664 with a significance of 0,000 <0.05, which means that there is a significant improvement in knowledge.

The factual model of Teacher Professional Education in 2016, if it is observed, there are still weaknesses where Teacher Professional Education participants in the Family Welfare Education Study Program gastronomy program do not have any competency test where productive teachers must master

expertise in their fields. In addition, the assessment model carried out is only limited to pedagogic, so it has not been proven that the Family Welfare Education Study Program gastronomy teacher is an expert in his/her field.

The feasibility assessment of the research instrument that has been carried out, the results obtained states that all instruments in Patisserie Gastronomy Expertise Competency test model are valid or can be said to be feasible to be used in screening the effectiveness, practicality, and feasibility of the Patisserie Gastronomy competency test model. As for the results of the statistical analysis of Cohen's kappa (reliability) show that all research instruments assessed by the rater were reliable because the reliability coefficients generated on all instruments are above 0.75.

At the development stage, the experts then continue with the first assessment, conduct an assessment in the manual and competency test instruments which were carried out twice, they are in the limited pre-trial, it obtains an average of 3.23 (good), and after a limited trial, it obtains average 3.74 (very good). The second stage is to conduct an assessment of the competency test set in the form of learning/ training module and an ability check sheet and an assessment rubric of the training/test participant which is conducted twice in a limited pre-trial and after a limited trial. After the assessment stage in the manual and the competency test set, the next step is to conduct participant observation activities in a limited trial, the results are in a good criterion.

After the learning/training activities are completed, then it proceed with an assessment of the effectiveness of the Patisserie Gastronomy Expertise test model. To see the effectiveness of the evaluation model of training implementation according to Alfarisa (2015) is to analyze the evaluation of the quality of training implementation in terms of sub-variables in the implementation of training including: (1) the form of training; (2) training programs; (3) training teaching materials; (4) training instructor; and (5) training facilities and infrastructure. The results obtained in the assessment of the effectiveness of the model when testing is limited to 3.73, it is categorized in the excellent category.

The results of the implementation of Patisserie Gastronomy Expertise test model observed by 2 (two) rater or observers in a limited trial, it is obtained an average percentage of 98% so that the conclusion is drawn that the level of implementation at the patisserie Gastronomy Expertise competency test is very good.

The advantages of the Gastronomy Expertise competency test model are (1) the patisserie gastronomy expertise test model is used to test the skills of prospective teachers before participating in Teacher Professional Education activities. (2) the patisserie culinary skills test model is specific and specializes in one competency, they are processing chocolate and chocolate candy. The problems of Patisserie Gastronomy Expertise Competency test model are training participants and the test is taken from the Family Welfare Education Study Program students of UNNES and the graduate students of Family Welfare Education Study Program, and it is not taken from Teacher Professional Education participants.

CONCLUSION

The competency test model of gastronomy skills in the field of Patisserie in the Teacher Professional Education of vocational high school in the gastronomy program (Patisserie Gastronomy Expertise Competency) and its developed instruments from those by can be well implemented to determine the competency of expertise in Teacher Professional Education of Gastronomy Vocational High School in culinary programs.

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