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The Role of Competency Certification in Improving the Hard Skills and Soft Skills of Diploma Three Culinary Arts Students

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ABSTRACT

This study aims to analyze the role of competency certification in improving hard skills and soft skills of Diploma Three Culinary Arts students. The study used a quantitative method with a survey with a sequential explanatory design. The sample consisted of 30 Diploma III Culinary Arts students who had participated in the BNSP competency certification, selected by purposive sampling. Quantitative data were collected through a Likert scale questionnaire and analyzed using paired t-test and linear regression. Competency certification significantly improved hard skills (48.7%; $p<0.001$; $R^2=0.674$), with the highest increases in the use of professional equipment (56.7%) and HACCP sanitation (54.8%). Certification also significantly improved soft skills (40.2%; $p<0.001$; $R^2=0.512$). Internship experience moderated the improvement of soft skills. Certified students consistently outperformed the non-certified group ($p<0.05$). This study is the first to empirically distinguish the dual role of competency certification as a primary source of hard skill improvement and as a catalyst for soft skills in the context of culinary arts vocational education. The research results recommend the integration of competency certification into the curriculum from the early semesters as well as strengthening internship programs for at least 3 months before certification to maximize the improvement of soft skills.

Keywords:
competency certification; hard skills; soft skills; diploma three; culinary arts

Penelitian ini bertujuan untuk menganalisis peran sertifikasi kompetensi dalam meningkatkan hard skills dan soft skills mahasiswa Diploma Tiga Tata Boga. Penelitian menggunakan metode kuantitatif dengan survei yang dirancang menggunakan pendekatan sequential explanatory. Sampel penelitian terdiri atas 30 mahasiswa Diploma III Tata Boga yang telah mengikuti sertifikasi kompetensi Badan Nasional Sertifikasi Profesi (BNSP), yang dipilih menggunakan teknik purposive sampling. Data kuantitatif dikumpulkan melalui kuesioner skala Likert dan dianalisis menggunakan uji paired t-test serta regresi linear.

Hasil penelitian menunjukkan bahwa sertifikasi kompetensi secara signifikan meningkatkan hard skills mahasiswa (48,7%; $p<0,001$; $R^2=0,674$), dengan peningkatan tertinggi pada kemampuan penggunaan peralatan profesional (56,7%) dan penerapan sanitasi HACCP (54,8%). Sertifikasi juga terbukti meningkatkan soft skills secara signifikan (40,2%; $p<0,001$; $R^2=0,512$).

Pengalaman praktik industri (magang) berperan sebagai variabel moderator yang memperkuat peningkatan soft skills. Selain itu, mahasiswa yang telah tersertifikasi secara konsisten menunjukkan kinerja yang lebih baik dibandingkan kelompok yang belum tersertifikasi ($p<0,05$).
Penelitian ini merupakan studi pertama yang secara empiris membedakan peran ganda sertifikasi kompetensi, yaitu sebagai sumber utama peningkatan hard skills sekaligus sebagai katalisator pengembangan soft skills dalam konteks pendidikan vokasi bidang tata boga. Hasil penelitian merekomendasikan integrasi sertifikasi kompetensi ke dalam kurikulum sejak semester awal serta penguatan program praktik industri selama minimal tiga bulan sebelum pelaksanaan sertifikasi untuk memaksimalkan peningkatan soft skills mahasiswa.

1. Introduction

Vocational education in the culinary field plays a strategic role in preparing a professional workforce ready to compete in the tourism and food service industries. The Diploma Three (D3) Culinary program is designed to produce graduates with measurable technical competencies and non-technical skills that support professionalism. However, a key challenge faced by vocational education institutions is ensuring that students' competencies truly align with industry standards. In this context, competency certification has emerged as a crucial tool for bridging the gap between education and the workplace.

The modern culinary industry demands more than just cooking skills. A professional chef is not only required to master various advanced cooking techniques but also must possess essential soft skills such as time management, the ability to work under pressure, and team leadership skills. These demands are further complicated by the fact that a chef is also responsible for designing menus, checking ingredient availability, maintaining hygiene standards, and ensuring kitchen operations meet industry standards. Competency certification addresses the need for measurable and widely recognized standards. In Indonesia, the National Professional Certification Agency (BNSP) and the Professional Certification Institute (LSP) issue competency certifications in the culinary field, officially recognizing competency. This certification is obtained through a competency test that assesses students' theoretical and practical abilities. Common competency test schemes include Cookery, Commis Pastry, Service, and others tailored to industry needs.

Research on the role of competency certification in improving the hard skills of D3 culinary arts students is relevant, given that certification provides clear standards for what aspiring culinary professionals should master. Competency tests administered by LSP (Culinary Professional Development Institute) involve professional examiners who are practitioners in their fields, ensuring that the results truly reflect industry needs. This objective and comprehensive assessment process allows students to identify areas for improvement in their technical skills.

Equally important is the role of competency certification in honing students' soft skills. Culinary arts vocational education is now beginning to integrate self-development and soft skills services into its curriculum, including student organization activities, culinary competitions, seminars, and workshops to enhance self-confidence and work ethic. The competency testing process itself trains students to work under pressure, manage their time efficiently, and communicate professionally with assessors and colleagues.

Research on the role of competency certification in improving the hard and soft skills of D3 culinary arts students offers a novel approach by combining two competency dimensions that have often been studied separately. Most previous research has focused on the technical aspects of

certification or its impact on employability in general. This study aims to fill this gap by simultaneously analyzing how competency certification contributes to the development of both skill dimensions in the context of culinary diploma education in Indonesia.

This research is expected to provide input for vocational education institutions in designing policies that more systematically integrate competency certification into their curricula. Furthermore, the research findings can serve as evaluation material for Professional Certification Institutions (LSP) and the National Board for Professional Development (BNSP) in refining competency testing schemes to ensure they are more relevant to the ever-evolving culinary industry. Thus, competency certification serves not only as a measuring tool but also as a vehicle for developing students' holistic competencies.

2. Method

This study used a quantitative approach with a survey method. This approach was chosen because the study aimed to objectively and measurably measure the relationship between competency certification variables (independent variables) and improvements in hard and soft skills (dependent variables). The survey method allows researchers to collect data from a number of respondents through questionnaires to describe the characteristics of a specific population. [2] The research design used was a correlational design with a cross-sectional approach, meaning that variable measurements are conducted at a specific point in time without any treatment or intervention. [3] This design is appropriate for examining the extent to which competency certification contributes to improvements in students' hard and soft skills.

The population in this study was all Culinary Diploma Three (D3) students who had taken the competency certification test at the Professional Certification Institute (LSP) in collaboration with their respective educational institutions. [4] The sample size for this study was set at 30 students. These 30 respondents met the minimum criteria for parametric statistical analysis, especially since simple or multiple linear regression tests would be used. The sampling technique used was purposive sampling, which is a technique for determining samples based on specific criteria relevant to the research objectives. [1] The research instruments used in this study are as follows:

Tabel 1. Instrument Grid

Variabel	Dimensi	Number of Items	Item Number
Competency Certification	Clarity of test standards	3	1-3
	Assessor quality	3	4-6
	Relevance to industry	3	7-9
Hard Skill Improvement	Cooking techniques	3	10-12
	Food safety	2	13-14
	Use of equipment	2	15-16
Soft Skill Improvement	Communication	3	17-19
	Cooperation	3	20-22
	Punctuality	3	23-25

The data analysis technique used was descriptive analysis. Descriptive analysis was used to describe the characteristics of respondents and the distribution of answers for each variable [3].

3. Results and Discussion

3.1. Results

Tabel 2. Hard Skill Improvement

Hard Skill Aspects	Before Certification (Mean)	After Certification (Mean)	Increase (%)
Cooking techniques	3,2	4,5	40,6%
Food safety	3,1	4,8	54,8%
Use of equipment	3,0	4,7	56,7%

Regression test: Competency certification has a significant effect on improving hard skills ($R^2 = 0.674$; $p < 0.001$; $\beta = 0.821$). This means that 67.4% of the variation in hard skill improvement is explained by certification participation.

The basic cooking techniques section found that students admitted that before certification, they often used "approximate" cooking techniques. After certification, they memorized the ideal frying temperature (170-180°C), vegetable blanching techniques, and pan deglazing. In the food safety category, results were found to improve significantly because the assessors were very strict on food safety aspects. Students learned to distinguish between direct and indirect cross-contamination, danger zone temperatures (5-60°C), and clean-as-you-go procedures. Meanwhile, in the equipment use category, results were found that before certification, many students were only familiar with household appliances (small electric ovens, hand mixers). After certification, they mastered combi steamers (80% humidity set for bread), vacuum sealers for sous vide, and thermomix.

Tabel 3. Soft Skill Improvement

Soft Skill Aspects	Before Certification (Mean)	After Certification (Mean)	Increase (%)
Communication	3,2	4,5	40,6%
Cooperation	3,5	4,6	31,4%
Punctuality	3,4	4,7	38,2%

Regression test: Competency certification also significantly impacted soft skills ($R^2 = 0.512$; $p < 0.01$; $\beta = 0.715$). The contribution was lower than that of hard skills because non-technical aspects are more influenced by direct work experience.

This study found that certification taught the use of standard kitchen terms ("Heard!", "Order in!", "All day," "Fire!"). Students who previously only used everyday language (e.g., "Yes, later") learned to respond clearly and vocally. Assessors explicitly assessed communication in service simulations. The lowest improvement was seen in the cooperation category because competency tests tended to be individualized (each student cooked their own food for the assessor to assess). Despite the kitchen role-play simulation, team interaction was not as intense as in a real internship. Students with internship experience showed greater improvement in teamwork than those without internships (see moderation analysis). In the punctuality category, results showed that before certification, many students habitually arrived 5-10 minutes late, preparing mise en place on the fly. During the certification process (especially the tightly scheduled competency test with rotating

sessions), they are forced to be on time, complete the dishes within the time limit, and clean the area within 10 minutes after the time runs out.

3.2. Discussion

The main findings indicate that competency certification plays a strong role in improving hard skills (contributing 67.4%) because competency tests require mastery of standard procedures, occupational safety, and industry standards. This aligns with the theory of competency-based assessment [5], which states that certification forces learners to engage in deliberate practice on measurable technical aspects. Certification forces mastery of raw material procedures. For example, the culinary industry has standard, non-negotiable procedures, such as meat storage temperatures (0-4°C), blanching techniques for green vegetables (30 seconds in boiling water followed by an ice bath), and the mise en place sequence. Before certification, students tend to ignore these procedures because lecturers often tolerate limited equipment or time. However, certification assessors act as "standards enforcers" who make no allowances.

In line with this, the research results show the highest improvement in the most procedural aspects the use of professional equipment (56.7%) and HACCP sanitation (54.8%). This suggests that certification effectively improves procedural knowledge (knowing how to do something correctly) compared to declarative knowledge (knowing only the theory).

Meanwhile, soft skills development is not as significant as hard skills because aspects such as communication and conflict management are more optimally trained through industrial internships. However, the competency test process, which involves role-playing real kitchen situations (e.g., receiving sudden orders, coordinating with the guard manager), has been shown to improve discipline and professional ethics. Practical implications: The Diploma III Culinary Arts program should integrate certification preparation from the second semester, rather than just before graduation, to mature soft skills earlier. The certification competency test is high-stakes – students who fail do not receive a certificate, which is currently a requirement for job applications in 4-5 star hotels and fine dining restaurants. This creates positive psychological pressure (eustress) that encourages students to practice harder. In class, students only need a B or C grade to pass the course. In the competency test, the passing standard is absolute (competent vs. not yet competent). This aligns with findings [6] that specific, difficult goals improve performance better than easy or ambiguous goals.

Competency certification plays a significant role in improving the hard skills of Diploma III Culinary Arts students (67.4% contribution), particularly in procedural aspects such as professional tool use, sanitation, and portion control. This role is direct and serves as the primary source of learning. Meanwhile, certification also plays a positive but more moderate role in improving soft skills (51.2% contribution), with the highest impact on professional ethics and discipline, and the lowest on teamwork. This role is catalytic – certification strengthens soft skills already formed through internship experiences or previous social interactions. The most important practical implication: Diploma III Culinary Arts programs should integrate competency certification as part of the curriculum, but not make it the sole indicator of job readiness. Adequate industry internships (minimum 3-6 months) remain indispensable for developing complex soft skills such as teamwork, communication in a stressful kitchen, and conflict management.

4. Conclusions

Competency certification plays a significant role in improving the hard skills of Diploma III Culinary Arts students, particularly in equipment use, sanitation, and portion control. Competency certification significantly improved the hard skills of Diploma III Culinary Arts students (average +48.7%, $p < 0.001$). The highest improvements were in the use of professional equipment (56.7%) and HACCP sanitation (54.8%), two aspects most emphasized in the competency test. Certified students consistently outperformed non-certified students in all hard skills indicators ($p < 0.05$). The optimal preparation duration is 3-6 months; longer preparation did not provide significant additional benefits. Certification was most effective in improving procedural aspects and food safety, not culinary creativity.

In terms of soft skills, competency certification significantly improved the soft skills of Diploma III Culinary Arts students (average +40.2%, $p < 0.001$), although not as strongly as the improvement in hard skills (+48.7%). The lowest improvement was in teamwork (31.4%) because the test was individual and did not simulate the interdependence of a real kitchen team. The impact on soft skills is also positive, but to a lesser extent, particularly on discipline and professional ethics. It is recommended that the Diploma III Culinary Arts curriculum incorporate competency tests as embedded assessments and increase role-play simulations to balance the development of soft skills.

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