

Bread and Pastry Production Competencies of TVL Teachers in Bucay-Manabo District

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ABSTRACT

This study assessed the Bread and Pastry Production (BPP) competencies of Technical–Vocational–Livelihood (TVL) teachers in the Bucay–Manabo District of Abra in relation to TESDA National Certificate II standards and developed a needs-based training program. A mixed-methods design combined competency-rating surveys, Classroom Observation Tool (COT) records, document analysis, and semi-structured responses from 30 teachers, seven supervisors, and 176 students ($N = 213$). Descriptive statistics, Pearson correlations, one-way analysis of variance, and thematic categorization were used. Teachers obtained a Consolidating COT rating ($M = 5.72$). The pooled competency means were 4.52 for basic competencies (Highly Competent), 4.17 for common competencies (Competent), and 3.97 for core competencies

(Competent). Teachers rated their own overall competencies higher ($M = 4.62$) than supervisors ($M = 3.99$) and students ($M = 4.06$); the between-group test was significant, $F(2, 209) = 17.31$, $p < .01$. Plantilla position was positively related to classroom performance ($r = .413$), whereas COT performance was not significantly correlated with overall BPP competence ($r = .066$). Qualitative responses identified advanced cake, gateaux, tortes, and petits fours skills as the leading improvement priority, followed by laboratory facilities and certification alignment. Findings informed a proposed eight-week, competency-based BPP Teaching Excellence Program integrating technical workshops, digital tools, assessment preparation, and facilities planning. The study indicates that strong pedagogical observation ratings should be complemented by direct technical-skills assessment and targeted professional development.

Keywords: *Bread and Pastry Production; TVL teachers; TESDA NC II; teacher technical competence; classroom observation; professional development*

INTRODUCTION

Technical–Vocational–Livelihood (TVL) education is expected to equip senior high school learners with practical competencies that respond to workplace requirements. Bread and Pastry Production (BPP) is particularly dependent on educators who can demonstrate accurate production procedures, comply with occupational safety standards, and assess skills through authentic tasks. The relationship between qualification standards and teaching quality is relevant to the Philippines' commitment to inclusive education and skills development under Sustainable Development Goal 4 (United Nations, 2015).

TESDA competency standards organize BPP preparation around basic competencies such as workplace communication and occupational health and safety; common competencies involving hygiene, industry knowledge, computer operations, and customer service; and core competencies such as making bakery and pastry products, preparing gateaux, tortes, and cakes, displaying petits fours, and presenting desserts (Technical Education and Skills Development Authority [TESDA], 2024). For teachers, meeting these requirements involves more than subject-content familiarity: it requires hands-on commercial techniques, appropriate facilities, and the

ability to evaluate performance against clear criteria. The Philippine Professional Standards for Teachers also emphasize continuing learning and performance improvement (Department of Education, 2017).

Prior research cited in the thesis raises a recurring concern about the mismatch between vocational teachers' general instructional proficiency and specialized trade competencies. Barcelona et al. (2023) documented material, human, and pedagogical challenges among Philippine TLE teachers, while Basal (2022) considered the relationship between instructional competence and specialized qualifications. These concerns are especially consequential for districts where advanced baking equipment, industry immersion opportunities, and training credentials may be limited. However, local evidence comparing teacher self-appraisals with supervisor and student perceptions across all three TESDA competency categories remains necessary for developing precisely targeted interventions.

This study examined the professional profile and observed teaching performance of BPP teachers in the Bucay–Manabo District, Abra; compared perceived basic, common, and core competencies across teachers, supervisors, and students; analyzed relationships among teacher characteristics, observed performance, and competency ratings; and identified recurring strengths and weaknesses. The findings informed a proposed structured BPP training program. By combining teaching observations, multiple respondent perspectives, and qualitative reports, the investigation provides a district-level basis for complementary pedagogical and technical professional development without asserting effects on student achievement that were not measured.

Literature Review

Competency-Based and Standards-Aligned Technical Education

Competency-based education emphasizes demonstrable knowledge, skills, and attitudes aligned with occupational expectations rather than curriculum exposure alone. In the thesis, TESDA standards were used to distinguish basic workplace behavior, common industry practices, and production-specific core skills. Popham (2008) argued for assessments that generate usable evidence for instruction, while Boahin (2018) examined the adoption of competency-based training within professional education. Together, these perspectives justify rating BPP capabilities against explicit performance requirements and using lower-rated domains to prioritize development.

Philippine vocational instruction also depends on teaching environments capable of supporting authentic demonstrations. Barcelona et al. (2023) reported facility and pedagogical constraints in public-school TLE instruction. Department of Education (2017) standards place professional improvement within teachers' developmental trajectories. When facilities and qualifications are uneven, a teacher's general instructional effectiveness may not be sufficient evidence of competency in advanced pastry production. The TESDA (2024) competency categories accordingly served as separate measures in this study rather than being collapsed into a single judgment of teaching quality.

Standards alignment further raises questions about whether qualifications match teaching assignments. Job Matching Theory holds that productive work improves when the demands of a role correspond with workers' capabilities (Jovanovic, 1979; Allen & van der Velden, 2001). The study therefore examined micro-credentials, training history, industry linkages, and assignment-related characteristics as possible correlates of pedagogical performance and BPP competence. Those relationships were tested empirically rather than assumed from credentials alone.

Pedagogical Performance and Technical Competence

Effective technical instruction combines professional teaching methods with reliable execution of industry tasks. Social constructivist perspectives emphasize guided participation, support, and meaningful interaction (Vygotsky, 1978; Wertsch, 1985). Situated learning likewise points to the importance of practice in authentic social and occupational contexts (Lave & Wenger, 1991). In BPP classrooms, demonstration, guided production,

feedback, sanitation, and product-quality checks provide the setting in which these principles become observable classroom practices.

The study used the Classroom Observation Tool to evaluate instructional performance and a separate TESDA-aligned rating instrument to evaluate BPP competence. This separation is important: classroom planning, differentiation, and resource use are related to, but not interchangeable with, production skills in bakery and pastry products. Bandura (1997) explained how beliefs about capability emerge through experience, while Lent et al. (1994) highlighted relationships among efficacy, opportunities, and career performance. These theories support continued opportunities for teachers to practise both pedagogy and specialist trade skills without assuming that either measure automatically predicts the other.

Formal education and professional experience can contribute to teacher development, but their benefits depend on task relevance. Human Capital Theory situates training as an investment in productive capabilities (Becker, 1964; Sweetland, 1996). Podolsky et al. (2019) reviewed evidence connecting teaching experience with effectiveness, while Darling-Hammond et al. (2017) emphasized features of effective professional learning. This literature reinforces the need to consider years of teaching alongside actual BPP credential alignment, hands-on exposure, and observed performance.

Multi-Rater Competency Assessment and Professional Development

Multi-perspective assessment can reveal gaps between what teachers believe they can do and what supervisors or learners see in practice. In vocational education, separate ratings may reflect differing opportunities to observe technical demonstrations, instructional planning, safety behavior, and assessment decisions. Rather than treating self-reports as proof of mastery, a combined evidence base may guide transparent feedback and targeted development. The study adopted supervisor, teacher, and student ratings to examine these possible differences across basic, common, and core competencies.

Professional development is most relevant when it is content-focused, connected to teachers' work, and accompanied by practice and feedback. Desimone (2009) described characteristics and measures of high-quality teacher professional learning, while Guskey (2002) analyzed the conditions through which development can contribute to teacher change. Yoon et al. (2007) reviewed the relationship between professional development and student outcomes. These works inform the proposed intervention's focus on directly practising sophisticated BPP techniques rather than relying solely on general lectures or one-time seminars.

The thesis also emphasized industry immersion, assessment preparation, equipment upgrades, and structured peer support. These elements correspond to the logic of human-capital investment (Becker, 1964) and job matching (Allen & van der Velden, 2001), while situated learning emphasizes their authenticity (Lave & Wenger, 1991). Their incorporation into a training proposal should be interpreted as a research-informed recommendation, not as evidence that the proposed program has already been implemented or independently evaluated.

Conceptual Framework and Research Gap

The study used an Input–Process–Output research paradigm. Inputs consisted of teachers' demographic and professional characteristics, supervisor-observed classroom performance, and perceived basic, common, and core BPP competencies. The process comprised descriptive tabulation, correlation testing, comparison of the three respondent groups, and synthesis of identified strengths and weaknesses. The intended output was a BPP training program designed to address district-specific capability and resource gaps.

The framework brings together competency-based standards, practical demonstrations, and the possibility that professional circumstances relate differently to classroom observation scores and technical competence. It also recognizes the contextual importance of facilities and industry experience. This combination addresses a localized evidence need: teachers can appear highly proficient during classroom observations while still requiring development in particular occupational tasks. Establishing whether these measures correlate, and where different groups' ratings diverge, is therefore essential to selecting appropriate support.

Figure 1 retains the content of the thesis's original research paradigm, including its inputs, analytical processes, and proposed training-program output. It is reproduced immediately before the methodology to maintain continuity between the study's conceptual model and its operational design.

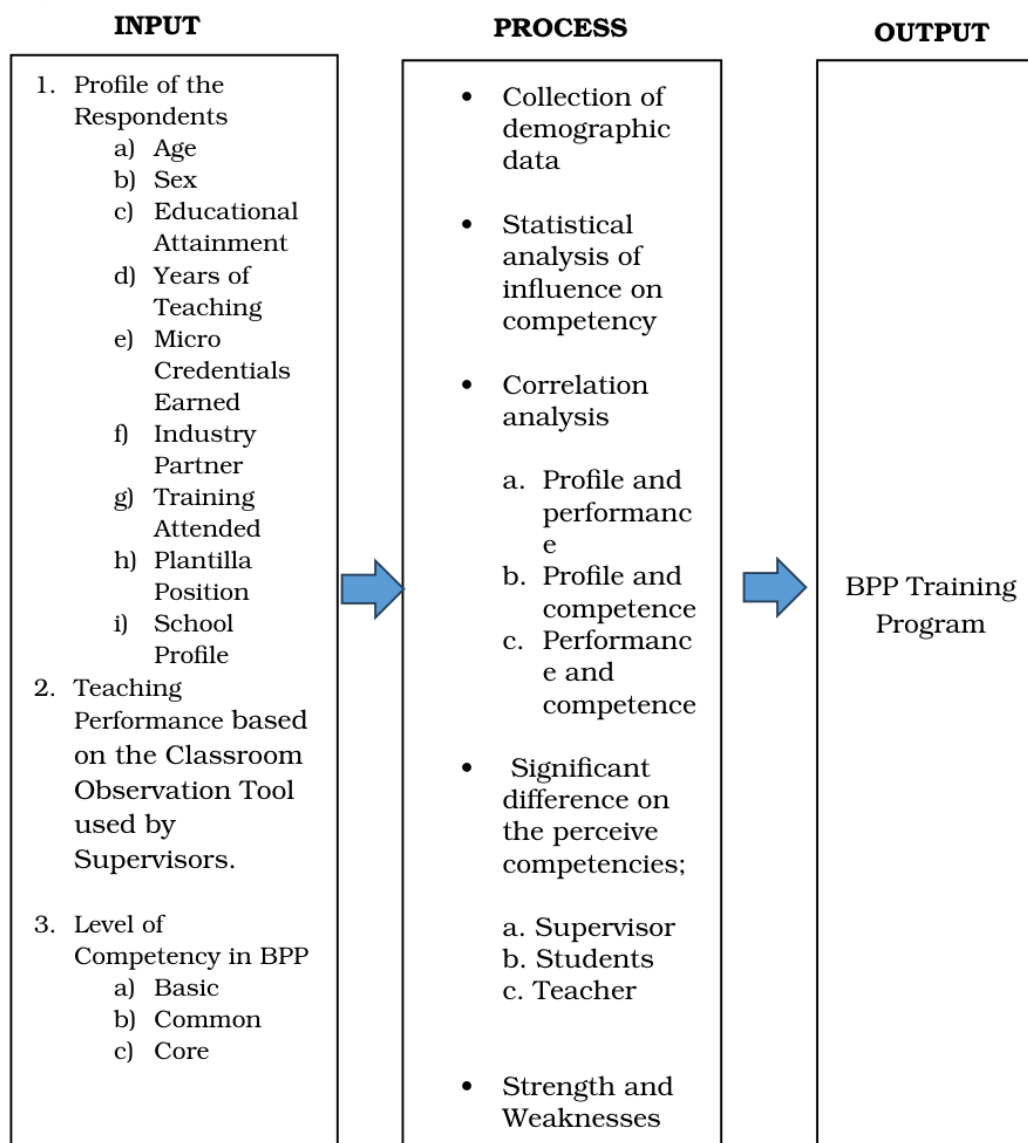


Figure 1. *Original Research Paradigm of the Study*

METHODS

Research Design

The investigation employed a mixed-methods descriptive and correlational design. Quantitative information was obtained from teacher profiles, COT records, and three-group competency assessments; qualitative information came from semi-structured responses regarding instructional strengths, constraints, and training needs. The quantitative component compared average ratings and tested associations among selected variables. The qualitative component supported interpretation of the practical needs reflected in the scores.

Research Locale

The research was conducted in seven secondary schools offering BPP in the Bucay–Manabo District, Abra, during school year 2025–2026. The participating schools were coded rather than named in the research tables to safeguard institutional and participant confidentiality. The investigation was limited to BPP instructional settings within the identified district and did not directly evaluate students' subsequent employment or national assessment results.

Participants and Sampling Technique

The study used total enumeration of the accessible population, comprising 30 BPP teachers, seven supervisors, and 176 students, for 213 respondents. Teachers supplied professional-profile information and self-ratings; supervisors contributed professional observations and assessments; and students evaluated BPP competency as encountered during instruction. The source describes student participants in the Grade 12 BPP group. Sample sizes are retained as reported in the thesis.

Table 1. *Distribution of Study Respondents*

Respondent group	Number	Share of total
BPP teachers	30	14.1%
Supervisors	7	3.3%
Students	176	82.6%
Total	213	100.0%

Research Instrument

The researcher used TESDA Training Regulations–aligned competency questionnaires containing indicators for basic, common, and core skills; a document-analysis checklist for COT records; and a semi-structured interview guide. The five-point competency scale ranged from 1 (Not Competent) to 5 (Highly Competent), with the highest interpretive band defined as 4.21–5.00. The COT was interpreted using the source's developmental scale from Building to Consolidating. Five experts reviewed the document checklist and interview guide, and the study reports pilot testing and revisions before their use.

Data Gathering Procedure

The researcher sought research and school authorization, informed respondents of the study purpose, and obtained consent before administering instruments. The teacher-profile surveys and TESDA-aligned rating questionnaires were distributed to the relevant respondent groups, while existing COT records were reviewed using a structured checklist. Semi-structured interviews and open responses elicited information about competencies, working conditions, certification, facilities, and training. Completed records were encoded, reviewed, and grouped for quantitative and thematic analyses.

Data Analysis

Frequencies, percentages, and rankings summarized respondent profiles and qualitative response categories. Means described COT performance and competency levels. Pearson correlation coefficients were used to examine associations between professional-profile indicators and teaching performance, profile indicators and

technical competency, and observed teaching performance and competency. A one-way ANOVA and reported post hoc comparisons assessed differences among the three respondent groups. Qualitative responses were organized into frequently reported strengths and improvement priorities. Reported significance markers were retained from the thesis; no raw-data reanalysis was possible.

Ethical Consideration

The thesis described application for institutional ethical approval, permission from the Department of Education and school authorities, informed participation, and confidential handling of professional and school information. School identities were coded; personal identifiers were removed from compiled information; and restricted access to research records was described. Findings were presented in aggregate to reduce risks associated with sharing teachers' qualification and observation data.

RESULTS AND DISCUSSION

Profile of the BPP Teacher Respondents

Most BPP teachers were 20–29 years old (17 of 30; 56.7%), female (23; 76.7%), and bachelor's degree holders (24; 80.0%). The source table reported 22 teachers (73.3%) with fewer than five years of teaching experience. Only seven teachers (23.3%) held NC II in Bread and Pastry Production; 17 (56.7%) held NC II in Cookery, five (16.7%) held NC II in Food and Beverage Services, and one (3.3%) held a Trainers Methodology credential. Twenty-eight teachers (93.3%) reported having no industry partner. These descriptive findings indicate limited formal BPP-specific certification and industry connections within the sample, without implying that unrelated certificates lack professional value.

Table 2. *Selected Professional Characteristics of the 30 TVL Teachers*

Characteristic	Dominant category	Frequency (%)
Age	20–29 years	17 (56.7%)
Sex	Female	23 (76.7%)
Highest qualification	Bachelor's degree	24 (80.0%)
Teaching experience	Fewer than 5 years	22 (73.3%)
Credential	NC II in Cookery	17 (56.7%)
BPP-specific credential	NC II in BPP	7 (23.3%)
Industry partnership	None reported	28 (93.3%)
Training attended	Local / district	16 (53.3%)
Plantilla position	Teacher I	16 (53.3%)

Professional development occurred predominantly at local or district level (16; 53.3%), followed by division or provincial level (11; 36.7%). Few teachers reported regional or national training (3; 10.0%). These patterns align with the thesis's concern that access to specialized technical instruction and industry exposure is uneven. The findings support targeted skill-building and school–industry networking rather than assuming that years of service alone represent BPP mastery (Darling-Hammond et al., 2017; Podolsky et al., 2019).

Teaching Performance and Competency Ratings

Supervisors' Classroom Observation Tool ratings produced an overall mean of 5.72, interpreted as Consolidating. Individual COT indicators ranged from 5.57 to 5.87. The highest-rated indicator concerned the selection and use of instructional resources, including ICT (5.87), while indicators for teaching strategies that promote literacy, numeracy, critical thinking, and creativity each received 5.57. The results suggest strong observed classroom pedagogy within the study's COT scale.

Table 3. COT Performance and TESDA-Aligned Competency Ratings

Measure	Supervisor	Teacher	Student	Pooled/overall
Classroom Observation Tool	—	—	—	5.72 (Consolidating)
Basic competencies	4.54 (HC)	4.57 (HC)	4.46 (HC)	4.52 (HC)
Common competencies	3.80 (C)	4.69 (HC)	4.04 (C)	4.17 (C)
Core competencies	3.63 (C)	4.61 (HC)	3.67 (C)	3.97 (C)
All BPP competencies	3.99 (C)	4.62 (HC)	4.06 (C)	4.22 (HC)

Note. HC = Highly Competent; C = Competent. COT and five-point competency ratings use different scales and must not be directly compared.

Basic competencies received consistently high ratings across all three groups, with a pooled mean of 4.52. Workplace communication received an overall mean of 4.64; professionalism and occupational safety were also rated within the highly competent band. By contrast, common skills averaged 4.17 and core skills 3.97, both interpreted as Competent. Particularly in common and core domains, teachers' self-ratings exceeded assessments supplied by supervisors and students. This supports the need for external demonstrations and industry-criterion assessment to complement teacher self-appraisal (Boahin, 2018; Department of Education, 2017).

Within the core domain, preparation of gateaux, tortes, and cakes had an overall mean of 3.84 and preparation/display of petits fours had 3.93, suggesting priorities for advanced practice. Ratings of these skills differed appreciably between teachers and external respondents; for instance, petits fours ratings were 4.70 among teachers, 3.57 among supervisors, and 3.51 among students. The lower external ratings are consistent with the qualitative concern about advanced decorating and specialty pastry techniques. The original source repeats a bakery-products label in its fifth core item, so no corrected item name is introduced here.

Associations Among Profile, COT Performance, and Competency

Of the teacher-profile variables tested against COT performance, only plantilla position was marked significant in the source, with a positive correlation of $r = .413$ ($p < .05$). Age ($r = -.026$), sex ($r = -.036$), educational attainment ($r = .120$), years of teaching ($r = .136$), micro-credentials ($r = -.173$), industry partnership ($r = -.079$), training attended ($r = .128$), and school profile ($r = .132$) were not marked significant. The finding represents an observed association, not evidence that promotion causes improved teaching.

Table 4. Selected Correlations Reported in the Thesis

Pair of measures	Reported r	Reported inference
Plantilla position and COT performance	.413*	Significant positive
Age and core BPP competency	.382*	Significant positive
Education and basic BPP competency	.373*	Significant positive
Industry partnership and common competency	-.771**	Significant negative
Industry partnership and core competency	-.602**	Significant negative
Industry partnership and overall competency	+.660**	Significant positive
COT performance and basic competency	.028	Not significant
COT performance and common competency	.046	Not significant
COT performance and core competency	.082	Not significant
COT performance and overall competency	.066	Not significant

Teacher-profile associations with competency varied by domain. Age was marked significant for core competencies ($r = .382$), while educational attainment was marked significant for basic competencies ($r = .373$). Industry partnership showed substantial negative associations with common ($r = -.771$) and core ($r = -.602$) competency but a positive overall coefficient ($r = .660$) in the same table. Because these values are directionally inconsistent and the profile variable's coding is not supplied, they should not be used to assert that partnerships are beneficial or harmful until the underlying calculations are verified.

Importantly, COT performance showed weak, non-significant reported correlations with basic ($r = .028$), common ($r = .046$), core ($r = .082$), and overall ($r = .066$) BPP competency. Strong classroom observation performance, therefore, did not coincide reliably with higher technical competency ratings in these data. The result reinforces the distinction between occupational technical capability and pedagogical performance described in the literature (Lave & Wenger, 1991; Popham, 2008). Teacher support should target both dimensions instead of treating one as a substitute for the other.

Differences in Supervisor, Teacher, and Student Ratings

The source's one-way ANOVA found a statistically significant difference in competency assessments across the three respondent groups, $F(2, 209) = 17.31$, $p < .01$, with a reported significance value of 1.10×10^{-7} . Its follow-up comparisons recorded 3.09 for supervisors versus teachers, 5.83 for teachers versus students, and 0.37 for supervisors versus students. The first two comparisons were marked significant at .01, while the last was not. These findings are consistent with the notably higher overall teacher self-rating of 4.62 compared with supervisor and student ratings of 3.99 and 4.06.

Table 5. *Reported Between-Group Difference in Perceived BPP Competencies*

Reported test	Statistic	Degrees of freedom	Reported significance
One-way ANOVA	$F = 17.31$	(2, 209)	$p = 1.10 \times 10^{-7}$
Supervisors vs. teachers	3.09	209	Significant, $p < .01$
Teachers vs. students	5.83	209	Significant, $p < .01$
Supervisors vs. students	0.37	209	Not significant

The observed rating discrepancy indicates the importance of shared standards for judging demonstration quality and complex production tasks. When external observers and teachers use the same evidence-based rubrics, professional learning priorities may be defined more precisely. These findings align with the emphasis on objective competencies and systematic evaluation in standards-based education (Department of Education, 2017; Popham, 2008).

Perceived Strengths and Priority Improvement Areas

The analysis of open-ended responses identified mastery of basic baking techniques and recipe execution as the most frequent strength (12 of 30; 40.0%), followed by classroom management and laboratory organization (8; 26.7%). Other strengths included effective demonstrations (5; 16.7%), safety and sanitation (3; 10.0%), and positive student rapport (2; 6.6%). These categories were reported as counts of 30 categorized responses and should not be generalized to all 213 respondents without additional source information.

Table 6. *Most Frequent Strengths and Areas Needing Improvement*

Category	Leading theme	f	%
Strength	Basic baking techniques and recipe execution	12	40.0
Strength	Classroom management / laboratory organization	8	26.7
Strength	Instructional strategies / demonstrations	5	16.7
Improvement	Advanced gateaux, tortes, petits fours, decoration	13	43.3
Improvement	Modern laboratory facilities and equipment	8	26.7
Improvement	TESDA NC II / TM I certification alignment	5	16.7
Improvement	Complex-session time management	3	10.0
Improvement	ICT and commercial baking methodologies	1	3.3

Advanced core baking skills constituted the leading improvement need (13 of 30; 43.3%), followed by inadequate modern facilities and baking equipment (8; 26.7%). Five responses (16.7%) emphasized certification and alignment difficulties. Smaller proportions mentioned time management (3; 10.0%) and ICT integration (1; 3.3%). Rather than rejecting existing instructional strengths, this pattern suggests building advanced practice on

the teachers' current foundation in bakery production, classroom organization, and workplace safety (Barcelona et al., 2023; Desimone, 2009).

Proposed BPP Training Program

On the basis of these results, the thesis proposed the Advanced Bread & Pastry Production (BPP) Teaching Excellence Program for TVL Educators. The separate training-program document specifies 25 intended participants and an eight-week, 40-day structure. Its content addresses basic/common competencies, digital bakery operations, foundational bakery and pastry practice, specialty gateaux/tortes/decorating, petits fours and plated desserts, and pedagogical assessment with facilities planning. It also incorporates mock TESDA NC II assessment, electronic portfolios, and proposals for laboratory improvements. The program is an output of the study and was not evaluated as a delivered intervention.

Table 7. Condensed Components of the Proposed Eight-Week Training Program

Weeks	Training focus	Expected learning output
1–2	Hygiene, OHS, HACCP, teamwork; ICT and recipe costing	Safety demonstrations, costing sheets, e-portfolios
3–4	Foundational bakery and pastry production	Artisan breads, laminated/choux pastries and controls
5–6	Gateaux, tortes, and specialty cake decorating	Layered cakes, piping and fondant portfolio
7	Petit's fours, chocolate work, dessert presentation	Commercial petits fours and plated dessert display
8	Pedagogical mastery, mock NC II, facilities enhancement	Assessment evidence and proposed equipment plan

The program combines practice-based instruction, assessment readiness, and institutional resource planning. This design is consistent with the literature favoring sustained, content-specific professional development (Desimone, 2009; Guskey, 2002; Darling-Hammond et al., 2017). Any later claims about improvements in teachers' national certification performance, student skills, or institutional outcomes will require a separate implementation and evaluation study.

CONCLUSION

The study found that BPP teachers in the Bucay–Manabo District demonstrated strong observed instructional performance and highly competent basic workplace skills. However, pooled assessments of common and core BPP competencies were lower, particularly for advanced cake and pastry tasks. Teachers assessed their own BPP competence more favorably than supervisors and students, with statistically significant differences among respondent groups. These findings show the value of multi-rater assessment for identifying professional development priorities that may remain obscured by positive teacher self-ratings.

In the reported quantitative analysis, plantilla position was positively associated with COT performance, while overall technical competency was not significantly related to COT performance. Consequently, strong pedagogical observation scores should not be treated as direct evidence of complete occupational skill mastery. Teachers also reported limits related to formal certification, industry partnership opportunities, and facilities. The study contributes a district-specific basis for a proposed, targeted BPP training program, but its correlational design and untested intervention do not support causal claims or claims of demonstrated program effectiveness.

Recommendations

School heads and the Department of Education may prioritize targeted workshops in gateaux, tortes, specialty cake decorating, and petits fours; arrange technical coaching that includes hands-on demonstrations and standardized rubrics; and support teachers in seeking suitable TESDA qualifications. Teachers should receive opportunities to practise food-safety protocols, updated commercial baking methods, ICT-supported recipe

costing, and practical assessment design. Results from teacher self-ratings, COT observations, and supervisor/student feedback should be used together to determine individual and school-level priorities rather than relying on a single measure.

District and school administrators may strengthen linkages with bakeries, training institutions, and assessment centers, while documenting equipment needs and considering shared laboratories, maintenance, or phased procurement. Before implementing the proposed eight-week training program, planners should reconcile its hours, participation targets, and budget estimates and specify measurable baseline and follow-up competency assessments. Future research should examine additional districts, include direct performance examinations against current industry standards, and evaluate program outcomes longitudinally. The source's inconsistent tabulations and selected correlation signs should be checked against the original statistical outputs before final publication.

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