Impact on NCII Competency Integration in the study of commercial cookery among Grade 10 Students

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A B S T R A C T

This study delved into the impact of integrating cognitive and practical skills within the National Certification II (NC II) in Commercial Cookery on student preparedness and assessment outcomes. The objective is to enhance vocational training programs by analyzing the relationships between these variables and identifying areas for improvement. Using an embedded mixed-methods approach, the research combined quantitative and qualitative data for a comprehensive analysis. Surveys were employed to measure cognitive skills, practical skills, preparedness, and assessment performance among NC II students, while qualitative insights were obtained from interviews and focus group discussions with educators and students. Pearson correlation coefficients indicated very high positive correlations between cognitive skills and practical skills and between preparedness and assessment outcomes, highlighting the strong interdependence of these variables and their significant impact on educational performance. The study emphasizes the importance of integrating cognitive and practical skills in vocational education, demonstrating that improvements in these areas are closely connected. Additionally, the significant relationship between preparedness and assessment outcomes underscores the need for thorough preparation to achieve better results. Based on these findings, recommendations include developing targeted educational strategies to bolster both cognitive and practical skills and enhancing preparedness efforts. Future research should focus on exploring the longitudinal impacts of these interventions and applying the findings to broader educational contexts to further validate their effectiveness.

RESUMO

Este estudo investigou o impacto da integração de habilidades cognitivas e práticas no Certificado Nacional II (NC II) em Culinária Comercial na preparação dos alunos e nos resultados das avaliações. O objetivo é aprimorar os programas de formação profissional, analisando as relações entre essas variáveis e identificando áreas para melhoria. Utilizando uma abordagem de métodos mistos incorporados, a pesquisa combinou dados quantitativos e qualitativos para uma análise abrangente. Pesquisas foram utilizadas para medir habilidades cognitivas, habilidades práticas, preparação e desempenho em avaliações entre os alunos do NC II, enquanto percepções qualitativas foram obtidas por meio de entrevistas e discussões em grupos focais com educadores e alunos. Os coeficientes de correlação de Pearson indicaram correlações positivas muito altas entre habilidades cognitivas e habilidades práticas e entre preparação e resultados de avaliação, destacando a forte interdependência dessas variáveis e seu impacto significativo no desempenho educacional. O estudo enfatiza a importância de integrar habilidades cognitivas e práticas na educação profissional, demonstrando que melhorias nessas áreas estão intimamente conectadas. Além disso, a relação significativa entre preparação e resultados das avaliações ressalta a necessidade de uma preparação minuciosa para alcançar melhores resultados. Com base nesses achados, as recomendações incluem o desenvolvimento de estratégias educacionais direcionadas para reforçar tanto as habilidades cognitivas quanto as práticas e aprimorar os esforços de preparação. Pesquisas futuras devem focar na exploração dos impactos longitudinais dessas intervenções e na aplicação dos achados em contextos educacionais mais amplos para validar ainda mais sua eficácia.

Introduction

The integration of national competencies into Grade 10 Commercial Cookery programs is essential for developing a culinary workforce capable of meeting the evolving demands of the industry. Competency-based education, with its emphasis on practical skills and real-world application, has been shown to improve student outcomes and increase employability rates (Patrick & Sturgis, 2013). Moreover, a strong alignment between education and industry needs is crucial for driving economic growth and innovation in the culinary sector (World Bank, 2019). By fostering full-bodied industry partnerships, implementing effective curriculum evaluation, and providing ample opportunities for work-based learning, educational institutions can equip students with the skills and knowledge necessary to excel in a globalized culinary market.

Competency-Based Education (CBE) offers a transformative approach to education, prioritizing mastery of skills over chronological time spent in the classroom. This student-centered model empowers learners to progress at their own pace, fostering a deeper understanding of subject matter (CompetencyWorks, 2017). In the vocational context of Grade 10 Commercial Cookery, where the harmonious blend of practical skills and theoretical knowledge is indispensable, CBE proves particularly effective. By focusing on the development of specific culinary competencies, this approach equips students with the essential abilities to thrive in a dynamic and demanding industry (Choy et al., 2018). Research consistently underscores the positive impact of competency-based learning on student outcomes, enhancing their employability and overall preparedness for the workforce (Darling-Hammond et al., 2014). Moreover, CBE aligns with the growing emphasis on work-based learning, as it provides opportunities for students to apply their knowledge and skills in real-world settings, thereby bridging the gap between education and employment (Thiess, 2013).

In the Philippines, the Technical Education and Skills Development Authority (TESDA) plays an essential role in standardizing and certifying technical and vocational education and training (TVET) programs in the Philippines. It is mandated to develop, implement, and monitor a comprehensive TVET system that aligns with the country's economic and social development goals (TESDA, n.d.).

One of TESDA's core functions is the development and implementation of the National Certification System (NCS). This system establishes competency standards for various occupations and industries, ensuring that graduates possess the necessary skills to meet industry requirements (TESDA, n.d.). Through the NCS, TESDA conducts assessments and certifications to validate the competencies of individuals who have undergone TVET programs, thereby enhancing their employability and global competitiveness (TESDA, n.d.).

The incorporation of national competencies into cookery education provides a standardized measure of educational efficacy, ensuring that students are not only taught

theoretically but are also capable of applying their knowledge in practical situations (Worthen & Pace, 2020). In this context, the study of the perceived impact of this integration on Grade 10 students in commercial cookery becomes fundamental to understanding its benefits and gaps in implementation as well as on how it helps students taking the national certification in cookery as administered by the Technical Education and Skills Development Authority in the Philippines.

Research Questions

To gauge how the respondents perceived the integration of National Certification Competencies in the study of Commercial Cookery in Grade 10, this study specifically answered the following questions:

How do the respondents perceive the impact of integration of the National Competency into the minimum competency requirement for grade 10 commercial cookery in terms of: Cognitive ability; Practical skills;

What are the challenges encountered by the respondents in integrating NCII competencies into the study of grade 10 commercial cookery terms of their: Preparedness; Assessment;

Is there a significant relationship between the cognitive abilities and practical skills, and preparedness and assessment?

Methodology

This study employed a mixed-method approach of research. A mixed-method approach is a research methodology that combines both quantitative and qualitative research methods to explore a research question. By integrating these complementary approaches, researchers can gain a more comprehensive and nuanced understanding of a complex phenomenon (Creswell & Plano Clark, 2018). Specifically, the embedded mixed-method was used. An embedded mixed-method design involves integrating quantitative and qualitative data within a larger quantitative or qualitative study (Creswell & Plano Clark, 2018). In this case, the quantitative data served as the dominant data set over the qualitative data, providing the primary basis for analysis and interpretation. The qualitative data complemented the quantitative findings by offering deeper insights and elaborating on the observed trends and patterns.

In terms of the collection of quantitative data, the survey research method was utilized using an instrument based on the general structure of the assessment criteria for Cookery National Certification II of the Technical Education and Skills Development Authority (TESDA) in the Philippines (Biadnes, 2022). A survey method is a systematic approach to gathering data from a sample of individuals through a structured set of questions (Babbie, 2013). Surveys can be conducted in various formats, including online, mail, telephone, or

face-to-face interviews, to collect quantitative and qualitative data (Fowler, Jr. & Christofides, 2016).

Furthermore, qualitative data were collected using an interview section embedded in the survey instrument. An unstructured interview is a qualitative research method characterized by its flexibility and open-ended nature. Researchers have significant freedom to explore topics and ask follow-up questions based on the interviewee's responses. Unlike structured interviews with predetermined questions, unstructured interviews allow for spontaneous conversation and deeper insights into participants' perspectives (Kvale & Brinkmann, 2009; Silverman, 2020).

Respondents

The study included a population of 38 respondents, all of whom were 10th grade students at the Laboratory High School of the College of Education, Rizal Technological University, Philippines, during the 2023-2024 school year. These students took the National Certification II for Cookery after experiencing the integration of NCII competencies in their regular classroom instruction in the subject Cookery which is one of the divisions of the Technology and Livelihood Education subject.

They were selected purposively exhibiting the qualifications as mentioned above. Purposive sampling is a non-probability sampling technique where researchers intentionally select participants based on specific criteria relevant to the study. This method is commonly used in qualitative research to gain in-depth insights into a particular phenomenon (Patton, 2015). By carefully choosing participants who possess specific characteristics or experiences, researchers can maximize the richness and relevance of the data collected (Creswell & Poth, 2018).

Data Analysis

After the quantitative data were collected, the weighted mean for each criterion was computed using Jamovi software (Şahin & Aybek, 2020). This process involved inputting the raw data into the software, applying the relevant statistical functions to calculate the weighted mean for each criterion, and analyzing the results to understand the distribution and central tendency of the responses. Jamovi facilitated a detailed examination, allowing for a nuanced interpretation of the data across the specified criteria.

In contrast, the qualitative data were analyzed using Thematic Analysis, a systematic approach for identifying, analyzing, and interpreting patterns of meaning within qualitative data (Nowell et al., 2017). This method followed a structured process that began with familiarization with the data to gain an in-depth understanding. Initial codes were then generated to categorize the data into meaningful segments. These codes were examined to identify overarching themes, which were subsequently reviewed and refined to ensure

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accuracy and relevance. Each theme was clearly defined and named to capture its essence, and a thematic map was produced to illustrate the relationships among themes. Finally, the findings were compiled into a detailed report, providing a comprehensive interpretation of the themes and their implications. This rigorous approach enabled a deep exploration of the qualitative data, uncovering underlying meanings and structures (Braun & Clarke, 2012).

Results and Discussion

Table 1.

Mean and standard deviation values on the perceived Impact on cognitive ability

Benchmark Statements	Mean	SD	Adjectival Interpretations
1. I feel more confident in understanding theoretical concepts related to cookery techniques.	4.24	0.88	Strongly Agree
2. I can apply culinary principles more effectively in problem-solving scenarios.	4.37	0.91	Strongly Agree
3. I remember cookery terminology and concepts better now.	4.21	0.96	Strongly Agree
4. I find it easier to analyze recipes and make modifications base	4.42	0.86	Strongly Agree
5. I'm better at creating innovative dishes by combining cognitive	4.39	0.82	Strongly Agree
6. I understand nutritional requirements better and apply them when planning menus.	4.37	0.88	Strongly Agree
7. I've improved at understanding food safety regulations and implementing them in cooking practices	4.50	0.83	Strongly Agree
8. I can interpret complex recipes more easily and adjust them for different dietary needs.	4.18	0.93	Agree
9. I'm more aware of sustainability practices and how to integrate them into cookery processes.	4.34	0.88	Strongly Agree
10. I've become more skilled at cost analysis and budgeting related to commercial cookery.	4.16	1.03	Agree
Over-all	4.31	0.90	Strongly Agree

The table above presents the mean and standard deviation values for the perceived impact of NCII integration in Grade 10 commercial cookery in terms of the cognitive level. The result provides valuable insights into respondents' perceptions of their cognitive abilities related to cookery. Notably, the highest mean score was received by benchmark statement, *"I've improved at understanding food safety regulations and implementing them in cooking practices"* with a mean of 4.50 and SD of 0.83 which corresponds to understanding food safety regulations and their practical implementation. This strong agreement among respondents highlights their confidence and competence in ensuring safe cookery practices. The low standard deviation further emphasizes the consistency in this area, suggesting that food safety is well-understood and emphasized within their cookery knowledge. Food safety must be managed with great care, as highlighted by Gizaw (2019), who pointed out that local

and international food marketing significantly impacts public health. The expansion of the food market and the increasing internationalization of food supply chains, which cross multiple national borders, elevate health risks. Additionally, Rukavina (2024) accentuates the necessity of addressing factors that can undermine good practices in cookery. A thorough understanding of elements affecting food safety such as bacterial contamination during food processing, consumer preferences, and innovative methods to enhance food stability is crucial. Implementing these insights effectively can help mitigate health risks and improve overall food safety practices.

On the other hand, the item with the lowest mean score pertains to cost analysis and budgeting skills related to commercial cookery with the actual benchmark statement of *"I've become more skilled at cost analysis and budgeting related to commercial cookery,"* with a mean score of 4.16 and SD of 1.03. While respondents still agree with this statement, the lower mean and higher standard deviation indicate less uniform strength. The variability in responses suggests that some individuals feel competent, while others may need further development in this aspect. Therefore, curriculum enhancements or targeted training could address this variation and strengthen cost-related competencies. In the context of commercial cookery, mastering advanced cooking skills is crucial for chefs working in restaurants, hotels, or event venues. These skills encompass expertise in meat, seafood, poultry, cakes, pastries, desserts, and more. Additionally, financial management plays a vital role. Operational budget management involves calculating ingredient costs, managing payroll expenses, accounting for rent and kitchen equipment, preparing for emergencies, and allocating resources for cleaning. While respondents generally agree with improved cost analysis and budgeting skills, there is variability, suggesting the need for targeted training and curriculum enhancements (Webmaster & Webmaster, 2022).

Overall, the mean score across all items is 4.31, with a standard deviation of 0.90. This general consensus reflects respondents' cognitive abilities in various domains, including theoretical understanding, practical application of cookery principles, and awareness of sustainability practices. However, the moderate standard deviation highlights diverse confidence levels and proficiency. To support individual needs effectively, targeted resources should focus on areas with less uniform agreement, such as cost analysis and budgeting. Integrating cookery competencies into the curriculum offers a promising approach to enhance student development and well-being. While research supports its positive impact, further investigation is needed to address challenges and optimize implementation strategies. By overcoming barriers and capitalizing on the potential benefits, educators can create meaningful learning experiences that empower students for life (Benn, 2014).

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Table 2.

Mean and standard deviation values on the perceived Impact on practical skills

B. Practical Skills	Mean	SD	Adjectival Interpretations
1. My life skills and other cookery techniques have noticeably improved.	4.34	0.85	Strongly Agree
2. I'm quicker and more accurate in food preparation and cooking now.	4.47	0.86	Strongly Agree
3. I'm more competent in managing kitchen operations efficiently.	4.39	0.89	Strongly Agree
4. I've learned better techniques for plating and presenting dishes.	4.55	0.89	Strongly Agree
5. I'm more comfortable working as part of a culinary team.	4.21	0.96	Strongly Agree
6. I've gained confidence in using commercial kitchen equipment and tools.	4.45	0.89	Strongly Agree
7. I've learned different cooking methods and when to use them.	4.53	0.80	Strongly Agree
8. I handle and store food items according to industry standards more effectively.	4.45	0.89	Strongly Agree
9. I manage my time better during food preparation and service.	4.37	1.00	Strongly Agree
10. I feel more capable of handling unexpected challenges in a commercial kitchen environment	4.18	1.01	Agree
Over-all	4.39	0.91	Strongly Agree

The table above provides the mean and standard deviation values on the perceived impact of competency integration to the respondents' practical skills which demonstrate a highly positive self-evaluation among respondents regarding their cookery competencies. The highest mean score of 4.55 is associated with the statement, *"I've learned better techniques for plating and presenting dishes,"* with a standard deviation (SD) of 0.89. This suggests that respondents strongly agree that their skills in plating and presentation have significantly improved, reflecting a high level of confidence and competence in this particular area. The relatively low SD indicates consistency among responses, signifying a shared perception of improvement in this skill. Deroy et al. (2014) in their study, "The Plating Manifesto (I): From Decoration to Creation" emphasizes the importance of visual presentation in gastronomy, highlighting how chefs' creativity in plating and the variety of tableware available offer opportunities for cognitive scientists to study the effects of vision on food experiences. The visual sensation of a dish is as crucial as its flavor, making plating a critical aspect of culinary expression.

On the contrary, the lowest mean score, 4.18, pertains to the statement, *"I feel more capable of handling unexpected challenges in a commercial kitchen environment,"* with an SD of 1.01. Although this score still falls within the "Agree" adjectival interpretation, it suggests slightly less confidence compared to other areas. The higher SD indicates a greater

variability in responses, which could imply differing levels of experience or confidence in dealing with unexpected challenges among the respondents. Pereira et al. (2019) emphasized that adaptability and problem-solving in the culinary field involve learning from past challenges, adapting strategies to new situations, staying calm under pressure, and collaborating with colleagues. Crucial technical skills include mastering knife techniques, prioritizing tasks, multitasking, and understanding kitchen tools. Effective communication is essential, requiring clear expression of needs, task delegation, team coordination, and active listening. Resilience and adaptation involve being prepared for surprises, viewing setbacks as learning opportunities, and staying updated with industry trends and innovations.

Overall, the aggregated mean score for practical skills is 4.39, with a standard deviation of 0.91. This overall mean, interpreted as "Strongly Agree," signifies that on average, respondents perceive a substantial improvement in their practical culinary skills. The consistent standard deviation across items suggests a general agreement among respondents regarding their skill enhancements, despite the minor variability observed in certain areas. The research by Lavelle et al. (2016) highlights the importance of learning cooking skills at an early age for skill retention, confidence, cooking practices, cooking attitude, and diet quality. Child (below 12 years) and teen learners (13–18 years) reported better outcomes in these areas. Early learning is crucial for long-term competence and confidence. Mothers were the primary source, with those learning exclusively from their mothers showing better outcomes on 12 of 23 measures. Due to the "deskilling" of domestic cooks, alternative sources of cooking education are necessary. Longitudinal research is needed to understand the impact of age and learning sources on cooking skills. Early exposure and diverse learning sources enhance culinary competencies.

Table 3.

Mean and standard deviation values on the perceived challenges in terms of preparedness

Benchmark Statements	Mean	SD	Adjectival Interpretations
1. I didn't feel adequately prepared or informed about NCII competencies before starting this course.	2.84	1.31	Moderately Agree
2. We lacked updated teaching materials that align with NCII standards.	2.74	1.40	Moderately Agree
3. There weren't enough workshops or training sessions focused on integrating NCII competencies.	2.50	1.20	Disagree
4. We didn't receive enough support or guidance from the school in implementing the NCII curriculum.	1.92	1.23	Disagree
5. Adapting existing lesson plans to include NCII requirements was challenging.	2.92	1.12	Moderately Agree
6. Some students were more prepared than others, which affected our learning dynamics.	2.89	1.23	Moderately Agree
7. Some teachers were resistant to change and didn't fully embrace the new curriculum.	2.39	1.08	Disagree
8. There wasn't enough time allocated in the school year to cover all the NCII content thoroughly.	2.76	1.28	Moderately Agree

9. Teachers and administrators had different interpretations of NCII standards.	2.82	1.27	Moderately Agree
10. We lacked qualified trainers or mentors to support teachers in implementing the NCII curriculum.	2.47	1.31	Disagree
Over-all	2.70	1.27	Moderately Agree

The table above provides the mean and standard deviation values on the perceived impact of competency integration to the respondents' preparedness where the highest mean score was for the statement *"Adapting existing lesson plans to include NCII requirements was challenging,"* with a mean of 2.92 and a standard deviation of 1.12, indicating a "Moderately Agree" interpretation.

This suggests that adapting lesson plans to meet NCII standards was seen as a significant challenge for many, reflecting difficulties in integrating new requirements into existing frameworks. As one respondent said, *"I have difficulty in adjusting because of learning new concepts aside from the regular topics we have in the class,"* which manifests that there should be a way to address such issue of competency integration. Berliner's (2020) research provides a useful framework for understanding these challenges. His findings have significant implications for curriculum and instruction. They suggest that a sole reliance on standards and standardized testing may not be the most effective way to improve student learning. Instead, educators should focus on creating a balanced curriculum that promotes critical thinking, problem-solving, and creativity.

Additionally, there is a need to reduce the high-stakes nature of testing and to provide teachers with the support and autonomy they need to create engaging and effective learning environments (Berliner, 2020).

Conversely, the lowest mean score was for the statement *"We didn't receive enough support or guidance from the school in implementing the NCII curriculum,"* with a mean of 1.92 and a standard deviation of 1.23, indicating a "Disagree" interpretation. This result suggests that, compared to other issues, there was less consensus on the lack of support from the school, which could imply that support and guidance were perceived to be relatively adequate or not a major concern compared to other challenges.

One respondent expressed, *"The school has support in implementing national certification competency into the topics but with limited equipment in our cookery room."* This shows that to maximize the integration of such national certification competencies, there should be adequate equipment. According to the Manual of Operations for the Technical and Vocational Public Secondary Schools, issued by the Department of Education (DepEd), the "Strengthened Technical and Vocational Education Program (STVEP)" aims to enhance the quality of technical and vocational education across 282 secondary schools in the Philippines (DO 89, S. 2010 – Manual of Operations for the Technical and Vocational Public Secondary Schools | Department of Education, 2010). Under this program, tech-voc schools adopt a

competency-based curriculum, emphasizing skills development in areas such as Arts and Trades, Fishery, Agriculture, and Information and Communication Technology (ICT). To facilitate effective implementation, Learning Facilitators play a crucial role. They collaborate with learners to create Individual Learning Agreements (ILAs), design appropriate learning support strategies, and guide students through assessments.

Additionally, coordination between basic education teachers and tech-voc teachers ensures the seamless integration of basic education competencies with specialized tech-voc skills (Martinez, 2021).

Overall, the mean score for the statements ranged from 1.92 to 2.92, with the mean score being 2.70 and a standard deviation of 1.27. This range indicates a generally moderate level of agreement with the challenges faced in implementing the NCII curriculum. Participants moderately agreed that there were challenges, such as inadequate preparation and updated materials, difficulties in integrating NCII competencies, and varying levels of student preparedness.

The consistency of responses across most statements suggests that while there are several areas of concern, including challenges in adapting lesson plans and integrating competencies, support issues and resistance to change were less pronounced. According to the study of Talavera (2022), Technical and Vocational Education and Training (TVET) in the Philippines is uniquely implemented through a competency-based curriculum designed to ensure a high-quality, industry-ready workforce. This curriculum aligns training programs with industry-defined competency standards, ensuring that the skills and knowledge imparted to students are directly relevant to the needs of employers.

According to this study, recognizing green skills for sustainable enterprises in the Philippines involves a comprehensive examination of the skills needed to support environmentally sustainable practices within the local context. These green skills are essential for promoting sustainable development and include competencies in areas such as renewable energy, energy efficiency, waste management, and sustainable agriculture. The study highlights the importance of aligning these skills with national policies, legislation, and investments that support green initiatives.

Policies and regulations play a crucial role in creating a favorable environment for sustainable practices, while targeted investments in green technologies and training programs are necessary to build a skilled workforce capable of driving sustainability efforts. By integrating green skills into the workforce, the Philippines can enhance the capacity of its enterprises to operate sustainably, thereby contributing to environmental preservation and economic growth (Budhrani et al., 2017).

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Table 4.

Mean and standard deviation values on the perceived challenges in terms of assessment

Benchmark Statements	Mean	SD	Adjectival Interpretations
1. Designing assessments that accurately measure NCII competencies alongside academic standards was difficult.	3.00	1.07	Moderately Agree
2. It was challenging to align assessment methods with practical demonstrations of NCII skills.	3.03	1.08	Moderately Agree
3. We didn't have standardized rubrics or criteria for assessing NCII competencies consistently.	2.74	1.20	Moderately Agree
4. Resources for conducting practical assessments in a simulated commercial kitchen setting were limited.	3.00	1.25	Moderately Agree
5. Evaluating soft skills (e.g., teamwork, communication) alongside technical competencies was problematic	2.34	1.30	Disagree
6. Student performance varied widely due to differences in prior experience or exposure to NCII content.	3.08	1.28	Moderately Agree
7. We didn't have enough opportunities for formative assessment to track our progress in NCII competencies.	2.74	1.20	Moderately Agree
8. Providing timely and constructive feedback on our NCII skills development was challenging.	2.87	1.12	Moderately Agree
9. Some teachers struggled to integrate assessment results into our feedback and improvement strategies.	2.37	1.15	Disagree
10. Alternative assessment methods that might have been better suited for evaluating NCII competencies were not widely accepted.	2.63	1.13	Moderately Agree
Over-all			

The table above provides the mean and standard deviation values on the perceived challenges of competency integration to the respondents' assessment where the statement with the highest mean is *"Student performance varied widely due to differences in prior experience or exposure to NCII content"* with a mean of 3.08 and a standard deviation of 1.28, interpreted as "Moderately Agree." This finding highlights a significant challenge in educational settings, where students come from diverse backgrounds with varying degrees of prior knowledge.

The relatively high mean suggests that many participants agree that differences in student performance are a notable issue, primarily attributed to varying levels of prior experience with NCII content. One respondent stated that, *"There are some of us who are advance in studying the integrated competencies while some of us are not because of lacking equipment,"* which manifests the disparity in the access of training capacities. The standard deviation indicates considerable variation in responses, meaning that while many agree, there is also a notable portion of participants with differing views.

This variability stresses the necessity for differentiated instruction and assessment strategies to accommodate these differences and ensure that all students have the opportunity

to succeed. The study by Woolcott et al. (2021) titled, "Differentiating Instruction: Development of a Practice Framework for Mixed-Ability Classrooms" provides a practical framework for implementing differentiated instruction to cater to the diverse needs of students. It emphasizes flexible grouping, ongoing assessment, varied instructional strategies, student choice, scaffolding, and collaborative planning. By adopting these strategies, teachers can create inclusive and supportive learning environments that respect student individuality and diversity, ensuring all students can engage meaningfully with the curriculum and reach their full potential.

Conversely, the statement with the lowest mean is *"Evaluating soft skills (e.g., teamwork, communication) alongside technical competencies was problematic,"* with a mean of 2.34 and a standard deviation of 1.30, interpreted as "Disagree." This suggests that participants do not widely view the evaluation of soft skills as problematic compared to other aspects of NCII assessments. It is notable that one respondent said that *"We are given collaborative works to learn from our classmates,"* reveals that there is indeed an initiated collaboration among the students to develop soft skills alongside technical and practical skills. However, the higher standard deviation indicates varied opinions, with some participants perhaps finding it more challenging than others.

The lower mean could imply that while evaluating soft skills presents some challenges, it is not as significant a concern as other issues, such as aligning assessments with NCII competencies or the lack of standardized rubrics. Despite this, the varied responses highlight the need for more consistent and effective methods to assess soft skills, which are essential for students' overall competence and employability. Nam (2023) in the study "The Power of Soft Skills: Our Favorite Reads," emphasizes the importance of building soft skills such as empathy, resilience, compassion, and adaptability. Research shows that these skills are foundational for great leadership and set high performers apart from their peers.

Generally, the benchmark statements indicate several challenges in assessing NCII competencies. The mean scores for most statements hover around 3.00, indicating a general agreement that these issues are somewhat problematic. The adjectival interpretations of "Moderately Agree" for most statements reflect this moderate level of concern. The standard deviations, ranging from 1.07 to 1.30, suggest variability in how participants perceive these challenges.

This overall pattern of responses highlights several key insights. An existing study that resonates with these findings is "Challenges in Implementing Competency-Based Assessment in Technical Education" by Khan et al. (2021). This study explores similar issues, such as difficulties in aligning assessments with competency standards, variability in student performance due to diverse backgrounds, and the lack of standardized tools for consistent evaluation. Smith and Jones emphasize the importance of developing robust assessment

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frameworks and providing adequate resources to address these challenges, aligning closely with the challenges identified in the benchmark statements.

Table 4.

Correlation Report on the Cognitive-Practical Skills and Preparedness-Assessment

Variables	Pearson Correlation	Strength	p-value	Decision	Interpretation
Cognitive-Practical Skills	0.929	Very High	0	Reject Ho	Significant
Preparedness-Assessment	0.917	Very High	0	Reject Ho	Significant

The table presents the Pearson correlation coefficients for both Cognitive Skills and Practical Skills (0.929) and Preparedness and Assessment (0.917) indicate very high positive correlations, reflecting strong linear relationships within each pair of variables. In both cases, the data is statistically significant, as shown by p-values of 0, which are well below the conventional alpha level of 0.05. This leads to the rejection of the null hypotheses for each correlation, affirming that significant relationships exist.

The high correlation between Cognitive Skills and Practical Skills suggests that improvements in one are closely tied to improvements in the other, highlighting the interdependence of these skill sets. Similarly, the high correlation between Preparedness and Assessment accentuates the importance of preparedness in influencing assessment outcomes. Both correlations provide valuable insights for educational strategies, emphasizing the importance of enhancing Cognitive Skills and Practical Skills together, and focusing on preparedness to improve assessment performance. Integrating these findings into program design can lead to more effective educational interventions and improved outcomes in both skill development and assessments.

A study by Wilson (2019) resonates to this finding where he explored the relationship between cognitive and practical skills in vocational education and training (VET) programs. The study found a strong correlation between cognitive skill development and practical application, similar to the relationship identified in the data between Cognitive Skills and Practical Skills. Students who demonstrated higher cognitive abilities also excelled in practical tasks, suggesting that theoretical knowledge supports hands-on performance.

Conclusion

The study reveals that the integration of NCII in Grade 10 commercial cookery significantly enhances both cognitive and practical skills, as evidenced by very high Pearson correlation coefficients of 0.929 and 0.917 respectively, indicating strong interrelationships between these skill sets and the effectiveness of preparedness on assessment outcomes. The

data highlights substantial improvements in cognitive areas such as understanding food safety regulations and practical skills related to plating and presentation. However, challenges persist, particularly in adapting lesson plans and addressing diverse student backgrounds, as reflected by moderate mean scores for related difficulties. Despite these challenges, the overall positive perceptions and significant correlations underscore the importance of a holistic approach in educational strategies that focus on integrated skill development and thorough preparedness to optimize student performance and outcomes.

Recommendations

Based on the study's findings, several recommendations are proposed to enhance the integration of NCII competencies in Grade 10 commercial cookery and guide future development. Revising the curriculum to better incorporate competencies, particularly in cost analysis and budgeting, and including industry-relevant case studies is essential. Increasing professional development for educators and improving resource allocation, such as updated materials and modern equipment, will support effective teaching. Standardizing rubrics and exploring alternative assessment methods will ensure consistent evaluation, while targeted support for students with varying levels of preparedness will address diverse needs. Implementing a vigorous feedback system and systematically evaluating the effectiveness of NCII integration will help monitor progress and drive continuous improvement. Future research should focus on innovative teaching strategies and adapting to industry trends to keep the program relevant and effective.

Limitations

The study is subject to several limitations. Firstly, the research focuses exclusively on Grade 10 commercial cookery, which may not be representative of other educational levels or vocational programs. Secondly, the reliance on self-reported data may introduce bias, as participants might overestimate their competencies or underreport challenges. Additionally, the study's scope does not include a longitudinal analysis, limiting insights into the long-term impact of NCII integration. Finally, the study's sample size and demographic diversity may restrict the generalizability of the findings to broader contexts. Addressing these limitations in future research could provide a more comprehensive understanding of NCII competency integration and its effects.

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Disclosure of Conflict of Interest

The authors declare no conflicts of interest.

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Ethics Statement

This study employed an online survey platform to collect data from respondents. Participation was entirely voluntary. Informed consent was obtained from all respondents prior to their involvement. Respondents were assured of anonymity, and no personally identifiable information was collected. Ethical considerations were prioritized throughout the research process, including data storage and disposal. In preparing the manuscript, the authors utilized generative AI, specifically ChatGPT, to refine the sentence structure and enhance the overall clarity of the text. While the core ideas and research findings were derived from human input, the generative AI was instrumental in improving grammar, coherence, and other critical writing elements. This collaboration between human insights and AI assistance ensured a polished and well-structured presentation of the study's results and conclusions.

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