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# Assessing the impact of community-based education on practical skills acquisition among nursing students: The role of cultural competence training

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## Abstract

Nursing is central to the healthcare system, particularly within frameworks that prioritize community-centered care. In the Philippines, the evolution of nursing education has led to the integration of community-based education (CBE) as an essential element of the curriculum. This study explores how community-based education influences the practical skills of nursing students, with a particular focus on the potential mediating role of cultural competence training (CCT). A descriptive correlational framework was employed to analyze the influence of CBE on the acquisition of practical skills, with CCT assessed as a mediating variable. Mediation analysis utilizing Hayes' PROCESS Model 4 was conducted to evaluate the indirect influence of CBE on practical skills via CCT. Students recognized the importance of cultural competence training in preparing them to work with patients from diverse backgrounds, and it was generally well-received. Statistical analysis showed that students who had more community experiences developed more practical skills, and this relationship was further strengthened by cultural competence training. Community-based education significantly predicted cultural competence training ($B = 0.581$, $p < .001$) and practical skills acquisition ($B = 0.5718$, $p < .001$). CCT also significantly predicted practical skills ($B = 0.2951$, $p < .001$). Mediation analysis confirmed a significant direct effect of CBE ($B = 0.5718$) and a significant indirect effect through CCT ($B = 0.1714$), indicating partial mediation. These results suggest that CBE enhances students' practical competencies both directly and indirectly by fostering cultural competence.

**Keywords:** *healthcare, cultural competence, practical skills acquisition, nursing*

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## 1. Introduction

Nursing is pivotal in the healthcare system, particularly in community-centered healthcare frameworks (Caponnetto et al., 2024; Espinel-Jara et al., 2025; Heidarzadeh et al., 2025; Pazzaglia et al., 2023). In the Philippines, nursing education has evolved to incorporate community-based education (CBE) as a fundamental curriculum component (Tomas, 2022; Zeydani et al., 2023). CBE aims to enhance nursing students' practical skills and competencies (Norman-Eck et al., 2023; Zondi, 2016) by immersing them in real-world community health settings, thereby preparing them to address the diverse health needs of various populations effectively (Rhoney & Meyer, 2024). This educational approach is particularly significant in a country where healthcare delivery often occurs outside traditional hospital environments, necessitating a strong foundation in community health practices.

Despite the recognized importance of CBE, there remains a notable gap in the literature regarding its effectiveness in equipping nursing students with the necessary practical skills and cultural competence (Gravina, 2017). Previous studies have highlighted the relationship between clinical practice and the development of essential nursing competencies (Jones et al., 2011; Kneebone et al., 2004), yet there is limited research specifically examining how CBE influences practical skills acquisition among nursing students in the Philippines (Yava et al., 2023). Furthermore, while cultural competence is acknowledged as a critical component of nursing education (Markey et al., 2021; Sharifi et al., 2019), its moderating role in the relationship between CBE and practical skills acquisition has not been extensively explored (Sommers, 2018).

Research indicates that nursing students' experiences during their clinical placements significantly impact their professional identity and retention in the nursing program (Livingstone, 2024; Marriott et al., 2024). However, the specific effects of CBE on students' self-perceived practical skills and their ability to provide culturally competent care remain under-investigated (Atwa & Hosny, 2024; Baldridge, 2023; Kristina et al., 2023). The growing diversity among patient populations calls for healthcare providers who are not only skilled but also culturally responsive (Hassankhani et al., 2024; Lauwers et al., 2024; Shaikh & Haider, 2024). While CBE has been recognized as a valuable approach (Cassidy et al., 2025; Jing et al., 2024; Maduramente et al., 2019), there remains limited understanding of how it contributes to developing practical skills and cultural competence among nursing students (Lee et al., 2020). Few studies have explored how these elements interact within the learning process.

This study explores how CBE influences the practical skills of nursing students, with a particular focus on how cultural competence training may play a mediating role. Through this inquiry, the research aims to strengthen nursing education and contribute to more responsive and equitable healthcare delivery in the Philippines. Hence, the study aims to investigate the impact of CBE on practical skills acquisition among nursing students in the Philippines, particularly focusing on the mediating role of cultural competence training.

## 2. Literature Review

The growing body of literature on CBE highlights its central role in equipping students with practical skills aligned with real-world demands, particularly in bridging theoretical instruction with community-grounded application (Ngwacho, 2024; Zeydani et al., 2021). Over recent decades, the conceptualization of CBE has evolved from conventional classroom teaching to experiential learning models that integrate academic content with community engagement, reflecting an intentional shift toward addressing societal needs through education (Kaye et al., 2011; Parker et al., 2009). This shift underscores the importance of embedding service-learning, community attachments, and capacity-building initiatives within curricula, especially in disciplines such as health sciences, engineering, and social work, where practical competence is essential (Shah et al., 2024).

Numerous studies affirm that CBE enhances students' clinical, communication, and leadership skills, particularly in health-related programs where students report strengthened professional readiness and improved service delivery in underserved areas (Ndlovu et al., 2017; Strasser, 2010). Similarly, engineering and social science students benefit from project-based community involvement, fostering innovation, empathy, and interdisciplinary collaboration (Castillo & Harris, 2024; Nhat & Oanh, 2023). These findings position CBE as a strategic mechanism aligned with global development goals and labor market expectations, reinforcing its pedagogical relevance across educational contexts (Amrulloh et al., 2023; Goggins & Hajdukiewicz, 2022).

Despite these advances, critical gaps persist. Scholars emphasize the need for a deeper understanding of how and why certain components of CBE more effectively foster practical skill acquisition (Held et al., 2019; Williams et al., 1999; Chowdhury & Alzarrad, 2025; Vargas et al., 2025; Mani, 2025; Lewis et al., 2022; Atkins et al., 2025). While outcomes such as increased employability, civic engagement, and professional growth are frequently reported,

few studies provide theoretically grounded analyses delineating which instructional and social mechanisms are most impactful (Hamzah et al., 2023; Stubbs et al., 2017). Moreover, debates continue around the balance of educational benefit and community utility, with some critiques pointing to limited community outcomes and concerns over the transferability of student-acquired skills (Parker et al., 2009; Williams et al., 1999).

Another underexplored dimension is the role of social interaction and peer learning in the success of CBE. Research suggests that collaborative relationships among students, faculty, and community members significantly influence learning processes, yet there remains insufficient exploration of how social dynamics, cultural diversity, and community power structures affect these interactions (Erkol et al., 2023; Held et al., 2019). The lack of such analysis limits understanding of how to design socially responsive and inclusive educational environments.

Conceptually, CBE is rooted in situated learning theory, which posits that knowledge is constructed through participation in authentic, socially mediated activities (Kimonen & Nevalainen, 2020; Lave & Wenger, 1991). In this framework, practical skill acquisition is understood as a process of legitimate peripheral participation, where learners gradually assume more central roles in communities of practice through reflective engagement (Chung, 2019; Hriso & Clark, 2007). These foundational perspectives have been widely applied to explain learning trajectories in diverse settings, from vocational and technical education to interdisciplinary university projects.

The literature further indicates that while experiential and reflective pedagogies, such as service-learning, problem-based learning, and project-based models, are widely implemented, there is inconsistency in assessment practices and curricular alignment (Ngwacho, 2024; Tokke, 2018). Many programs rely on self-reported learning outcomes or informal reflections, limiting the objectivity and generalizability of findings (Kalas & Raisinghani, 2019; Nauhria et al., 2021). Additionally, logistical constraints such as funding, infrastructure, and stakeholder coordination pose persistent challenges to the sustainability and scalability of CBE initiatives (Kaye et al., 2011; Ndlovu et al., 2017). This highlights the need for standardized assessment frameworks and robust evaluation methods to ensure that competencies are accurately measured and comparable across programs.

## 3. Methodology

This study used a descriptive correlational design to examine how community-based education (CBE) influenced the practical skills of nursing students, with cultural competence training tested as a potential mediator. A total of 248 third- and fourth-year nursing students participated in the study, selected through purposive sampling based on their completion of at least one CBE placement. Participants ranged in age from 19 to 39 years (M = 21.51, SD = 2.53), with 88.3% female (n = 219) and 11.7% male (n = 29).

Data were collected using a structured questionnaire measuring CBE implementation, cultural competence training, and practical skills acquisition. The instrument was adapted from validated tools aligned with established frameworks (Amalba et al., 2016; Cicolini et al., 2015; Farokhzadian et al., 2022; Marja & Suvi, 2021; Osmancevic et al., 2023): CBE indicators on community engagement, diversity of experiences, theory–practice integration, and reflection and learning; cultural competence items on training frequency, effectiveness, content relevance, and attitudinal change; and Practical skills acquisition items on skill application, self-assessment, integration into practice, and peer collaboration. Items assessed students' perceptions using a scale ranging from strongly disagree (1) to strongly agree (5). The questionnaire underwent expert review to ensure clarity and alignment with the study variables and was pilot-tested prior to full administration. Internal consistency was established through reliability analysis, yielding a Cronbach's alpha of .880 for the 60-item scale, indicating high reliability. The questionnaire was administered online, and informed consent was obtained before participation. Reminders were issued to maximize response rates, and completed forms were securely stored.

Mediation analysis using Hayes' PROCESS Model 4 was conducted to test the indirect effect of CBE on practical skills through cultural competence training. Hayes' PROCESS Model 4 is a widely used statistical tool for examining simple mediation, allowing researchers to assess both the direct and indirect effects of an independent variable on a dependent variable through a mediator.

The study followed standard ethical protocols, including approval from the institutional ethics committee and permission from participating college department. Informed consent was obtained, and participation was voluntary. Confidentiality and anonymity were assured throughout the process, and no harm or risks were imposed on respondents. All data were

securely stored and submitted to the research department for safekeeping, with access limited only to authorized personnel.

## 4. Results

**Table 1**

*Level of community-based education implementation*

| Domains | M | SD | Qualitative Value |
|---|---|---|---|
| Quality of Community Engagement | 4.09 | .44 | High Level of Implementation |
| Diversity of Experiences | 4.05 | .44 | High Level of Implementation |
| Integration of Theory and Practice | 4.08 | .45 | High Level of Implementation |
| Reflection and Learning | 4.03 | .45 | High Level of Implementation |
| Community-Based Education (Overall) | 4.06 | .32 | High Level of Implementation |

Table 1 reveals that CBE was implemented consistently across all dimensions, with overall mean ratings ranging from 4.03 to 4.09. The highest domain score was observed in Quality of Community Engagement (M = 4.09, SD = 0.44), followed closely by Integration of Theory and Practice (M = 4.08) and Diversity of Experiences (M = 4.05). Even the lowest-rated domain, Reflection and Learning (M = 4.03, SD = 0.45), still reflected a high level of implementation. The overall mean rating for CBE stood at M = 4.06 (SD = 0.32), affirming that nursing students perceived the CBE framework as highly effective in enhancing their academic, professional, and interpersonal development.

**Table 2**

*Perceived quality of cultural competence training*

| Domains | M | SD | Qualitative Value |
|---|---|---|---|
| Training Frequency | 4.00 | .45 | Good |
| Perceived Effectiveness | 4.06 | .48 | Good |
| Content Relevance | 4.01 | .47 | Good |
| Impact on Attitudes | 4.05 | .50 | Good |
| Cultural Competence Training (Overall) | 4.03 | .34 | Good |

Table 2 shows that the perceived quality of cultural competence training was rated as "Good" across all domains, with overall mean scores ranging from 4.00 to 4.06. The highest domain rating was for Perceived Effectiveness (M = 4.06, SD = 0.48), followed closely by Impact on Attitudes (M = 4.05) and Content Relevance (M = 4.01). Even the domain with the lowest score, Training Frequency (M = 4.00), still met the qualitative value of "Good." The overall mean of 4.03 (SD = 0.34) reflects a consistently positive evaluation of the training program, reinforcing its value as a component of nursing education.

**Table 3**

*Perceived quality of practical skills acquisition*

| Domains | M | SD | Qualitative Value |
|---|---|---|---|
| Training Frequency | 4.00 | .45 | Good |
| Perceived Effectiveness | 4.06 | .48 | Good |
| Content Relevance | 4.01 | .47 | Good |
| Impact on Attitudes | 4.05 | .50 | Good |
| Practical Skills Acquisition (Overall) | 4.03 | .34 | Good |

Table 3 shows that the perceived quality of practical skills acquisition was rated as "Good" across all domains, with mean scores ranging from 4.00 to 4.06. The highest-rated domain was Perceived Effectiveness (M = 4.06, SD = 0.48), indicating that students considered the skills they acquired through the program to be highly effective in preparing them for practical application. This was followed closely by Impact on Attitudes (M = 4.05, SD = 0.50) and Content Relevance (M = 4.01, SD = 0.47), suggesting that the training positively influenced students' attitudes and aligned well with curricular objectives. The domain with the lowest score, Training Frequency (M = 4.00, SD = 0.45), still met the qualitative standard of "Good," reflecting adequate exposure to practical training sessions. The overall mean of 4.03 (SD = 0.34) demonstrates that students consistently perceived the practical skills acquisition program as effective and valuable, highlighting its importance in enhancing competence and readiness in nursing practice.

Building on the earlier findings that practical skills acquisition was enhanced through community-based experiences and reflective practices, Table 4 presents the Pearson correlations among the study's core variables: CBE, CCT, and Practical Skills Acquisition (PSA). All correlations were found to be statistically significant at the $p < .01$ level (2 tailed).

**Table 4**

*Pearson correlations among key study variables (N = 248)*

| | QCE | DE | ITP | RL | CBE | TF | PE | CR | IA | CCT | SA | SAS | ISP | PC | PSA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCE | 1 | | | | | | | | | | | | | | |
| DE | .379** | 1 | | | | | | | | | | | | | |
| ITP | .330** | .379** | 1 | | | | | | | | | | | | |
| RL | .315** | .382** | .418** | 1 | | | | | | | | | | | |
| CBE (Overall) | .695** | .735** | .738** | .732** | 1 | | | | | | | | | | |
| TF | .268** | .168** | .231** | .232** | .310** | 1 | | | | | | | | | |
| PE | .391** | .331** | .289** | .272** | .441** | .335** | 1 | | | | | | | | |
| CR | .326** | .259** | .294** | .250** | .389** | .361** | .391** | 1 | | | | | | | |
| IA | .249** | .316** | .357** | .354** | .440** | .284** | .413** | .340** | 1 | | | | | | |
| CCT (Overall) | .429** | .376** | .409** | .387** | .552** | .677** | .747** | .727** | .720** | 1 | | | | | |
| SA | .395** | .358** | .398** | .338** | .513** | .182** | .302** | .342** | .293** | .392** | 1 | | | | |
| SAS | .316** | .340** | .349** | .330** | .461** | .243** | .352** | .291** | .288** | .410** | .403** | 1 | | | |
| ISP | .357** | .395** | .393** | .431** | .544** | .307** | .395** | .337** | .337** | .479** | .449** | .443** | 1 | | |
| PC | .430** | .343** | .374** | .411** | .537** | .267** | .337** | .368** | .319** | .450** | .356** | .327** | .450** | 1 | |
| PSA (Overall) | .504** | .483** | .509** | .509** | .691** | .337** | .466** | .451** | .416** | .583** | .734** | .724** | .789** | .729** | 1 |

**. Correlation is significant at the 0.01 level (2-tailed).

***Legend***: QCE=Quality of Community Engagement, DE=Diversity of Experiences, ITP=Integration of Theory and Practice, RL=Reflection and Learning, CBE (Overall)=Community-Based Education, TF=Training Frequency, PE=Perceived Effectiveness, CR=Content Relevance, IA=Impact on Attitudes, CCT (Overall)=Cultural Competence Training, SA=Skill Application, SAS=Self-Assessment of Skills, ISP=Integration of Skills into Practice, PC=Peer Collaboration, PSA (Overall)=Practical Skills Acquisition

The analysis revealed a strong positive correlation between CBE and PSA ($r = .691$, $p < .01$), suggesting that students who reported more meaningful and integrative community engagement also demonstrated higher levels of skill development. Similarly, CCT was strongly associated with PSA ($r = .583$, $p < .01$), reinforcing the role of culturally responsive training in enhancing students' readiness to apply practical nursing competencies.

Furthermore, the correlation between CBE and CCT was also substantial ($r = .552$, $p < .01$), indicating that institutions that deliver robust community-based learning often also support cultural competence training. These interrelationships validate the study's conceptual framework, underscoring the mutually reinforcing nature of community immersion and cultural competence in shaping nursing students' practical performance.

**Table 5**

*Regression results for the mediation model predicting practical skills acquisition from CBE implementation and cultural competence training*

| Predictor | B | SE | t | p | 95% CI |
|---|---|---|---|---|---|
| **Outcome: Cultural Competence Training** | | | | | |
| CBE Implementation | 0.581 | 0.0559 | 10.39 | <.001 | [0.4709, 0.6911] |
| Constant | 1.6714 | 0.2278 | 7.34 | <.001 | [1.2226, 2.1202] |
| **Outcome: Practical Skills Acquisition** | | | | | |
| CBE Implementation | 0.5718 | 0.0561 | 10.19 | <.001 | [0.4613, 0.6823] |
| Cultural Competence Training | 0.2951 | 0.0533 | 5.53 | <.001 | [0.1900, 0.4001] |
| Constant | 0.5796 | 0.2104 | 2.75 | 0.006 | [0.1651, 0.9941] |

As shown in Table 5, CBE implementation was a significant predictor of cultural competence training (B = 0.581, SE = 0.0559, t = 10.39, p < .001, 95% CI [0.4709, 0.6911]), indicating that students who experienced higher levels of community-based engagement were more likely to participate in or benefit from cultural competence training. When predicting practical skills acquisition, both CBE implementation (B = 0.5718, SE = 0.0561, t = 10.19, p < .001, 95% CI [0.4613, 0.6823]) and cultural competence training (B = 0.2951, SE = 0.0533, t = 5.53, p < .001, 95% CI [0.1900, 0.4001]) emerged as significant predictors. This indicates that both factors contribute uniquely and significantly to developing practical nursing competencies.

**Table 6**

*Direct and indirect effects of CBE implementation on practical skills acquisition*

| Effect Type | Effect | SE | 95% CI |
|---|---|---|---|
| Direct Effect | 0.5718 | 0.0561 | [0.4613, 0.6823] |
| Indirect Effect | 0.1714 | 0.0747 | [0.0601, 0.3424] |

***Note***. Indirect effect is based on 5,000 bootstrap samples. CI = confidence interval; SE = standard error.

As summarized in Table 6, the direct effect of CBE on PSA remained statistically significant (B = 0.5718, SE = 0.0561, 95% CI [0.4613, 0.6823]), while the indirect effect through CCT was also significant (B = 0.1714, SE = 0.0747, 95% CI [0.0601, 0.3424]), based on 5,000 bootstrap samples. Because the 95% confidence interval for the indirect effect does not include zero, this confirms the presence of partial mediation.

## 5. Discussion

The results of this study demonstrate that CBE exerts a meaningful influence on the practical competencies of nursing students, revealing not only statistical associations but also the instructional mechanisms through which these competencies develop (Zeydani et al., 2021). The strong link between community engagement and skill acquisition shows that immersion enables students to integrate theoretical concepts with real clinical encounters (Amer et al., 2019; Schroeder et al., 2019). Rather than simply confirming earlier assumptions about experiential learning, the findings illustrate how repeated exposure to authentic community scenarios accelerates students' confidence, decision-making ability, and adaptability in environments that differ markedly from controlled classroom simulations (Clark, 2022; Jacobs, 2020). As Tawfik (2018) suggests, experiential learning strengthens clinical judgment by situating learners in unpredictable conditions; the present results affirm this claim by showing how community tasks compel students to navigate diverse patient needs, environmental constraints, and resource limitations (Choshi, 2025; Filice & Dampier, 2018).

A deeper analysis, however, reveals that the development of practical skills does not occur in isolation (Li et al., 2023). Cultural competence training emerged as a crucial interpretive lens that explains why some students translated community experiences into stronger skills more effectively than others (Gradellini et al., 2021). While prior research has recognized cultural competence as an important curricular element (Govere & Govere, 2016; Rodríguez et al., 2024), the present study critiques the assumption that community exposure alone is sufficient (Kelley, 2025; Malabat & Ruiz, 2019). Students who reported greater participation in culturally focused learning activities, such as modules, reflective sessions, or facilitated discussions, demonstrated significantly enhanced practical readiness (Abrams et al., 2024; Schroeder et al., 2019). The mediation effect indicates that cultural competence does not merely accompany skill development; it helps students interpret community encounters, understand the cultural dynamics underlying patient behaviors, and respond with greater sensitivity and professionalism (Gradellini et al., 2021; Kelley, 2025).

This pattern invites a more critical view of the training process (Zeydani et al., 2021). Community-based learning provides the context, but cultural competence provides the framework through which students make sense of what they observe (Gradellini et al., 2021). Without guided reflection and structured cultural instruction, the richness of community exposure may remain underutilized (Clark, 2022; Jacobs, 2020). This critiques traditional

models of community immersion that emphasize technical tasks but neglect aspects of cultural understanding that influence patient communication, compliance, and trust (Alibudbud, 2024; Gradellini et al., 2021). The fact that cultural competence only partially mediated the relationship further suggests that other unmeasured factors, such as personal motivation, prior exposure to diverse groups, or faculty mentoring, may also shape skill development, pointing to the need for more integrated and holistic approaches to community engagement (Lau et al., 2022; Li et al., 2023).

The significance of these findings becomes clearer when connected to the Philippine healthcare landscape (Malabat & Ruiz, 2019). Nursing practice in the country is embedded in culturally diverse environments, where patient expectations, health beliefs, and family dynamics vary widely across communities (Alibudbud, 2024; Malabat & Ruiz, 2019). The data demonstrate that students who receive structured opportunities to explore these cultural nuances are better positioned to apply clinical skills effectively, confirming the argument that technical proficiency alone cannot sustain high-quality patient care (Baysal et al., 2025; Gradellini et al., 2021; Li et al., 2023). This resonates with international evidence that culturally informed practice enhances patient safety, communication, and therapeutic relationships (Barral et al., 2023; Gradellini et al., 2021; Kelley, 2025; Lee et al., 2020). By linking community immersion with cultural competence enhancement, the study highlights that competency development is multidimensional: students must not only perform procedures but also interpret cultural cues, negotiate differences, and provide care that honors patient identity (Gradellini et al., 2021; Li et al., 2023; Zeydani et al., 2021).

## 6. Conclusion

Community-based education, supported by culturally grounded training, prepares nursing students for practical, real-world clinical practice. When students are immersed in diverse community settings and are simultaneously guided to develop cultural competence, they acquire technical proficiency and the sensitivity and adaptability required for effective patient care. This dynamic relationship between experience and training highlights the importance of intentionally designing nursing curricula that integrate both dimensions. This approach equips future nurses to serve with competence, empathy, and respect across varied healthcare environments.

To maximize the impact of community-based education on nursing students' clinical competence, it is recommended that cultural competence training be fully integrated into the nursing curriculum. Rather than offering it as a supplementary topic, cultural responsiveness should be woven into community health courses, clinical simulations, and reflective learning activities. Faculty members should be equipped through professional development programs to deliver culturally grounded instruction that complements field-based experiences. In terms of application, institutions are encouraged to develop community placements that expose students to diverse populations and real-world healthcare challenges. These experiences should be paired with structured reflection and feedback mechanisms to help students critically connect cultural understanding with clinical decision making. For future research, examining which aspects of cultural competence training most effectively enhance practical skills and how these gains are sustained over time would be valuable. Longitudinal studies that follow nursing graduates into their early careers could provide insight into the long-term effects of integrated training, while qualitative inquiries could deepen our understanding of how students internalize and apply cultural knowledge in practice. Together, these efforts will ensure that nursing education remains responsive, inclusive, and grounded in skill and sensitivity

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