

# A Need Assessment for Communication Skills Training among Nursing Science Students

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**Abstract:** This study evaluated the communication skills and training needs of nursing students at Universiti Malaya using a cross-sectional quantitative design. Based on a needs assessment framework, a structured online questionnaire assessed five core areas: student personal characteristics, patient characteristics, medical team characteristics, theoretical knowledge level, and educator support. A total of 230 valid responses were collected. Results showed that nursing students' overall communication ability was at an upper-middle level, indicating effectiveness in most clinical situations. However, notable deficiencies remained in handling complex or high-pressure situations and enhancing self-efficacy. The study analyzed findings through social constructivism, experiential learning theory, and self-efficacy theory, emphasizing the need for multi-dimensional teaching strategies. Accordingly, nursing education should strengthen practical, contextualized content by integrating diverse cultural backgrounds and technological innovations, particularly virtual reality (VR) and artificial intelligence (AI), to create immersive learning environments that enhance communication skills and self-efficacy in diverse clinical settings. This study provides empirical support for reforming nursing communication courses and offers theoretical guidance for improving student communication with patients and multidisciplinary teams. Limitations include the single-institution sample, reliance on self-reported data, and the cross-sectional design, which cannot track developmental trajectories across learning stages.

**Keywords:** Communication Skills; Needs Assessment; Nursing Students; Experiential Learning; Universiti Malaya.

## 1. Introduction

### 1.1. Introduction

Effective communication is vital in nursing, underpinning trust, reducing medical errors, increasing patient satisfaction, and improving clinical outcomes (Kourkouta & Papatheanasiou, 2014; Fakhr-Movahedi et al., 2016)[1][2]. Clear, compassionate communication supports accurate assessment and timely intervention, while nurses act as intermediaries between patients and multidisciplinary teams. Despite its importance, gaps remain in how nursing education evaluates and refines these skills across different clinical settings (Norouzinia et al., 2015)[3]. Existing training models often rely on standardized modules and lack adaptation to cultural or institutional nuances (CM Chichirez & VL Purcărea, 2018)[4]. The cultivation and assessment of communication skills among nursing students still face challenges due to limited course focus (Norouzinia et al., 2015)[3], lack of standardized training (CM Chichirez & VL Purcărea, 2018)[4], and insufficient feedback mechanisms (Xie et al., 2013). As a result, many students enter clinical practice without necessary skills (Fakhr-Movahedi et al., 2016)[2], weakening their confidence (Xie et al., 2013) [5] and hindering professional growth, which may also affect patient-centered care. This study aims to evaluate the communication competencies and training needs of nursing students at Universiti Malaya, identifying strengths and weaknesses essential for clinical practice. The outcomes are expected to help academic institutions tailor training modules, ultimately enhancing future nurses' communicative abilities, patient-nurse relationships, and overall quality of care.

### 1.2. Problem Statement

The goal of the nursing communication course is to equip students with effective communication skills, a core clinical

ability. Through this course, students are expected to handle complex interactions with patients, families, and multidisciplinary teams. However, a significant gap persists between communication education and clinical needs. Research increasingly calls for evidence-based training and longitudinal assessment (Lindig et al., 2024)[6], yet existing studies have limitations. Many studies focus on narrow samples (such as a single semester or track), limiting generalizability (Shafakhah et al., 2015)[7], or use very small samples (such as involving only 23 participants), failing to capture clinical complexity (Juliá-Sanchis et al., 2025)[8]. Thus, this study evaluates communication skills among Malaysian university nursing students across Years 1–4 and identifies key dimensions: self-confidence, empathy, clarity, non-verbal communication, cultural sensitivity, and teamwork. This study is important in four areas. First, it addresses research gaps through a multi-year, multi-dimensional design, reducing bias. Second, it helps instructors design targeted training by identifying stage-specific strengths and weaknesses. Third, it supports students' long-term professional growth in building trust and reducing misunderstandings. Fourth, it promotes localized nursing education within Malaysia's multicultural context, informing policy and curriculum reform. Using anonymous online surveys, this study evaluates communication needs at Universiti Malaya, minimizing bias and ensuring culturally appropriate recommendations. The ultimate goal is to provide evidence for reforming the communication curriculum, developing targeted training, and enhancing nursing students' clinical communication abilities.

### 1.3. Rationale of Study

This research holds significant value for multiple stakeholders in healthcare and education. It aims to generate insights that can advance nursing education and clinical practice. For nursing students, the study offers a chance to

assess their communication skills, identify strengths and gaps, and make targeted improvements essential for effective patient care and professional growth. For educators and institutions, the findings provide evidence-based recommendations to enhance curricula—such as integrating realistic, context-specific scenarios (e.g., trauma care, emergency interactions, cross-cultural communication)—to better prepare students for complex healthcare environments. For healthcare providers, improving nursing students' communication can reduce errors linked to poor communication, a known cause of adverse events and malpractice (Humphrey et al., 2022) [9], thereby enhancing patient safety, trust, and institutional reputation. For patients, clearer, more empathetic communication leads to better understanding of diagnoses and treatments, improved compliance, reduced anxiety, higher satisfaction, and more humane, effective care. Overall, this study offers a comprehensive understanding of communication training needs and a practical foundation for improving nursing education and patient outcomes.

#### 1.4. Research Objectives

The overall aim of the study is to assess the communication ability level of nursing students and determine specific training needs. This study aims to address the gap between theoretical learning of communication and its practical clinical application by having a clear and accurate understanding of how nursing students currently communicate in the medical environment and identifying which areas require targeted improvements.

Specifically, this study aims to:

a) Determine the current communication skills and ability levels of students majoring in nursing science at Universiti Malaya.

b) Analyze specific communication skills areas related to evaluating the performance of nursing science students in clinical settings.

#### 1.5. Research Questions

a) What are the levels of communication skills of nursing students in different clinical situations?

b) What are the essential areas of communication skills (for example, empathy, clarity, cultural sensitivity, non-verbal cues, conflict resolution) crucial for effective doctor-patient interaction?

#### 1.6. Operational Definition

In this study, communication skills refer to nursing students' ability to effectively exchange information in clinical settings, including clear expression, active and empathetic listening, and accurate message delivery. These skills reduce misunderstandings, support patient-centered care, and foster a positive clinical atmosphere, involving not only verbal exchange but also tone, body language, and eye contact. Needs assessment is a systematic process to identify gaps between current capabilities and expectations. In this study, it guides tailored communication training and curriculum design to help students acquire skills for safe, effective, and patient-centered practice. Nursing communication domains include clear and accurate communication, respect for cultural and linguistic differences, listening and empathy, and high emotional intelligence. Nursing science students are defined as undergraduate nursing majors at Universiti Malaya, the main participants of this study.

#### 1.7. Scope of Study

This study specifically targets undergraduate students currently enrolled in the nursing science program in the Faculty of Medicine at Universiti Malaya. Data is collected via an anonymous online survey completed independently on a secure digital platform. The study excludes other methods such as direct observation, in-depth interviews, or longitudinal tracking. Findings are limited to self-reported responses at a single time point. Participants must have sufficient English proficiency to understand and respond to survey items. This restriction may exclude non-English-proficient students, whose unique communication challenges are not represented in the dataset.

#### 1.8. Study Limitations

This study acknowledges several limitations that may affect the generalizability of its findings. First, the sample was drawn entirely from a single institution—Universiti Malaya—limiting participant diversity and the applicability of results to nursing students from other educational or cultural backgrounds. Second, the study relies on self-reported data, which is vulnerable to social desirability and subjective self-perception biases; thus, the findings may reflect perceived rather than actual clinical performance. Third, the cross-sectional design collected data at one time point, preventing evaluation of long-term training effects. Finally, the English-only survey excluded non-fluent English speakers, reducing cultural and linguistic diversity in the sample and limiting applicability to multilingual or multicultural nursing student populations.

### 2. Literature Review

#### 2.1. Introduction

Effective communication is essential to nursing practice, impacting patient safety and care quality. Developing nursing students' communication skills is critical for high-quality services and safety, yet a significant gap remains between theoretical teaching and clinical practice. Research on Communication Skills Training (CST) in nursing education expanded notably between 2021 and 2025, covering both traditional and newer instructional approaches. Based on a critical review of 20 recent publications, this chapter highlights the role of communication teaching, factors influencing its implementation, common learning difficulties, and various training methods. It also examines cultural, psychological, and situational influences on skill development, alongside current assessment approaches and tools. This analysis provides a theoretical and empirical foundation to evaluate communication training needs at Universiti Malaya. Persistent issues remain, particularly shortcomings in cultural adaptability training and a lack of objective assessment frameworks, suggesting new directions for improving nursing communication education.

#### 2.2. Nursing Communication: Dimensions, Factors, and Training

##### 2.2.1. The Importance of Communication Skills in nursing education and practice

Communication skills are essential to nursing and form the basis of safe, patient-centered care, making their development a priority in nursing education. Research highlights the value of structured communication training (Nguyen et al.,

2018)[10] and dedicated courses (Shafakhah et al., 2015)[7]. Humphrey et al. (2022)[9] report that nurse communication failures cause about 24% of medical errors, endangering patient safety and harming institutional reputations. Dodson, Reed, and Cleveland (2023)[11] found that undergraduate nursing students often demonstrate ineffective communication in simulations—such as unclear expression and poor listening—leading to misunderstandings, care delays, reduced quality, and safety risks. These findings underscore that enhanced communication training helps students perform better in complex clinical settings. Furthermore, patient-centered care depends heavily on communication. Wang et al. (2021)[12] showed that nursing students' self-efficacy significantly influences their communication performance under high-pressure conditions, like the COVID-19 pandemic; students with higher self-efficacy communicated more actively and clearly, improving patient satisfaction and outcomes. This suggests communication education should address both skills and psychological factors, building students' confidence to enhance their clinical expression and interaction.

### 2.2.2. Psychological and Cultural Factors

The development of nursing students' communication skills depends on psychological factors and multicultural adaptability, beyond language training alone. Key psychological variables include self-efficacy, empathy, attitude, and emotional intelligence. Bandura (1997)[13] linked self-efficacy to actual performance. Jeon and Choi (2021)[14] found that self-efficacy and empathy significantly predict patient-centered communication, while Wang et al. (2021)[12] noted that learning burnout weakens this effect. Julia-Sanchis et al. (2025)[8] identified a gap between self-perceived and actual clinical communication under pressure, though attitudes and self-efficacy improve with continued teaching. Ko et al. (2025)[15] showed that empathy training (e.g., reflective writing, role-playing) enhances emotional regulation. Sharafkhani et al. (2023)[7] and Sanchis-Gimenez et al. (2023)[16] confirmed a significant link between emotional intelligence and communication abilities. With globalization, multicultural challenges arise: Ashipala and Matundu (2023)[17] reported communication difficulties among Namibian students; Abdolrahimi et al. (2018)[18] noted cultural and language constraints; Ahmad et al. (2025)[19] found that cultural intelligence (CQ) training in Malaysian OSCEs improved adaptability; Ali et al. (2024)[20] highlighted curriculum gaps in Pakistan. Thus, communication training should integrate psychological and cultural factors through systematic instructional design.

### 2.2.3. Educational Intervention & Assessment Strategies

In nursing education, improving communication skills is a key reform goal. Recent evidence-based methods include simulation, digital and blended learning, and empathy training. Simulation is widely effective: Yuan (2021)[21] validated five OSCE dimensions using standardized patients (SP); Cortes-Rodriguez et al. (2021)[22] found SP more authentic than role-playing; Heier et al. (2024)[23] reported a 41% reduction in communication errors via interdisciplinary simulation. Online and blended learning also work: Yang and Kim (2022)[24] improved expression and empathy; Chung et al. (2022)[25] combined virtual and face-to-face training, increasing self-efficacy by 29% and reducing errors by 18%. Empathy and evidence-based training help: Ko et al. (2025)[15] showed empathy teaching improved communication; Ruzafa-Martinez et al. (2024)[26] confirmed

evidence-based training enhanced assertiveness. For assessment, OSCE is common. Ahmad et al. (2025)[19] and Soe et al. (2024)[27] support integrating a Communication Scoring Scale into OSCE; Yuan (2021)[21] used student-simulated patients. Ruzafa-Martinez et al. (2024)[26] noted self-reports are biased, so objective tools (e.g., external observation) should be added. Thus, effective training should combine diverse teaching methods with a scientific assessment system, addressing cognitive, emotional, and behavioral domains to develop students' communication competence for clinical practice.

### 2.2.4. Comprehensive literature analysis and Research Gap

Many studies confirm the benefits of Communication Skills Training (CST) in nursing education, yet key gaps remain. First, most tools and frameworks are based on Euro-American contexts, with insufficient research on nursing students in Asia and multicultural settings. Second, evaluation often relies on self-assessments, lacking longitudinal or objective measures in high-pressure or cross-cultural situations. Third, High-Fidelity Simulation (HFS) is effective but costly; low-cost alternatives like blended learning lack systematic study. Finally, while psychological factors such as self-efficacy and empathy are known to predict communication performance, there is little guidance on how instructional design can sustain intrinsic motivation and confidence. In summary, significant gaps exist in cultural adaptability, assessment methods, resource sustainability, and psychological mechanisms, highlighting the need for multidimensional CST needs assessment to guide future nursing education reform.

## 3. Conceptualisation of Study

### 3.1. Introduction

This chapter presents the theoretical and conceptual framework guiding the study, integrating three foundational theories to explain communication skill development.

### 3.2. Theoretical Framework

#### 3.2.1. Social Constructivism (Vygotsky, 1978)

Social constructivism emphasizes learning through social interaction. Vygotsky's sociocultural theory highlights the role of culture, language, and social environment in cognitive development, which is highly relevant to nursing communication. The Zone of Proximal Development (ZPD) describes learners moving from independent to guided task completion (Eun, 2019). In nursing education, simulation helps observe how students build knowledge through interaction; poor communication reflects weak social interaction rules, and students can be supported to improve. Educators apply ZPD by providing guidance and feedback, then fading support as competence grows. This scaffolded approach is effective: simulation with clinical patients improves communication competence and confidence more than theory alone.

Thus, Vygotsky's theory, especially the ZPD, is critical for developing nursing students' communication skills.

#### 3.2.2. Experiential Learning Theory (Kolb, 1984)

Kolb's Experiential Learning Theory (ELT) views learning as knowledge creation through experience transformation, emphasizing four stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. This learner-centered, experience-based

cycle distinguishes ELT from other theories.

ELT provides clear guidance for nursing communication education. Simulation-based learning (SBL), when integrated with ELT, offers realistic clinical scenarios as concrete experience. Students then reflect on their performance (reflective observation), summarize what builds patient trust (abstract conceptualization), and apply improved communication styles in future simulations or clinical placements (active experimentation), creating a dynamic learning cycle. In a nursing study based on Kolb's ELT using an SBAR communication program, the experimental group demonstrated significantly higher communication skills, confidence, and clarity, confirming that ELT-based instructional design improves nursing students' communication abilities and self-efficacy.

In conclusion, Kolb's ELT is valuable for nursing communication education, offering a framework to better study students' communication performance and inform future educational reform.

### 3.2.3. Self-Efficacy Theory (Bandura, 1997)

Bandura's Self-Efficacy Theory states that belief in one's ability to succeed affects motivation, effort, and perseverance.

Self-efficacy is about believing one can use skills to achieve desired outcomes. High self-efficacy helps people persist through setbacks and reduces stress and anxiety. Core sources include mastery experiences, vicarious learning, and social persuasion.

In nursing education, self-efficacy significantly impacts communication. Higher self-efficacy helps nursing students manage stress and reduce burnout, leading to positive communication. Low self-efficacy makes students avoid emotionally demanding or complex communication training, harming patient relationships and care quality. Low self-efficacy also reduces patient-centered communication, while high self-efficacy promotes proactive caring. Additionally, low self-efficacy leads to information handover omissions, which self-efficacy-based education can improve (Cortés-Rodríguez et al., 2021)[28].

Thus, communication self-efficacy directly affects nursing students' motivation and clinical performance. Low self-efficacy leads to avoidance of complex scenarios; high self-efficacy increases confidence and learning motivation.

### 3.2.4. Theoretical Framework of the Study

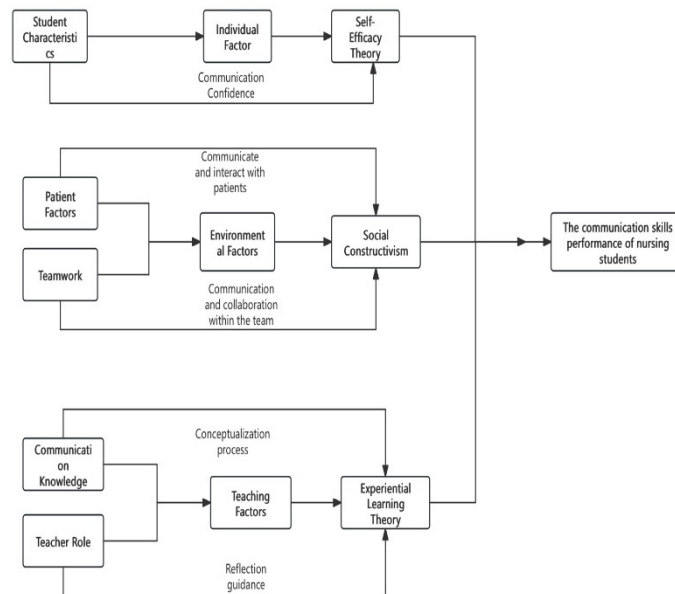


Fig 1. Theoretical Framework of the Study

### 3.3. Conceptual Framework

This study's conceptual framework integrates Social Constructivism, Experiential Learning Theory, and Self-efficacy Theory to address gaps in research on nursing students' communication skills. Previous studies have limitations: sample homogeneity, reliance on self-reported data, and limited generalizability. To resolve these, the framework embeds each theory into the research design. Social Constructivism guides cross-cultural scenario experiments with diverse nursing students to overcome single-culture samples. Experiential Learning Theory provides a circular structure using behavior-reflection triangulation, replacing traditional learning stages with questionnaire components to internalize communication strategies. Self-efficacy Theory adds psychological dimensions, using implicit effectiveness questions to classify samples and generate training decisions. This enables Universiti Malaya nursing students to undergo a multi-dimensional, objective assessment beyond self-perception.

Leveraging the university's multicultural population enhances generalizability and cultural relevance. The findings can inform curriculum, teacher development, skills training, and policy changes. The conceptual framework is as follows:

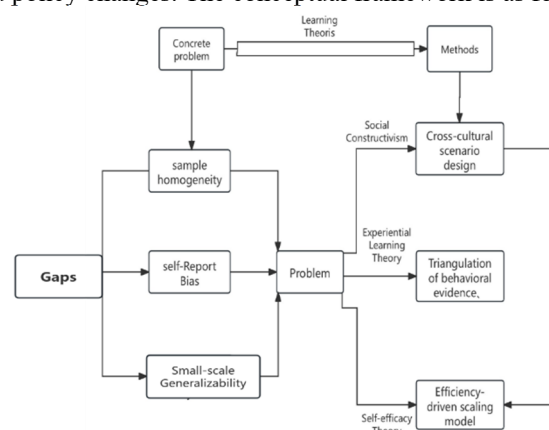


Fig 2. Conceptual Framework

## 4. Methodology

### 4.1. Introduction

This chapter details the study design, setting, sampling, ethics, data collection, instrumentation, and statistical analysis to ensure rigor and replicability.

### 4.2. Research Design

This study used a cross-sectional descriptive quantitative design to evaluate the communication skills and training needs of nursing students at Universiti Malaya. A cross-sectional design captures data at a single time point, making it suitable for understanding students' current communication skills and immediate training needs. Unlike longitudinal designs, it is efficient given limited time and resources. Data were collected within one week using a verified online questionnaire, protecting participant privacy. The structured, standardized questionnaire (El et al., 2021)[29] measures five communication dimensions: personal characteristics, patient interaction, teamwork, theoretical knowledge, and perceived role of educators. The questionnaire was distributed via email and posters, recruiting 200–250 participants through convenience sampling. Dependent variables were analyzed using descriptive statistics and the Kruskal-Wallis H test via Likert scales, while independent variables were analyzed using Spearman's rank correlation based on the five dimension scores. The online survey method served as the main data collection strategy. Overall, this design, integrated with a Needs Assessment framework, provides a scientific basis for evaluating communication skills and training needs, enhancing the practical applicability of findings and supporting future targeted communication interventions.

### 4.3. Location of Study

This study was conducted at the Faculty of Medicine, Universiti Malaya, located in central Kuala Lumpur, Malaysia. The site was chosen for multiple reasons that make it ideal for exploring nursing students' communication skills. Universiti Malaya is adjacent to the University of Malaya Medical Centre (UMMC) and five teaching hospitals where students intern, creating a unique "education-clinical-research" structure that allows students to practice communication in real and diverse medical settings. Additionally, the university is highly ranked, with its nursing science department offering a complete training system from undergraduate to doctoral levels, ensuring students receive a good education and can respond to surveys relatively objectively. Kuala Lumpur is also a multicultural hub, including Malays, Chinese, Indians, and Europeans. The nursing student body reflects this diversity, with Chinese and international students making up 25%, providing a truly multicultural environment for the research.

### 4.4. Sampling

In this study, non-probabilistic convenience sampling method was adopted to recruit undergraduate nursing students from the Universiti Malaya Medical School. The target sample size is set at 200 to 250 participants. The sample size setting of this study was based on the sample size calculation formula of the cross-sectional study by Krejcie and Morgan (1970). It was found through the formula that a minimum of 217 participants are needed to achieve a 95% confidence level and a 5% error range. Therefore, the goal of 200 to 250 respondents ensures sufficient statistical power for data

analysis. At the same time, potential issues of non-response or incomplete questionnaire submission were also taken into consideration.

#### 4.4.1. Strategy

This study recruited nursing students from the Faculty of Medicine, Universiti Malaya using non-probability convenience sampling, a common method in educational and clinical research that selects easily accessible participants. Despite limitations in representativeness due to lack of randomness, this strategy is appropriate given the academic setting. To reduce sampling bias and enhance diversity, multiple recruitment methods were used: first, collaborating with the nursing department to obtain permission and distribute posters and invitations via email and bulletin boards; second, sharing posters with QR codes and survey links through student emails (Siswa mail) and social media groups; third, inviting voluntary participation. All participants received a detailed information form outlining the research purpose, procedures, risks, and benefits, and provided electronic informed consent via a checkbox on Google Forms before completing the questionnaire.

#### 4.4.2. Inclusion & Exclusion

To ensure the relevance of the research subjects and the validity of the data, clear inclusion and exclusion criteria are set in this study:

(1) Inclusion criteria: Participants must be current undergraduate students majoring in nursing at the Universiti Malaya. The age must be over 18 years old. In addition, participants must have basic English language skills and be able to understand the items and explanations in the questionnaire. Finally, all the participants voluntarily took part in this study and signed the informed consent form to meet the requirements of ethical research.

(2) Exclusion criteria: This study did not include non-nursing students from medical schools to ensure the specificity and validity of the sample. Secondly, nursing students who are unable to communicate effectively in English will be excluded. Because language barriers may affect their accurate understanding of the content of the questionnaire. Finally, students who refused to participate or were unwilling to sign the informed consent form were also not within the scope of the research, and their right to voluntary participation was respected.

#### 4.4.3. Limitations

This study adopts convenient sampling. Although it has high feasibility in practical operation, there are also certain limitations. Convenience sampling may introduce selection bias. Because participants may have better communication skills and performance than non-participants. This deviation will affect the representativeness and universality of the research results. Furthermore, this study sets English language proficiency as one of the conditions for participation. Although this standard ensures that participants can accurately understand the content of the questionnaire, it also excludes students with poor English proficiency. This limits cultural diversity to a certain extent.

## 4.5. Ethics Clearance

This study received formal approval from the University of Malaya Research Ethics Committee (UMREC), reference number: UM.TNC(P&I)/UMREC\_4730. The ethical application detailed the research purpose, methods, and respect for voluntary participation, and was revised based on

UMREC feedback to further strengthen voluntary participation rights, data confidentiality, and protection of participants' interests.

#### 4.6. Data Collection

This study used an online survey for data collection, primarily via the REDCap platform, which offers high data security, HIPAA compliance, automatic data export, access control, and operation audit logs. Google Forms was used as an alternative during some testing phases. Data collection lasted one week. Beforehand, the student principal investigator prepared in advance. Invitations were distributed through multiple channels: posters with QR codes and survey links in the nursing school, emails (Siswa Mail) via the official website, and electronic invitations to social media groups. Two reminders were sent via email mid-survey to boost the response rate. During the survey period, participants could contact the investigator by email or phone with questions. The expected response rate was 40–50% of the target group (approximately 500 students), aiming for 200–250 valid responses.

#### 4.7. Instruments

This study used a self-reported questionnaire developed by El et al. (2021)[29] to evaluate nursing students' self-perception and ability regarding their communication skills. The questionnaire has a clear structure, strong clinical relevance, and is well-validated. It consists of three parts and 23 items. The first part is informed consent, covering research purpose, voluntary participation, withdrawal rights, confidentiality, and anonymity. The second part collects demographic information: gender (female/male) and study stage (undergraduate years 1–4). The third part is the communication skills assessment, comprising five sub-scales using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree):

1. Students' personal characteristics (6 items): Evaluate the respondents' self-feelings about communication. For example, the ease of communication and whether one is shy during communication.

2. Individual characteristics of patients and the health-disease process (4 items): Challenges faced when communicating with different types of patients.

3. Profile of health teams (4 items): Measures the communication situation with members of the care team.

4. Theoretical knowledge about communication in health and nursing (4 items): Evaluate the confidence in applying communication theory to practice.

5. Nursing faculty member's role in developing these skills (11 items): Evaluate students' perception of the degree of support provided by teachers in communication training.

According to El et al. (2021)[29], content validity was confirmed by nursing education experts, and sub-scale Cronbach's  $\alpha$  ranged from 0.72 to 0.89, indicating good internal consistency. This questionnaire is suitable for use in this study.

#### 4.8. Data Analysis

This study used IBM SPSS Statistics (version 27) for data analysis, including data preprocessing, descriptive statistics, and inferential statistics.

Before formal analysis, the dataset was screened for missing values, outliers, and entry errors. Questionnaires with more than 5% missing data were excluded using Listwise

Deletion. The Shapiro-Wilk test and histogram visualization were used to test for normality. Since the data deviated significantly from a normal distribution, non-parametric methods were applied.

Descriptive statistics summarized sample characteristics and communication skills scores. Categorical variables (gender, year of study, Likert scores) were presented as frequencies and percentages. Continuous variables (sub-scale scores) were reported as means and standard deviations.

For inferential statistics, non-parametric methods were used due to the violation of normality assumptions. The Kruskal-Wallis H test examined differences in communication skills scores across four academic year groups, with post-hoc pairwise comparisons using Bonferroni correction. Spearman's rank correlation assessed monotonic relationships between continuous variables, including the association between self-perceived communication competencies and academic year, as well as correlations among the five communication domains and total scores. The Chi-Square Test of independence examined the relationship between gender and academic year, finding no significant association, indicating consistent gender proportions across years and minimizing potential confounding. Due to the non-normal distribution, parametric methods such as t-tests, one-way ANOVA, Pearson correlation, and multiple linear regression were not used, ensuring methodological reliability and accurate reflection of data characteristics.

## 5. Results and Discussion

### 5.1. Introduction

This chapter analyzes communication skills assessment results among nursing students at the University of Malaya. Using the five-dimensional scale by El et al. (2021)[29]—covering (A) students' personal characteristics, (B) patient and health-disease factors, (C) health team profile, (D) theoretical knowledge, and (E) role of nursing educators—230 valid questionnaires were collected. The theoretical framework integrates Social Constructivism (Vygotsky, 1978)[30] and Self-Efficacy Theory (Bandura, 1997)[31]. The study addresses two core questions: whether communication skills differ across academic years (1–4), and which dimensions most significantly impact overall effectiveness. Data were analyzed using frequencies, percentages, chi-square tests, Shapiro-Wilk normality test, mean $\pm$ SD, Kruskal-Wallis H test with Bonferroni correction, and Spearman's rank correlation. Significance was set at  $\alpha=0.05$  ( $p<0.05$ ), using IBM SPSS 27.0. These non-parametric methods avoided strict normality assumptions and revealed monotonic relationships. The analysis identified differences in communication skills across grades and explored variable relationships, cross-validated with existing literature (e.g., clinical experience, teaching methods, teamwork). This establishes an empirical-theoretical connection, enhancing academic and practical value. In summary, this chapter provides data support and a foundation for guiding nursing educators and curriculum designers to improve communication skills training.

### 5.2. Descriptive Statistics

#### 5.2.1. Demographic Data

This study analyzed 230 valid questionnaires from first- to fourth-year nursing students at Universiti Malaya. Gender distribution was balanced: 114 male (49.6%) and 116 female

(50.4%), showing no significant difference across grades ( $P = 0.534$ ). Grade distribution covered all levels: first year (46, 20%), second year (67, 29.1%), third year (76, 33.1%), and fourth year (41, 17.8%). Total communication skills scores increased progressively by grade: first year ( $49.37 \pm 1.32$ ), second year ( $49.45 \pm 1.03$ ), third year ( $50.18 \pm 3.57$ ), and fourth year ( $50.90 \pm 2.48$ ), with high statistical significance ( $P < 0.001$ ), consistent with Bandura's self-efficacy theory. These results provide a solid foundation for further analysis across communication skill dimensions.

### 5.2.2. Comparative Analysis of Scale Dimensions by Year of Study

This study assessed nursing students' communication skills across five dimensions (A–E) using descriptive statistics (Mean $\pm$ SD), the Kruskal-Wallis H test, and Bonferroni correction.

Dimension A (Students' personal characteristics): Total mean =  $13.42 \pm 1.35$ . Scores increased by year: Year 1 ( $13.17 \pm 0.93$ ), Year 2 ( $13.19 \pm 0.56$ ), Year 3 ( $13.54 \pm 1.94$ ), Year 4 ( $13.83 \pm 1.24$ ). Overall differences were significant ( $p < 0.001$ ), with significant pairwise differences between Year 4 and each of Years 1, 2, and 3 ( $p < 0.01$ ). Among specific items, A1, A4, and A5 showed significant overall differences ( $p < 0.05$ ), primarily between Year 2 and Year 4 or Year 1 and Year 4. Items A2, A3, and A6 showed no significant differences ( $p > 0.05$ ).

Dimension B (Patient characteristics and health-disease process): Total mean =  $8.96 \pm 0.42$ . Year 4 scored highest ( $9.12 \pm 0.60$ ), significantly higher than Years 1, 2, and 3 ( $p < 0.05$ ). Item B2 showed overall significance ( $p = 0.047$ ) but no pairwise differences; item B3 had borderline overall significance ( $p = 0.041$ ) with Year 3 vs. Year 4 approaching significance ( $p = 0.050$ ). Items B1 and B4 showed no differences.

Dimension C (Health teams): Total mean =  $8.37 \pm 0.57$ . Scores increased from Year 1 ( $8.24 \pm 0.43$ ) to Year 4 ( $8.59 \pm 0.67$ ), with overall significance ( $p = 0.021$ ) and significant difference only between Year 1 and Year 4 ( $p = 0.045$ ). Items C1 and C3 showed significant overall differences ( $p = 0.042$  and  $p = 0.038$ ); only C3 had a significant Year 1 vs. Year 4 difference ( $p = 0.043$ ). Item C2 showed no differences.

Dimension D (Theoretical knowledge): Total mean =  $7.07 \pm 0.61$ . Overall differences were significant ( $p = 0.043$ ), but no pairwise comparisons reached significance. Item D2 showed overall significance ( $p = 0.024$ ) with Year 2 vs. Year 4 significant ( $p = 0.036$ ); item D3 showed overall significance ( $p = 0.031$ ) but no pairwise differences. Item D1 showed no differences.

Dimension E (Role of nursing educators): Total mean =  $12.12 \pm 0.79$ . No significant overall or pairwise differences were found ( $p = 0.583$ ).

Total score: Overall mean =  $49.93 \pm 2.49$ . Scores increased by year: Year 1 ( $49.37 \pm 1.32$ ), Year 2 ( $49.45 \pm 1.03$ ), Year 3 ( $50.18 \pm 3.57$ ), Year 4 ( $50.90 \pm 2.48$ ). The overall difference was highly significant ( $p < 0.001$ ), with significant differences between Year 4 and each of Years 1, 2, and 3 ( $p < 0.001$ ). No significant differences were found among Years 1, 2, and 3.

## 5.3. Cross-Year Analysis of Communication Skill Dimensions

### 5.3.1. Gender Distribution

Table 1 and 2 show a balanced gender distribution among 230 nursing students (49.6% male, 50.4% female). A chi-

square test ( $p = .534$ ) found no significant association between gender and academic year or communication dimensions. This balance rules out gender as a confounding factor, confirming that communication skills are influenced by academic progress and experiential learning, not gender imbalance.

**Table 1.** Gender Distribution of Nursing Science Students by the Year of Degree

Year of Degree	Male	Female	Total (n)	Percentage (%)
Year 1	20	26	46	20.0
Year 2	37	30	67	29.1
Year 3	35	41	76	33.1
Year 4	22	19	41	17.8
Total sample	114	116	230	100

**Table 2.** Chi-Square Test Results for Gender Distribution Across the Year of Degree

Test	Value	Asymptotic Significance	Exact Significance
Pearson Chi-Square	2.19	.534	.537
	3		
Likelihood Ratio	2.194	.533	.538
	3		
Fisher's exact Test	2.190	-	.537
N of Valid Cases	-	-	-
	230		

### 5.3.2. Grade Distribution

Table 3 shows the distribution of 230 nursing students across four academic years: 46 first-year (20.0%), 67 second-year (29.1%), 76 third-year (33.1%), and 41 fourth-year (17.8%). This distribution reflects the natural progress of the program, with a higher concentration in the third year due to course structure and clinical practice, and a slight decline in the fourth year due to the final internship or early graduation.

Methodologically, including all four grades supports the cross-sectional design, helps examine developmental trends, reduces sampling bias, and enhances internal validity.

Results show a significant upward trend in communication scores from Grade One ( $49.37 \pm 1.32$ ) to Grade Four ( $50.90 \pm 2.48$ ). The Kruskal-Wallis H test indicated significant overall differences ( $p < .01$ ), and post hoc tests (Bonferroni) showed fourth-year students outperformed all lower grades ( $p < .001$ ). These findings align with social constructivism, experiential learning theory, and self-efficacy theory, emphasizing clinical experience, reflection, and social interaction. Communication skills increased with grade level, highlighting the program's effectiveness, especially in the third and fourth years, where immersive clinical practice and professional responsibility are key.

Thus, the grade distribution provides a robust sample for cross-sectional analysis of communication skill development, addressing differences across undergraduate stages. The representation in each grade supports reliable comparisons of dimensions like shyness, confidence, empathy, clarity, and teamwork. The increasing then slightly declining student numbers reflect the natural academic trajectory, enhancing ecological validity and enabling detailed investigation of communication skill development in nursing students.

**Table 3.** Distribution of Participants by the Year of Degree(N=230)

Year of Degree	Frequency (n)	Percentage (%)
Year 1	46	20.0
Year 2	67	29.1
Year 3	76	33.1
Year4	41	17.8
Total	230	100.0

### 5.3.3. Analysis of Changes in Each Dimension Across Academic Years

Dimension A (Student's personal characteristics): Total average score was  $13.42 \pm 1.35$ , showing an increasing trend. Fourth-year students scored significantly higher than first-, second-, and third-year students ( $P_3 < 0.001$ ,  $P_5 = 0.002$ ,  $P_6 < 0.001$ ). Specific items showed that senior students communicated more easily with patients and teams (A1,  $P_3 = 0.049$ ), perceived communication difficulties more acutely (A4,  $P_5 = 0.040$ ), and experienced less shyness (A5,  $P_5 = 0.024$ ). This supports Bandura's self-efficacy theory.

Dimension B (Patient characteristics and health-disease process): Total average was  $8.96 \pm 0.42$ , with significant grade differences ( $p = 0.014$ ). Fourth-year students outperformed all lower grades ( $P_3 = 0.024$ ,  $P_5 = 0.039$ ,  $P_6 = 0.042$ ). Although items B2 and B3 showed overall significance ( $p = 0.047$  and  $p = 0.041$ ), pairwise differences were not significant ( $P > 0.05$ ). This aligns with Kolb's experiential learning theory.

Dimension C (Health team profile): Average score was  $8.37 \pm 0.57$ , with significant overall differences ( $p = 0.021$ ). Fourth-year students scored higher than first-year students ( $P_3 = 0.045$ ). Item C3 (communication supporting patient management) showed fourth-year students significantly outperforming first-year students ( $P_3 = 0.043$ ). These findings support Vygotsky's social constructivism.

Dimension D (Theoretical knowledge about communication): Average was  $7.07 \pm 0.61$ , with significant grade differences ( $p = 0.043$ ) but no significant pairwise differences. Item D2 (non-verbal communication) showed fourth-year students significantly higher than second-year students ( $P_5 = 0.036$ ). Item D3 (applying prior knowledge) showed overall significance ( $p = 0.031$ ) without pairwise differences. Results indicate a theory-practice gap.

Dimension E (Perceived role of nursing educators): No significant differences across years ( $p = 0.583$ ), indicating consistent but non-progressive educator support.

**Table 4.** Mean Scores of Communication Skill Dimensions by Academic Year

Dimension	Year 1	Year 2	Year 3	Year 4	P-Value
A	13.17±0.93	13.19±0.56	13.54±1.94	13.83±1.24	<0.001
B	8.91±0.28	8.93±0.32	8.92±0.42	9.12±0.60	0.014
C	8.24±0.43	8.27±0.45	8.43±0.64	8.59±0.67	0.021
D	6.96±0.36	6.96±0.47	7.13±0.70	7.24±0.77	0.043
E		12.09±0.35	12.10±0.55	12.16±1.10	0.583
				12.12±1.0.81	
Total	49.37±1.32	49.45±1.03	50.18±3.57	50.90±2.48	<0.001

Overall, Communication skills develop clearly across undergraduate education, particularly in self-efficacy, patient-centered adaptability, team communication, and theory-

practice integration. Educator support remains stable, suggesting a need for more dynamic, stage-specific guidance. The study categorizes nursing communication skills into core personal abilities, situational adaptability, and collaborative integration skills, informing progressive, experience-driven curricula.

**Table 5.** Summary of Scores and Statistical Comparisons Across Five Dimensions by Academic Year

Dimension	M±SD	Overall p-value	Post Hoc Comparisons
A	13.42±1.35	<0.001	Y4>Y1( $P < 0.001$ ), Y4>Y2( $P = 0.002$ ), Y4>Y3( $P < 0.001$ )
A1	-	0.039	Y4>Y1( $P = 0.049$ )
A4	-	0.032	Y4>Y2( $P = 0.040$ )
A5	-	0.040	Y4>Y2( $P = 0.024$ )
B	8.96±0.42	0.014	Y4>Y1( $P = 0.024$ ), Y4>Y2( $P = 0.039$ ), Y4>Y3( $P = 0.042$ )
B2	-	0.047	-
B3	-	0.041	-
C	8.37±0.57	0.021	Y4>Y1( $P = 0.0045$ ),
C1	-	0.042	-
C3	-	0.038	Y4>Y1( $P = 0.043$ )
D	7.07±0.61	0.043	Y4>Y2( $P = 0.036$ ),
D2	-	0.024	Y4>Y2( $P = 0.036$ )
D3	-	0.031	-
E	12.12±0.79	0.583(NS)	-

Note. Y1 = Year 1, Y2 = Year 2, Y3 = Year 3, Y4 = Year 4; M = Mean, SD = Standard Deviation; NS = Not Significant.

### 5.3.4. Correlation of Skill Dimensions with Total Score

To identify which dimensions most influence overall communication skills, we conducted Spearman's rank correlation analysis. Table 6 shows significant positive correlations between all five dimensions and the total communication score, though the strength varies.

Dimension A had the strongest correlation ( $r = 0.711$ ,  $p < 0.001$ ), indicating that shyness, communication difficulty, and low anxiety are the most significant factors affecting overall performance, consistent with research on self-efficacy in clinical communication (Bandura, 1997). Dimension C also showed a strong correlation ( $r = 0.630$ ,  $p < 0.001$ ), highlighting the importance of teamwork and interdisciplinary collaboration. Dimensions D and E showed moderate correlations ( $r = 0.424$  and  $0.416$ , respectively,  $p < 0.001$ ), suggesting that theoretical knowledge and teacher support are important but more indirect. Dimension B had the weakest correlation ( $r = 0.203$ ,  $p = 0.002$ ), meaning patient-related factors, while relevant, play a smaller decisive role compared to individual and team factors.

**Table 6.** Spearman's Correlation Between Dimensions and Total Score

Dimension	Correlation Coefficient (r)	P-Value
A	0.711	<0.001
B	0.203	0.002
C	0.630	<0.001
D	0.424	<0.001
E	0.416	<0.001

In conclusion, students' confidence, low anxiety, and perceived ease of communication (Dimension A) are the strongest predictors of overall performance, followed by interdisciplinary collaboration (Dimension C). Theoretical knowledge and teacher support (Dimensions D and E) are key facilitators, while patient-related factors (Dimension B) are

less fundamental. These findings provide educators with a clear blueprint: prioritize curriculum development that builds students' self-efficacy and teamwork skills.

## 5.4. Discussion

### 5.4.1. Skill Levels in Clinical Situations

This study found that nursing students' communication skills at Universiti Malaya varied by clinical situation and academic year. In routine, low-pressure situations, all grades showed upper-middle level skills. In complex or high-pressure situations (e.g., distressed patients or poor team collaboration), senior students demonstrated significantly higher skill and confidence than juniors. This suggests that handling emotional challenges is a higher-level skill developed through practice and reflection, consistent with Kolb's Experiential Learning Theory (1984).

### 5.4.2. Important Areas of Communication Skills

According to the research results, the three most important areas for effective communication are: self-efficacy and personal confidence (Dimension A), cross-disciplinary team communication (Dimension C), and application of theoretical knowledge (Dimension D).

Dimension A showed the strongest correlation with the total score ( $r = 0.711$ ,  $p < 0.001$ ), making it the most crucial area. Confidence, lack of anxiety, and clear explanation are key factors, supporting Bandura's Self-Efficacy Theory (1997). Dimension C also showed a strong correlation ( $r = 0.630$ ,  $p < 0.001$ ), emphasizing that effective team communication is a core pillar of clinical performance, aligning with Vygotsky's Social Constructivism (1978). Dimension D had a moderate correlation ( $r = 0.424$ ,  $p < 0.001$ ); senior students showed improved ability to apply knowledge, especially in non-verbal aspects. Skills such as empathy and cultural sensitivity (Dimension B) had a weaker correlation ( $r = 0.203$ ,  $p = 0.002$ ). The study concludes that confidence, self-efficacy, and teamwork are the most crucial drivers of effective clinical communication.

### 5.4.3. Theoretical and Practical Implications

These findings validate the research's theoretical framework: communication skill improvement reflects experiential learning, the role of social interaction with teams and patients is confirmed, and the importance of self-efficacy is clearly demonstrated. Practically, the results offer feasible suggestions for nursing communication education at Universiti Malaya. First, enhance students' confidence and self-efficacy early by implementing structured confidence-building courses and low-risk simulation exercises in the first two years. Second, from the second year onward, introduce more high-fidelity and immersive simulations (e.g., VR) to train for complex patient interactions and interdisciplinary conflicts, accelerating adaptive communication skills. Third, formalize interdisciplinary education by increasing interaction with medicine and pharmacy students, with deliberate practice and evaluation of team communication skills (Dimension C).

## 6. Conclusion, Limitations and Recommendations

This chapter summarizes the main findings of the study, analyzes its limitations in depth, and proposes suggestions for future research and practice. Focusing on undergraduate nursing students at Universiti Malaya, the study used a combination of questionnaire surveys and statistical analysis

to explore communication skills and training needs across different grades. Based on 230 valid questionnaires, the results reveal an overall medium-to-high level of communication skills, with significant differences across academic years. The study integrates quantitative data with Social Constructivism (Vygotsky, 1978), Experiential Learning Theory (Kolb, 1984), and Self-Efficacy Theory (Bandura, 1997), providing a solid theoretical foundation. Senior students (Year 4) performed significantly better in self-efficacy, patient interaction, teamwork, and applying theoretical knowledge. Three core areas were identified as most crucial for effective clinical communication: personal confidence and self-efficacy (Dimension A), interdisciplinary team communication (Dimension C), and application of theoretical knowledge (Dimension D). In contrast, patient-related factors (Dimension B) and educator roles (Dimension E) showed less dynamic change across grades. The study has several limitations. The sample was limited to Universiti Malaya nursing students, which may limit generalizability to other institutions or educational systems. The cross-sectional design captures communication skills only at one point in time, lacking longitudinal tracking of the same cohort, and cannot directly verify causal relationships such as the role of clinical practice. The self-assessment questionnaire is vulnerable to social expectation bias and individual over- or underestimation, and there is no objective clinical observation or multi-source evaluation (e.g., teacher or peer assessment). Future research should expand sample coverage to include multiple institutions and regions for cross-cultural and cross-system comparisons. Longitudinal tracking designs are recommended to construct dynamic development models of communication skills. Mixed methods combining quantitative analysis with qualitative approaches such as in-depth interviews and focus groups can provide richer insights. Technological innovations, including virtual reality (VR) and artificial intelligence (AI), should be integrated for immersive communication training, as suggested by existing studies. In conclusion, this study provides empirical evidence for nursing curriculum optimization and teaching reform, and points to directions for subsequent research, with significant theoretical and practical implications for enhancing nursing students' clinical communication skills and overall nursing quality.

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