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A Closer Look at 4C Skills Integration in English for Nursing Textbooks: A Content Analysis Approach

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Article information	
Abstract	This study investigated the integration of 21st-century skills, specifically the 4C skills (critical thinking, communication, collaboration, and creativity), in English textbooks used in first-year nursing programs across seven universities in West Sumatra, Indonesia. The study employed a content analysis approach, combining quantitative and qualitative methods. The analysis covered 31 units from three textbooks published by PN, CE, and OD publishers, examining the frequency and depth of tasks and activities that incorporated the 4C skills. The researchers used checklists based on established 21st-century skills frameworks. The findings revealed that communication and collaboration were well represented through activities such as role-playing and group discussions. However, critical thinking and creativity were less emphasized, particularly in areas involving problem solving and innovation. The study underscored the need for more balanced integration of all 4C skills to better prepare nursing students for the challenges of modern healthcare.
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1. Introduction

Nursing in the 21st century healthcare field has evolved into a dynamic and multifaceted profession that reflects the growing complexity and diversity of healthcare requirements (Mannino & Cotter, 2016). Nurses are no longer limited to traditional caregiving roles but are also expected to function as critical thinkers, problem solvers, and effective communicators in multidisciplinary teams (Yeo, 2014). This transformation has highlighted the importance of the 4C skills—collaboration, creativity, critical thinking, and communication—as essential competencies for nursing professionals. These skills encompass not only the technical aspects of healthcare but also the ability to adapt to new technologies, collaborate effectively in culturally diverse settings, critically evaluate information, and communicate proficiently. Possessing these skills can significantly improve the standard of care provided by nurses, enabling them to better identify patients' needs, address complex issues, and provide holistic care (Scott et al., 2013).

In response to the need for the 4C skills, there has been an emphasis on the significance of English language proficiency for the majority of professionals (Choi, 2021). Specifically for nursing students, English language skills are important not only to fulfill the demands of their future profession but also to effectively communicate in various medical contexts (Nurindah et al., 2019). Furthermore, these skills are an indispensable component for career growth and advancement. This encompasses the ability to access the most current healthcare information in English, enhance communication with healthcare professionals on both national and international levels, provide high-quality care to all patients, and elevate their level of professionalism (Bosher & Stocker, 2015; Lu, 2018).

To effectively acquire English language skills, nursing students need textbooks that prepare them for the professional challenges they will face in their careers (Handayani et al., 2024). As Umar and Ameen (2022) point out, textbooks are essential in any language teaching program, serving as the primary source of linguistic knowledge for students. In nursing education, these textbooks should not

only serve as language resources but also as comprehensive tools that develop students' 21st-century skills.

However, many English for specific purposes (ESP) textbooks for medical students are considered outdated, with content that does not align with current medical practice (Santos, 2020). Similarly, Riyani (2016) highlights that these textbooks often lack nursing specific language. As a result, students are inadequately prepared for their professional roles. Sadeghi and Baharvand (2014) further reveal an imbalance in skills development. While reading and writing are well covered, listening and speaking skills are often neglected. In addition to these concerns, Almithqal (2019) notes a lack of creativity in the tasks, with few practical exercises focusing on essential skills such as writing medical reports and case presentations. Fekri, Nouri, and Ajideh (2022) also observe limited interactive activities for students to apply new medical vocabulary in realistic scenarios. Finally, Basheer (2019) and Subagiyo, Setiawan, and Purwati (2022) report widespread dissatisfaction among students, many of whom felt that these textbooks were too similar to general English courses and did not address the specific language needs of nursing students.

Therefore, it is crucial to conduct comprehensive evaluations of textbooks used in nursing education. Evaluating nursing textbooks is an essential way to provide students with high-quality resources that both prepare them for their future roles as healthcare professionals and equip them to use the best evidence in practice (Cassata & Cox, 2009). Numerous studies have evaluated nursing textbooks from various perspectives, including language skills (Le et al., 2021), academic relevance (Umar & Ameen, 2022), and alignment with nursing specializations (Rahma et al., 2017). However, the specific integration of the 4C skills within nursing textbooks has received limited attention. To address this gap, the present study aimed to investigate the extent to which selected English for nursing textbooks promote and facilitate the development of the 4C skills among nursing students. The research questions for this study are as follows:

1. To what extent do selected English for nursing textbooks incorporate the 4C skills into their content and exercises?

2. How are the 4C skills manifested in the textbooks through various subject matter, exercises, and activities?

2. Literature Review

This section reviews the existing literature to establish a foundation for the current study. The discussion begins with the role of textbooks in English for specific purposes (ESP) courses. It highlights their importance in delivering structured, profession-oriented content and fostering autonomous learning. The review then explores prior evaluations of ESP nursing textbooks. It highlights their strengths and limitations while underscoring the need for materials that align with changing professional requirements. Despite valuable insights from previous research, a significant gap arises in the incorporation of 21st-century skills, specifically the 4C skills, in ESP nursing textbooks. The concluding section of the review examines the theoretical and practical importance of the 4C skills in English language instruction. It illustrates their critical function in preparing students with the skills necessary for success in contemporary healthcare environments. The review of the literature makes it clear that these important skills need to be looked at more closely in ESP nursing textbooks through a content analysis.

2.1 The Role of Textbook in ESP Courses

Textbooks play a crucial role in English for specific purposes (ESP) courses, serving as essential resources that provide tailored materials for specific professions (Hutchinson & Torres, 1994). They offer a structured framework for courses, guiding both teachers and students through a logical sequence of topics and activities (Harmer, 2001; Ur, 2009). This structure ensures that vital skills are covered within the course duration, making learning more efficient and targeted. Moreover, ESP textbooks promote learner autonomy by including self-study materials that encourage students to take charge of their learning. This aspect is

particularly important in professional settings where ongoing language development often occurs with limited teacher supervision (Sahragard et al., 2014).

The content of ESP textbooks is carefully aligned with the specific language needs of various professions, ensuring practical relevance (Ru-gang, 2013). For instance, business English textbooks might emphasize communication strategies for meetings and negotiations, while textbooks for healthcare professionals focus on medical terminology and patient communication. This focus on practical application ensures that students are well-equipped for the linguistic challenges they will face in their careers.

Furthermore, effective ESP textbook incorporate authentic, real-world materials such as case studies, industry reports, and professional documents (Dorda, 2008). Engaging with these materials enables students to bridge the gap between academic learning and the communication demands of their professional environments. This approach improves students' confidence and ensures that classroom-developed skills are directly applicable to the workplace.

In conclusion, ESP textbooks are invaluable tools that provide structure, promote autonomy, and offer profession-specific content. By incorporating authentic materials and focusing on practical application, these textbooks effectively prepare students for the linguistic demands of their chosen careers.

2.2 Evaluation of ESP Nursing Textbooks

The evaluation of English for specific purposes (ESP) nursing textbooks is essential for ensuring that the educational content aligns with the needs of students and the evolving demands of the healthcare field. As nursing students rely on textbooks to build their foundational knowledge, it is crucial that these materials are comprehensive, relevant, and accessible.

Several studies have investigated the evaluation of nursing textbooks across different settings, offering valuable insights. For instance, Umar and Ameen (2022) have found that *Nursing One*, a textbook used to teach medical English to premedical students at Umm-Al-Qura University, was highly effective in meeting both the academic and professional needs of students. Similarly, Salehi, Khadivar, and Mehrabi (2015) have determined that an ESP medical textbook used in Iran successfully addressed the needs of both instructors and students. In another study, Le et al. (2021) explored medical students' evaluations of an ESP course book and found overall satisfaction. However, they have noted specific limitations, including insufficient practice for communicative skills, unengaging grammar examples, a lack of diversity and quantity in illustrations, and a simplistic cover design.

Furthermore, Sattarpour, Khalili, and Zeinolabedini (2022) compared ESP books for nursing students published by Oxford University Press and SAMT. Their findings revealed that the SAMT book no longer met the needs of modern students, while the Oxford book was more relevant but did not fully address the requirements of Iranian students. The Oxford book primarily focused on language use in professional contexts rather than teaching specific nursing skills. Additionally, Almithqal (2019) evaluated nursing textbooks written in English and found a generally positive attitude among students. However, he pointed out limitations such as restricted opportunities for creative thinking and a lack of focus on critical technical writing skills in healthcare settings.

While these studies provide useful insights into textbook evaluation, they predominantly focus on traditional metrics such as language accessibility, academic relevance, and alignment with course objectives. However, they fall short of addressing how well these textbooks incorporate essential 21st-century skills, such as critical thinking, communication, collaboration, and creativity—commonly referred to as the 4C skills. These skills are increasingly recognized as crucial in nursing practice, as highlighted by Turner, Rakkwamsuk, and Leungratanamart

(2016), and Andre and Barnes (2010). Despite the recognized importance of 4C skills in modern healthcare, they are often overlooked in ESP nursing textbooks. This may be due to the traditional focus of textbook evaluations on language accessibility, academic relevance, and alignment with course objectives, rather than the development of higher-order cognitive skills. Additionally, educators and textbook developers may view 4C skills as supplementary rather than essential components of ESP textbooks, leading them to feel it is unnecessary to integrate these skills into English for nursing curricula. Furthermore, earlier textbook designs may not reflect the rapidly changing demands of the healthcare field, resulting in materials that fail to include skills relevant to current challenges and needs. Therefore, this study aimed to bridge this gap by investigating the degree to which the textbooks used in ESP nursing education incorporate these essential skills.

2.3 4C Skills in English Language Teaching

The 4C skills—critical thinking, communication, collaboration, and creativity—are key components of the Framework for 21st Century Learning developed by the Partnership for 21st Century Learning (P21) in the United States. This framework is based on the assumption that 21st-century challenges require a broad skill set, including core subject skills, social and cross-cultural skills, language proficiency, and an understanding of economic and political forces (Joynes et al., 2019). Each of these skills plays a crucial role in preparing students for the complex demands of modern life and work.

Critical thinking, as described by Trilling and Fadel (2009), is fundamental to 21st century learning. It involves the ability to access, analyze, and synthesize information. Students who think critically can understand the interconnections between problems, arrange them systematically, and analyze them effectively. This skill enables them to reason effectively, use systems thinking, and make sound judgments and decisions. Arifin (2017) emphasizes that critical thinking empowers students to solve complex problems by understanding their relationship to other factors.

Several studies have highlighted the importance of including creativity and innovation in textbooks to better prepare students for real-world challenges. For example, Bao and Liu (2018) argue that course books should encourage students to use their imagination, share their ideas, connect emotions with thoughts, take risks, and express their individuality. Herliana (2022) emphasizes that one of the best features of a useful textbook is its ability to include activities that inspire students' creativity, curiosity, and interest. Bouzid (2016) points out that textbooks should help students think creatively by encouraging them to present their ideas through innovative formats like videos, presentations, posters, blogs, and social media. Similarly, Fenner and Newby (2000) point out that textbooks can play a key role in keeping students engaged, developing their creative skills, and supporting interactive learning.

Communication skills are equally important in the 21st century landscape. Ratminingsih et al. (2021) defined effective communication as the ability to express thoughts clearly and persuasively, both orally and in writing. This includes articulating opinions, conveying coherent instructions, and motivating others through speech. Yeni and Can (2022) have suggested that communication involves effectively articulating thoughts and ideas via spoken and written communication abilities in various situations and contexts.

Finally, collaboration is crucial as students will likely work with others throughout their lives. Pardede (2020) describes collaboration abilities as the capacity to work effectively with diverse team members while maintaining fluency and willingness to make judgments required to achieve common goals. Collaborative practices help students understand how to solve problems collectively, share ideas, and decide on the best course of action.

In conclusion, these 4C skills form a comprehensive framework for developing the skills necessary for success in the 21st century. By fostering these abilities, educators can better prepare students to face the complex challenges of

modern society and thrive in diverse work environments. The integration of these skills in English language teaching not only enhances language proficiency but also equips students with the tools they need to navigate an increasingly interconnected and rapidly changing world.

3. Methodology

3.1 Research Method

This study employed a content analysis approach to examine English for nursing textbooks used in first-year nursing programs at universities in West Sumatra Province, Indonesia. The primary objective was to investigate the representation and integration of the 4C skills within these textbooks. The content analysis combined both quantitative and qualitative methods. Quantitatively, the study measured the frequency and distribution of texts, exercises, and activities that incorporated elements of the 4C skills. Qualitatively, it examined the contexts in which these skills were presented, the types of activities used to promote them, and the relevance of these activities to real-world nursing scenarios. The qualitative findings provided deeper insights into how the 4C skills were integrated and contextualized within the materials.

3.2 Research Context and Criteria of the Textbook Samples

This study employed a purposive sampling approach to select seven universities located across three different regions of West Sumatra Province, Indonesia. This strategic selection aimed to capture a broad representation of textbook usage patterns across the province, with fictitious names used to protect the identities of the participating institutions. The sampling specifically targeted universities from the Central, West, and Southern regions of West Sumatra. To ensure comprehensive representation of all regional contexts, a randomization principle was applied to the selection process. Based on this rank ordering, the top three universities from the West and South regions, along with one university from the Central region, were identified. The primary textbooks used at these selected

universities were then obtained for further analysis, comprising a total of three textbooks.

The focus on three primary textbooks was based on their dominant and consistent use as core instructional materials for English for specific purposes (ESP) nursing education in the selected universities. These textbooks were identified as representative because they are widely adopted across universities in the province and aligned with the national nursing curriculum guidelines for ESP education in Indonesia. The inclusion of textbooks adhering to this curriculum ensured that the findings were relevant to the standardized competencies expected of nursing students nationally. Therefore, analyzing these textbooks provided insights that could inform broader ESP nursing education contexts beyond West Sumatra. The decision to exclude supplementary materials was made to maintain focus on the primary resources that had the greatest impact on ESP nursing instruction. Table 1 provides detailed information about the three selected textbooks under investigation.

Table 1

Summary of Seven Textbooks' Related Information

Universities	Publisher (pseudonyms)	Publication date	Level
West University 1	OD	2009	A2-B1
West University 2	CE	2010	A2-B1
West University 3	OD	2009	A2-B1
Southern University 1	OD	2009	A2-B1
Southern University 2	PN	2012	A1-A2
Southern University 3	CE	2010	A2-B1
Central University	PN	2012	A1-A2

The study examined three English for nursing textbooks used across seven universities located in the Central, Western, and Southern regions of West Sumatra Province, Indonesia. These textbooks were strategically selected to provide broad coverage of the instructional materials used throughout the province. Published between 2009 and 2012 by PN, OD, and CE publishers (pseudonyms), the textbooks were written by both individuals and teams. They ranged in length from 80 to 130 pages, indicating a substantial scope of content. Thematically, the textbooks covered various nursing-related topics, including medical terminology, communication skills, nursing procedures, and patient care.

The textbook from PN was designed for A1-A2 level nursing students, focusing on building basic vocabulary, grammar, and communication skills through eight thematic units, such as nursing assessment, medication, and patient care. The textbook from CE was aimed at pre-intermediate students and geared toward communication skills in both academic and professional settings. It included eight units focused on discussion, listening activities, and communication skills. The textbook from OD was suitable for pre-intermediate to intermediate levels, with 15 units covering various nursing topics like hospital teams, accidents and emergencies, and caring for the elderly.

The diverse authorship, publication timelines, page counts, and topical coverage of the three textbooks analyzed in this study provided a well-rounded sample of the primary textbooks used to teach English to first-year nursing students across multiple universities in the West Sumatra region. This dataset offered a strong foundation for the researchers to investigate the representation of 4C skills within the core nursing education resources.

3.3 Research Instruments

The researchers used checklists adapted and modified from 21st-century skills frameworks proposed by the Partnership for 21st Century Skills (P21), (Trilling & Fadel, 2009; Yeni & Can, 2022). The unit of analysis for this content

evaluation was each individual unit within the textbooks. In textbook analysis, it is important to select the smallest complete unit that can be studied holistically. Since the subject matter, texts, and activities varied across textbook units, each unit was considered a complete and suitable entity for analysis. The content, including subject matter, texts, and activities within each unit, was examined based on the 4C skills as follows:

Table 2

4Cs Evaluation Summary

Skills	No	Skills Categories
Critical thinking and problem solving	1	Reasoning effectively
	2	Using of systems thinking
	3	Making judgments and decisions
	4	Solving problems
Communication	5	Communicating clearly
Creativity	6	Working creatively with others
	7	Implementing innovation
Collaboration	8	Collaborating with others

3.4 Analysis Framework

The researchers analyzed a total of 31 units across three textbooks: PN textbook (eight units), CE textbook (eight units), and OD textbook (15 units). During the analysis, a single textbook unit could exhibit multiple 4C skills attributes if the content or exercises warranted such classification. Consequently, the sum of units displaying 4C skills attributes could exceed 31, and the cumulative percentage might surpass 100%. To avoid redundancy, each text or exercise within a unit was categorized only once, representing a single 4C skills attribute. The study utilized individual textbook units as the primary analytical components. Data from each unit were organized into a table illustrating the 4C skills attributes and corresponding content (texts, exercises, and activities). This process resulted in 31 separate tables, one for each analyzed unit (see Appendix 1 for a sample table).

The collected data provided a comprehensive overview of the examined textbooks, encompassing both quantitative aspects (frequency and distribution of 4C skills attributes in each series) and qualitative elements (presentation of 4C attributes). The content analysis checklist, which served as the primary analytical tool in this study, was systematically developed through an extensive review of relevant literature on the 4C skills framework. It was done to ensure all key attributes were represented. To validate the checklist and ensure its reliability, two university-level English language teaching (ELT) professionals with expertise in ESP and curriculum design were consulted. Their feedback played an important role in refining the checklist to ensure its clarity, appropriateness, and comprehensiveness in capturing the 4C skills attributes. Furthermore, to enhance the objectivity and consistency of the analysis, an independent rater was tasked with applying the checklist to analyze the textbooks. Inter-rater reliability was calculated to be 0.85, indicating a high degree of agreement and ensuring the reliability of the analysis process.

4. Findings

This section presents the findings of the evaluation of the 4C skills in nursing textbooks. The findings are divided into two main parts. The first part provides quantitative data, detailing the frequency and distribution of the 4C skills across the analyzed nursing textbooks. The second part focuses on qualitative data, examining how the 4C skills were presented and integrated within specific units of the textbooks.

4.1 The Frequency and Distribution of the 4C Skills in the Nursing Textbooks

The analysis of the 4C skills across the examined nursing textbooks revealed interesting patterns in their representation and distribution. Table 3 provides a comprehensive overview of how these skills were incorporated into 31 units across three different textbooks: OD (n=15), CE (n=8), and PN (n=8).

Table 3

Number of Units Displaying 4C Skills among the Examined Textbooks (n=31)

No	Skills	OD n (15)	CE n (8)	PN n (8)	n	%
1	Critical thinking and problem solving					
	(1a Reasoning effectively)	(9)	(0)	(0)	(9)	(29.03)
	(2a Using system thinking)	(9)	(1)	(0)	(10)	(32.25)
	(3a Making judgments and decisions)	(5)	(0)	(0)	(5)	(16.12)
	(4a Solving problems)	(1)	(0)	(0)	(1)	(3.22)
2	Communication					
	(2a Communicating clearly)	(15)	(7)	(8)	(30)	(96.77)
3	Creativity and Innovation					
	(3a Thinking creatively)	(0)	(0)	(0)	(0)	(0)
	(3b Working creatively with others)	(4)	(8)	(2)	(14)	(45.16)
	(3c Implementing innovation)	(0)	(0)	(0)	(0)	(0)
4	Collaboration					
	(4a Collaborating with others)	(10)	(7)	(8)	(25)	(80.64)

The analysis of the data revealed that communication and collaboration were the most emphasized skills, with "communicating clearly" being the most common, appearing in 30 units (96.77%), followed by "collaborating with others" in 25 units (80.64%). "Working creatively with others" was also frequently noted, appearing in 14 units (45.16%). On the other hand, problem-solving and decision-making skills were less represented, with "solving problems" appearing in only one unit (3.22%) and "making judgments and decisions" in five units (16.12%). Creativity was absent, with no units demonstrating "thinking creatively" or "implementing innovation." Critical thinking was somewhat present, with "reasoning effectively" in nine units, while other aspects of critical thinking, like "using system thinking," appeared in ten units (32.25%).

The data analysis also revealed the frequency and distribution of the 4C skills in each of the three textbooks. The OD textbook (15 units), demonstrated the highest representation of 4C skills. Critical thinking skills were prominently

featured, with "reasoning effectively" and "using system thinking" each appearing in nine units (60% of the total units). Communication skills were consistently emphasized, with "communicating clearly" present in all 15 units (100%). Collaboration was also well-represented, with "collaborating with others" appearing in ten units (66.67%). However, creativity was less emphasized in the OD textbook, with "working creatively with others" included in only four units (26.67%).

The analysis of the CE textbook (eight units), showed a strong focus on creativity and collaboration. "Working creatively with others" appeared in all eight units (100%), while both "collaborating with others" and "communicating clearly" were included in seven units (87.5%). However, critical thinking skills were not well-represented, with "using system thinking" found in only one unit (12.5%).

The PN textbook (eight units), demonstrated a strong emphasis on communication and collaboration skills. "Communicating clearly" and "collaborating with others" were presented in all eight units (100%). Creativity was moderately represented, with "working creatively with others" found in two units (25%). However, contrary to the previous statement, the data indicated that "think creatively" was not present in any unit (0%). The PN textbook lacked content promoting critical thinking skills, with no units covering reasoning effectively, system thinking, making judgments and decisions, or problem-solving. This absence suggested a potential area for improvement to provide a more balanced coverage of the 4C skills in nursing education.

4.2 Presentation of the 4C Skills in the Nursing Textbooks

In the section above, the frequency and distribution of the 4C skills found in English textbooks for nursing have been presented. To explain how the 4C skills manifested in the textbooks (such as the types of tasks and activities that displayed the 4C skills), the following examples are provided.

4.2.1 Critical Thinking Skill

Based on the textbook analysis, units that promoted critical thinking skills should include tasks and activities that encouraged active reasoning, systems thinking, judgment and decision-making, and problem-solving. Ideally, these activities would engage students in applying these cognitive processes within nursing contexts. However, the analysis revealed that only three of these indicators were present across the three textbooks examined. Notably, problem-solving activities were absent from all three books.

In terms of effective reasoning, only the OD and PN textbooks demonstrated such content, while the CE textbook lacked activities that encouraged students to use various types of reasoning. Examples of tasks and activities that fostered effective reasoning are illustrated below:

(1) Think of an elderly person you know well and how aging has affected them. Think about the answers to these questions. Then talk to your partner about the person.

- What daily tasks does he/she need help with?
- How does he/she keep mentally fit?
- How does he/she keep physically fit?
- What worries him/her?
- How happy is he/she?
- How healthy is he/she? (OD textbook, Unit 7, p. 40).

(2) Work in small groups. Look at this illustration of a hospital ward. Put a tick ✓ if you think the visitors are doing the right thing and a cross ✗ if you think they are doing the wrong thing (PN textbook, Unit 1, p. 9).

Moving on to systems thinking, both the OD and CE textbooks contained activities that encouraged students to understand the interconnections between concepts within a subject and the interrelations among concepts across different subjects. However, this skill was not found in the PN textbook. Examples of tasks

and activities promoting systems thinking in the OD and CE textbooks are as follows:

(1) Which of these people do you think may have a mental illness? Discuss each one with your partner (OD textbook, Unit 12, p. 86).

(2) Complete the following sentences about recovery using the words and phrases in the box (CE textbook, Unit 2, p. 16).

When it comes to making judgments and decisions, the OD textbook stood out as the only resource incorporating activities that challenged students to make complex choices and decisions. An example of this can be seen in the following activity:

(1) You are in a light aircraft when it crashes into the jungle. Your radio is broken so you can't call for help. There are two of you and you must get ready to walk 100 kilometers to safety. You already have clothes, food, and water.

You can take only ten more things with you—five from each list. Discuss what to take with your partner and explain your reasons.

Medical
- bandages
- a scalpel
- a snake bite kit
- Morphine
- Aspirin
- disposable gloves
- a thermometer
- tweezers
- a first aid manual
- hypodermic needles
- adhesive tape

General
- a torch
- a box of matches
- soap
- a mirror
- a compass
- a knife
- scissors
- fish hooks
- large plastic bags
- a cooking pot
- a mosquito net

(OD textbook, Unit 4, p. 22).

The analysis of these three nursing textbooks demonstrated a thoughtful effort to incorporate critical thinking skills, which are essential for preparing students to tackle the challenges of 21st-century healthcare. By including activities that encourage effective reasoning, systems thinking, and decision-making, these textbooks aimed to build important cognitive skills that would benefit students in their future nursing careers. The diverse exercises, from analytical tasks on elderly care to complex decision-making scenarios, offered students opportunities to apply critical thinking in practical nursing situations.

However, the analysis also highlighted areas that could be improved, especially in terms of problem-solving activities, which were not as prominently included. As healthcare continues to evolve rapidly, there is an opportunity to further enhance these textbooks by adding more focused problem-solving exercises. These additions could better prepare students with the well-rounded skills they need to navigate the complex and changing environments they will face in practicing modern nursing.

4.2.2 Communication Skill

Based on the analysis, textbook units considered to encourage students' development of communication skills should contain tasks or activities that directly engage and showcase those skills. The ideal tasks and activities would involve the students' ability to effectively articulate their thoughts and ideas through oral, written, and nonverbal communication skills in a variety of forms and contexts. Examples of tasks and activities that referred to communication skills are illustrated as follows:

(1) Students A and B work together in pairs. You are going to play the roles of a nurse and a patient admitted to hospital. Invent the following details.

- full name
- allergies
- occupation
- next of kin

- family history
- date and place of birth
- smoking and alcohol intake
- marital status
- reason for admission
- medical history

Student A, you are the nurse. Ask Student B, the patient, questions to complete the patient record below.

Now change roles (OD textbook, Unit 3, p. 18).

(2) In pairs, practice asking a patient how s/he is feeling. Student A, you are the nurse; Student B, you are the patient. Use the words and phrases from this section to help you. Swap roles and practice again (CE textbook, Unit 2, p. 21).

(3) Work in pairs. Student A, you are a new care home resident. Read case study 1 and complete this assessment form. Invent some of the information. Student B, you are a nurse. Interview Student A. Then swap roles and repeat the activity for case study 2 (PN textbook, Unit 8, p. 67).

The analysis of these textbook examples clearly shows a strong focus on developing students' communication skills, which are vital for effective nursing practice. The activities in these textbooks may offer valuable opportunities for students to practice and improve their communication abilities in realistic healthcare settings. Role-playing exercises, such as those simulating patient interviews and admission processes, could allow students to apply both verbal and non-verbal communication skills in practical scenarios. These activities closely mirrored real-world situations that nurses often face, helping to bridge the gap between theoretical knowledge and practical experience.

In short, these textbooks took a well-structured approach to building the communication skills essential for nursing. By providing students with numerous chances to practice these skills in simulated but realistic environments, the

materials may play a crucial role in preparing future nurses for effective communication in various healthcare settings. This emphasis on communication skills was well-aligned with the healthcare industry's evolving needs, where clear, empathetic, and efficient communication is critical to delivering high-quality patient care.

4.2.3 Creativity

To foster creativity and innovation, the tasks and activities in textbooks should encourage students to think creatively, work creatively with others, or implement innovative ideas. The analysis, however, revealed that only one of these three indicators was present in the examined textbooks. It is worth noting that activities focused on thinking creatively and implementing innovation were absent from all three books under review.

Related to working creatively with others, the three books showed evidence of activities that encouraged students to develop, implement, and communicate new ideas to others. Examples of these activities from each book are presented as follows:

(1) Signs and symptoms

Alzheimer's disease

Discuss with a partner what you know about Alzheimer's disease. How does it affect the following things?

- the memory
- behavior
- speech
- walking
- daily life (OD textbook, Unit 7, p. 42).

(2) In small groups, discuss the following questions and then present your group's ideas to the class.

- What sort of health problems do diabetics suffer from?
- Why are more younger people getting diabetes?

- Is diabetes a problem in your country? (CE textbook, Unit 8, p. 84).

(3) Work in small groups. Brainstorm symptoms people may have during a blood test (PN textbook, Unit 2, p. 19).

The analysis of these nursing textbooks showed a limited approach to fostering creativity and innovation among students. While there was some effort to promote creative collaboration, significant gaps existed in encouraging individual creative thinking and the implementation of innovative ideas. The textbooks included activities that encouraged students to work creatively with others. Group discussions and brainstorming sessions on various healthcare topics may allow students to develop, share, and communicate new ideas collaboratively. Such activities are valuable for nurturing teamwork and collective problem-solving skills, which are essential in nursing.

However, the lack of tasks specifically designed to stimulate individual creative thinking was a notable shortfall. Activities that challenged students to generate original ideas, think outside the box, or approach problems from unique perspectives were missing. This gap could hinder students' ability to develop innovative solutions to complex healthcare challenges they might face in their future careers.

In addition, the absence of activities focused on implementing innovative ideas is concerning. In today's rapidly evolving healthcare environment, the ability to not only generate but also execute novel approaches is crucial. The textbooks would benefit from including exercises that guide students through the process of developing an innovative idea and considering its practical application in a healthcare setting.

In conclusion, while these textbooks made some effort to promote creative collaboration, there was significant room for improvement in fostering individual creative thinking and implementing innovation. Enhancing these areas could better

prepare nursing students for the dynamic and challenging nature of modern healthcare, where creative problem-solving and innovative approaches are increasingly important. Future revisions of these textbooks should consider adopting a more comprehensive approach to developing creativity and innovation skills, ensuring students are well-prepared for the complexities of 21st-century nursing practice.

4.2.4 Collaboration

From the data analysis, collaboration skills were identified as a prominent feature in all three books examined. These textbooks consistently incorporated tasks and activities designed to foster students' ability to work together effectively. Examples of these collaborative tasks and activities are as follows:

(1) You are going to debate whether conventional medicine or homeopathy is better for a particular patient. First, prepare your ideas in groups. Copy the table below and note down your ideas.

- o Group A: You are in favor of conventional medicine, and against homeopathy.
- o Group B: You are in favor of homeopathy, and against conventional medicine.

	Group A	Group B
In favor of conventional medicine		
Against homeopathy		
In favor of homeopathy		
Against conventional medicine		
Are the practitioners qualified?		
How does it work?		
Are treatments tested?		

A patient has a number of problems. Her symptoms include diarrhea, pains in the joints, and loss of hair. Should she see a doctor or a homeopath?

Each student from Group A now talks with a partner from Group B. Discuss the patient and try to persuade the other person about your point of view. (OD textbook, Unit 15, p. 109)

(2) In small groups, discuss the following questions and then present your group's ideas to the class.

1. Why is it important to follow the instructions on medication labels?

2. In what situations do nurses talk to patients about how they should take their medications?

3. Have you ever explained medication labels to a patient?

    (CE textbook, Unit 4, p. 45).

(3) Work in groups of three. Student A, you are a patient. Students B and C, you are nurses. Read situation 1 below and think which piece(s) of equipment you need to move the patient. Roleplay the scenario, using the expressions and stages in 4 and 7 to help you. Then swap roles and do the same for situations 2 and 3.

1. Help a patient who is too weak to move from their bed to a wheelchair to go for a CT scan.

2. Turn a patient over and move them up their bed so that they are more comfortable.

3. Help an overweight patient onto their feet to go for a short walk.

    (PN textbook, Unit 7, p. 53).

The analysis of these nursing textbooks revealed a strong emphasis on developing collaboration skills, which are essential in modern healthcare settings. All three books consistently incorporated tasks and activities designed to foster students' ability to work together effectively. These collaborative exercises covered a wide range of scenarios and skills relevant to nursing practice, including debate preparation and execution, group discussions on critical healthcare topics, and role-playing exercises simulating real patient care scenarios.

These activities effectively simulated the collaborative nature of healthcare environments, where nurses must work closely with colleagues, patients, and other healthcare professionals. By engaging in these exercises, students may learn to communicate effectively within a team, consider and respect diverse viewpoints, coordinate actions in patient care scenarios, and share knowledge with peers. The variety of collaborative tasks may also help prepare students for different aspects of teamwork they will encounter in their careers, from discussing treatment options to coordinating patient care.

5. Discussion

The findings demonstrated that communication and collaboration were the most emphasized skills across all the nursing textbooks reviewed. This aligned with previous research, which stresses the importance of communication and teamwork in nursing education. For example, Kourkouta and Papathanasiou (2014) have highlighted that good communication is crucial in nursing because it directly affects patient outcomes. Similarly, Shameela and Sulistiadi (2024) point out that teamwork is fundamental to delivering quality healthcare.

However, the analysis also revealed that critical thinking, especially problem-solving, was not given enough attention in the textbooks. This finding aligned with previous research which found that nursing education tended to focus more on practical skills and patient interaction while not emphasizing critical thinking (Boso et al., 2021). On the other hand, many experts believe that developing critical thinking is key to improving clinical decision making in nursing (Reji & Saini, 2022; Ludin, 2018; Dewi et al., 2021; İlaslan et al., 2023). In fact, nurses often encounter complex situations requiring them to think critically and make decisions swiftly, which underscores the need for more textbook content that promotes these skills. To address this gap, it is recommended that nursing textbooks incorporate more case studies, simulations, and real-world problem-solving tasks (Liu, Li, Zheng, & Jiang, 2020; Kong, Qin, Zhou, Mou, & Gao, 2014;

Adib-hajbaghery & Shari, 2017) to help students practice critical thinking in a structured manner.

In addition, the study found a significant lack of focus on creativity skills. None of the textbooks included sections on "thinking creatively" or "implementing innovation." This absence of creativity is concerning, given the growing need for innovative solutions in healthcare, particularly in areas like digital health, patient engagement, and multidisciplinary care models. This finding contrasted with previous research, which has emphasized the importance of creative thinking in nursing (Liu, 2022; Yayla & Ilgin, 2023; Liu et al., 2020; Liu et al., 2021). Nursing frequently involves managing unexpected situations and caring for patients from diverse backgrounds with different health conditions. Therefore, nurses must go beyond routine procedures and develop creative thinking to make effective decisions (Chan, 2013). Creativity in nursing means being flexible in thought and generating new ideas for patient care (Cheraghi et al., 2021). Without activities that promote creative thinking, students may struggle to approach clinical challenges with fresh perspectives. To address this gap, future textbook revisions should incorporate creative tasks such as brainstorming sessions, innovation projects, and design thinking exercises. These additions would help students develop the skills needed to meet the fast-paced and ever-evolving demands of the healthcare industry.

In conclusion, the findings showed that communication and collaboration were strongly emphasized in nursing textbooks, while critical thinking and creativity were less represented. This suggests that while students may be well-prepared for teamwork and patient interaction, they may not be as equipped with the cognitive and innovative skills needed in today's healthcare environment. Addressing these gaps by creating a more balanced approach to teaching the 4C skills—critical thinking, communication, collaboration, and creativity—will better prepare nursing students for the complex and fast-changing challenges of 21st-century healthcare.

6. Implications

The findings of this study have both theoretical and practical implications. For theoretical implications, this research contributes to the growing body of literature on nursing education by highlighting gaps in the representation of critical thinking and creativity in nursing textbooks. It emphasizes the need for a balanced approach to the 4C skills—communication, collaboration, critical thinking, and creativity—which are essential for preparing nursing students for the complexities of modern healthcare. Future research can build upon these findings to explore how integrating these skills into nursing curricula can enhance learning outcomes and clinical preparedness.

From a practical perspective, the study underscored the need for nursing textbook authors and curriculum developers to include more content that promotes critical thinking and creativity. Incorporating case studies, simulations, and problem-solving tasks can provide students with opportunities to develop critical thinking skills. Similarly, activities such as brainstorming, innovation projects, and design thinking exercises can foster creativity and prepare students to address real-world healthcare challenges. Educators should also assess the use of textbooks in classroom settings to guarantee the effective integration of these skills into teaching practices. By bridging the gap between textbook content and practical application, nursing education can better equip students to meet the demands of 21st-century healthcare.

7. Limitations and Future Research

This study had several limitations that should be acknowledged. The analysis was limited to three nursing textbooks, which restricts the generalizability of the findings. A larger sample size could provide more comprehensive and representative results across the field of nursing education. In addition, despite efforts to maintain objectivity, the qualitative nature of content analysis introduced some level of subjectivity in the interpretation of the textbook content. The study also focused only on textbook content without considering how these materials

were actually used in classroom settings, which may not fully reflect the practical application of 4C skills in nursing education. Furthermore, the perspectives of nursing educators and students were not included in this analysis, which could have provided valuable contextual information about reception and the effectiveness of these textbooks in developing 4C skills.

Based on these limitations, several recommendations are suggested for future research. First, it would be helpful to expand the sample size to include a broader range of nursing textbooks from different publishers and countries. This would give a more complete picture of how 4C skills are integrated across various nursing curricula. In addition, using quantitative methods alongside qualitative analysis could improve the reliability of the findings and provide a stronger evaluation of the textbooks. Furthermore, classroom observations would be valuable to see how 4C skills are actually taught and practiced in real educational settings, going beyond textbooks to focus on practical use. Moreover, surveys or interviews with nursing educators and students could offer their views on how well textbooks help develop 4C skills. Finally, longitudinal studies could be conducted to assess the long-term impact of these textbooks on students' development of 21st-century skills in their nursing careers, giving insights into the practical outcomes of textbook-based learning in professional practice.

8. Conclusion

This study examined the integration of 21st century skills in nursing textbooks, focusing on the 4C skills: critical thinking, communication, creativity, and collaboration. The analysis revealed that while these textbooks have made significant efforts in incorporating some 21st century skills, particularly in the areas of communication and collaboration, there remains room for improvement in fostering critical thinking and creativity. The study also highlighted the diverse range of topics and activities used to manifest these skills, from role-playing exercises simulating real patient interactions to group discussions on complex healthcare issues. This variety of approaches aligned with contemporary learning

theories and reflected an effort to prepare nursing students for the multifaceted challenges they will face in their future careers.

However, the findings highlighted the need for a more balanced and comprehensive integration of all 4C skills in nursing textbooks. To address these gaps, future textbook designs should incorporate targeted strategies that promote critical thinking, creativity, communication, and collaboration in meaningful ways. For instance, integrating case studies and simulations can provide students with opportunities to analyze problems, make informed decisions, and apply critical thinking in realistic healthcare scenarios. Similarly, introducing innovative tasks—such as developing patient care plans, brainstorming solutions to medical challenges, or engaging in reflective writing—can foster creativity and encourage deeper learning. Expanding interactive activities like group projects, role-playing, and peer feedback could further enhance collaboration and communication skills while simultaneously cultivating critical and creative problem-solving abilities. By addressing the identified gaps and building on existing strengths, future editions of these textbooks can play an even more significant role in preparing nursing students to meet the complex demands of 21s-century healthcare practice.

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11. Appendix

Example of Data Analysis Table

No	Skills	Unit 2: In and Around the Hospital
1	Critical thinking and problem solving	
	(1a Reasoning effectively) The activity persuades the students to use various types of reasoning, inductive and deductive reasoning as appropriate to the situation.	P.10 Scrub up: Work with a partner. Look at these pieces of equipment. Do you know, or can you guess, what they are for?
	(2a Using of system thinking)	X

No	Skills	Unit 2: In and Around the Hospital
	The activity helps students to understand the interconnection between/among concepts in a subject and interrelation among concepts with other subjects.	
	(3a Making judgments and decisions) The task allows students to make complex choices and decisions.	X
	(4a Solving problems) The activity promotes identifying and asking significant questions that clarify various points of view and lead to a better solution.	X
2	Communication	
	(2a Communicating clearly) The task encourages students to articulate thoughts and ideas effectively using oral, written, and nonverbal communication skills in a variety of forms and contexts.	P.12 Speaking: Work in pairs. Study the picture on p.4 and p.5 for one minute, then Student B closes the book. Student A asks for directions from reception, and Student B tries to give them from memory.
3	Creativity and Innovation	
	3a Think creatively) The task encourages students to use a wide range of idea creation techniques.	X
	(3b Working creatively with others) The task helps students to develop, implement, and communicate new ideas to others.	X

No	Skills	Unit 2: In and Around the Hospital
	(3b Implementing innovation) The task encourages students to act on creative ideas to make a tangible and useful contribution to the domain in which the innovation occurs.	X
4	Collaboration	
	(4a collaborating with others) The task encourages the students to assume shared responsibility for collaborative work and learn to value individual contributions made by each team member.	P.11 Work in small groups. Tell the group what department you would like to work in. Which ones would you not like to work in?