

Content Validation for a Technical Communication Instrument for Vocational College Students in China

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Abstract: The increasing emphasis on technical communication skills in vocational education, particularly in China, highlights the need for reliable assessment tools. This study aimed to validate the content of a Technical Communication Skills Questionnaire for vocational college students using the Content Validity Index (CVI) methodology. A mixed-methods approach was employed, combining quantitative CVI analysis with qualitative feedback from an expert panel. The expert panel consisted of five professionals with diverse backgrounds in vocational education and industry. Based on the feedback, two items were removed for being too advanced or vague, while others were revised to better align with practical workplace tasks. The results indicated strong content validity, with a Scale-level CVI of 0.92, confirming the instrument's robustness. The final version of the questionnaire, consisting of 30 items, provides a reliable tool for assessing the technical communication skills necessary for vocational college students, aligned with industry standards and educational objectives. Future research should focus on further validating the instrument, including pilot testing with students, and expanding its application across different educational and cultural contexts.

Keywords: Content Validation, Technical Communication Instrument, Vocational College Students

1. Introduction

The growing importance of technical communication skills in vocational education, particularly in China, has been widely recognized in both academic and industry settings. As the global job market becomes increasingly competitive, the ability to effectively communicate complex technical information has emerged as a critical competency for graduates entering the workforce. This is especially true in fields such as engineering, where technical communication skills are not only essential for conveying ideas and solutions but also for fostering collaboration and ensuring the successful implementation of projects. Research has consistently demonstrated the significant role that technical communication skills play in enhancing employability and career advancement (Jamaludin et al., 2019; Luo et al., 2024; Pfluger et al., 2020; Pourmand et al., 2021).

Given the critical importance of these skills, there is a pressing need for valid and reliable instruments to assess technical communication abilities among vocational students. Such instruments are essential not only for evaluating student performance but also for informing curriculum development and ensuring that educational programs are aligned with industry requirements. In this context, content validity plays a crucial role in the development of assessment tools. Content validity

ensures that the items within an instrument are representative of the construct being measured and are relevant to the target population.

The Content Validity Index (CVI) is a widely used method for assessing content validity, particularly in the field of educational and psychological measurement (Mokhtar & Abdul-Razak, 2024). By calculating the CVI, researchers can quantitatively evaluate the relevance and clarity of each item in an instrument, as rated by a panel of subject matter experts. This process helps to identify and eliminate any items that do not adequately represent the construct, thereby enhancing the overall validity of the instrument.

The primary objective of this study is to validate the content of a Technical Communication Skills Questionnaire designed for vocational college students in China using the CVI methodology. In addition to this primary goal, the study also aims to identify key technical communication skills that are critical for vocational education and to refine the questionnaire based on expert feedback. Through this validation process, the study seeks to develop a robust instrument that can be used to assess and improve technical communication training in vocational education, ultimately enhancing the employability and career success of graduates.

2. Literature Review

2.1 Technical Communication Skills

Technical communication skills are increasingly recognized as essential competencies in vocational education and the broader workforce, particularly in engineering and technical fields. These skills encompass the ability to convey complex technical information clearly and effectively to various audiences, including peers, supervisors, and clients. The significance of technical communication is underscored by its impact on employability and career advancement. Research conducted by Luo et al. (2024) emphasizes that employers highly value technical communication skills as a crucial selection criterion, often ranking them alongside or even above technical expertise. Similarly, Simson et al. (2017) highlight that the ability to communicate effectively is a critical factor in securing employment, especially for recent graduates entering the job market.

The link between technical communication skills and career success is particularly evident in engineering. AlGhamdi (2023) demonstrated that engineers who possess strong communication abilities are better equipped to develop a professional identity and advance in their careers. Conversely, engineers who lack these skills may find their career progression hindered, regardless of their technical proficiency. This underscores the importance of integrating technical communication training into engineering and curricula to prepare students for the demands of the modern workplace (Jamaludin et al., 2020).

2.2 Content Validity

Content validity is essential in developing robust educational and psychological instruments, ensuring that items within a tool accurately represent the construct being measured. This concept has been significantly advanced over the years, with recent contributions refining and expanding upon earlier methodologies.

A key method for assessing content validity is the Content Validity Index (CVI), initially developed by Lynn (1986) and later refined by Polit and Beck (2006). The CVI provides a systematic way to quantify expert agreement on the relevance of each item in an instrument. Typically, an Item-level CVI (I-CVI) of 0.78 or higher is considered acceptable when evaluated by a panel of at least five experts. The Scale-level CVI (S-CVI), which averages the I-CVI scores, provides an overall measure of the instrument's content validity.

Recent research has continued to build on this foundation, emphasizing the importance of diverse and knowledgeable expert panels. Zamanzadeh et al. (2015) highlighted the necessity of including experts from various backgrounds to capture the multidimensionality of the construct being measured. This approach ensures that the instrument is comprehensive and applicable across different contexts.

In the field of education, the HOTS instrument for assessing higher-order thinking skills among teachers was validated using CVI, with findings indicating high content validity across multiple

domains (Jamin et al., 2022). Additionally, Shrotryia and Dhanda (2019) applied the CVI methodology to validate instruments in diverse fields, such as employee engagement, demonstrating the CVI's flexibility and relevance in both educational and professional settings.

These advancements underscore the continued importance of the CVI as a rigorous method for content validation. In this study, the CVI methodology was employed to validate the Technical Communication Skills Questionnaire for vocational college students in China. This ensures that the instrument is both comprehensive and aligned with current educational and industry standards, making it a valuable tool for assessing and improving technical communication training in vocational education.

3. Methodology

3.1 Research Design

This study adopted a mixed-methods research design, integrating both qualitative and quantitative approaches to ensure a comprehensive validation of the Technical Communication Skills Questionnaire for vocational college students in China. The content validation process was anchored in the Content Validity Index (CVI) methodology, a widely recognized quantitative measure used to assess the relevance and clarity of individual items within an instrument. This methodology was complemented by qualitative feedback from subject matter experts, providing deeper insights into the appropriateness and comprehensiveness of the questionnaire items.

The research process was structured into several key phases: item development, expert panel selection, content validation, data analysis, and refinement of the questionnaire. Each phase was designed to systematically evaluate and enhance the content validity of the instrument, ensuring that it accurately measured the intended constructs and is applicable to the target population.

3.2 Instrument Development

3.2.1 Item Generation

The initial development of the Technical Communication Skills Questionnaire involved an extensive review of the literature on technical communication competencies, particularly within the context of vocational education and engineering. The instrument to measure students' technical communication skills was adapted from Birkholz (2001), Jamaludin et al. (2019) and Luo et al. (2022). This review informed the identification of key constructs and domains that are critical for effective communication in technical fields. Based on these constructs, a pool of items was generated, each designed to measure specific aspects of technical communication skills, such as clarity of expression, audience awareness, and the ability to convey complex information.

To ensure the relevance and coverage of these items, consultations were held with educators and industry professionals with expertise in vocational training and technical communication. These consultations helped to refine the wording and focus of the items, ensuring that they are aligned with industry expectations and educational objectives.

3.2.2 Content Validation Form

A content validation form was developed to facilitate the evaluation of the questionnaire items by the expert panel. As is shown in table 1, the form includes instructions for the experts, a 5-point rating scale for assessing the relevance of each item (1 = Not Critical, 5 = Very Important), and space for qualitative comments and suggestions. The rating scale was designed following the guidelines provided by Lynn (1986) and further refined by Polit and Beck (2006). Experts were asked to evaluate each item in terms of its relevance to the construct it is intended to measure, its clarity, and its overall importance within the context of technical communication skills (Siau et al., 2025).

Table 1

Content Validation Form

Code	Tested Items	Experts' consent level					Experts Comment
Oral Technical Communication Skills (OTC)							
OTC1	The ability to communicate effectively with co-workers and administrators.	1	2	3	4	5	
OTC2	The ability to deliver a speech to the audience.	1	2	3	4	5	
OTC3	The ability to give presentations to customers.	1	2	3	4	5	
OTC4	The ability to devise and create visual aids for presentations.	1	2	3	4	5	
OTC5	The ability to define communication purpose.	1	2	3	4	5	
OTC6	The ability to define audience.	1	2	3	4	5	
OTC7	The ability to chair a meeting.	1	2	3	4	5	
OTC8	Oral technical communication skills that are relevant to the industry.	1	2	3	4	5	
OTC9	The ability to discuss in the meeting.	1	2	3	4	5	
Written Technical Communication Skills (WTC)							
WTC1	The ability to retrieve relevant information.	1	2	3	4	5	
WTC2	The ability to gather and organize the relevant information.	1	2	3	4	5	
WTC3	The ability to plan and develop content.	1	2	3	4	5	
WTC4	The ability to produce technical descriptions and instructions.	1	2	3	4	5	
WTC5	The ability to produce technical reports and articles.	1	2	3	4	5	
WTC6	The ability to produce correspondence.	1	2	3	4	5	
WTC7	The ability to comprehend job-related journals and technical materials.	1	2	3	4	5	
WTC8	The ability to distinguish main ideas from supporting details.	1	2	3	4	5	
WTC9	The knowledge on how to operate technological tools to improve communication.	1	2	3	4	5	
WTC10	An awareness of how technological tools help to promote social interactions and collaboration at work.	1	2	3	4	5	
WTC11	Written TC skills that are relevant to the industry.	1	2	3	4	5	
Interpersonal Technical Communication Skills (ITC)							
ITC1	The ability to establish professional relationships with customers.	1	2	3	4	5	

Code	Tested Items	Experts' consent level					Experts Comment
ITC2	The ability to establish professional relationships with co-workers.	1	2	3	4	5	
ITC3	The ability to share information in small group settings.	1	2	3	4	5	
ITC4	The ability to positively handle conflicts within groups.	1	2	3	4	5	
ITC5	Leadership skills.	1	2	3	4	5	
ITC6	The ability to effectively give instructions.	1	2	3	4	5	
ITC7	The ability to give feedback.	1	2	3	4	5	
ITC8	The ability to understand and recognize cultural diversity.	1	2	3	4	5	
Researching Technical Communication Skills (RTC)							
RTC1	Gathering and organizing information.	1	2	3	4	5	
RTC2	Finding information to support ideas.	1	2	3	4	5	
RTC3	Comprehending job-related journals and technical materials.	1	2	3	4	5	
RTC4	Distinguishing main ideas from supporting details.	1	2	3	4	5	

3.3 Selection of Experts

3.3.1 Criteria for Expert Selection

The selection of the expert panel was guided by specific criteria to ensure that the reviewers possess the necessary expertise and experience to provide informed judgments on the questionnaire items. Experts must hold at least a master's degree in a relevant field, such as vocational education, engineering, technical communication, or educational measurement. Besides, experts should have a minimum of 10 years of experience in vocational education or technical communication, with a proven track record of involvement in curriculum development, training, or assessment. Finally, the panel should represent a diverse range of perspectives, including educators, industry professionals, and academic researchers, to capture the multifaceted nature of technical communication skills (Na et al., 2024; Rozali et al., 2022).

3.3.2 Composition of the Expert Panel

The final expert panel consisted of 5 professionals who met the selection criteria. The panel included representatives from vocational colleges, industry training programs, and academic institutions, ensuring a well-rounded evaluation of the questionnaire. Table 2 provides a summary of the experts' qualifications and experience.

Table 2

Summary of the experts' qualifications and experience

NO.	Domain expert	Organization	Experience
1	Doctor and Associate Professor	China Three Gorges University	16
2	Doctor and Associate Professor	Zhengzhou Business University	13
3	Doctor and Associate Professor	Guangzhou City Construction College	14
4	Doctor and Professor	Guangdong Polytechnic of Water Resources and Electric Engineering	16
5	Associate Professor	Guangdong Polytechnic of Water Resources and Electric Engineering	18

3.4 Validation Process

3.4.1 Data Collection

The content validation form and the Technical Communication Skills Questionnaire were distributed to the expert panel via email. Experts were given two weeks to complete the evaluation and return the forms. Follow-up reminders were sent to ensure timely submission of the completed forms. The experts were encouraged to provide detailed feedback and to suggest any revisions they deemed necessary for improving the relevance and clarity of the items.

3.4.2 Data Analysis

The data collected from the expert panel were analyzed using the Content Validity Index (CVI) methodology. The Item-level CVI (I-CVI) was calculated for each item by determining the proportion of experts who rated the item as 3 (Slightly Important) or higher on the 5-point scale. Items with an I-CVI of 0.78 or higher were considered to have acceptable content validity. Items falling below this threshold were flagged for revision or removal.

The Scale-level CVI (S-CVI) was also calculated to assess the overall content validity of the questionnaire. The S-CVI was determined by averaging the I-CVI scores across all items. An S-CVI score of 0.90 or higher was considered indicative of high content validity for the instrument as a whole (Polit & Beck, 2006).

In addition to the quantitative analysis, qualitative feedback from the experts was reviewed to identify common themes and suggestions for improvement. This feedback was used to refine the questionnaire items, ensuring that they are clear, relevant, and aligned with the constructs being measured.

4. Results

4.1 Quantitative Results

The content validation process involved five experts evaluating 32 items of the Technical Communication Skills Questionnaire, grouped into four dimensions: Oral Technical Communication Skills (OTC), Written Technical Communication Skills (WTC), Interpersonal Technical Communication Skills (ITC) and Researching Technical Communication Skills (RTC). Each item was

rated on a 5-point scale for relevance, and the Item-level Content Validity Index (I-CVI) was calculated to measure agreement among the experts.

Out of the 32 items assessed, 65.6% of items (21 items) achieved an I-CVI of 1.00, indicating unanimous agreement among the experts on their relevance. Items such as OTC1 ("The ability to communicate effectively with co-workers and administrators"), ITC1 ("The ability to establish professional relationships with customers"), and RTC2 ("Gathering and organizing information") were highly relevant across all evaluators and required no modifications.

28.1% of items (9 items) achieved an I-CVI between 0.78 and 0.99, which is considered acceptable according to standard guidelines (Lynn, 1986; Polit & Beck, 2006). These items, including OTC7 ("The ability to chair a meeting"), WTC4 ("The ability to produce technical descriptions and instructions"), and ITC8 ("The ability to understand and recognize cultural diversity"), were generally accepted but required minor revisions to improve clarity or better align with the practical skills expected of vocational students.

6.3% of items (2 items) fell below the 0.78 threshold, indicating a need for substantial revision or removal. These items, WTC5 ("The ability to produce technical reports and articles") and OTC9 ("The ability to discuss in meetings"), were deemed too advanced or vague for vocational college students. As a result, both items were removed from the final version of the questionnaire.

Table 3

Summary of I-CVI Scores by Item

Item No.	Item Description	I-CVI	Action Taken
OTC1	Communicate effectively with co-workers/admin	1.00	Retain
OTC2	Deliver a speech to an audience	1.00	Retain
OTC7	Chair a meeting	0.80	Revised (focus on participation)
OTC9	Discuss in meetings	0.60	Removed
WTC4	Produce technical descriptions and instructions	0.80	Revised (focus on procedural writing)
WTC5	Produce technical reports and articles	0.60	Removed
ITC1	Establish professional relationships with customers	1.00	Retain
ITC8	Understand and recognize cultural diversity	0.80	Revised (focus on collaboration)
RTC2	Gather and organize information	1.00	Retain
RTC4	Distinguish main ideas from supporting details	1.00	Retain

The Scale-level CVI (S-CVI) was also calculated by averaging the I-CVI scores across all items in the questionnaire. The overall S-CVI/Ave for the questionnaire was 0.92, surpassing the recommended threshold of 0.90 for strong content validity (Polit & Beck, 2006). This indicates that the questionnaire demonstrates high content validity and is suitable for assessing technical communication skills in vocational education.

4.2 Qualitative Feedback

In addition to the quantitative ratings, as is shown in table 4, the expert panel provided detailed qualitative feedback that led to specific modifications in the questionnaire. The feedback centered on three main areas: clarity, relevance to industry needs and reduction of redundancy.

From a clarity perspective, several items were flagged as needing further refinement to better represent the communication skills required of vocational students. For instance, OTC9 ("The ability to discuss in meetings") was considered too vague, as it lacked specificity regarding the expected communication tasks. Likewise, WTC5 ("The ability to produce technical reports and articles") was deemed too advanced for students at this level. As a result, both items were removed due to their lack of clarity and misalignment with the students' current capabilities.

In terms of ensuring relevance to industry needs, experts highlighted that certain items, such as OTC7 ("The ability to chair a meeting"), did not accurately reflect the roles typically expected of entry-level vocational students. In response, OTC7 was revised to focus on participating in meetings, a more appropriate task for students early in their careers. Additionally, other items were adjusted to align more closely with industry standards, ensuring that the skills being assessed were those most applicable in the workplace.

Furthermore, potential overlap between certain items, particularly in the Written Technical Communication Skills category, was identified by the experts. For example, WTC4 ("The ability to produce technical descriptions and instructions") and WTC5 were flagged for assessing similar skills. To resolve this, WTC4 was revised to focus on procedural writing, while WTC5 was removed, eliminating redundancy and ensuring that each item targeted distinct communication competencies.

Table 4

Qualitative feedback and modifications

Item No.	Qualitative Feedback	Action Taken
OTC7	Experts found that "The ability to chair a meeting" might be too advanced for students. Suggested focusing on participation rather than leading.	Revised to focus on participating in meetings, aligning with students' roles in the workplace.
OTC9	This item was considered too vague and broad. Experts recommended either revising or removing it to clarify the communication tasks.	Removed due to its lack of specificity and alignment with practical skills for vocational students.
WTC4	Experts noted overlap between this item and WTC5. Suggested clearly differentiating between technical descriptions and reports.	Revised to focus on procedural writing to distinguish it from other written tasks.
WTC5	Writing full technical reports was considered too advanced for vocational students. Suggested simplifying or removing the item.	Removed due to the advanced nature of the task, which did not reflect students' typical tasks.
ITC6	While instructions were important, experts suggested clarifying whether they were oral, written, or both.	Revised to specify giving clear instructions, both written and oral, making the task clearer.
ITC8	Cultural diversity was relevant, but experts recommended broadening the scope to include collaboration in diverse teams.	Revised to focus on working collaboratively in diverse teams, ensuring it reflects teamwork skills.

Item No.	Qualitative Feedback	Action Taken
RTC3	Comprehending job-related journals might be too advanced for students. Suggested revising to focus on simpler technical materials.	Revised to focus on understanding simpler technical documents, such as manuals or guides.
WTC2	Some experts felt "gather and organize relevant information" was too vague. Recommended specifying the types of information relevant to students.	Revised to specify gathering and organizing workplace-relevant information, making it more specific to practical tasks.
OTC2	Experts agreed on the importance of delivering speeches but recommended focusing on adapting speeches to different audience levels.	Revised to focus on delivering speeches to diverse audiences, ensuring the content is adapted based on technical knowledge.
RTC5	Experts recommended expanding this item to include the use of current digital tools for research and collaboration in technical communication.	Revised to include using modern digital tools for research and collaboration, making it more relevant to current workplace practices.

4.3 Final Instrument

Based on the results of the content validation process, the Technical Communication Skills Questionnaire was refined to enhance its clarity, relevance, and overall content validity. The final version of the questionnaire comprises 30 items, with revisions made to 10 items based on expert feedback and the I-CVI analysis.

The refined questionnaire now offers a more focused and effective assessment tool, designed to accurately measure the technical communication skills of vocational college students in China. This final instrument is expected to provide valuable insights into the strengths and areas for improvement in students' communication abilities, supporting both educational outcomes and employability in technical fields.

5. Discussion

5.1 Interpretation of Results

The results of the content validation process underscore the robustness of the Technical Communication Skills Questionnaire in assessing the communication competencies of vocational students. The high Scale-level Content Validity Index (S-CVI) of 0.92 confirms that the majority of the questionnaire items are highly relevant and reflect the skills vocational students need in technical communication, according to the expert panel. This aligns with previous research emphasizing the importance of technical communication skills in vocational education and their strong connection to employability and career advancement (Jamaludin et al., 2019; Luo et al., 2024).

Most items achieved unanimous agreement among the experts, with an Item-level CVI (I-CVI) of 1.00, indicating that these items accurately capture the essential skills required for success in vocational contexts. Items such as OTC1 ("The ability to communicate effectively with co-workers and administrators") and ITC1 ("The ability to establish professional relationships with customers") reflect the key communication competencies expected in the workplace, reaffirming their relevance across industries. The fact that these items did not require modification highlights their strong alignment with both educational goals and industry standards.

However, a small number of items, particularly in the Oral and Written Technical Communication Skills categories, were identified as needing revision or removal. Items like OTC7 ("The ability to chair a meeting") and WTC5 ("The ability to produce technical reports and articles") were flagged for being too advanced or unclear in the context of early vocational training. These findings suggest that while

majority of the questionnaire is well-aligned with vocational students' skill levels, some items need to be calibrated to better reflect the practical tasks they are likely to encounter in the early stages of their careers.

The removal of WTC5 and OTC9 was an important decision, as it eliminated items that either did not align with the practical communication demands of vocational students or lacked sufficient clarity. The modifications made to items such as WTC4 ("The ability to produce technical descriptions and instructions") further refined the questionnaire, ensuring that it remains focused on assessing the communication tasks most relevant to students in vocational education settings.

6. Implications for Practice

The validated Technical Communication Skills Questionnaire offers significant implications for vocational education, particularly in terms of curriculum development and student assessment.

The questionnaire can serve as a valuable tool for informing educators and curriculum developers about the communication skills vocational students need to cultivate. The detailed feedback provided by the experts highlights key areas where students may need additional support, such as written and oral communication skills in specific workplace contexts. By focusing on areas where students may struggle, educators can design targeted interventions that help improve these competencies, thus better preparing students for the demands of the workplace.

Besides, the questionnaire provides a reliable and valid method for assessing students' technical communication skills. It can be integrated into regular assessments within vocational training programs, providing both formative and summative insights into students' progress. The I-CVI scores and expert feedback demonstrate that the questionnaire is a robust tool for measuring specific communication competencies, which can help educators identify areas where students require further development.

Finally, the questionnaire ensures that the communication skills being assessed are those most relevant to the workplace. By aligning the questionnaire with the skills valued by employers, the instrument helps bridge the gap between vocational education and industry needs. This alignment is crucial for enhancing the employability of vocational graduates, as it ensures that students are trained in the communication skills that are most applicable to their future careers.

7. Limitations and Future Research

While the validation process provided strong evidence of the questionnaire's relevance and content validity, several limitations should be acknowledged. One limitation is the relatively small panel of experts involved in the content validation. Although the experts were diverse and represented key stakeholders in vocational education and industry, expanding the panel to include more professionals from different regions and industries would provide a broader perspective on the communication skills required in various vocational contexts.

Additionally, the reliance on subjective expert judgment, though supported by the CVI methodology, introduces some variability in the results. The experts' backgrounds and experiences may have influenced their ratings and feedback, highlighting the need for further validation methods. Future research should consider complementing the content validation with pilot testing among students and other forms of validation, such as construct validity, to ensure the questionnaire accurately captures the communication competencies vocational students need in their careers.

Moreover, the removal of items like WTC5 and OTC9 highlights the ongoing need to refine the questionnaire to ensure it remains relevant and aligned with vocational students' abilities. As the nature of work continues to evolve, especially with the integration of digital tools in technical communication, the questionnaire should be periodically reviewed and updated to reflect these changes.

8. Contribution to the Field

This study contributes to the growing body of research on the assessment of communication skills in vocational education. By developing and validating a questionnaire specifically tailored to the needs of vocational students in China, the research addresses a critical gap in existing assessment tools, many of which may not fully capture the unique communication demands of technical fields. The use of the

Content Validity Index (CVI) methodology adds rigor to the validation process, ensuring that the questionnaire is both reliable and relevant.

The findings of this study offer practical insights for educators, curriculum developers, and policymakers, providing them with a validated tool that can be used to assess and improve the technical communication skills of vocational students. The questionnaire also has the potential to inform future research on vocational education, particularly in terms of identifying key communication competencies that enhance employability and career success.

9. Conclusion

The validation of the Technical Communication Skills Questionnaire for vocational students in China provides a reliable tool for assessing critical communication competencies required in technical fields. The content validation process, supported by both quantitative and qualitative feedback from experts, demonstrates that the majority of the questionnaire items are relevant and aligned with the communication tasks that students are likely to encounter in the workplace. The overall Scale-level Content Validity Index (S-CVI) of 0.92 confirms the high content validity of the instrument, making it a robust assessment tool for use in vocational education.

Two items, WTC5 and OTC9, were removed following expert feedback, as they were found to be either too advanced or unclear for the target population. Additionally, several items, such as OTC7 and WTC4, were revised to better reflect the roles and tasks vocational students are expected to perform. These revisions ensure that the questionnaire remains focused on the practical communication skills most relevant to students' future careers.

The validated questionnaire holds significant implications for vocational education, offering educators and curriculum developers a tool that can inform instructional practices and enhance students' technical communication skills. By providing a standardized method for assessing communication competencies, the questionnaire helps ensure that vocational training programs are aligned with industry needs, ultimately improving students' employability.

Despite the strengths of this study, it is important to acknowledge the limitations, such as the relatively small panel of experts and the reliance on subjective judgment during the content validation process. Future research should focus on further validating the questionnaire through pilot testing with students and exploring other forms of validity, such as construct validity. Moreover, as workplace communication continues to evolve with new technologies and changing industry demands, regular updates to the questionnaire will be essential to maintain its relevance.

In conclusion, this study has made a significant contribution to the assessment of communication skills in vocational education. The validated questionnaire is a valuable tool that can support both student development and curriculum improvement, ensuring that vocational graduates are well-prepared to meet the communication demands of the modern workforce.

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