

Original Research

Beyond Technical Skills: Academic Language Proficiency and Perceived Difficulty in Technical and Vocational Institute

Gashaw Shewangizaw

Technical and Vocational Training Institute, Ethiopia

Article Info

Article history:

Received 30 October 2023

Revised 19 March 2024

Accepted 19 May 2024

Abstract

Effective communication skills are important for vocational trainees' academic and career success. However, limited research has examined language learning difficulties specific to Ethiopian technical contexts. This study explored self-perceived English language difficulties among trainees in building construction, road construction, water construction, surveying, architectural design, wood science technology programs at the Federal Technical and Vocational Training Institute. It aimed to identify difficult language skills and determine relationships between perceived difficulties and demographic factors. A sample of 138 trainees from Civil Technology Faculty of a TVT Institute was selected through stratified random sampling. Data were collected using a questionnaire measuring perceived difficulty of reading, writing, listening and speaking skills. Semi-structured interviews were conducted with 10 purposively selected trainees. Descriptive statistics, thematic analysis and constant comparison were employed for quantitative and qualitative analyses. Quantitative findings showed academic writing skills perceived as most difficult, particularly understanding conventions. Academic listening skills like note-taking and summarizing also posed challenges. Interviews revealed unfamiliarity with genres and lack of background knowledge exacerbated difficulties. Perceptions differed by trainees' program, gender and English proficiency. Thematic analysis identified factors like anxiety, experience, and self-efficacy as influencing perceptions. The study provided a comprehensive understanding of TVT Institute trainees' academic language needs in Ethiopia. Targeted support is recommended to scaffold challenging skills based on identified individual differences and modifiable difficulties. Mainstreaming language development across the curriculum optimizes trainees' preparedness for technical careers and lifelong learning. This mixed methods exploration of language difficulty perceptions contributes to knowledge on dimensions shaping TVT Institute students' experiences. Findings inform tailored instruction and program improvements to better equip diverse learners for workplace competencies.



Corresponding Author: Shewangizaw, gashawshoa@gmail.com

1. Introduction

The development of academic language proficiency is crucial for students' success in higher education and future career opportunities (Cummins, 1991; Yoon, 2017). In Ethiopia, the Technical and Vocational Education and Training (TVET) system faces a unique challenge: while the medium of instruction in TVET colleges is English, many instructors primarily use local languages for training, both within the college and during in-company training (Ebrie, 2014). This disparity is further compounded by the fact that writing assessments for trainees are conducted in English, despite the absence of English language courses within the TVET curriculum.

After two or more years of service as trainers in TVET colleges, these trainees often join the Federal Technical and Vocational Training Institute to upgrade themselves to Bachelor of Science degrees in various construction fields, such as road construction, water construction, and building construction. However, they face significant challenges in this transition. Many trainees face difficulty to attend lectures, participate in training, and complete project work with foreign instructors (Filipinos, Indians), and communication with classmates, which often includes South Sudanese and Somaliland trainees, becomes a significant barrier. This linguistic mismatch can create significant challenges for trainees, particularly when they transition to higher education programs (Murray, 2016). Many trainees struggle to attend lectures, participate in training, and complete project work with foreign instructors, and communication with classmates from diverse backgrounds becomes a significant barrier (Ebrie, 2014). This situation is particularly pronounced in the field of civil technology, where trainees often face a demanding curriculum and a highly technical language environment.

While previous research has offered valuable insights into perceived difficulties with academic speaking, listening, reading, and writing skills (Goh & Vandergrift, 2021; Hyland, 2016; Pawlak, 2021; Lightbown & Spada, 2021), several critical gaps remain. To effectively facilitate skill development, it is crucial to understand how students perceive the difficulty of different language sub-skills (Ottewell, 2021) and evaluate the difficulty of different sub-skills (Bachman & Adrian, 2022). According to Dweck (2006), perception of challenges is, however, limited by certain constraints in the process. Having this information regarding proficiency; most studies, firstly, have relied on cross-sectional surveys, capturing a single point in time and failing to account for potential changes over time (Gregersen, & Mercer, 2022). Perceptions of difficulty may evolve as students' abilities advance or as problems are addressed through education (Durán, 2008). Second, these studies often lack qualitative data to contextualize quantitative findings, making it difficult to identify the specific sub-skills that students struggle with and the underlying reasons behind these difficulties (Creswell & Clark, 2017).

Besides, individual differences, such as learning preferences, issue familiarity, language background, and self-regulation techniques, which can significantly influence students' perceptions of difficulty, have often been overlooked (Lightbown & Spada, 2021). Finally, the impact of proficiency levels on perceived difficulty has not been adequately explored (Aizawa et al., 2020). In comparison to their more proficient peers, less experienced students could have more difficulties (Lightbown & Spada, 2021). This crucial distinction is missed when student demographics are not considered. Perceptions of difficulty may evolve as students' abilities advance or as problems are addressed through education (Gregersen, & Mercer, 2022).

This study aims to address these methodological gaps by investigating the dynamic relationship between evolving language abilities and self-perceptions of difficulty with English language skills among civil technology trainees in Ethiopia. The study will employ a mixed methods approach, incorporating both questionnaires and interviews, to provide a more comprehensive understanding of the challenges faced by trainees. By capturing these interactions over time, the study hopes to gain a more refined understanding of the factors that influence perceived language difficulty and inform the development of more effective and personalized language instruction for vocational learners in the Ethiopian TVET context.

While research has acknowledged the importance of academic language proficiency for student success (Cummins, 1991), a critical gap exists in understanding how perceptions of language difficulty evolve as students' abilities develop through instruction (Yoon, 2017). Previous research, often relying on cross-sectional studies, has not adequately considered the dynamic interplay between proficiency levels and self-assessments of language challenges (Lightbown & Spada, 2021). This lack of previous research on the specific technical fields such as perspective hinders our understanding of how modifiable these perceived difficulties are and how they might be addressed through targeted interventions.

In addition, individual differences, such as learning preferences, language background, and self-regulation strategies, which significantly influence how students perceive and experience language learning challenges, have received limited attention (Creswell & Clark, 2017). To optimize language programs and provide personalized support that effectively addresses individual needs, educators require a comprehensive understanding of this multifaceted phenomenon from the learner's perspective over time. To address this gap, this study aims to:

- 1) Assess trainees' perceptions regarding the difficulty of language macro-skills in the context of civil technology.
- 2) Identify trainees' perceptions regarding the difficulty of sub-skills in the context of civil technology.

- 3) Determine the most challenging language macro-skills and sub-skills based on trainees' difficulty ratings.
- 4) Provide teachers awareness to adapt their teaching strategies and curricula to effectively assist trainees in improving their most difficult language skills

2. Literature Review

Academic language proficiency encompasses a complex set of skills that enable students to effectively engage in academic discourse, including reading, writing, listening, and speaking (Cummins, 1991). Research highlights the unique challenges faced by vocational learners in attaining these advanced skills, particularly in technical fields like civil technology (Chung, 2006; Wulanjani, 2018). Academic reading demands sophisticated strategies for comprehending intricate language and implicit meaning embedded across sources (Ekiz, 2013; Rieben & Perfetti, 2013; Yoon, 2017). Learners struggle with processing complex syntax, unfamiliar terminology, and implicit meanings (Best et al., 2005; Kendeou et al., 2009). Interpreting graphs and figures further demands working memory due to the need to integrate multimodal information (Kane et al., 2006). Academic writing requires mastery of genre conventions, disciplinary styles, and advanced grammatical structures (Hyland, 2016; Posratschnig & Sigott, 2023). Students face challenges in organizing cohesive documents, employing discipline-specific terminology, and navigating the complexities of outlining, drafting, and revising (Kellogg, 1999). Vocabulary acquisition presents difficulties in retaining multisyllabic terms without meaningful usage (Anjomshoa & Zamanian, 2014; Kim, 2006; Ma & Lin, 2015).

Comprehending rapid academic discourse, such as in lectures, poses hurdles including note-taking while simultaneously processing complex content delivered at native speeds (Peverly et al., 2007). Challenges encompass distinguishing words amid divergent accents, unfamiliar vocabulary, and retaining conceptual information from discussion-based formats (Goh & Vandergrift, 2021; Flowerdew & Miller, 2005). Unfamiliar accents impede lexical segmentation and word recognition (Richter, 2022; Toleuzhan et al., 2023). Limited working memory inhibits comprehension when content exceeds processing capacity (Borella & de Ribaupierre, 2014). Furthermore, formulating complex responses in real-time requires rapid lexical access and conceptual formulation (Gibbons, 2003). Speech anxiety hinders fluency and coherence from cognitive overload (Pawlak, 2021). Participating in debates demands rhetorical thinking and composure (Ali et al., 2020). Public speaking difficulties stem from issues like presentation anxiety, structuring talks logically, employing multimodal resources, and summarizing key ideas (Ali et al., 2020).

Academic language proficiency is also highly influenced by individual differences, such as English proficiency, first language background, and self-efficacy, impact learners' experiences navigating academic language demands (Alsahafi & Shin, 2009; Park, 2022; Pawlak, 2021; Perfetti et al., 2005). Programs must address diverse needs to optimize outcomes (Dörnyei, 2013). This study advocates that targeted scaffolding according to proficiency levels benefits all (Lightbown & Spada, 2021) and should be the standard method that any academic institution establish and maintain.

3. Method

This study employed a mixed method design, specifically utilizing a sequential explanatory method. This approach capitalizes on the advantages of both quantitative and qualitative methods. The research process began with a quantitative phase, aimed at obtaining a comprehensive overview of the perceived difficulties. This phase involved administering a survey to gather numerical data. By employing quantitative measures, the researcher sought to establish a broad understanding of the trainees' experiences. Following the quantitative phase, a qualitative phase was conducted to delve deeper into the obtained quantitative results. This qualitative phase involved employing qualitative research methods, that is, interviews. This method aimed to explore and provide explanations for the quantitative findings, allowing for a deeper and comprehensive understanding of the perceived difficulties. By employing a sequential explanatory method, this study sought to combine the strengths of quantitative and qualitative approaches, enabling a more robust analysis and interpretation of the research findings.

3.1 Sampling Technique

In Ethiopia there is only one technical and vocational higher institute which gives training in first degree and second degree. In Federal Democratic Republic of Ethiopia Technical and Vocational Training Institute, there are five technical facilities: Electrical Electronics and ICT Faculty, Mechanical Technology Faculty, Textile and Apparel fashion Technology Faculty, Agro Processing Faculty, and Civil Technology Faculty. Simple random sampling was used to select one of the technical facilities-Civil Technology Faculty.

Then, stratified random sampling was used to select participants proportional to the population strata. The total population of civil technology trainees was divided into strata based on their program of study (building construction technology, surveying technology, wood science technology, road technology, architectural design technology, and water construction technology). The sampling frame included population sizes of 44, 17, 32, 20 and 16 trainees respectively.

Using [Krejcie and Morgan's \(1970\)](#) statistical formula and table for determining sample sizes, the required sample was calculated to be 138 participants, allocating sizes proportionally across strata based on population ratios. A systematic random sampling was then used to systematically select participants within each stratum until the required sample size was met, resulting in 39 construction trainees, 16 surveying trainees, 30 wood science trainees, 19 trainees, 19 trainees, and 15 water Construction trainees. This technique ensured adequate representation while controlling for potential bias.

3.2 Data Collection Instruments

A mixed methods approach integrated quantitative and qualitative data collection. The primary instrument was a questionnaire containing closed and open-ended items administered to the 138 sampled participants. It gathered demographic information and assessed perceptions of difficulty for language skills on a 5-point Likert scale.

3.2.1 Questionnaire Development and Design

Initially, the questionnaire was adapted from [Richards \(2001\)](#) but underwent modifications based on the insights and expertise of language experts. These modifications aimed to refine the questionnaire and ensure its relevance to the study's objectives. Some key modifications were made across different sub-skills. In the listening sub-skills section, the item "Evaluating sources" was excluded to focus the assessment on other aspects of listening skills deemed more pertinent to the study. Similarly, within the speaking sub-skills section, the items "Citing sources and referencing" and "Engaging in academic debates" were omitted to streamline the questionnaire and concentrate on the desired speaking sub-skills.

In contrast, the reading sub-skills section incorporated all items that were originally included, indicating the researchers' recognition of the importance of those items to the study's focus on reading sub-skills. Lastly, the writing sub-skills section removed the item "Critical Thinking and Analysis," potentially to align the questionnaire with the specific aspects of writing being investigated in the study. The questionnaire comprised of three main parts:

- 1) Part I was on the demographic characteristics and field of studies of the trainees. This inclusion of demographic information and fields of study allowed for a comprehensive understanding of the participants' characteristics and their relevance to the study. It provided valuable insights into how different factors, such as educational background and field of study, might influence the perceived difficulty of language skills and activities. By considering these demographic variables, the researcher could analyze any potential variations and correlations between the participants' backgrounds and their evaluations of difficulty in different language sub-skills and activities.
- 2) Part II aimed to assess the perceived difficulty faced by students in various English language skills and areas of knowledge, including listening, speaking, reading, writing, grammar, vocabulary, and pronunciation. Participants were asked to rate the difficulty level of each skill on a 5-point Likert scale.
- 3) Part III of the questionnaire sought to evaluate the perceived difficulty of specific activities related to the four language skills: listening, speaking, reading, and writing. Participants used a 5-point Likert scale to rate the difficulty level of various activities within each skill area.

For instance, the listening activities section contained 10 items, such as understanding lectures, note-taking, academic discussions, and summarizing. The speaking activities section included 10 items that assessed tasks like presenting information, participating in discussions, and using academic language. Similarly, the reading activities section comprised 7 items, covering skills such as skimming, synthesizing, and research. Lastly, the writing activities section consisted of 10 items that addressed aspects such as developing a thesis, understanding conventions, and paraphrasing. By employing this questionnaire design, the researcher aimed to collect comprehensive data on the perceived difficulty levels of specific language skills and activities among the participants. This approach would provide valuable insights into how trainees evaluate the difficulty of different sub-skills and activities, contributing to a deeper understanding of skill development in English language acquisition.

3.2.2 Questionnaire Administration

The researcher personally distributed the questionnaire to the target respondents - civil technology trainees at the TVT Institute (Technical and Vocational Training Institute). Before administering the questionnaire, the researcher explained the purpose of the research to the respondents and assured them that their responses would be kept confidential.

The respondents were asked to rate their level of difficulty for each English language skill/activity using a 5-point Likert scale, where 1 represented "Most difficult" and 5 represented "Not difficult". The questionnaire also included blank rows at the end of each section (listening, speaking, reading, and writing) for respondents to provide any additional difficult English skills or activities not mentioned in the pre-defined items.

3.2.2 Semi-structured

The respondents for interviews were purposively selected as key informants to obtain rich, descriptive feedback. The researcher developed the structured interview protocol after analyzing the quantitative data from the questionnaire to explore and explain the findings in more depth. The interviews were conducted in the local language, Amharic, to enhance the comfort and expressiveness of the respondents.

Two interviewers were present during the interviews - the researcher and an English instructor. The researcher focused on asking questions and engaging with the participants, while the English instructor took detailed notes of the participants' responses. This two-interviewer approach ensured comprehensive data collection.

The decision not to audio or video record the interviews was made to respect the interviewees' preferences and alleviate any potential concerns or fears they might have had about being recorded. The detailed note-taking by the second interviewer was crucial for capturing the participants' responses accurately and comprehensively.

3.4 Data Analysis

Questionnaire data were analyzed using descriptive and inferential statistics to determine frequencies, means, standard deviations and variability in perceived difficulties. Interview transcripts were thematically analyzed through an inductive coding process to identify prominent themes. Then, a constant comparative analysis was employed to cross-validate quantitative and qualitative findings, enhancing study trustworthiness. Results were examined through the theoretical lens of socio-cognitive and situated learning frameworks. The findings from the questionnaire, and interviews were compared and discussed to provide a comprehensive understanding of the language needs of civil technology trainees. This detailed methodology section clearly outlines the steps taken for representative sampling, multi-method data collection and rigorous analysis, enabling explicability.

4. Results

This section delves into the analysis and interpretation of the data collected from the questionnaires and interviews, providing insights into the perceptions of difficulty with academic language skills among the civil technology trainees.

4.1 Analysis and Interpretation on Trainees' Background

This subsection presents the demographic characteristics of the study participants, focusing on their specialization and gender. This information provides context for understanding the participants' experiences and perspectives on language challenges.

Table 1. Trainees' Gender

Gender	Stat	Difficulty of						
		Listening	Speaking	Reading	Writing	Grammar	Vocabulary	Pronunciation
Female	Mean	3.413	2.879	3.551	2.741	3.569	3.569	3.224
	N	58	58	58	58	58	58	58
	SD	1.214	1.364	1.258	1.551	1.29929	1.39060	1.243
Male	Mean	3.587	3.287	3.525	3.237	3.7625	3.9000	3.4125
	N	80	80	80	80	80	80	80
	SD	1.259	1.379	1.292	1.4074	1.2753	1.336	1.279

Table 1 shows that out of the 138 respondents, 58 participants (42%) identified as female, while the remaining 80 (58%) identified as male. This indicates that the sample had a higher representation of males compared to females. In brief, the analysis of the data provides insights into the specialization preferences, and gender composition among the 138 respondents. Construction Technology emerged as the most popular specialization, with a higher representation of males in the sample. The age distribution can be understood by examining the frequencies associated with each age value.

Table 1 also presents the analysis of trainees' gender and their perceived difficulty in various English language skills. In terms of listening, females find it slightly less difficult than males, with a mean score of 3.413 compared to males' mean score of 3.587. However, the difference is relatively small. For speaking, females indicated a higher level of difficulty compared to males. Females reported a mean score of 2.879, suggesting a greater challenge, while males had a slightly lower mean score of 3.287. In the area of reading, both females and males reported similar levels of difficulty, with mean scores of 3.551 and 3.525, respectively, indicating a comparable experience for both genders. Regarding writing, males perceived it to be more challenging than females. Males had a mean score of 3.237, indicating higher difficulty, while females reported a mean score of 2.741. In terms of grammar, females indicated finding it more difficult than males, as evidenced by their mean score of 3.569, compared to males' mean score of 3.762. Similarly, females reported a higher level of difficulty in vocabulary compared to males. Females had a mean score of 3.569, while males reported a mean score of 3.900. Lastly, for pronunciation, females perceived it to be more difficult than males, with a mean score of 3.224 in contrast to males' mean score of 3.412.

Generally, the analysis reveals that there are some differences in perceived difficulty between genders across different language skills. Females tend to find speaking, writing, grammar, vocabulary, and pronunciation more challenging, while males perceive speaking, writing, grammar, vocabulary, and pronunciation to be slightly easier. The perceived difficulty in reading is similar for both genders. However, it is important to note that the differences in mean scores are relatively small, indicating that the gender-based variations in perceived difficulty are not substantial. These insights can help inform the development of tailored language support programs and resources.

Table 2. Trainees' Fields of Study

Field of Study	Stat	Difficulty of						
		Listening	Speaking	Reading	Writing	Grammar	Vocabulary	Pronunciation
Building	Mean	3.564	3.205	3.820	3.179	3.794	3.564	3.359
Construction	N	39	39	39	39	39	39	39
Technology	SD	1.071	1.301	0.942	1.430	1.104	1.293	1.202
Surveying	Mean	3.062	3.125	3.125	2.937	3.000	3.250	3.562
Technology	N	16	16	16	16	16	16	16
	SD	1.388	1.360	1.543	1.388	1.414	1.527	0.892
Wood Science	Mean	3.800	3.133	3.733	3.133	3.966	4.133	2.933
Technology	N	30	30	30	30	30	30	30
	SD	1.063	1.252	1.387	1.332	1.188	1.224	1.507
Road	Mean	3.789	3.210	3.631	3.210	4.000	4.315	3.947
Construction	N	19	19	19	19	19	19	19
Technology	SD	1.272	1.583	1.342	1.685	1.333	1.056	0.848
Architectural	Mean	3.157	2.789	2.842	2.684	3.263	3.473	3.526
Design	N	19	19	19	19	19	19	19
Technology	SD	1.462	1.652	1.213	1.701	1.367	1.504	1.263
Water	Mean	3.400	3.133	3.600	2.733	3.666	3.733	2.800
Construction	N	15	15	15	15	15	15	15
Technology	SD	1.404	1.407	1.242	1.579	1.397	1.579	1.373
Total	Mean	3.514	3.115	3.536	3.029	3.681	3.760	3.333
	N	138	138	138	138	138	138	138
	SD	1.239	1.383	1.273	1.484	1.284	1.364	1.263

Table 2 displayed data on specialization and gender of the respondents. Looking at the specialization group, out of the 138 respondents, Construction Technology emerged as the most popular choice, with 39 individuals (28.3% of the total) selecting this specialization. Surveying Technology followed with 16 respondents (11.6%), while Wood Technology had 30 respondents (21.7%). Road Technology and

Architectural Design Technology shared the same frequency of 19 respondents (13.8% each), making them the fourth most popular choices. Water Construction Technology had the lowest frequency, with 15 respondents (10.9%).

The data suggests that there are variations in the perceived difficulty levels across the different language skills and training programs. When it comes to listening skills, the overall mean difficulty level is 3.515, indicating that on average; students perceive listening as moderately easy. However, there are some notable differences among the programs. Trainees in the Wood Technology and Road Technology programs have the highest mean scores for listening with mean scores of 3.800 and 3.789 respectively, suggesting they find listening relatively easier compared to their counterparts. In contrast, Architectural Design Technology trainees report the lowest mean score of 3.157, indicating they perceive listening as more difficult.

Regarding speaking skills, the overall mean difficulty level is 3.116, suggesting that on average, trainees find speaking moderately difficult. Similar to listening, Road Technology and Wood Technology trainees have the highest mean scores of 3.210 and 3.133 respectively, while Architectural Design Technology trainees have the lowest mean score of 2.789, indicating they perceive speaking as the most challenging among the programs.

The mean difficulty level for reading skills across all programs is 3.536, suggesting that on average, trainees perceive reading as moderately easy. Construction Technology and Road Technology trainees have the highest mean scores of 3.820 and 3.631 respectively, indicating they find reading relatively easier. Conversely, Architectural Design Technology trainees have the lowest mean score of 2.842, suggesting they perceive reading as the most difficult among the programs.

When it comes to writing skills, the overall mean difficulty level is 3.029, indicating that on average, trainees find writing moderately difficult. Road Technology and Wood Technology trainees have the highest mean scores of 3.210 and 3.133 respectively, signifying that they perceive writing as relatively easier compared to their peers. Architectural Design Technology trainees, on the other hand, have the lowest mean score of 2.684, implying they find writing the most challenging among the language skills.

Regarding grammar, vocabulary, and pronunciation, the mean difficulty levels vary, ranging from 3.333 for pronunciation to 3.761 for vocabulary, showing a moderate level of difficulty on average. Similar to the previous findings, Road Technology and Wood Technology trainees generally have the highest mean scores in these areas, while Architectural Design Technology trainees tend to have the lowest, indicating they perceive these skills as the most difficult among the programs.

All in all, the analysis suggests that trainees from different technical and vocational training programs show varying perceptions of difficulty across different language skills. Architectural Design Technology trainees consistently report the highest perceived difficulty levels, while Road Technology and Wood Technology trainees generally find the language skills relatively easier. These insights can inform targeted interventions and support to address the specific challenges faced by trainees in different programs.

4.2 Data Analysis Result on Difficulty of Macro-Skills

This subsection examines the trainees' perceptions of difficulty with the four main English language macro-skills: reading, writing, listening, and speaking. It explores the quantitative data from the questionnaires and qualitative data from the interviews to understand the challenges faced by the trainees in each skill area.

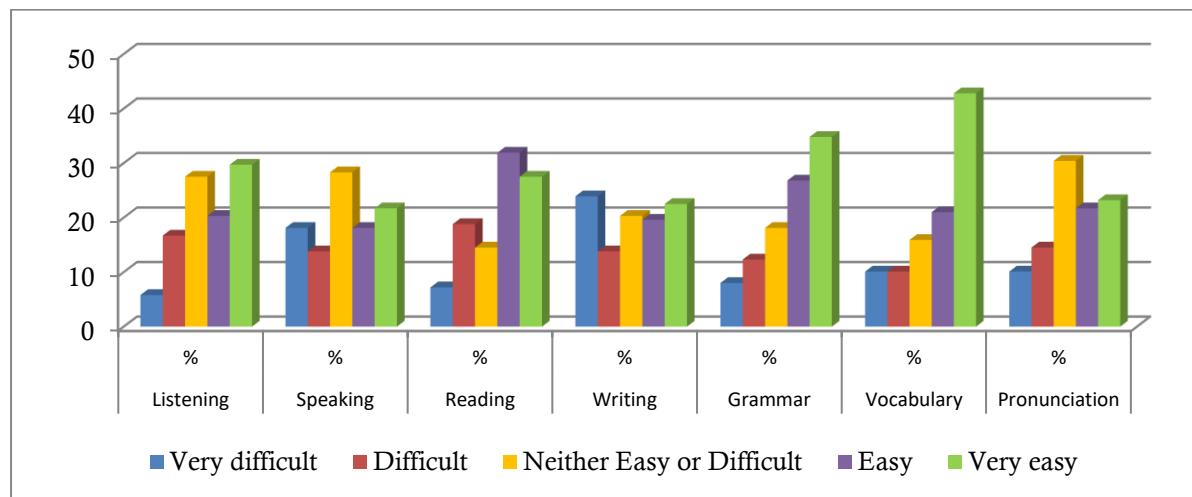


Figure 1. Difficulty of Macro-skills and Language Knowledge Areas

The quantitative data provided useful insights into respondents' perceptions of difficulties with various English macro skills. Writing emerged as the most challenging skill on average, with the highest percentage of respondents rating it "very difficult" and a mean difficulty level of 3.02. This aligns with interviews conducted with several trainees. For example, Interviewee 5 rated his writing difficulty as most difficult. He explained:

"I really have problem with vocabulary, especially when it comes to technical terms. It's like, you know, trying to speak a different language! I also have trouble with grammar, making sure my sentences are correct and flow together smoothly. Eh.... It's hard to organize my ideas into a clear structure, and I often come across with difficulty to connect paragraphs in a way that makes sense. It's like, I'm trying to build a bridge, but I can't find the right pieces to make it work.' He further expressed frustration with the demands of academic writing, noting, 'It feels like I'm constantly battling with the language, trying to make my ideas clear and convincing. It's a constant uphill battle, you know? It's like.... I'm always swimming opposite to the water current that me exhausted and tired." — **Excerpt 1, Interviewee 5**

The cognitive demands of writing concurrently in a second language seem to particularly overwhelm his current abilities. The survey results found that productive language modalities like speaking and pronunciation were amongst the most challenging aspects for respondents, with mean difficulty ratings between 2.72 to 2.91. This quantitative finding is supported by the themes that emerged from the interviews. In the interviews, nearly all participants expressed that they had difficulty in understanding the pronunciation of their Filipino and Indian instructors. They faced issues in discerning certain sounds and deciphering words. In addition, the interviewees noted difficulty in listening to and comprehending language explanations provided in online videos on YouTube. Both the survey data and interview feedback therefore indicate pronunciation and listening comprehension as major pain points. The quantitative results provided an overview of areas of difficulty, which were then reinforced and enhanced through specific examples and learner experiences shared in the qualitative interviews. Hence, the mixed methods approach of collecting both numerical ratings and eliciting rich narratives allowed for triangulation that validated the key challenges around productive modalities. Interviewee 10, when asked about her listening skills, she replied:

"Um...., you know, for me, it's really hard to understand fast-paced native speech in my engineering lectures. It's like, ah... I can't always distinguish individual words, especially when they're all jumbled together. In my opinion, I face problem the most in technical subject areas where there are a lot of unfamiliar terms. It's like, I'm trying to follow a conversation, but I don't understand half the vocabulary." — **Excerpt 2, Interviewee 10**

Receptive skills reading and grammar rated as moderately less difficult for most of the trainees according to the quantitative analysis. However, Interviewee 2, when asked about her comprehension of manuals and reports, she said:

"Um... I find it really challenging, you know, it's like, uh... the technical language used in these documents is often implicitly structured, and that can make it hard to follow. Er... I find myself having to re-read passages multiple times to fully infer the intended meanings." — **Excerpt 3, Interviewee 2**

There was substantial variability in self-reported difficulties as indicated by standard deviations between 1.23-1.48 in the statistical analysis, reflecting how perceptions are mediated by individual learner differences. Interviews helped illuminate some specific personal factors. For example, Interviewee 10 cited challenges with fast-paced lectures while Interviewee 5 mentioned organizational issues with writing.

In brief, integrating both qualitative interview insights and quantitative ratings provides a deeper, multi-dimensional understanding of how perceptions of English macro skill difficulties are shaped both by inherent task demands as well as diverse personal characteristics and experiences of each learner. This has implications for tailoring responsive instruction accommodating a range of needs.

4.3 Data Analysis Result on Difficulty of Listening Sub-Skills

This subsection focuses on the specific sub-skills within academic listening that the trainees found challenging. It analyzes both quantitative and qualitative data to identify the most difficult sub-skills and the factors that contribute to their perceived difficulty.

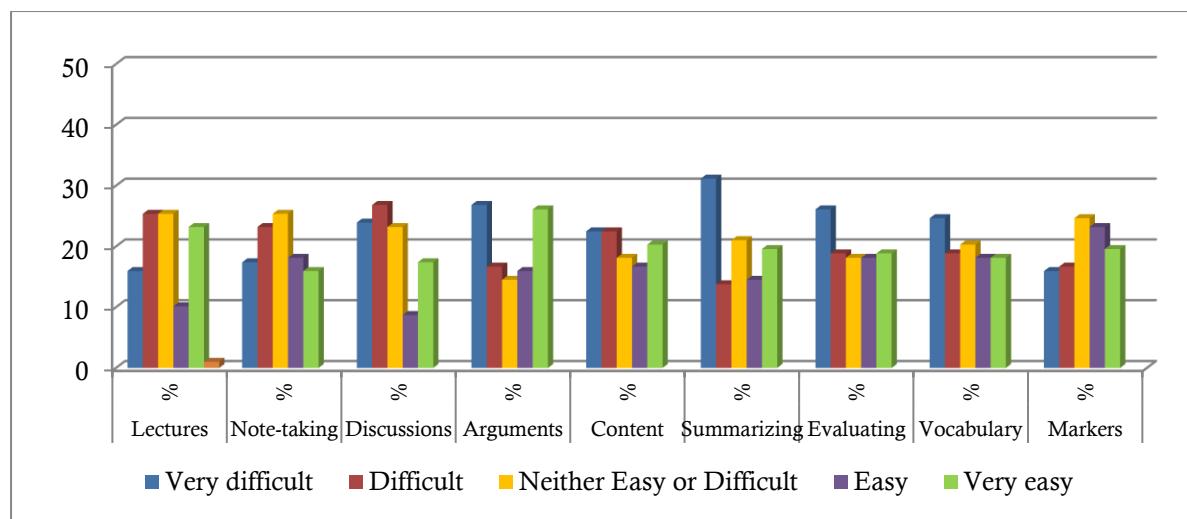


Figure 2. Difficulty of Listening Sub-skills

The quantitative data provided useful insights into perceived challenges within academic listening. Summarizing content and understanding discussions emerged as the most demanding sub-skills, with the highest percentages selecting "very difficult" and amongst the top mean difficulty levels. Note-taking also posed difficulty, consistent with research finding simultaneous listening and writing inhibits encoding. Varied responses were seen for skills like identifying arguments and analyzing content, demonstrating difficulties are mediated by individual factors. Delivery methods such as lecture speed and accents additionally influence comprehension. Understanding vocabulary and evaluating sources fell in the average difficulty range, affirming these depend on background knowledge. Discourse marker identification achieved the lowest mean, suggesting some learners find cultural schemas facilitate this skill. Standard deviations ranging from 1.32 to 1.57 showed perceptions differed widely between trainees. This diversity reflects how proficiency, motivation and context shape self-evaluations beyond just task demands.

The interviews provided qualitative insights aligning with these trends. Interviewee 3 rated note-taking as the most difficult. She explained:

"You know, for me, it's like... I can't write down all the key points fast enough during lectures. It's like, uh... I'm always trying to catch up, but I end up with incomplete notes. And that, you know, really undermines my comprehension." — **Excerpt 4, Interviewee 3**

Similarly, Interviewee 1 replied:

"Okay, it's like... I have trouble understanding questions, especially when they use unfamiliar terms or contexts. It's like, uh... I'm trying to interpret linguistically complex questions, but I feel like I'm missing something. And that makes it hard for me to fully engage in discussions of unfamiliar topics." — **Excerpt 5, Interviewee 1**

Integrating quantitative data with qualitative interviews offers a more well-rounded understanding of academic listening difficulties, substantiating survey trends with rich individual learner experiences and perspectives to more comprehensively assess needs.

4.4 Data Analysis Result on Difficulty of Speaking Sub-Skills

This subsection examines the trainees' perceptions of difficulty with specific sub-skills within academic speaking. It explores both quantitative and qualitative data to identify the most challenging speaking tasks and the factors that influence their perceived difficulty.

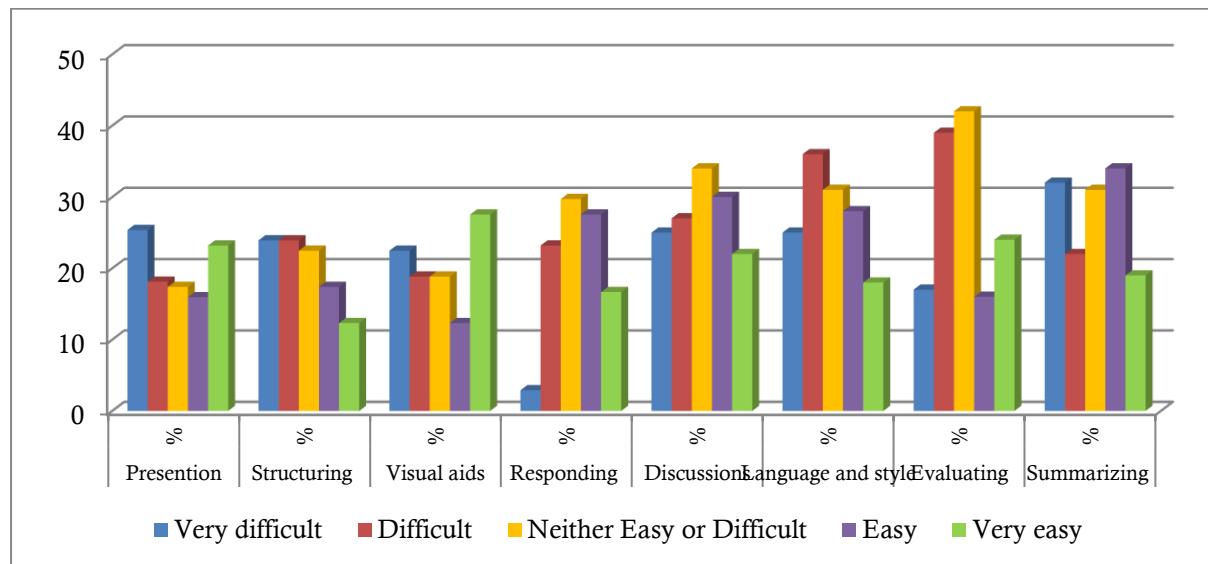


Figure 3. Difficulty of Speaking Sub-skills

The quantitative data provided useful insights into trainees' perceptions of challenges within academic speaking. Structuring presentations and summarizing/synthesizing content stood out as most difficult based on their lower mean scores of difficulty levels of 3.06 and 3.09 respectively.

These findings align closely with Interviewee 4 qualitative feedback. Interviewee 4 rated giving presentations as his biggest challenge at the maximum level of difficulty. Interviewee 4 said:

"You know, for me, it's like... I haven't had much practice giving presentations, and, uh... I get really anxious about public speaking. It's like, ah... I just freeze up and can't seem to get my thoughts out. You know. It's really difficult for me." — **Excerpt 6, Interviewee 4**

Using visual aids and participating in discussions achieved average difficulty means around 3.0, with 18-26% selecting "difficult" or "very difficult". This aligns with Interviewee 6 rating of discussion skills. He explained:

"You know, for me, it's like... I'm still working on my confidence in discussions. It's not easy to jump in and, uh... contribute my thoughts. But I'm trying to get better. I've been practicing my answers beforehand, and, uh... I've even started volunteering to answer questions in class. It's like, ah... I'm trying to build my confidence through exposure and experience." — **Excerpt 7, Interviewee 6**

Responding to questions emerged as the easiest speaking sub-skill quantitatively. Comfort with oral participation additionally impacts perceptions, as novice presenters tend to find the experience generally more "difficult" than accustomed speakers.

4.5 Data Analysis Result on Difficulty of Reading Sub-Skills

This subsection examines the trainees' perceptions of difficulty with specific sub-skills within academic reading. It analyses both quantitative and qualitative data to identify the most challenging reading tasks and the factors that influence their perceived difficulty.

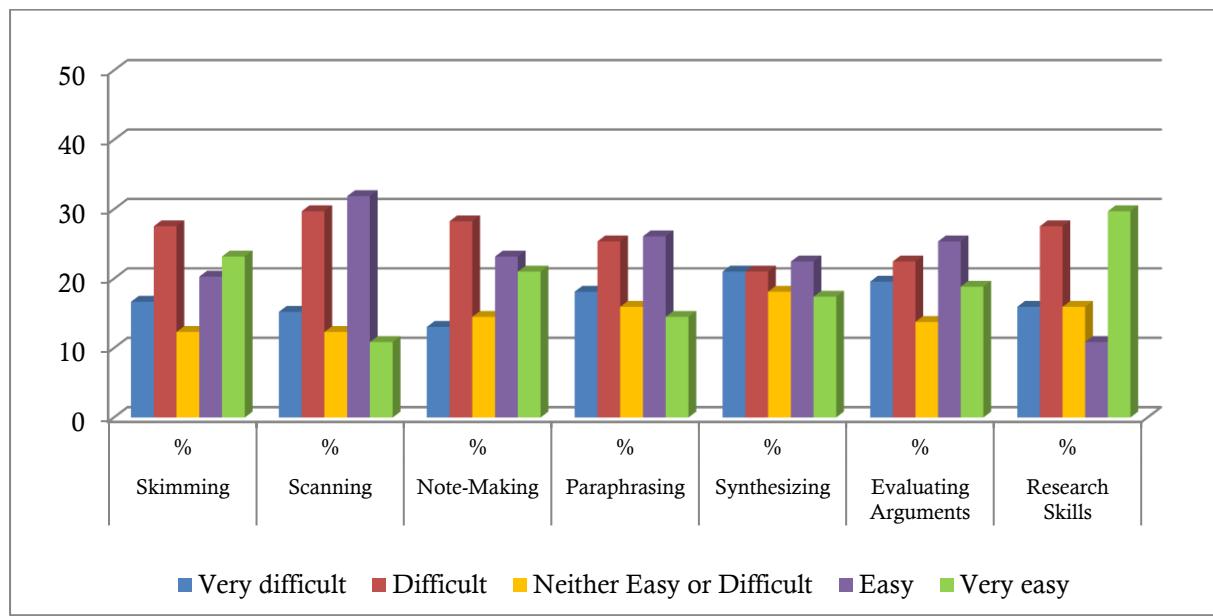


Figure 4. Difficulty of Reading Sub-skills

The quantitative data provided useful insights into trainees' self-assessment of reading sub-skill difficulty. Synthesizing information across sources emerged as the most demanding based on the relatively low mean score of 3.12. This aligns closely with qualitative feedback from Interviewee 9. She explained:

"You know, for me, it's like... I usually have gaps with the way technical language is used in these texts. It's often, uh... implicitly structured, and I have to re-read passages multiple times to fully grasp the intended meaning. It's like, ... I'm reading the words, but I'm not sure what they're actually saying. It's definitely a challenge, you know? It's like... I need to almost decode the language to understand what's being communicated." — **Excerpt 8, Interviewee 9**

Skimming, scanning, note-making and paraphrasing had average ratings of around 3.0 which reflect a relatively higher level of difficulty. Trainee SK said:

"You know, I've really been working hard to boost my reading skills lately. I find that using techniques like skimming the text first, highlighting key points, and reinforcing the information through repetition and practice has been super helpful for me. Um..... But you know, when it comes to research skills specifically, I've actually found those to be the easiest for me quantitatively. There are just so many little tricks and tools you can use to make research more efficient. I don't know, maybe it's just because I really enjoy that investigative aspect of learning. What I... But I think a big part of it is also just my own personal reading proficiency and familiarity with the subject matter. Those factors can really impact how difficult I perceive a task to be, beyond just the inherent complexity of it, you know? There's a lot that goes into it. Anyway...., that's been my experience with it." — **Excerpt 10, Interviewee Trainee SK**

Standard deviations over 1.4 for synthesizing indicated experiences vary based on factors like domain knowledge and abilities. Smaller deviations near 1.3 for skills like paraphrasing suggested relative consensus in their challenge.

A deeper understanding of how reading sub-skill difficulties are influenced by objective cognitive loads as well as individual traits like background schemata, language competencies, and strategic reading behaviors is provided by integrating the survey statistics with the trainees' qualitative perspectives. Taking a holistic approach helps with creating specialized supports.

4.6 Data Analysis Result on Difficulty of Writing Sub-Skills

This subsection focuses on the trainees' perceptions of difficulty with specific sub-skills within academic writing. It explores both quantitative and qualitative data to identify the most challenging writing tasks and the factors that influence their perceived difficulty.

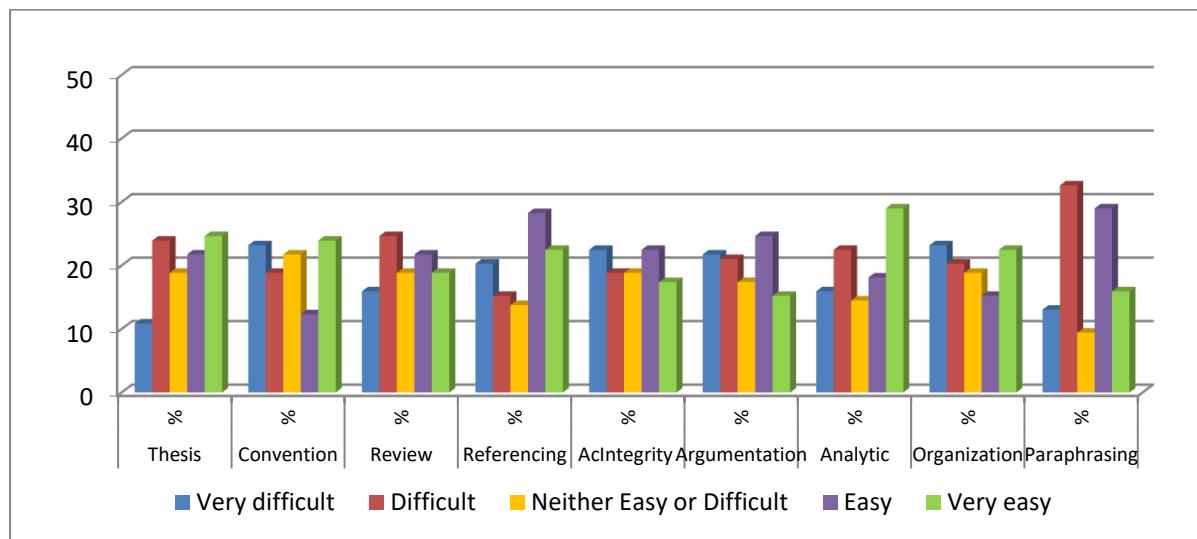


Figure 5. Difficulty of Writing Sub-skills

The quantitative data provided useful insights into trainees' perceived challenges with various academic writing sub-skills. Understanding academic writing conventions and organizing writing emerged as the most difficult sub-skill, with the mean difficulty rating of 3.19. This aligns with Interviewee 7 and Interviewee 8 experiences. Interviewee 7 replied:

"You know, for me, it's like... I do have problem with understanding the structure, language, and time management requirements for different assignments. It's like, uh... I get overwhelmed by all the guidelines. And then, ah... there's the self-editing part, which is another challenge." — **Excerpt 11, Interviewee 7**

Similarly, Interviewee 8 mentioned proposal writing is most difficult for him.

"You know, it's like... for me the organizational and constrained formats is difficult and confusing. It's like, uh... I'm not sure how to navigate the structure, and I wish there was more flexibility in the options." — **Excerpt 12, Interviewee 8**

Developing a thesis statement was challenging on average, though over 24% noted it as "very easy", reflecting variable critical thinking and argument skills between individuals. Literature reviews and summarizing/paraphrasing tasks also posed difficulty, evidenced by above average mean ratings and sizeable percentages selecting "difficult" or "very difficult". These sub-skills pressure working memory as they involve synthesizing multiple sources and repackaging complex ideas.

Standard deviations greater than 1.4 for understanding conventions and structuring papers suggested perceptions of difficulty with these tasks depended heavily on moderating learner traits like educational backgrounds, spatial abilities, and self-regulation skills. Smaller standard deviations near 1.3 for citation practices and developing a thesis implied relative consensus in views of the inherent demands of these sub-skills. Factors such as self-monitoring while composing, managing multiple writing processes concurrently, and navigating online feedback loops for revisions may uniquely challenge learners depending on their time management, metacognitive awareness, and digital literacy abilities. Understanding perceptions based on assignment types and disciplines could also offer insights.

Generally, considering both the quantitative self-assessment ratings and qualitative follow-up interviews in an integrated manner provides a deeper, multi-dimensional perspective of the complex interplay between academic writing sub-skill properties and diverse individual learner profiles shaping difficulty perceptions. This holistic analysis informs tailored supports.

5. Discussion

This study employed a mixed methods design, incorporating proficiency level, to address the knowledge gap regarding how technical and vocational trainees perceive difficulty with academic language sub-skills. Through interviews and quantitative assessments, valuable insights were gained into the factors influencing trainees' perceptions of language difficulties. This section examines these findings in light of previous research and proposes new directions for future research.

The findings suggest that mastering academic writing sub-skills, particularly understanding conventions, is generally the most challenging. This aligns with the findings of other studies that have found that academic writing poses significant challenges for ESL learners (Grabe & Kaplan, 2014; Hyland, 2015; Leki, 1995). Interviews revealed that a major barrier was a lack of awareness of disciplinary requirements (Ferris & Hedgcock, 2023). This highlights the importance of explicitly teaching students about the conventions of academic writing in different disciplines (Hyland, 2002). Qualitative feedback indicated that developing arguments was particularly difficult, requiring the integration of evidence in a logical manner, even though thesis development was quantitatively assessed as fairly difficult (Wette, 2020). This suggests that while students may be able to formulate a thesis statement, they often struggle with the more complex task of constructing a well-supported argument (Flower & Hayes, 1981). Providing specific training on genre elements and argument structures could potentially reduce perceived writing difficulty (Liu et al., 2024). This aligns with research emphasizing the importance of explicit instruction in academic writing conventions (Leki, 1995) and the need for scaffolding argumentation skills (Grabe & Kaplan, 2014). By directly addressing these specific areas through targeted instruction, the study suggests that perceived difficulty in writing could be lessened. This approach could involve teaching students about different genres of academic writing, such as research papers, essays, and reports, and providing them with explicit instruction on how to construct arguments using evidence (Toulmin, 2003).

Due to the constraints of simultaneous processing, academic listening sub-skills like note-taking and summarizing proved to be quantitatively difficult. This finding is consistent with research that has shown that listening comprehension is a complex cognitive process that requires the ability to process information simultaneously (Field, 2010; Karami, 2020; Peverly et al., 2007; Venter, 2019). Interviews highlighted a lack of schemata as a contributing factor to task difficulty for less skilled listeners (Bagheri & East, 2023). This suggests that students who lack background knowledge or prior experience with the topic of the listening passage may struggle to understand the information presented (Carrell, 1988). Maintaining focus was also challenging when topics shifted (Gilakjani & Ahmadi, 2011). This finding highlights the importance of teaching students strategies for maintaining focus during listening tasks, such as active listening techniques and note-taking (Brown, 2017). Promoting the establishment of schema, scaffolding comprehension through pre-processing exercises, and providing frequent exposure could potentially mitigate perceived difficulty over repeated administrations (Chamot, 2005). This approach is supported by research highlighting the effectiveness of schema activation in improving listening comprehension (Field, 2010; Karami, 2020) and the benefits of pre-teaching vocabulary and concepts (Nation, 2001; Simatupang & Derin, 2020). By providing trainees with background knowledge and opportunities to practice listening skills, instructors can help them to develop the necessary skills to succeed in academic listening tasks.

Structuring oral presentations and participating in discussions were ranked as the most demanding speaking activities by the quantitative study evaluations. This finding is consistent with research that has shown that public speaking is a challenging task for many individuals, especially for those who are not native speakers of the language (Manda & Irawati, 2021). Qualitative observations revealed that novice speakers, in particular, experience nervousness when performing in public (Manda & Irawati, 2021). This suggests that anxiety can play a significant role in perceived difficulty in speaking sub-skills (Oxford, 1990). Subsequent semester re-ratings showed that more engaged instruction reduced perceived difficulty by fostering self-efficacy (Pawlak, 2021). This finding highlights the importance of providing students with opportunities to practice speaking in a supportive and encouraging environment (Oxford, 1990). Gradually transitioning oral sub-skills from reproducible to generative challenges, aligning with trainees' developmental levels, could be a beneficial approach. This aligns with research demonstrating the effectiveness of gradually increasing the complexity of oral sub-skills (Brown, 2017) and the importance of fostering a supportive and encouraging classroom environment (Oxford, 1990). Instructors can assist trainees in developing the abilities needed to succeed in academic listening activities by giving them opportunities to practice listening skills and background knowledge.

The study found that trainees perceived synthesizing information across sources as the most challenging reading sub-skill. This finding is consistent with research that has shown that reading comprehension is a complex process that requires the ability to integrate information from multiple sources (Kintsch, 1998; Wineburg, 2010). Interviews revealed that the difficulty of identifying key concepts was exacerbated by a lack of background knowledge (Perfetti et al., 2005). This suggests that students who lack background knowledge or prior experience with the topic of the reading passage may struggle to understand the information presented (Carrell, 1988). Proficiency-differentiated evaluations indicated that lower-level readers faced more difficulties with all sub-skills (Grabe & Stoller, 2019). This finding highlights the importance of providing students with differentiated instruction that is tailored to their individual needs and

levels of proficiency (Tomlinson, 2003). Embedding previewing techniques and activating relevant schemata could potentially reduce perceived difficulty (Urquhart & Weir, 2014). This approach is supported by research showing the effectiveness of previewing strategies in improving reading comprehension (Rieben & Perfetti, 2013; Carrell, 1988) and the importance of activating prior knowledge (Kintsch, 1998). By giving trainees with opportunities to preview texts and activate their prior knowledge, instructors can help them to develop the necessary skills to succeed in academic reading tasks.

This study reveals that with targeted instruction and practice, trainees can develop the skills and confidence to overcome academic language challenges. Interestingly, multiple study assessments showed a general drop in difficulty ratings over the semester. This emphasizes the dynamic interplay between changing self-perceptions and skill development as abilities advance (James, 2017; Wu et al., 2022). While initial concerns were noted in survey ratings, the educational intervention was responsive in addressing most of the issues based on the perception of decreased difficulty. Adapting assistance in accordance with needs assessments could maximize this trajectory for every trainee. This approach is supported by research highlighting the importance of individualized instruction (Tomlinson, 2003) and the need for ongoing assessment to monitor student progress (James, 2017). Through the provision of tailored guidance and continuous evaluation, educators can assist learners in realizing their academic objectives.

The results of the proficiency-differentiated analysis have important implications. Less proficient language learners often perceive activities as more difficult than they actually are due to their current skill limitations (Bagheri & East, 2023). This suggests that perceived difficulty may not always be an accurate reflection of a student's true abilities (Lightbown & Spada, 2021). However, perceived difficulty doesn't always imply incapacity or unwillingness. Even for trainees who were initially disadvantaged, perceived challenge can decrease with focused scaffolding that adapts to evolving stages (Lightbown & Spada, 2021). This highlights the importance of providing students with differentiated instruction that is tailored to their individual needs and levels of proficiency (Tomlinson, 2003). Teachers should adopt a strengths-based approach, prioritizing development over challenges. Program-level response includes placing learners on customized pathways according to their skill level. This approach is supported by research emphasizing the importance of differentiated instruction (Tomlinson, 2003) and the need for flexible learning pathways (Armstrong, 2010). Instructors can assist trainees accomplish their academic goals by offering individualized guidance and opportunity to learn at their own pace.

The study findings suggest several key recommendations to support vocational learners' development of academic language proficiency. Implementing needs-based placement and streaming would help match trainees to instruction aligned with their proficiency levels. Explicit teaching of challenging skills like writing conventions and presentation expectations is advised. Scaffolding techniques, such as note-taking frameworks and modeling could further support skill development. Sequencing learning materials from simpler to more complex tasks can foster growing proficiency over time. Differentiated anxiety supports for public speaking and assessments should also be considered. Promoting metacognitive and collaborative strategies may enhance comprehension and synthesis abilities. Continued mixed methods research promises deeper insights into this phenomenon. Collectively, these proposed solutions aim to bolster educator responsiveness and optimize proficiency preparation for inclusive career success within a dynamic professional landscape. As for the limitations, one of them is that observation should have been conducted. Observational data on instruction could provide further confirmation of how education mediated shifting perceptions. The long-term effects over time remain unknown. Despite these limitations, a comprehensive investigation of the multi-factor structure of challenges using sequential explanatory mixed measures enhances understanding for all stakeholders.

6. Conclusion

This study makes a significant contribution to addressing the research gaps in understanding perceived academic language difficulties among technical and vocational trainees. By employing a mixed-methods design that incorporated proficiency level analysis, the study provides a comprehensive and refined understanding of the factors influencing learners' perceptions of language skill challenges. The key findings reveal that understanding disciplinary writing conventions was identified as the most challenging sub-skill overall. Listening tasks like note-taking and summarizing were also viewed as highly demanding, often exacerbated by a lack of background knowledge. Structuring oral presentations and participating in discussions emerged as the most difficult speaking activities, with anxiety playing a significant role. Reading sub-skills involving synthesizing information across sources and comprehending technical texts were perceived as difficult.

More importantly, the study uncovered critical moderating variables that shape perceptions of difficulty, including unfamiliarity with expectations, debilitating anxiety, and insufficient background knowledge. Notably, the dynamic interplay between developing abilities and self-assessments was observed, as perceptions of difficulty diminished over the course of the semester. The proficiency-differentiated analysis further revealed that less proficient learners experienced heightened difficulties across all language sub-skills. This study's methodological approach, combining quantitative ratings and qualitative interviews allows for a comprehensive capture of the multifaceted and evolving nature of perceived academic language difficulties. The findings provide valuable evidence to inform the optimization of language programs and instructional practices, enabling educators to create proficiency-based pathways and personalize support based on a thorough understanding of the challenges faced by learners. Ultimately, this research significantly advances the crucial objective of empowering all language learners by shedding light on the dynamic interplay between perceptions and skill development. The insights gained can inform the design of more effective, responsive, and inclusive language learning programs, ultimately enhancing the academic and professional success of technical and vocational trainees.

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