English Teaching Journal and Research

Published on June, 12th 2026
Vol. 6 Number 1

CHALLENGES OF SPEAKING ENGLISH IN CHEMISTRY SEMINARS: A STUDENT SURVEY

Nisrina Auliya Cahyadi[1], Nuha Fauziyah[2], Wahyunengsih[3]

nisrina.auliya25@uinjkt.ac.id, nuhafr.20@gmail.com, wahyu.nengsih@uinjkt.ac.id

Abstract

The ability to speak English effectively in chemistry seminars is an important skill for student, as their activities require clear and academic delivery of scientific concepts. This study aims to identify and measure the types of challenges students face when speaking English in chemistry seminars. This study used a quantitative descriptive research design with a survey method. The research instrument was a closed-ended questionnaire using a five-point Likert scale to forty-one Chemistry students. The questionnaire covered four main aspects: linguistic challenges, psychological factors, and academic difficulties. Data were analyzed descriptively using frequencies, percentages, and average scores to determine the level of dominance of each type of challenge. The study findings indicate that linguistic challenges, particularly difficulty finding appropriate chemical vocabulary when speaking, frequent nervousness when speaking in English in chemistry seminars, frequent difficulty constructing spontaneous sentences when explaining chemical concepts, limited scientific vocabulary, and difficulty constructing academic sentences. And linguistic factors, particularly difficulty pronouncing chemical terms in English correctly, not being very proficient in using scientific terms in oral contexts, and difficulty using conjunctions or connectors when explaining chemical ideas, were the most dominant obstacles. This study concluded that students' challenges in speaking English in chemistry seminars are a combination of linguistic, psychological, and academic factors.

Keywords: Communication challenges, Chemistry seminars, English speaking

[1] Student, Chemistry Department, Faculty of Science and Technology, State Islamic University Syarif Hidayatullah Jakarta
[2] Student, Chemistry Department, Faculty of Science and Technology, State Islamic University Syarif Hidayatullah Jakarta
[3] Lecturer, Chemistry Department, Faculty of Science and Technology, State Islamic University Syarif Hidayatullah Jakarta

English Teaching Journal and Research

A. INTRODUCTION

English is important in academic and scientific communication because it allows chemistry students to present their research and understand global scientific discussions effectively. The ability to communicate scientific information effectively in English is very important for chemistry students, as it helps them exchange information, adapt to diverse audiences, and utilize modern technology to enhance their skills in presenting research and participating in international scientific discussions (Kravchenko, 2024). Therefore, mastering English in academic and scientific communication can help chemistry students communicate effectively at a global level.

English plays a vital role in global chemistry education as it connects students and lecturers worldwide, helping them access International research and collaborate on scientific projects. English serves as a linking language in global education, facilitating communication and collaboration among students and lecturers in the field of chemistry. The use of this language also allows access to international research, promotes cooperation in scientific projects, and enhances the overall learning experience in the field (Zhang, 2024). English plays an important role in helping students and lecturers communicate, collaborate, and access international research in the field of chemistry.

Speaking skills are a crucial component in chemistry seminars since they enable students to express complex scientific ideas clearly and confidently in English.Proficient speaking skills enable students to express complex concepts concisely, which is crucial in scientific dialogue (Montgomery et al., 2022). Therefore, speaking skills are very important to help students convey complex scientific ideas.

Previous studies on English language difficulties among science students have shown that many learners struggle with understanding scientific terminology and expressing complex ideas in English.The evaluation underscores that numerous learners of English as a second or foreign language within scientific educational environments encounter considerable linguistic obstacles, especially in comprehending scientific terminology and expressing intricate concepts in the English language (Pun et al., 2023).In conclusion, many students still experience difficulties in expressing scientific ideas and understanding scientific terminology in English.

English Teaching Journal and Research

Research on speaking anxiety in academic presentations reveals that students often experience nervousness and fear of making mistakes, which negatively affects their performance when speaking English. Students frequently encounter feelings of apprehension and dread regarding the possibility of committing errors during academic presentations, which adversely impacts their overall well-being, resulting in mental disengagement and undue concern. This state of anxiety has the potential to impede their performance and diminish their overall self-assurance in public speaking scenarios (Maulida et al., 2024). Because anxiety and fear of making mistakes negatively affect students' performance, confidence, and mental well-being during English academic presentations

Findings on language barriers in STEM fields indicate that limited English proficiency can hinder students' participation in discussions, access to international literature, and collaboration with global peers. Language obstacles greatly affect students in STEM disciplines, especially those who lack strong English proficiency. Such challenges restrict their involvement in academic discussions, limit their access to global research materials, and reduce opportunities for international collaboration. Therefore, incorporating English for Specific Purposes (ESP) is essential to strengthen students' academic and professional capabilities in engineering and technology, as it develops vital communication and problem-solving skills (Daiu et al., 2025). Thus, overcoming language barriers through the implementation of English for Specific Purposes (ESP) programs is very important for students to be able to communicate effectively, collaborate internationally, and achieve both academic and professional success.

Previous studies have paid limited attention to chemistry seminar contexts because most researchers focus on general English learning rather than real situations in chemistry presentations. In many cases, existing research emphasizes grammar, vocabulary, and reading comprehension, overlooking the practical communication skills needed for scientific seminars. English for Specific Purposes (ESP) should be contextualized to meet the communicative demands of each discipline, such as chemistry, where students must present data, explain experimental results, and respond to audience questions. This gap in research suggests the need for more studies that explore how English is used in authentic academic situations within scientific fields (Kravchenko., 2024). Therefore, further investigation into English

English Teaching Journal and Research

communication in chemistry seminars is essential to develop effective strategies that improve students' academic speaking performance.

There is a lack of research that combines language problems with subject-specific challenges which makes it hard to understand how English skills affect students' performance in chemistry seminars. Most existing studies tend to examine language difficulties in general academic contexts without considering the technical and communicative demands unique to scientific disciplines. Students in chemistry often struggle not only with linguistic barriers but also with the need to accurately describe experimental processes and interpret data in English (Kravchenko, 2024). Moreover, mastering scientific discourse requires more than vocabulary knowledge it involves developing confidence and clarity in explaining complex chemical concepts (Montgomery et al., 2022). Therefore, future research should integrate both linguistic and disciplinary perspectives to provide a more comprehensive understanding of how English skills affect students' effectiveness in chemistry presentations. In conclusion, bridging the gap between language learning and subject-specific communication is essential to support chemistry students in developing both scientific and linguistic competence.

Few studies have explored students' real speaking experiences in scientific academic settings so researchers still know little about their difficulties, confidence, and ways of coping when speaking English. This gap is particularly problematic in contexts where students are required to engage in discipline-specific discussions, such as in science seminars, laboratory presentations or research group meetings. For example, students may encounter not only general linguistic issues such as limited vocabulary, pronunciation problems or grammatical inaccuracies but also discipline-specific demands like using technical terminology, explaining experimental procedures clearly, and interacting with peers or faculty in academic English. Research from higher education settings indicates that sociopsychological factors such as anxiety, lack of confidence, and a limited English-speaking environment further exacerbate the challenge. For instance, a descriptive study found that university students reported a lack of confidence, uncertainty about pronunciation and grammar, and few opportunities to speak English in everyday academic settings (Anggrisia, 2023). Beyond the individual, contextual factors such as the absence of structured speaking practice, limited exposure to authentic

English Teaching Journal and Research

scientific discourse in English, and peer dynamics also reduce participation and hinder development of speaking competence in science domains. Consequently, exploring students' real speaking experiences in scientific academic contexts is crucial for informing targeted support strategies and fostering more inclusive, communicative learning environments.

Observations of student struggles during chemistry presentations show that many students find it difficult to explain scientific ideas clearly in English, especially when using technical terms. This difficulty often arises because students lack familiarity with discipline-specific vocabulary and have limited experience in using English for academic communication. As a result, they tend to translate ideas from their first language, which can lead to inaccurate expressions and misunderstandings during their presentations. Additionally, anxiety and low confidence further affect their ability to speak fluently, as they may hesitate when recalling complex terminology or scientific concepts (Nguyen, 2022). These challenges highlight the importance of integrating English for Specific Purposes (ESP) instruction that focuses on scientific discourse and presentation practice in chemistry education. Therefore, improving students' mastery of technical vocabulary and their confidence in English speaking is essential for fostering more effective scientific communication in academic settings.

Reports from instructors about communication barriers in seminars indicate that language problems often prevent students from expressing their thoughts confidently and interacting actively with others. Many students struggle to find appropriate words or structures to convey complex ideas, which causes hesitation and limits their participation during discussions. This linguistic difficulty is often compounded by fear of making grammatical mistakes or being misunderstood, leading students to remain passive even when they have relevant ideas to share (Hassan, 2023). Moreover, limited exposure to academic English speaking environments reduces their ability to adapt to spontaneous exchanges that typically occur in seminar settings. Such barriers not only affect their individual performance but also hinder collaborative learning and peer interaction. Therefore, enhancing students' communicative competence through consistent practice and supportive feedback is crucial to encourage more confident and active engagement in academic seminars.

English Teaching Journal and Research

Anecdotal evidence of reduced participation due to language difficulties suggests that some students avoid asking questions or joining discussions because they are afraid of making mistakes in English. This fear often stems from a lack of confidence in their speaking ability and previous negative experiences, such as being corrected publicly or struggling to find the right words. As a result, students may prefer to remain silent rather than risk embarrassment, even when they have valuable insights to contribute (Singh, 2022). This avoidance behavior limits opportunities for language practice and hinders the development of communicative competence, which is essential for academic success. Over time, the habit of non-participation can reinforce students' anxiety and create a cycle of silence in English-speaking environments. Therefore, creating a supportive and non-judgmental classroom atmosphere is vital to encourage students to participate more actively and view mistakes as part of the learning process

RQ1: What challenges do chemistry students face when speaking English in seminars?
Chemistry students face several challenges when speaking English in seminars, particularly related to linguistic, psychological, and disciplinary factors (Tan & Rahimi, 2023). Linguistically, many students struggle with pronunciation, limited vocabulary, and the correct use of complex grammatical structures, which makes it difficult to explain scientific concepts clearly. These difficulties are intensified by the use of technical chemistry terminology, as students often find it hard to recall or pronounce specialized words accurately during oral presentations (Nguyen & Lee, 2022). Psychologically, anxiety and fear of negative evaluation can significantly affect their fluency and confidence, leading to hesitation and reduced participation in discussions. Furthermore, the disciplinary nature of chemistry requires students to integrate both content knowledge and language skills simultaneously, which adds to their cognitive load and increases the likelihood of communication breakdowns. Therefore, it is crucial to provide targeted language support and opportunities for practice to help chemistry students communicate their scientific ideas more effectively in English seminar contexts.

RQ2: What are the main causes of these speaking difficulties?
The main causes of speaking difficulties among chemistry students in English seminars stem from linguistic limitations, psychological barriers, and lack of exposure to authentic

English Teaching Journal and Research

communication contexts (Ali & Zhang, 2022). Linguistically, students often have insufficient mastery of academic and discipline-specific vocabulary, which restricts their ability to express scientific ideas precisely. They may also rely heavily on memorized phrases instead of developing spontaneous speech, resulting in less natural and less confident communication (Kumar, 2023). Psychologically, factors such as speaking anxiety, fear of making mistakes, and low self-efficacy negatively influence their willingness to speak. Many students also experience cognitive overload when trying to think about chemistry concepts and English grammar simultaneously, which further hampers fluency. Additionally, limited opportunities to use English outside the classroom contribute to poor oral practice and slow language development. Therefore, addressing these root causes through integrated language-content instruction and supportive speaking environments is essential to improve students' oral communication skills in academic seminars.

B. RESEARCH METHOD

This study employed a quantitative descriptive research design because it aimed to measure the types and levels of challenges students face when speaking English in chemistry seminars. A quantitative descriptive approach is appropriate for this study because it allows researchers to collect numerical data, analyze patterns statistically and generalize findings to a broader student population. Using a structured questionnaire, this method quantifies students' linguistic, psychological, and academic difficulties without manipulating variables or testing causal relationship (Creswell, 2014). The use of closed ended items and likert scale responses allows for systematic measurement of key dimensions such as vocabulary limitations, pronunciation difficulties, speaking anxiety, and self confidence levels. Furthermore, this design helps identify dominant trends and the relative intensity of each challenge, providing clear statistical evidence regarding the factors that influence students' English-speaking performance in the seminar context.

The participants of this study were forty-one from the Chemistry Department at Syarif Hidayatullah State Islamic University (UIN) Jakarta, and they were selected to provide detailed insights into their challenges, experiences, and strategies in speaking English during chemistry

English Teaching Journal and Research

seminars. The participants were chosen using purposive sampling, which is commonly employed in qualitative research to ensure that individuals who have relevant experiences and can provide rich information (Creswell & Poth, 2018). All participants had taken at least one English-medium chemistry seminar course, making them suitable for exploring the linguistic and academic demands of speaking English in scientific contexts. This group also represented varying levels of English proficiency, allowing for a more comprehensive understanding of the different types of difficulties students encounter. Therefore, the selected participants were expected to contribute meaningful perspectives that reflect the real conditions and communication challenges faced by chemistry students in English-speaking seminar settings.

Data collected through questionnaires were distributed to the students to gather both quantitative and descriptive data, and they aimed to provide additional insights into students' speaking challenges, confidence, and attitudes toward using English in academic chemistry contexts. The questionnaire included items focusing on students' perceived difficulties in pronunciation, vocabulary usage, and fluency when presenting scientific topics (Daiu et al., 2025). It also examined students' self-confidence and anxiety levels during English-based seminars to understand how emotional factors influence their speaking performance. Furthermore, open-ended questions allowed students to express their personal experiences and provide examples of specific challenges they encountered during chemistry presentations. The combination of quantitative and descriptive responses offered a more comprehensive understanding of students' communication barriers. In conclusion, the use of questionnaires was essential for identifying key factors that affect students' English-speaking performance in chemistry seminars, helping educators design more effective language support programs.

The questionnaires were distributed through Google Form links shared in a WhatsApp group, making it easier for students to access, complete, and submit their responses efficiently. This online distribution method was chosen because it provides convenience, flexibility, and wider reach, especially when participants have busy academic schedules or limited time for face-to-face meetings (Evans & Mathur, 2018). Using digital platforms such as Google Forms also helps researchers collect data quickly and organize responses automatically, reducing the risk of human error during data entry and analysis. Moreover, sharing the link through WhatsApp

English Teaching Journal and Research

ensured that all participants received the questionnaire directly and could respond at their own pace using their mobile devices. Therefore, this method proved practical and effective in gathering comprehensive data while maintaining participant engagement and response accuracy.

The questionnaire results were presented descriptively to show general trends, frequency of responses, and overall attitudes toward English use in chemistry seminars. Descriptive analysis was applied to summarize the data in a clear and systematic way, allowing the researcher to identify common patterns and variations among students' responses (Cohen, Manion, & Morrison, 2018). This approach provided an overview of how frequently certain challenges or attitudes appeared, such as students' levels of confidence, vocabulary limitations, or motivation to improve their speaking skills. Presenting the data descriptively also helped connect quantitative findings with the qualitative interview results, creating a more comprehensive understanding of students' experiences. Therefore, descriptive analysis served as an effective tool for illustrating the general tendencies perceptions of chemistry students regarding the use of English in academic seminar contexts

C. RESULTS AND DISCUSSION

Findings or results section may infer the facts or data that you encountered or you collected during research. It will be better to have tables and figures that represent your result. Give a concise description on the tables or figures regarding your findings. Furthermore discussion section reflects whether your methodology works on the issue you address. This section should provide the answer of the problem. This section is not repeating what you have mentioned in Findings/Results section.

No	Questionnaire Theme	Item	Mean	Median	N	Description
1.	Common Difficulties in Speaking English	10	3,63	4	41	
2.	Linguistic Challenges	10	3,45	4	41	

English Teaching Journal and Research

3.	Psychological and Affective Challenges	10	3,38	3	41
4.	Academic Difficulties	10	3,34	3	41

Table 1. *Summary Table of Analysis Results Based on Questionnaire Themes*

The data indicates that students encounter significant general hurdles when performing in English. The most prominent issue identified is the retrieval of specialized vocabulary, with a mean score of 3.70. Students reported struggling to find the right chemistry-related terms spontaneously during a speech. Additionally, nervousness is a major factor (Mean: 3.68), particularly when students are required to explain complex chemical concepts. A vast majority of respondents (over 60%) confirmed that constructing spontaneous sentences remains a primary obstacle to their fluency.

No	**Questionnaire Questions**	**%Of Respondents**	**Mean**	**Median**	**N**	**Description**
1.	I have trouble finding the right chemistry vocabulary when speaking.	1= Strongly Disaggre (0,0%) 2 = Disagree (9,8%) 3 = Neutral (29,3%) 4 = Agree (41,5%) 5 = Strongly Agree (19,5%)	3,70	4	41	**Most Dominant**
2.	I often feel nervous when I have to speak in English at	1= Strongly Disagree (2,4%) 2 = Disagree (12,2%)	3,68	4	41	**Most Dominant**

English Teaching Journal and Research

	chemistry seminars.	3 = Neutral (26,8%) 4 = Agree (31,7%) 5 = Strongly Agree (26,8%)				
3.	I often have difficulty constructing spontaneous sentences when explaining chemical concepts.	1= Strongly Disagree (4,9%) 2 = Disagree (7,3%) 3 = Neutral (34,1%) 4 = Agree (31,7%) 5 = Strongly Agree (22%)	3,58	3	41	**Least Dominant**

Table 2. *Summary of Common Difficulties Students Have in Speaking English*

Linguistic barriers are heavily centered on the mastery of technical terminology. The highest-rated challenge in this category is the lack of skill in applying scientific terms within a spoken context (Mean: 3.70), with 56.1% of students agreeing that this is a significant struggle. Furthermore, mispronunciation of chemical terms (Mean: 3.48) often hinders clear communication. Interestingly, while the use of conjunctions or connectors is a challenge, it is considered the least dominant factor compared to the difficulty of managing technical vocabulary

No	**Questionnaire Questions**	**%Of Respondents**	**Mean**	**Median**	**N**	**Description**
1.	I have trouble pronouncing chemical terms in English correctly.	1= Strongly Disagree (7,3%) 2 = Disagree (9,8%)	3,48	4	41	**Most Dominant**

English Teaching Journal and Research

		3 = Neutral (26,8%) 4 = Agree (39%) 5 = Strongly Agree (17,1%)				
2.	I am not very skilled at using scientific terms in a spoken context	1= Strongly Disagree (2,4%) 2 = Disagree (4,9%) 3 = Neutral (24,4%) 4 = Agree (56,1%) 5 = Strongly Agree (12,2%)	3,70	4	41	**Most Dominant**
3.	I have difficulty using conjunctions or connectors when explaining chemistry ideas	1= Strongly Disagree (4,4%) 2 = Disagree (4,9%) 3 = Neutral (51,2%) 4 = Agree (26,8%) 5 = Strongly Agree (14,6%)	3,46	3	41	**Least Dominant**

Table 3. *Summary of challenges (language factors) of chemistry students when speaking English in seminars*

The research findings indicate that the most significant linguistic challenges faced by chemistry students involve a lack of proficiency in using scientific terms orally and difficulties in pronouncing chemical terms in English. This is evidenced by the highest mean score of 3.70 regarding scientific term proficiency, where a majority of respondents (56.1%) agreed that they lack skill in this area. Additionally, the aspect of pronunciation serves as a dominant barrier

English Teaching Journal and Research

with a mean score of 3.48, indicating that a large portion of students still struggle to articulate complex chemical terminology accurately during English seminars

. In contrast, the use of conjunctions or connectors to explain chemistry ideas is perceived as the least dominant challenge among the surveyed factors. This is reflected in the lowest mean score of 3.46, with over half of the respondents (51.2%) maintaining a neutral stance on this issue. Overall, the data suggests that students' primary struggles in English seminars are more focused on technical vocabulary mastery and oral delivery rather than the grammatical structural task of linking ideas together

No	Questionnaire Questions	%Of Respondents	Mean	Median	N	Description
1.	I often get nervous because the seminar is attended by professors or senior students.	1= Strongly Disagree (7,3%) 2 = Disagree (2,4%) 3 = Neutral (31,7%) 4 = Agree (46,3%) 5 = Strongly Agree (12,2%)	3,53	4	41	**Most Dominant**
2.	I feel anxious when the audience is watching me	1= Strongly Disagree (4,9%) 2 = Disagree (17,1%) 3 = Neutral (41,5%) 4 = Agree (24,4%)	3,21	3	41	**Least Dominant**

English Teaching Journal and Research

		5 = Strongly Agree (12,2%)				
3.	I feel panicked when I forget vocabulary while speaking	1= Strongly Disagree (4,9%) 2 = Disagree (7,3%) 3 = Neutral (29,3%) 4 = Agree (46,3%) 5 = Strongly Agree (12,2%)	3,53	4	41	**Most Dominant**

Actable 4. *Summary of challenges (psychological factors) of chemistry students when speaking English at seminars*

The results show that social evaluation is a major trigger for anxiety. Specifically, the presence of professors or senior students causes the highest level of nervousness (Mean: 3.53). This is closely followed by the panic felt when forgetting vocabulary mid-speech (Mean: 3.53). Interestingly, the data suggests that the status of the audience (experts vs. peers) is a more significant stressor than the mere size of the audience or being watched in general (Mean: 3.21).

No	Questionnaire Questions	%Of Respondents	Mean	Median	N	Description
1.	The course material focuses more on reading and writing than on speaking.	1= Strongly Disagree (2,5%) 2 = Disagree (10%) 3 = Neutral (50%) 4 = Agree (25%)	3,35	3	41	**Most Dominant**

English Teaching Journal and Research

		5 = Strongly Agree (12,5%)				
2.	I didn't get much feedback from the lecturer after speaking at the seminar	1= Strongly Disagree (4,9%) 2 = Disagree (12,2%) 3 = Neutral (61%) 4 = Agree (14,6%) 5 = Strongly Agree (7,3%)	3,07	3	41	**Least Dominant**
3.	I did not receive any special guidance in preparing presentations in English	1= Strongly Disagree (4,9%) 2 = Disagree (7,3%) 3 = Neutral (48,8%) 4 = Agree (31,7%) 5 = Strongly Agree (7,3%)	3,29	3	41	**Most Dominant**

Table 5. *Summary of challenges (academic factors) of chemistry students when speaking English in seminars*

The most dominant issue is the instructional focus, where course materials are perceived to prioritize reading and writing over speaking skills (Mean: 3.35). Additionally, students reported a lack of specific guidance on how to prepare English presentations (Mean: 3.29). While receiving feedback from lecturers after a seminar is considered the least dominant challenge (Mean: 3.07), it still reflects a need for more interactive academic support to improve speaking competence.

CONCLUSION AND SUGGESTION

CONCLUSION

Chemistry students experience considerable challenges in speaking English, particularly in mastering vocabulary, pronouncing scientific terms, maintaining fluency, and overcoming anxiety during seminars. These findings indicate that the difficulties are both linguistic and psychological in nature. Limited vocabulary constrains students' ability to describe complex chemistry concepts accurately, leading to communication breakdowns (Nation, 2013). Mispronunciation of technical terms, especially those derived from Latin and Greek roots, can create misunderstanding and reduce speaker credibility (Celce-Murcia et al., 2010). Anxiety, on the other hand, restricts students' willingness to speak, thus reinforcing a cycle of silence and low confidence (Horwitz, 2016). This combination of linguistic limitation and affective barriers often results in reduced participation in English-mediated seminars. Hence, the speaking difficulties among chemistry students are best understood as an interaction between inadequate language competence and high affective barriers, both of which must be addressed to achieve communicative success.

The study concludes that insufficient exposure to English-speaking environments and lack of systematic feedback from instructors are key factors hindering improvement in students' oral proficiency In English for Specific Purposes (ESP) contexts, authentic input and output are vital to help learners internalize discipline-specific discourse (Hyland, 2009). When students rarely use English beyond written assignments, they fail to develop the fluency necessary for spontaneous oral communication (Richards, 2015). Furthermore, feedback from

lecturers—especially formative feedback focused on pronunciation, vocabulary use, and clarity—is critical in refining learners' accuracy and confidence (Hyland & Hyland, 2019). The absence of such feedback often leads to fossilization of errors and persistent speaking anxiety. Therefore, a structured approach that integrates continuous speaking practice and instructor feedback is crucial to enhance chemistry students' communicative competence.

Another important conclusion from the study is the need for active collaboration between English language instructors and Chemistry lecturers to support content-based communication. Collaborative teaching aligns with the principles of Content and Language Integrated Learning (CLIL), which emphasizes the simultaneous development of language and disciplinary knowledge (Coyle, Hood, & Marsh, 2010). Through team teaching, educators can design contextualized tasks—such as poster presentations, mini-seminars, or lab-report discussions—that bridge language learning with real scientific discourse (Dalton-Puffer, 2011). Such integration ensures that vocabulary, syntax, and communication strategies are taught in direct relation to chemistry topics, making learning more meaningful and relevant (Marsh, 2002). Consequently, collaboration between subject experts and language teachers fosters a more holistic learning environment that supports both linguistic and scientific literacy.

Improving students' oral communication also requires addressing psychological factors such as anxiety, motivation, and self-confidence. According to Krashen's (1982) Affective Filter Hypothesis, emotional barriers like fear of failure can impede language acquisition, even when adequate input is available. High anxiety levels are known to reduce working memory efficiency, causing hesitation and speech disfluency (MacIntyre, 2014). Conversely, when learners feel safe, valued, and supported, they are more likely to take communicative risks and produce longer, more complex utterances (Young, 1991). This suggests that building emotional resilience is just as vital as improving linguistic skill. Thus, enhancing motivation and reducing anxiety must become integral components of English-speaking instruction for chemistry students.

SUGGESTION

To enhance their confidence and fluency, chemistry students should consistently engage in oral presentations, group discussions, and public speaking in English (Nation, 2013; Celce-Murcia et al., 2010).Regular participation in authentic communication tasks promotes automatic speech production and helps students overcome hesitation and speaking anxiety (Nation, 2013). Through public speaking exercises, learners can absorb both linguistic and paralinguistic features such as tone, stress, gestures, and eye contact, which contribute to more natural and persuasive delivery (Celce-Murcia et al., 2010). Additionally, receiving feedback from real audiences fosters self-reflection and confidence-building, gradually reducing presentation-related anxiety and improving overall performance (Young, 1991).Therefore, continuous English-speaking practice is a crucial step toward developing communicative competence and self-assurance among chemistry students.

To expand their academic vocabulary and exposure to scientific communication, students should actively participate in English clubs, study circles, or discussion forums that focus on science-related topics (Storch, 2013; Lantolf & Thorne, 2006).Peer-based learning communities foster collaborative dialogue, shared motivation, and mutual correction, all of which enhance communicative growth and learner autonomy (Storch, 2013). Participation in English clubs also provides students with access to real-world scientific conversations that increase lexical range and pragmatic awareness (Lantolf & Thorne, 2006). Furthermore, these communities promote psychological safety and social engagement, which reduce communication apprehension and increase willingness to speak in academic contexts (MacIntyre, 2014).Consequently, involvement in English-speaking societies offers an effective platform for strengthening both social and linguistic confidence in scientific communication.

Before delivering presentations, students should thoroughly prepare and practice pronunciation and chemistry-specific terminology to ensure clarity and professionalism (Hyland, 2004; Gilakjani, 2016).Mastery of specialized vocabulary enhances the speaker's credibility and precision in conveying

complex scientific ideas (Hyland, 2004). Pronunciation practice, particularly of multisyllabic and Latin-based terms, improves intelligibility and listener comprehension (Gilakjani, 2016). Engaging in contextualized language practice—such as reading abstracts aloud or discussing research findings—also strengthens vocabulary retention and spontaneous recall (Schmitt, 2010).Thus, careful preparation and rehearsal of pronunciation and terminology are essential for delivering effective and professional academic presentations.

During discussions, laboratory sessions, and group projects, teachers should create classroom conditions that consistently encourage the use of English (Richards & Rodgers, 2014; Brown, 2007).When students communicate in English within authentic academic settings, they develop greater fluency and situational confidence (Richards & Rodgers, 2014). The communicative approach prioritizes meaningful language use, enabling spontaneous and natural expression rather than memorized responses (Brown, 2007). Integrating English use into lab work further prepares students for future international collaboration and research participation by simulating real-world professional environments (Marsh, 2002)As a result, consistent English use in discipline-specific contexts enhances authentic communication skills and equips students for global scientific engagement.

To strengthen students' oral presentation skills, chemistry departments should organize specialized workshops and mini-seminars on academic English and scientific communication (Flowerdew & Miller, 1995; Hyland, 2009).Institutional programs that focus on academic discourse allow students to analyze exemplary models, practice delivery, and receive targeted feedback to improve structure and clarity (Flowerdew & Miller, 1995). Such initiatives also deepen students' understanding of academic conventions, audience adaptation, and rhetorical strategies essential for scientific communication (Hyland, 2009). Furthermore, institutional involvement reinforces the importance of English proficiency in advancing scientific careers and promotes a culture of professionalism and global readiness (Coyle, Hood, & Marsh, 2010).Ultimately, department-supported programs that integrate language and content learning

produce chemistry graduates who are confident, articulate, and globally competent communicators

REFERENCES

Zhang, H. (2024). The Impact of English Language Development on Internationalization of Education. Lecture Notes in Education Psychology and Public Media. https://doi.org/10.54254/2753-7048/34/20231933

Kravchenko, O. (2024). Interactive platforms for learning English medical terminology. KELM Journal, 95, 112–118.

Montgomery, T. D., Buchbinder, J. R., Gawalt, E.S., Iuliucci, R. J., Koch, A. S., Kotsikorou, E., Lackey, P. E., Lim, M. S., Rohde, J., Rupprecht, A. J., Srnec, M. N., Vernier, B., & Evanseck, J. D. (2022). The Scientific Method as a Scaffold to Enhance Communication Skills in Chemistry. Journal of Chemical Education. https://doi.org/10.1021/acs.jchemed.2c00113

Maulida, N. H., Faridah, D., & Tarwana, W. (2024). An analysis of students' speaking anxiety in performing impromptu presentation. https://doi.org/10.25157/(jeep).v11i1.13554

Daiu, S., Mihali, K., & Spaho, M. (2025). Integration of English for Specific Purposes: A Comprehensive Study of Language Needs in Computer and Software Engineering Students. Interdisciplinary Journal of Research and Development, 12(1), 92. https://doi.org/10.56345/ijrdv12n111

Kravchenko, T. V. (2024). A typology of exercises for forming professional communicative competence in English for chemistry students. Pedagogy: Theory & Practice, 1(69), 77–84.

Montgomery, S. L., Ahmed, R., & Tan, J. (2022). Developing scientific communication skills among chemistry undergraduates: Challenges and strategies. Journal of Science Education and Communication, 14(3), 201–215

Anggrisia, N. F. (2023). "Exploring challenges and strategies in English speaking: Students' perspectives." Englisia: Journal of Language, Education, and Humanities, 11(1), 57-71.

Hassan, R. (2023). Language anxiety and participation in academic seminars: A study of university students. Journal of Applied Linguistics and Education, 10(1), 33–49.

Singh, R. (2022). Silence in classroom interactions: Understanding student reticence in English-medium instruction. International Journal of Educational Linguistics, 8(4), 56–70

Tan, S., & Rahimi, A. (2023). Speaking difficulties of EFL students in science-related academic seminars. International Journal of Applied Linguistics and English Education, 12(1), 45–59.

Nguyen, T. P., & Lee, J. (2022). Discipline-specific language challenges among science students in English-medium instruction. Journal of English for Academic Purposes, 58, 101137.

Kumar, P. (2023). Causes of oral communication problems among science students in English-medium universities. International Journal of English Language Studies, 11(2), 67–79.

Ali, H., & Zhang, Y. (2022). Exploring factors influencing EFL students' speaking difficulties in academic contexts. Journal of Language and Education, 8(3), 102–115.

Lambert, V. A., & Lambert, C. E. (2012). Qualitative descriptive research: An acceptable design. Pacific Rim International Journal of Nursing Research, 16(4), 255–256.

Creswell, J. W., & Poth, C. N. (2018). Qualitative inquiry and research design: Choosing among five approaches (4th ed.). SAGE Publications.

Adams, W. C. (2015). Conducting semi-structured interviews. In K. E. Newcomer, H. P. Hatry, & J. S. Wholey (Eds.), Handbook of practical program evaluation (4th ed., pp. 492–505).

Evans, J. R., & Mathur, A. (2018). The value of online surveys: A look back and a look ahead. Internet Research, 28(4), 854–887.

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. Qualitative Research in Sport, Exercise and Health, 11(4), 589–597.

Cohen, L., Manion, L., & Morrison, K. (2018). Research methods in education (8th ed.). Routledge.

Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.). SAGE Publications.