

# Dental Health Students' Oral Communication Needs: Informing an AI-Supported Theme-Based English E-Book

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**Abstract.** This study investigated dental health students' oral communication needs to inform the prospective development of an AI-supported, theme-based English e-book. Situated within the Analysis phase of the ADDIE instructional design framework, the needs analysis drew on questionnaire responses from 60 students, semi-structured interviews with eight students, and analysis of existing course documents. Descriptive statistics summarized reported difficulties, learning-material relevance, preferred activities, and perceptions of AI-supported practice; qualitative themes were compared with survey patterns and document evidence. Fear of making mistakes (80%) and low confidence (76.7%) emerged as prominent concerns, while 96.7% reported a need for dental-specific vocabulary. Role-play (83.3%) was the most frequently preferred speaking activity. Interviews and document analysis further suggested a mismatch between general-language materials and anticipated dental communication tasks. These findings identify priorities for a proposed e-book combining discipline-specific themes, scaffolded dialogue, role-play, and optional voice-based AI rehearsal. The study did not design, develop, implement, or evaluate the proposed e-book; therefore, the findings support instructional planning rather than claims of product effectiveness.

**Keywords:** oral communication practice; English for specific purposes; theme-based instruction; AI-supported learning

## 1 Introduction

Dental-health students encounter English not as an abstract academic subject but as a resource for explaining procedures, responding to patients, and discussing clinical information. Such exchanges demand intelligible speech, appropriate terminology, and sensitivity to the listener rather than grammatical accuracy alone (Bowles et al., 2020; Schnurr, 2025). Yet these communicative demands are not necessarily reflected in the English materials available to students. The resulting question is not simply whether learners need more English, but which forms of oral interaction their instruction should prioritize.

Effective oral communication in dental health contexts involves more than basic conversational ability. It requires the use of appropriate terminology, clear explanation of

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procedures, and the ability to respond empathetically to patients' concerns (Bowles et al., 2020). For instance, dental health practitioners must be able to explain diagnoses, provide treatment instructions, and educate patients about oral hygiene practices in a manner that is both accurate and understandable. These communicative demands highlight the need for specialized language instruction that prepares students for authentic professional situations.

However, despite the importance of oral communication skills, many Dental Health students in English as a Foreign Language (EFL) contexts face considerable challenges in developing speaking proficiency. Previous studies have shown that speaking is often perceived as the most difficult language skill due to factors such as limited vocabulary, lack of fluency, and insufficient opportunities for practice (Tayyab et al., 2023). In addition to these linguistic challenges, affective factors such as anxiety, fear of making mistakes, and low self-confidence further hinder students' willingness to communicate (Malik et al., 2021; Saka & Merç, 2021). These challenges are particularly pronounced in specialized fields like dental health, where students must also master domain-specific language and communication strategies.

This question places needs analysis at the center of instructional planning. In English for Specific Purposes (ESP), decisions about language content should follow an examination of learners' target situations and present capabilities rather than a generic sequence of structures (Dudley-Evans & St John, 1998; Hutchinson & Waters, 1987; Long, 2005). For dental-health learners, this means investigating the expressions and interactional routines required to ask about symptoms, explain oral hygiene, and respond to patients' questions. It also means considering the opportunities students currently have to rehearse these exchanges.

English for Specific Purposes (ESP) offers a solution to this problem by emphasizing the importance of tailoring language instruction to learners' specific needs and target situations (Ghafar, 2022; Mariotti, 2024). ESP-based instruction begins with a systematic needs analysis to identify the linguistic and communicative requirements of learners. In the case of Dental Health students, this includes understanding the types of interactions they will encounter in professional settings, as well as the language functions and vocabulary they need to perform these tasks effectively.

Theme-Based Instruction (TBI) offers one way to turn those identified needs into a coherent syllabus. As a form of content-based instruction, it organizes language work around meaningful subject matter while preserving explicit attention to language development (Morton, 2016; Snow & Brinton, 2023). Dental-health themes can therefore connect terminology to communicative purposes: a unit on oral hygiene, for example, can combine vocabulary with explaining, checking understanding, and responding to patient concerns. The value of a theme lies in the interactions it makes possible, not merely in its disciplinary label.

Voice-capable conversational AI may extend such practice beyond scheduled classroom exchanges. Research on conversational tools points to possibilities for repeated interaction and feedback, while wider reviews of AI in higher education caution that technological capability does not by itself establish pedagogical value (Ding & Muhyiddin B Yusof, 2025; Zawacki-Richter et al., 2019). For this reason, an AI-supported e-book should be designed around clearly specified speaking tasks and teacher oversight, rather than treating access to a chatbot as an instructional outcome.

remains insufficiently specified in the present context is how dental-health learners' perceived difficulties, preferred speaking activities, and expectations of AI can be translated into a single instructional design. Studies of speaking anxiety or chatbot use alone cannot resolve this local curriculum question. A needs analysis that combines survey patterns with learner accounts and curriculum documents can identify where the mismatch occurs and which design decisions are most defensible (Long, 2005).

Accordingly, this study examines dental health students' oral-communication needs within the Analysis phase of ADDIE. It asks which barriers constrain speaking practice, how

learners assess existing materials, what forms of oral activity they prefer, and how these findings can inform subsequent instructional design. The contribution is an evidence-informed set of priorities, not a developed or evaluated e-book.

The analysis connects learners' reported needs with prospective ESP themes, task sequences, and conditions for responsible voice-based practice. Positive perceptions of AI are treated as evidence of receptiveness rather than demonstrated improvements in speaking proficiency (Zawacki-Richter et al., 2019).

## **2 Method**

### **2.1 Research Design**

This investigation adopted a needs analysis design situated within the Analysis phase of the ADDIE instructional design framework. The immediate purpose was to identify dental health students' present speaking difficulties, target communicative needs, learning preferences, and expectations of AI-supported practice. In English for Specific Purposes, such evidence provides a basis for decisions about instructional content and tasks (Dudley-Evans & St John, 1998; Hutchinson & Waters, 1987; Long, 2005). The study combined questionnaire, interview, and course-document evidence to develop contextually grounded instructional priorities.

ADDIE—Analysis, Design, Development, Implementation, and Evaluation—served as the broader framework for the prospective e-book project (Rayanto & Sugianti, 2020). Only its Analysis phase was undertaken in the present study. The remaining phases are proposed future work rather than procedures completed or outcomes assessed here.

Accordingly, the findings are interpreted as needs-based recommendations for potential e-book content, thematic organization, and oral tasks. They do not establish the validity, practicality, or effectiveness of a completed instructional product.

### **2.2 Research Setting and Participants**

The study was conducted at Politeknik Kesehatan Negeri Palembang, an institution that prepares students for careers in health-related professions, including dental health. English is taught as a supporting subject; however, the curriculum primarily emphasizes general English rather than discipline-specific communication.

The participants of the study were Dental Health students enrolled in an English course. A total of 60 students participated in the questionnaire phase, while a smaller subset of participants was selected for interviews using purposive sampling. The selection criteria for interview participants included willingness to participate and representation of different levels of English proficiency.

Participants were recruited because their learning experiences and anticipated professional communication demands were directly relevant to identifying priorities for future instructional materials.

### **2.3 Instruments**

To obtain comprehensive and triangulated data, this study employed three main instruments: questionnaires, semi-structured interviews, and document analysis.

### 2.3.1 Questionnaire

The questionnaire was developed to examine students' current oral communication experiences and identify their learning needs within the context of dental health education. Rather than focusing exclusively on perceived speaking difficulties, the instrument also explored students' exposure to speaking practice, their evaluations of existing instructional materials, and their preferences for future learning activities. Particular attention was given to the need for dental health-related vocabulary and students' perceptions of AI-supported learning as a potential means of extending oral communication practice beyond the classroom. The questionnaire combined closed-ended questions with Likert-scale statements to capture both descriptive information and students' perceptions of specific learning needs.

To establish content relevance, the questionnaire was reviewed by three specialists with expertise in English for Specific Purposes (ESP), educational measurement, and technology-enhanced language learning. Their review focused on the clarity of item wording, alignment between the items and the intended constructs, and relevance to the communicative demands of dental health education. The feedback informed revisions to the questionnaire before its administration.

Internal consistency was examined for four multi-item dimensions using Cronbach's alpha. The results indicated satisfactory reliability for speaking difficulties (5 items,  $\alpha = .82$ ), learning-material needs (6 items,  $\alpha = .86$ ), speaking-activity preferences (4 items,  $\alpha = .84$ ), and perceptions of AI-supported learning (5 items,  $\alpha = .89$ ). All coefficients exceeded the commonly adopted threshold of .70, suggesting acceptable internal consistency within each dimension. These findings supported the use of the four scales for examining students' perceived difficulties, instructional needs, and learning preferences.

### 2.3.2 Semi-Structured Interviews

Semi-structured interviews were conducted to explore students' oral communication experiences in greater depth and to clarify issues that could not be fully captured through the questionnaire. Eight students (S01–S08) were purposively selected to reflect variation in self-rated English proficiency and confidence in speaking English. This selection allowed the study to examine learning difficulties and expectations across students with differing perceptions of their oral communication abilities.

The interview protocol addressed students' previous experiences of learning English, difficulties encountered during oral communication, and perceptions of existing teaching practices and instructional materials. It also explored their expectations for more contextually relevant learning resources, particularly opportunities to practice spoken English in dental health-related situations and their views on the potential integration of AI-supported conversational activities. Following a semi-structured approach, the interviews maintained a consistent focus on these areas while allowing follow-up questions to clarify individual experiences and emerging concerns (Creswell, 2012).

Interviews were conducted individually in a conversational manner to encourage participants to elaborate on their experiences and perspectives. With participants' consent, the interviews were audio-recorded and subsequently transcribed for qualitative analysis. The interview data were used to provide contextual explanations for patterns identified in the questionnaire responses and to develop a more detailed understanding of students' oral communication needs.

### **2.3.3 Document Analysis**

Document analysis was undertaken to examine how the existing English course addressed the oral communication needs of dental health students. The analysis focused on available curriculum documents, including the course syllabus, instructional materials, and teaching handouts. Particular attention was given to the alignment between stated learning objectives, instructional content, and opportunities for developing spoken English in dental health-related contexts. The documents were examined for the extent to which they incorporated profession-specific vocabulary, communicative tasks, and activities requiring students to use English in situations relevant to dental health practice.

Beyond identifying the content covered in the course, the analysis sought to establish whether the existing materials provided sufficient opportunities for meaningful oral interaction or primarily emphasized grammatical knowledge and written exercises. Findings from the document review were considered alongside questionnaire and interview data to identify areas of convergence and divergence between curricular expectations, available instructional resources, and students' reported learning needs. This comparison provided a basis for identifying instructional priorities and informing recommendations for more contextually relevant, AI-supported oral communication activities.

## **2.4 Data Collection Procedures**

Data collection was carried out in several stages. First, the questionnaire was distributed to all participants during class sessions. Students were given sufficient time to complete the questionnaire, and clarification was provided when necessary.

Following the questionnaire phase, selected students participated in semi-structured interviews. The interviews were conducted individually to allow participants to express their views freely. Each interview lasted approximately 15–20 minutes. Simultaneously, relevant documents were collected and analyzed to gain insights into the existing instructional practices and materials. The combination of multiple data sources ensured data triangulation, enhancing the validity and reliability of the findings.

## **2.5 Data Analysis Techniques**

This study employed both quantitative and qualitative data analysis techniques.

### **2.5.1 Quantitative Data Analysis**

Quantitative data obtained from the questionnaire were analyzed using descriptive statistics, including frequency counts and percentages. These statistics were used to identify patterns in students' responses and to highlight dominant trends in their needs and preferences.

The results were presented in the form of Figures to facilitate interpretation and comparison. Descriptive analysis was considered appropriate for this study as it aims to provide an overview of learners' needs rather than to test hypotheses.

### **2.5.2 Qualitative Data Analysis**

Interview data were analyzed thematically, drawing on the procedures outlined by (Braun & Clarke, 2006, 2021), to identify patterns in students' experiences, oral communication difficulties, and expectations for future English instruction. The analysis began with repeatable readings of the interview transcripts to develop familiarity with participants'

accounts and identify segments relevant to the research questions. Initial codes were generated to capture meaningful aspects of students' experiences, concerns, and learning preferences. Related codes were subsequently examined and organized into candidate themes, which were reviewed and refined through continued engagement with the transcripts. This iterative process allowed the researcher to move beyond descriptive coding toward an interpretation of broader patterns of meaning across participants' accounts (Braun & Clarke, 2021).

The analysis was guided by the study's research questions while remaining open to patterns emerging from the interview data. Particular attention was given to students' speaking confidence, difficulties with discipline-specific vocabulary, opportunities for guided oral practice, and expectations regarding AI-supported feedback. These areas served as analytical points of interest rather than predetermined themes. The resulting themes were interpreted alongside questionnaire findings and evidence from curriculum documents to examine how students' reported experiences corresponded with their identified learning needs and the existing instructional context.

### 2.5.3 Integration of Data

Questionnaire results, interview themes, and course-document observations were compared through a convergence matrix. Areas of agreement and divergence were examined to identify instructional priorities for the proposed e-book.

## 3 Results and Discussion

### 3.1 Results

#### 3.1.1 Students' Difficulties in Oral Communication

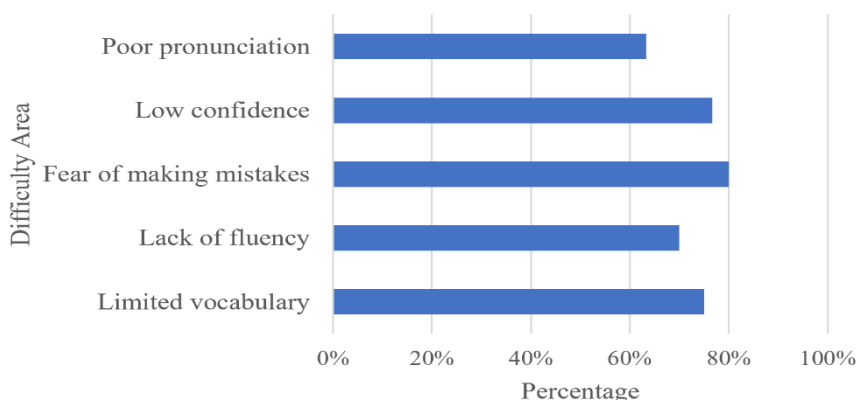


**Fig 1.** Students' Difficulties in Oral Communication (n = 60)

As illustrated in Fig 1, psychological barriers emerged as prominent difficulties in students' oral communication experiences. Fear of making mistakes was reported by 80% of respondents, followed by low confidence in speaking English (76.7%). These findings indicate that students' difficulties extend beyond linguistic knowledge to include concerns about their ability to communicate accurately and confidently. The relatively high proportions of students reporting both difficulties suggest that apprehension about making

errors and limited speaking confidence are important considerations when identifying their oral communication needs. These results highlight the need to examine not only what students need to learn but also the conditions under which they feel prepared to participate in spoken interaction.

### 3.1.2 Frequency of Speaking Practice

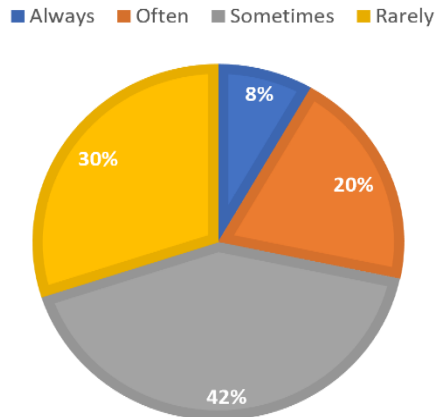


**Fig 2.** Speaking Practice Frequency

As shown in Fig 2, students reported varying frequencies of English-speaking practice, with the largest proportion indicating that they practiced only sometimes (41.7%), followed by those who rarely engaged in speaking activities (30.0%). Together, these two categories accounted for 71.7% of respondents, whereas only 21.7% reported practicing often or very often. A further 6.7% indicated that they never practiced speaking English. This distribution suggests that regular speaking practice was not a common experience among the surveyed students. Although these self-reported frequencies do not establish how many speaking opportunities were provided within the course, they point to limited regular engagement in oral communication practice, an important consideration when identifying students' instructional needs.

### 3.1.3 Relevance of Learning Materials

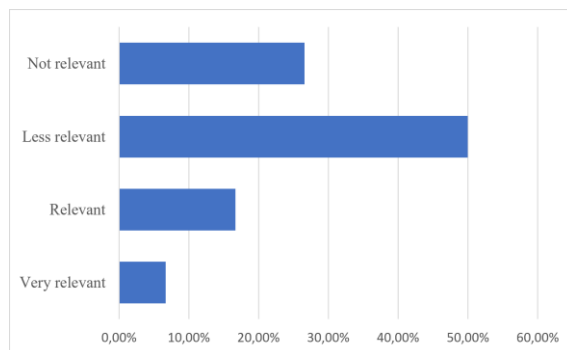


**Fig 3.** Material Relevance

Fig 3 presents students' perceptions of the relevance of existing English learning materials to their learning needs. A substantial majority of respondents (76.7%,  $n = 46$ ) considered the materials either less relevant or not relevant, suggesting a perceived gap between the instructional content currently available and the English language demands encountered by dental health students. This pattern raises questions about the extent to which existing materials reflect students' disciplinary contexts and support their oral communication needs. Although these responses do not independently establish the adequacy of the materials, they indicate considerable dissatisfaction with their perceived relevance and highlight an area requiring closer examination through interview findings and document analysis.

#### 3.1.4 Need for Dental Vocabulary

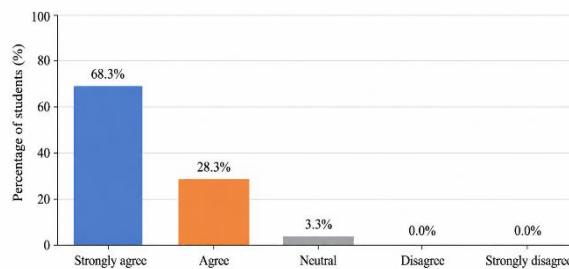


**Fig 4.** Students' Need for Dental Vocabulary

As illustrated in Fig 4, the need for dental-specific English vocabulary received overwhelming support from respondents, with 68.3% strongly agreeing and 28.3% agreeing that such vocabulary was necessary for their learning. Together, these responses accounted for 96.7% of the surveyed students (58 of 60), while only 3.3% expressed a neutral position and none indicated disagreement. This strong consensus suggests that students perceive general English vocabulary as insufficient to address their discipline-specific learning needs. The findings highlight the importance of incorporating dental health terminology into English instructional materials, particularly vocabulary that supports communication in academic and professional dental health contexts.

#### 3.1.5 Preferred Speaking Activities

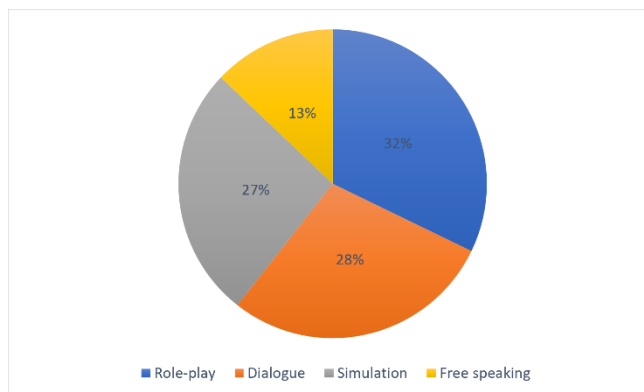


**Fig 5.** Activity Preferences

As illustrated in Fig 5, students expressed a clear preference for structured speaking activities, indicating their interest in learning opportunities that provide guidance and purposeful oral communication practice. This preference suggests that students value activities with clearly defined tasks and opportunities to apply English in meaningful communicative situations. Within the context of dental health education, these findings point to the potential relevance of guided dialogues, role-plays, and simulated interactions that reflect academic and professional communication demands. Such activities may therefore be considered when identifying instructional priorities for future English learning materials.

### 3.1.6 Perceptions of AI-Supported Learning

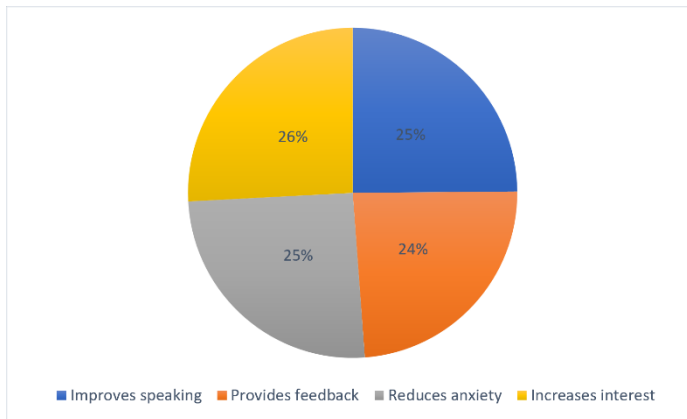


**Fig 6.** AI Perception

Agreement was high across the four AI-related statements. These are expectations or perceptions, not evidence that AI improved speaking performance or reduced anxiety in practice.

### 3.1.7 Interview Themes and Document Triangulation

The interview accounts were organized into three interrelated themes: anxiety about public errors, a perceived gap between general English materials and dental communication, and a preference for guided, repeated speaking practice. These themes clarify why students reported both limited speaking participation and strong interest in structured oral tasks. Rather than treating each theme as a separate problem, the analysis suggests that learners' confidence, disciplinary language resources, and opportunities for interaction are mutually connected.

The first theme, fear of negative evaluation, helps explain the questionnaire pattern in which 48 of 60 students (80%) identified fear of making mistakes and 46 (76.7%) reported low confidence. One interview account illustrates how anxiety can interrupt otherwise available ideas: "When the teacher asks me to speak, I know the idea, but I worry that my classmates will notice my grammar mistakes." (S02) The concern here is not simply a lack of linguistic knowledge. The perceived visibility of errors appears to discourage spontaneous participation, making low-stakes rehearsal a relevant consideration for material design.

The second theme concerns the limited transfer of general English instruction to dental-health communication. A participant explained: "We learn grammar and general topics, but I need expressions for explaining tooth pain and giving oral hygiene instructions." (S05) This account offers a practical interpretation of the survey results: 46 of 60 students (76.7%)

considered existing materials less relevant or not relevant, while 58 (96.7%) agreed or strongly agreed that dental-specific vocabulary was needed. Students were therefore asking not merely for more vocabulary lists, but for language situated in recognizable professional actions, including describing symptoms, explaining procedures, and giving preventive advice.

The third theme, demand for scaffolded interaction, connects students' preferences for role-play (83.3%), dialogue (73.3%), and simulation (68.3%) with their expectations of AI-supported practice. As S07 put it: "A model dialogue would help me begin. After practicing with a partner, I would like to try speaking with an AI voice tool and receive feedback." This statement suggests a progression from supported modeling to more independent conversational rehearsal. It also qualifies the AI survey findings: favorable responses indicate perceived usefulness and willingness to try such tools, not demonstrated improvements in fluency, pronunciation, or anxiety.

Document analysis provided a third perspective on these accounts. The reviewed course materials placed comparatively greater emphasis on grammatical structures and classroom presentations than on sustained patient-facing exchanges. This emphasis is consistent with the interview observation that students encounter general-language content but want opportunities to explain dental conditions and instructions. However, document analysis alone cannot establish how frequently teachers used oral interaction in actual lessons; it identifies the communicative opportunities explicitly represented in the written materials.

Taken together, the three sources provide complementary rather than identical evidence. The questionnaire establishes the relative prevalence of perceived needs, the interviews illustrate how learners interpret those needs, and the instructional documents help locate the reported mismatch in the available curriculum materials. Convergence is strongest for the need for discipline-specific language and scaffolded oral practice. AI-related evidence is narrower: the survey and interviews support learner receptiveness to voice-based practice, while the document review offers no evidence of its effectiveness. Accordingly, the proposed e-book should integrate dental scenarios, model dialogues, staged role-plays, and optional voice-AI rehearsal with feedback, with learning outcomes to be evaluated in a subsequent development phase.

## 3.2 Discussion

The most consequential finding is the interaction between affective barriers and limited opportunities for oral rehearsal. Fear of mistakes (80%) and low confidence (76.7%) were reported alongside infrequent speaking practice. Read together with the interview accounts, these responses suggest that additional speaking time alone may be insufficient unless tasks also make initial participation manageable. A graduated sequence of modeled dialogue, supported role-play, and progressively less scripted interaction is consistent with the scaffolding principle associated with sociocultural approaches to learning (Vygotsky, 1978). The present data identify a design priority, not evidence that a particular intervention has reduced anxiety.

A second finding concerns the content of that rehearsal. Nearly all respondents endorsed the need for dental-specific vocabulary (96.7%), while 76.7% judged existing materials less relevant or not relevant. The interviews and document review locate this mismatch in the distance between general-language coverage and patient-facing communication. Long (2005) argues that language courses should be grounded in the tasks and discourse demands of their users; similarly, ESP scholarship emphasizes target-situation requirements (Dudley-Evans & St John, 1998; Hutchinson & Waters, 1987). Consequently, vocabulary should be taught through communicative actions—eliciting symptoms, explaining procedures, checking comprehension—rather than through isolated word lists.

The activity preferences sharpen the instructional response. Role-play (83.3%), dialogue (73.3%), and simulation (68.3%) were favored over free speaking (33.3%), suggesting that students want interaction with an accessible entry point. TBI can supply the thematic continuity for such tasks, while communicative language teaching provides a rationale for purposeful exchange (Richards, 2006; Snow & Brinton, 2023). One proposed unit might begin with a patient-history dialogue, proceed to paired questioning, and culminate in a simulated consultation. These are proposed design choices derived from reported preferences, not tested improvements in performance.

AI enters this sequence as an optional practice medium rather than its organizing principle. Learners’ favorable perceptions make voice-based rehearsal worth exploring, particularly where partner availability is limited; however, perceived usefulness cannot establish the accuracy of automated feedback or gains in fluency. Evidence from AI-in-education research underscores the need to evaluate applications in relation to educational aims (Zawacki-Richter et al., 2019). The evidence-to-design mapping in Table 1 therefore places needs analysis before ESP content selection, thematic task design, and AI-supported practice. Teacher review remains necessary for clinical language accuracy, privacy, accessibility, and appropriate feedback. Because this is a single-site analysis-phase study, implementation, expert validation, and assessment of oral performance remain subsequent research tasks.

**Table 1.** Needs-Analysis Evidence and Proposed Instructional Responses

| Needs-analysis evidence                            | Proposed instructional response                          |
|----------------------------------------------------|----------------------------------------------------------|
| Speaking anxiety and limited oral rehearsal        | Scaffolded dialogue and low-stakes oral practice         |
| Dental-specific vocabulary and material relevance  | ESP themes centered on dental-health encounters          |
| Preference for role-play, dialogue, and simulation | Theme-based interactive tasks and patient scenarios      |
| Positive perceptions of AI-supported practice      | Optional voice-based AI rehearsal and formative feedback |

**4 Conclusion**

This Analysis-phase needs assessment identifies linked priorities for dental-health English instruction: speaking anxiety, limited opportunities for rehearsal, and a perceived mismatch between general English materials and anticipated dental communication. The high reported need for dental vocabulary and preference for guided speaking tasks indicate that disciplinary content and interactional scaffolding should be planned together.

Questionnaire patterns, interview accounts, and course-document observations inform a prospective e-book organized around dental-health encounters, model dialogues, staged role-play, simulation, and optional voice-based AI rehearsal. These are design implications derived from needs analysis, not features of a product already developed or tested.

The contribution is therefore confined to the Analysis phase of ADDIE in one institutional context. Subsequent studies should undertake Design and Development, obtain expert validation, examine usability during Implementation, and evaluate learners’ oral performance and experiences before making claims about educational impact.

## References

- Bowles, K., Sehgal, H. S., Santelmann, L., Pham, E. P., & Kohli, R. (2020). Dental Student to Patient Communication Analysis: A Pilot Study. *Health Communication*, 35(1), 10–17. <https://doi.org/10.1080/10410236.2018.1536953>
- Braun, V., & Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Braun, Virginia., & Clarke, Victoria. (2021). *Thematic Analysis: A Practical Guide*. SAGE Publications.
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Pearson.
- Ding, D., & Muhyiddin B Yusof, A. (2025). Investigating the Role of AI-Powered Conversation Bots in Enhancing L2 Speaking Skills and Reducing Speaking Anxiety: A Mixed Methods Study. *Humanities and Social Sciences Communications*, 12(1), 1223. <https://doi.org/10.1057/s41599-025-05550-z>
- Dudley-Evans, T., & St John, M.-J. (1998). *Developments in English for Specific Purposes : A Multi-Disciplinary Approach*. Cambridge University Press. <https://books.google.co.id/books?id=FY5ChNRKtxwC&printsec=copyright&hl=id#v=onepage&q&f=false>
- Ghafar, Z. N. (2022). English for Specific Purposes in English Language Teaching: Design, Development, and Environment-Related Challenges: An Overview. *Canadian Journal of Language and Literature Studies*, 2(6), 32–42. <https://doi.org/10.53103/cjlls.v2i6.72>
- Hutchinson, T., & Waters, A. (1987). *English for Specific Purposes : A Learning-Centred Approach*. Cambridge University Press. <https://books.google.co.id/books?id=s2FIpUv7gaoC&printsec=frontcover&hl=id#v=onepage&q&f=false>
- Long, M. H. (2005). *Second Language Needs Analysis* (M. H. Long, Ed.). Cambridge University Press. <https://doi.org/10.1017/CBO9780511667299>
- Malik, S., Qin, H., & Oteir, I. (2021). Perceived Psychological, Linguistic and Socio-Cultural Obstacles: An Investigation of English Communication Apprehension in EFL Learners. *International Journal of Instruction*, 14(4), 733–752. <https://doi.org/10.29333/iji.2021.14442a>
- Mariotti, C. (2024). English for Specific Purposes and Problem-Based Learning: Strengths and Opportunities. *International Journal of English Linguistics*, 14(2), 1–15. <https://doi.org/10.5539/ijel.v14n2p1>
- Morton, T. (2016). Conceptualizing and Investigating Teachers' Knowledge for Integrating Content and Language in Content-Based Instruction. *Journal of Immersion and Content-Based Language Education*, 4(2), 144–167. <https://doi.org/10.1075/jicb.4.2.01mor>
- Rayanto, Y. H., & Sugianti. (2020). *Penelitian Pengembangan Model ADDIE dan R2D2: Teori & Praktek*. Lembaga Academic & Research Institute. [https://books.google.co.id/books?id=pJHcDwAAQBAJ&printsec=frontcover&source=gbs\\_atb#v=onepage&q&f=false](https://books.google.co.id/books?id=pJHcDwAAQBAJ&printsec=frontcover&source=gbs_atb#v=onepage&q&f=false)
- Richards, J. C. (2006). *Communicative Language Teaching Today*. Cambridge University Press. <https://www.professorjackrichards.com/wp-content/uploads/Richards-Communicative-Language.pdf>
- Saka, İ., & Merç, A. (2021). The Relationship among Turkish EFL Learners' Willingness to Communicate in English, Self-efficacy Perceptions and Linguistic Self-confidence. *The Literacy Trek*, 7(2), 1–36. <https://doi.org/10.47216/literacytrek.770371>
- Schnurr, Stephanie. (2025). *Exploring Professional Communication : Language in Action*. Routledge.

- Snow, A. M., & Brinton, D. M. (2023). *Content-Based Instruction: What Every ESL Teacher Needs to Know*. University of Michigan Press/ELT. <https://doi.org/10.3998/mpub.10138077>
- Tayyab, J., Imran, Z., & Arif, M. (2023). Review of Factors Affecting English Speaking Skills among Foreign English Learners. *Global Language Review*, 8(2), 487–498. [https://doi.org/10.31703/glr.2023\(VIII-II\).40](https://doi.org/10.31703/glr.2023(VIII-II).40)
- Vygotsky, L. S. (1978). *Mind in society*. Harvard University Press.
- Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), 39. <https://doi.org/10.1186/s41239-019-0171-0>