



Bridging Gaps in ESP: A Need Analysis for AI-Integrated Food and Beverage Service Module

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Abstract. This study investigates the needs underlying the development of an English for Specific Purposes (ESP) module for Food and Beverage Service (FBS) integrated with AI-generated listening audio in vocational education. Although ESP materials are expected to reflect workplace communication demands, preliminary observations reveal a mismatch between instructional content and industry-relevant language use, particularly in listening competence. This study employed a mixed-method approach, collecting data through document analysis of lesson plans and syllabi, questionnaires with closed and open-ended items completed by vocational students, and interviews with instructors and industry practitioners. The analysis focuses on learners' necessities, lacks, and wants. The findings indicate that students require authentic, workplace-oriented materials, especially those supporting listening and speaking in real hospitality contexts. However, significant gaps persist, including limited exposure to authentic listening input, insufficient practice opportunities, and low confidence in interacting with international guests. Students also prefer structured, flexible, and context-specific materials incorporating dialogue-based audio and diverse accents. These findings highlight a mismatch between learners' needs and existing instructional practices. The study concludes that AI-generated audio offers a promising solution by providing customizable and authentic listening input, although its effectiveness depends on alignment with pedagogical principles and learner needs.

Keywords: Need analysis, Vocational student, English for Specific Purposes, AI-Integrated Module, Listening skill

1. INTRODUCTION

English for Specific Purposes (ESP) is designed to prepare learners to use English effectively in professional contexts aligned with their field of expertise. ESP focuses on equipping learners with context-specific language skills, genres, and expressions required in particular occupations [1]-[3]. To meet the increasing demand for workplace communication, ESP has been widely integrated into tertiary and vocational education [4], [5]. In this context, ESP emphasizes the functional use of language for real-world purposes, ensuring that vocational institutions equip learners with industry-relevant competencies [6].

In Bali, vocational education and training (VET) institutions predominantly orient their programs toward the hospitality sector, reflecting the region's economic reliance on tourism. The growing interest in vocational education is driven by learners' expectations for immediate employability. Consequently, alignment with industry needs becomes essential, as insights from the tourism sector help bridge the gap between classroom instruction and workplace demands [7]. Without such alignment, learners may encounter significant challenges when transitioning into professional environments.

However, preliminary observations in an English for Food and Beverage Service (FBS) class revealed substantial limitations in the existing instructional materials. The module used as the primary learning resource lacks interactive activities that promote active learner engagement. Moreover, the content is not systematically aligned with the syllabus and provides limited vocabulary, restricted language expressions, and repetitive exercises. Similar findings that existing ESP modules often fail to address learners' needs adequately [8]. This issue is particularly critical given that vocational learners are expected to develop

both productive and receptive skills [9], [10]. Nevertheless, the current module places disproportionate emphasis on speaking and writing, with minimal provision for reading and listening input, resulting in an imbalance that may hinder communicative competence.

The lack of listening input emerges as a central concern. Interviews with instructors indicate difficulties in sourcing listening materials that reflect authentic hospitality and cruise industry contexts. This mismatch limits learners' exposure to realistic communication, which is essential for workplace readiness. As a result, learners may struggle to comprehend diverse accents, speech rates, and situational language use in real-life interactions [11]-[13]. Addressing this gap requires the development of context-specific and authentic listening materials.

In this regard, Generative Artificial Intelligence (GenAI) offers a promising avenue for material development. GenAI refers to advanced systems capable of generating new and customized content [14], including audio resources tailored to specific learning contexts. Previous studies have highlighted the potential of AI in language learning [15], the study about the students' and teacher' perspectives about that tools in asynchronous learning and its challenges [16]-[18] while the research demonstrates the effectiveness of AI-generated audio tools in enhancing listening instruction [19], [20]. Despite these advancements, the application of GenAI in developing listening materials for ESP, particularly in vocational contexts, remains underexplored.

Therefore, this study addresses this gap by conducting a needs analysis as the basis for developing an AI-integrated English module for Food and Beverage Service. The study specifically focuses on identifying learners' necessities, lacks, and wants to inform the design of listening materials using AI-generated audio. By doing so, this research contributes to ESP material development by positioning AI not merely as a technological innovation, but as a pedagogically grounded tool aligned with learners' needs and industry demands.

2. METHOD

This study employed a mixed-method approach within a Research and Development (R&D) framework, specifically focusing on the analysis phase of the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). The use of a mixed-method design was intended to provide a comprehensive understanding of learners' needs by combining the strengths of quantitative and qualitative data [21]. Quantitative data enabled the identification of general patterns regarding students' perceived needs, while qualitative data offered deeper insights into instructional practices and industry expectations. The study was conducted in a Vocational Education and Training (VET) institution in Tabanan, Bali. The research specifically focused on students in the Food and Beverage Service major, as this field requires intensive use of English in authentic workplace interactions, especially for students undertaking internships abroad or pursuing careers in international hospitality settings.

Data Collection

Data collection was carried out through document analysis, questionnaires, and semi-structured interviews to ensure methodological triangulation and enhance the validity of the findings. The instrument matrix is presented below:

Table 1. The Instrument Matrix

Instrument	Aim	Analysis
Document Analysis	To analyze the alignment among the curriculum, syllabus, and lesson plan of the English for Food and Beverage Service subject	Descriptive Qualitative
Interview	To figure out the perspectives of ESP instructors and industry practitioners	
Questionnaires	To identify the students' needs, lacks, and wants related to the learning material for English for Food and Beverage Service	Descriptive Statistics

The documents analyzed included the SKKNI-based curriculum, syllabus, lesson plans, and the existing FBS module. A questionnaire was administered to students to identify their necessities, lacks, and wants, following the framework proposed by [22]. The instrument consisted of 19 close-ended items measured using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5), and six open-ended questions to capture more detailed responses. Semi-structured interviews were conducted with instructors and industry practitioners to obtain in-depth perspectives on instructional challenges and

workplace communication demands. The interviews focused on: (1) the adequacy of existing instructional materials; (2) challenges in teaching listening skills; and (3) expectations of English proficiency in real workplace contexts. This approach aligns with qualitative research practices that emphasize credibility and dependability [23].

Participants and Informants

The participants of this study consisted of 55 students enrolled in the Food and Beverage Service program. These students were selected because they had direct experience using the existing module, making them appropriate respondents for identifying learning needs and gaps.

The informants for the interviews were selected using purposive sampling, based on their expertise and relevance to the research objectives. The informants included three instructors teaching English for Food and Beverage Service, and two industry practitioners with experience in the hospitality sector. This selection ensured representation from both educational and professional perspectives, which is essential in ESP needs analysis to capture both learning context and target situation requirements.

Data Analysis

Both quantitative and qualitative data analysis techniques were employed to provide a comprehensive interpretation of the data. Quantitative data obtained from the questionnaires were analyzed using descriptive statistics, particularly the mean score, to determine the overall tendency of students' responses on each item. The use of mean scores is appropriate for Likert-scale data to identify the degree of agreement and prioritize learners' needs. Qualitative data from document analysis, open-ended questionnaire responses, and interviews were analyzed using the interactive model of qualitative analysis proposed by [23], which involves data condensation, data display, and conclusion drawing and verification.

3. FINDINGS

The findings of the needs analysis study is structured based on the framework of necessities, lacks, and wants as proposed by [22], in order to provide a comprehensive understanding of learners' needs in the context of Food and Beverage Service (FBS). The findings are derived from multiple data sources, including questionnaires, interviews, and document analysis, allowing for triangulation and a more robust interpretation of the data. The results are categorized into three key areas: necessities, lacks, and wants. The Results of the questionnaires are presented and can be seen in Table 2.

Table 2. Need Analysis Questionnaire Results

No	Statement	Mean Score
Needs		
1	I need to study English materials that reflect current industry practices in restaurants, cafés, and hotels to enhance my practical understanding	4.88
2	I need the structured vocabulary list and expressions specifically tailored for effective communication in the Food & Beverage service	4.73
3	I need listening materials that reflect real communication in modern hospitality settings, including handling digital payments and technology-assisted service.	4.75
4	I need the exposure to a variety of English accents commonly found in hospitality teamwork to improve my listening comprehension through AI-Generated audio.	4.79
5	I need listening tasks that simulate real-life communication scenarios, such as order-taking, upselling, and effectively handling customer complaints	4.88
6	I need to study and practice both receptive (listening and reading) and productive (speaking and writing) language skills to have good communication abilities	4.77
7	I need Generated AI material or other digital materials that facilitate independent learning	4.83
Lacks		
8	I feel like I lack familiarity with authentic restaurant conversations	4.65
9	I do not get enough listening comprehension practice in various Food & Beverage service situations during my English learning.	4.87
10	I feel like I lack exposure to industry-standard terminology used in F&B in a professional setting	4.56
11	I feel like the listening audio I use does not reflect real communication in Food & Beverage service situations.	4.73
12	I feel like that I lack confidence when speaking with foreign guests due to limited exposure to diverse conversational inputs and contexts	4.85

13	I do not have enough learning materials that help me master the English skills required in Food & Beverage service.	4.73
Wants		
14	I would like the module to incorporate realistic, industry-specific audio to improve the authenticity of listening experiences	4.75
15	I would like the listening activities to include structured tasks for pre-listening, while-listening, and post-listening part	4.81
16	I would like to have materials that allow flexibility for classroom and self-study use.	4.67
17	I would like the audio materials to feature a variety of accents, including American, British, Australian, Taiwanese, Hong Kong, Turkish, Indian, and others, to expose many different English pronunciations through AI-Generated listening audio.	4.83
18	I would like the module to include dialogues and tasks that simulate real restaurant interactions	4.65
19	I would like to integrate vocabulary lists and pronunciation support to improve speaking skills	4.63

According to questionnaire results, the students perceived needs in learning English for Food and Beverage Service obtained mean scores ranging from 4.73 to 4.88 on a five-point scale. Additionally, there is an indication of a high level of perceived difficulty across all aspects with mean scores ranging from 4.56 to 4.87. In response to the lacks, the students' wants regarding the development of English learning materials for Food and Beverage Service reached mean scores ranging from 4.63 to 4.83 which is indicating a high level of preference for all proposed features.

Necessities

The highest mean scores (4.88) are found in the need for learning materials that reflect current industry practices and in the need for listening tasks that simulate real-life communication scenarios, such as order-taking, upselling, and handling complaints. The perception of the students is aligned with the statement of the industry user:

"Many situations need adequate understanding of English of the waiter or waitress. For example, offering help, handling reservation, sequence of service, and handling complaints." - Industry user 2

This fact reinforces the need of alignment between the learning materials and the competencies demand in the industry.

In addition, the need for exposure to various English accents (4.79) and the integration of listening materials reflecting real communication (4.75) highlight the importance of listening competence in dealing with diverse guests in real service situations. Although slightly lower, the need for structured vocabulary and expressions (4.73) still indicates that students require linguistic support to communicate effectively. Overall, these findings justify the development of instructional materials that are contextual, skill-integrated, and supported by authentic audio input.

The findings from the open-ended questions responses reveal a clear pattern of target needs that are strongly aligned with real Food and Beverage Service communication. Students identified key situations such as welcoming guests, taking orders, handling complaints, explaining menu items, and managing reservations as essential areas for listening practice. These situations represent core service interactions that occur frequently in hospitality settings, indicating that students are aware of the communicative demands of their future workplace. To study the perception, the instructors have highlighted:

"It is better for us, the instructors and the students, to have listening audio exposure complete with the transcript. With this way, the students can listen while studying the words or language expressions through reading. Well, audio visual method I guess." – Instructor 2

Notably, the inclusion of tasks such as handling payment, serving wine, and responding to guest requests further emphasizes the need for both procedural and interpersonal communication skills. In addition, students explicitly reported that speaking and listening are the skills they need the most support with, suggesting that receptive and productive oral communication remains a primary concern in their learning process.

Lacks

The highest mean score (4.87) is related to the lack of sufficient listening comprehension practice in various Food and Beverage Service situations. This suggests that students feel they are not adequately exposed to listening activities that reflect real workplace communication, which is essential for understanding guest requests and responding appropriately. This calculation is aligned with the instructor's answer:

“The students sometimes get confused if the accent is different, but I find it difficult to find listening audios that accommodate various accents but still related to the topic I taught.” - Instructor 1

Therefore, the conventional way of searching for listening audio could not fulfill the need of authentic audio that speaks several different accents. Similarly, students reported a lack of confidence when speaking with foreign guests (4.85), which can be linked to limited exposure to diverse conversational inputs and authentic communication contexts. The result is positively supported by the statement of the industry user:

“Many of fresh graduates are not ready to interact with guests yet. Their listening is bad. They cannot respond the conversation because they are stuck and need assistance to understand the situation.” – Industry user 1

With this saying, listening could not be underestimated since the speech product is often the results of audio inputs.

Other notable lacks include the perception that existing listening audio does not reflect real communication (4.73) and insufficient learning materials to support mastery of required English skills in Food and Beverage Service (4.73). Although slightly lower, students also indicated limited familiarity with authentic restaurant conversations (4.65) and a lack of exposure to industry-standard terminology (4.56), both of which remain significant concerns. This finding reinforces the major development on the existing learning material and highlight a clear gap between current instructional practices and the communicative demands of the hospitality industry.

Furthermore, the students reported significant gaps through open-ended question that hinder their ability to achieve the expected competencies. The primary difficulties in listening comprehension include limited vocabulary, unfamiliar accents, rapid speech, and inadequate grammatical understanding. These challenges indicate that students are not adequately exposed to varied and scaffolded listening input, which is crucial for developing comprehension skills in real-life contexts. Furthermore, students expressed dissatisfaction with the current learning materials, citing issues such as poor illustration quality, lack of authentic content, insufficient language expressions, and limited examples. This gap is further reinforced by the students’ difficulty in understanding the core of service interaction, particularly in handling complaints, explaining menus, and responding to guest requests, which are critical competencies in professional practice.

Wants

The highest mean score (4.83) is attributed to the need for audio materials that feature a variety of English accents, a feature that conventional classroom materials cannot replicate. This suggests that students strongly desire exposure to diverse pronunciation patterns, which is essential for understanding international guests in real hospitality settings.

In addition, students expressed a strong preference for structured listening activities that include pre-listening, while-listening, and post-listening stages (4.81). This indicates that students not only need authentic input but also guided learning processes to support comprehension. The desire for realistic, industry-specific audio (4.75) further reinforces the importance of authenticity in learning materials. Meanwhile, students also showed interest in having flexible materials that can be used both in classroom settings and for independent study (4.67), highlighting the need for accessible and adaptable resources. It is supported by [15], who reported that AI voice assistants and speech recognition tools enable learners to encounter diverse pronunciation patterns, allowing them to learn independently at any time

Although slightly lower, the inclusion of simulated restaurant dialogues (4.65) and integrated vocabulary with pronunciation support (4.63) still received high agreement, suggesting that students value contextual practice and linguistic support. In addition to the questionnaire results, the industry user emphasis:

“It can be good if in the classroom, the students have many opportunities to do role-play, learning case study, speaking and listening practices.” – Industry user 1

The wants perspectives from the students align with the suggestion from the professionals in the industry. It means that the students are aware that the challenges they are about to have need to be overcome seriously through in-class simulations and learn from the real cases.

In response to the lacks, open-ended questions in the questionnaire result the students’ wants. Students expressed a strong preference for audio materials in the form of dialogues and role-plays, indicating the need for interactive and contextualized learning experiences. This preference suggests that students value learning through simulated real-life communication rather than passive input. Moreover, their interest in dialogue-based audio highlights the importance of exposure to conversational language, which can

support both listening comprehension and speaking performance. The demand for such materials reinforces the necessity of integrating authentic and scenario-based audio into the learning process.

The analysis of both closed-ended and open-ended questionnaire responses reveals a consistent pattern regarding students' needs, lacks, and wants in learning English for Food and Beverage service. The findings indicate that students require strong practical communication skills, particularly in listening and speaking, to perform effectively in real workplace situations. However, these needs are not adequately supported, as students experience limited exposure to authentic listening materials, insufficient practice opportunities, and low confidence in using English in real interactions. At the same time, students express a clear preference for realistic, structured, and flexible learning materials, especially those incorporating dialogue-based audio and varied accents. The statement from the industry user validates the response:

“Highly recommended if you have learning material that can accommodate various accent, because the guests would be varied from many different countries like France, Australian, India, Singapore, and so on.” – Industry user 2

This overall pattern highlights a mismatch between students' learning needs and the current instructional practices and materials.

4. DISCUSSIONS

The findings of this study reveal a strong interconnection between students' necessities, lacks, and wants in learning English for Food and Beverage Service (FBS). Collectively, these three dimensions demonstrate that vocational students require not only linguistic competence but also authentic communicative exposure that reflects the realities of hospitality workplaces. The consistency across questionnaire responses, open-ended answers, instructor perspectives, and industry user feedback indicates that the current instructional materials have not fully accommodated the communicative demands encountered in professional settings.

Regarding necessities, students strongly emphasized the importance of learning materials that reflect authentic industry practices, particularly listening activities simulating workplace interactions such as handling reservations, upselling products, managing complaints, and responding to guest requests. This suggests that students strongly prioritize practical, workplace-oriented learning experiences that closely mirror authentic hospitality contexts. [4] supports that learners' specific needs must define ESP, and that teachers should concentrate not on general English but on language that serves students' fields of specialization. In vocational education, particularly hospitality training, communication competence cannot be separated from situational and procedural contexts because language use is highly dependent on service encounters and interaction patterns.

The students perceived listening competence as one of the most essential yet underdeveloped skills. The need for exposure to various English accents and realistic communication contexts demonstrates students' awareness that hospitality communication involves interaction with non-native guests from different linguistic and cultural backgrounds [24]. This finding is particularly important because listening in ESP contexts is often treated merely as a supplementary skill rather than a core professional competence. In fact, workplace communication in hospitality industries requires immediate comprehension, rapid interpretation of guest intentions, and appropriate spoken responses under real-time pressure. Therefore, insufficient listening exposure may directly affect service performance and professional confidence.

The incorporation of AI-generated audio is particularly relevant, as it can provide varied accents, realistic scenarios, repeated listening practice, aligning closely with the students' identified needs [25], [26], and assist the teacher in the classroom in skills development and building confidence [27]. This report are consistent with [28] who found that Food and Beverage Students identified speaking as their most critical skill and required materials containing authentic language expressions specific to their service roles. Speaking skill as a productive skill will influenced by the audio inputs, listening [8]. The perception of the students revealed that they need the integration of the four skills interconnectedly while enriching vocabularies, learning structured to meet the communicative interaction in workplace settings.

The identified lacks further reinforce the urgency of improving instructional materials. Students reported insufficient listening practice, lack of authentic communication exposure, unfamiliarity with diverse accents, and low confidence when interacting with foreign guests. This reinforces the argument that ESP instruction must provide context-specific input to prepare learners for target situations [2]. In ESP contexts, this reflects a misalignment between classroom practices and real-world communication demands [29]. The statements from industry users strengthen this issue, particularly regarding graduates' inability to respond spontaneously during guest interactions due to poor listening comprehension. Such

findings suggest that conventional classroom materials may overly prioritize scripted dialogues and isolated language exercises while neglecting authentic interactional complexity. The view about insufficient exposure to meaningful input can hinder the development of communicative competence, particularly in speaking [30], [31] justify that AI-generated content such as images, texts, audios, and videos could enhance classroom instructions [32], [33].

The statement from [15] specifically identified that over-dependence on inadequate tools can limit students' development of authentic communication skills. In this regard, the integration of AI-generated audio becomes particularly relevant, as it can provide diverse, scenario-based listening materials, simulate real-life interactions, and offer repeated exposure to authentic language use [25], [34]. Such features are expected to reduce students' lacks, especially in listening comprehension, confidence, and familiarity with professional communication in Food and Beverage Service.

However, the significance of AI-generated audio in this study should not be interpreted merely as technological innovation. One possible weakness in AI-based language learning is the assumption that technology itself automatically improves learning outcomes. The findings of this study instead suggest that technology becomes meaningful only when it addresses pedagogical gaps identified through needs analysis. In other words, the novelty of AI-generated audio does not lie solely in the use of artificial intelligence, but in its ability to accommodate authentic, customizable, and context-specific listening exposure that is difficult to achieve through conventional materials.

Furthermore, the students' wants reveal that learners are highly aware of the type of instructional support they need. Their preference for structured listening activities involving pre-listening, while-listening, and post-listening stages indicates that students do not simply demand exposure to authentic audio, but also require pedagogically guided learning experiences to enrich and train vocabularies [24]. It reflects that good materials should guide learners through scaffolded experiences rather than simply exposing them to input [35]. This finding implies that authentic materials alone are insufficient without instructional sequencing that supports comprehension and language processing.

Students' strong preference for dialogue-based audio, role-play activities, and varied accents also indicates that they value experiential and contextual learning. Hospitality communication is inherently interactional; therefore, students expect learning activities that simulate real communicative pressure rather than passive language reception. The industry users' recommendation regarding role-play and case-study activities further validates the importance of simulation-based learning in vocational ESP classrooms. The absence of listening materials and the need for both formal and informal dialogues suggest that the existing resources do not reflect the diversity and complexity of real communication in the Food and Beverage industry trend. Up-to-date context of listening audio make the students fond of learning more about the topic [36].

Overall, these findings justify the development of a comprehensive and flexible instructional module that integrates authentic, varied, and structured audio materials. Before using AI-Assistance in assessments [37], classroom instructions and learning material and media [38] should be the focus of improvement. The use of AI-generated audio is particularly relevant in addressing these wants, as it enables the creation of diverse accents, realistic scenarios, and repeatable listening practice, which are difficult to achieve through conventional materials [39], [40]. Therefore, it justifies the development of an English for Food and Beverage Service module integrated with AI-generated audio to provide authentic, contextualized, and engaging learning experiences that better prepare students for professional communication.

More importantly, the interconnected pattern between necessities, lacks, and wants reveals a broader pedagogical issue within vocational ESP instruction. Students already understand the communicative realities of the workplace and are aware of the competencies they need to master; however, the instructional materials currently used in classrooms have not sufficiently bridged the gap between academic learning and workplace communication. This mismatch may potentially limit students' readiness for internships and international employment opportunities, particularly in the hospitality industry, where communication quality directly influences service quality and customer satisfaction.

According to the results of the analysis of students' needs, lecturer input, curriculum, syllabus and lesson plans, as well as the existing teaching materials, the developed module is characterized by the following features: (1) varied learning activities incorporating a range of activities; (2) work-related knowledge and skills that provides relevant information about professional skills and workplace contexts; (3) integration of language skills combining reading, speaking, writing, and listening skills comprehensively and supported by AI-generated listening audio; (4) clear and supportive illustrations; (5) alignment with syllabus and lesson plan to ensure consistency in the developed module; (6) contextual vocabulary and grammar use; (7) real context-based activities based on authentic situations encountered

in the workplace; and (8) ease of accessibility for users, students and instructors. These characteristics indicate that the proposed module is not designed merely as supplementary material, but as a pedagogically grounded ESP resource intended to narrow the gap between vocational education and workplace communication demands.

5. CONCLUSION

This study aimed to investigate the needs of vocational students in learning English for Food and Beverage Service and to provide a basis for developing an instructional module integrated with AI-generated listening audio. Drawing on the framework of necessities, lacks, and wants, the findings reveal a consistent pattern across all data sources. In terms of necessities, students demonstrated a strong demand for authentic, workplace-oriented materials that reflect real communication in hospitality settings. Listening competence, particularly exposure to diverse accents and realistic service interactions, emerged as a critical component of their learning needs. The analysis of lacks identified significant gaps in current instructional practices, especially the limited provision of listening input, lack of authentic materials, and low confidence in communicating with foreign guests. These findings indicate a misalignment between ESP principles and existing teaching materials. The students' wants highlight a preference for structured, flexible, and context-specific learning materials, including dialogue-based audio, varied accents, and scaffolded listening activities. Taken together, these findings confirm that the current English instructional materials for Food and Beverage Service do not sufficiently support learners' communicative needs, particularly in listening and speaking skills. This mismatch underscores the importance of aligning needs analysis with material development. Consequently, this study proposes the development of an English for Food and Beverage Service module integrated with AI-generated audio. The integration of AI technology offers practical advantages, such as the ability to generate diverse accents, simulate realistic communication scenarios, and provide repeated listening exposure. However, this study also emphasizes that technology should not be viewed as a standalone solution. Its effectiveness depends on its alignment with pedagogical principles and its ability to complement authentic communication practices.

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