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Evaluating panel discussions in ESP classes: an exploration of international medical students' and ESP instructors' perspectives through qualitative research

Elham Nasiri¹ and Laleh Khojasteh^{1*}

Abstract

This study investigates the effectiveness of panel discussions, a specific interactive teaching technique where a group of students leads a pre-planned, topic-focused discussion with audience participation, in English for Specific Purposes (ESP) courses for international medical students. This approach aims to simulate professional conference discussions, preparing students for future academic and clinical environments where such skills are crucial. While traditional group presentations foster critical thinking and communication, a gap exists in understanding how medical students perceive the complexities of preparing for and participating in panel discussions within an ESP setting. This qualitative study investigates the perceived advantages and disadvantages of these discussions from the perspectives of both panelists (medical students) and the audience (peers). Additionally, the study explores potential improvements based on insights from ESP instructors. Utilizing a two-phase design involving reflection papers and focus group discussions, data were collected from 46 medical students and three ESP instructors. Thematic analysis revealed that panel discussions offer unique benefits compared to traditional presentations, including enhanced engagement and more dynamic skill development for both panelists and the audience. Panelists reported gains in personal and professional development, including honing critical thinking, communication, and presentation skills. The audience perceived these discussions as engaging learning experiences that fostered critical analysis and information synthesis. However, challenges such as academic workload and concerns about discussion quality were also identified. The study concludes that panel discussions, when implemented effectively, can be a valuable tool for enhancing critical thinking, communication skills, and subject matter knowledge in ESP courses for medical students. These skills are transferable and can benefit students in various academic and professional settings, including future participation in medical conferences. This research provides valuable insights for ESP instructors seeking to integrate panel discussions into their curriculum, ultimately improving student learning outcomes and preparing them for future success in professional communication.

Keywords Group oral presentations, Medical students, Panel discussions, ESP courses

*Correspondence:

Laleh Khojasteh
khojastehlaleh@yahoo.com

¹Department of English Language, School of Paramedical Sciences, Shiraz
University of Medical Sciences, Shiraz, Iran



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Introduction

In the field of medical education, the acquisition and application of effective communication skills are crucial for medical students in today's global healthcare environment [1]. This necessitates not only strong English language proficiency but also the ability to present complex medical information clearly and concisely to diverse audiences.

Language courses, especially English for Specific Purposes (ESP) courses for medical students, are highly relevant in today's globalized healthcare environment [2]. In non-English speaking countries like Iran, these courses are particularly important as they go beyond mere language instruction to include the development of critical thinking, cultural competence, and professional communication skills [3]. Proficiency in English is crucial for accessing up-to-date research, participating in international conferences, and communicating with patients and colleagues from diverse backgrounds [4]. Additionally, ESP courses help medical students understand and use medical terminologies accurately, which is essential for reading technical articles, listening to audio presentations, and giving spoken presentations [5]. In countries where English is not the primary language, ESP courses ensure that medical professionals can stay current with global advancements and collaborate effectively on an international scale [6]. Furthermore, these courses support students who may seek to practice medicine abroad, enhancing their career opportunities and professional growth [7].

Moreover, ESP courses enable medical professionals to communicate effectively with international patients, which is crucial in multicultural societies and for medical tourism, ensuring that patient care is not compromised due to language barriers [8]. Many medical textbooks, journals, and online resources are available primarily in English, and ESP courses equip medical students with the necessary language skills to access and comprehend these resources, ensuring they are well-informed about the latest medical research and practices [9].

Additionally, many medical professionals from non-English speaking countries aim to take international certification exams, such as the USMLE or PLAB, which are conducted in English, and ESP courses prepare students for these exams by familiarizing them with the medical terminology and language used in these assessments [10]. ESP courses also contribute to the professional development of medical students by improving their ability to write research papers, case reports, and other academic documents in English, which is essential for publishing in international journals and contributing to global medical knowledge [11]. In the increasingly interdisciplinary field of healthcare, collaboration with professionals from other countries is common, and ESP courses facilitate effective

communication and collaboration with international colleagues, fostering innovation and the exchange of ideas [12].

With the rise of telemedicine and online medical consultations, proficiency in English is essential for non-English speaking medical professionals to provide remote healthcare services to international patients, and ESP courses prepare students for these modern medical practices [13].

Finally, ESP courses often include training on cultural competence, which is crucial for understanding and respecting the cultural backgrounds of patients and colleagues, leading to more empathetic and effective patient care and professional interactions [14]. Many ESP programs for medical students incorporate group presentations as a vital component of their curriculum, recognizing the positive impact on developing these essential skills [15].

Group projects in language courses, particularly in ESP for medical students, are highly relevant for several reasons. They provide a collaborative environment that mimics real-world professional settings, where healthcare professionals often work in multidisciplinary teams [16]. These group activities foster not only language skills but also crucial soft skills such as teamwork, leadership, and interpersonal communication, which are essential in medical practice [17].

The benefits of group projects over individual projects in language learning are significant. Hartono, Mujiyanto [18] found that group presentation tasks in ESP courses led to higher self-efficacy development compared to individual tasks. Group projects encourage peer learning, where students can learn from each other's strengths and compensate for individual weaknesses [19]. They also provide a supportive environment that can reduce anxiety and increase willingness to communicate in the target language [20]. However, it is important to note that group projects also come with challenges, such as social loafing and unequal contribution, which need to be managed effectively [21].

Traditional lecture-based teaching methods, while valuable for knowledge acquisition, may not effectively prepare medical students for the interactive and collaborative nature of real-world healthcare settings [22]. Panel discussions (hereafter PDs), an interactive teaching technique where a group of students leads a pre-planned, topic-focused discussion with audience participation, are particularly relevant in this context. They simulate professional conference discussions and interdisciplinary team meetings, preparing students for future academic and clinical environments where such skills are crucial [23].

PDs, also known as moderated discussions or moderated panels, are a specific type of interactive format

where a group of experts or stakeholders engage in a facilitated conversation on a particular topic or issue [22]. In this format, a moderator guides the discussion, encourages active participation from all panelists, and fosters a collaborative environment that promotes constructive dialogue and critical thinking [24]. The goal is to encourage audience engagement and participation, which can be achieved through various strategies such as asking open-ended questions, encouraging counterpoints and counterarguments, and providing opportunities for audience members to pose questions or share their own experiences [25]. These discussions can take place in-person or online, and can be designed to accommodate diverse audiences and settings [26].

In this study, PD is considered a speaking activity where medical students are assigned specific roles to play during the simulation, such as a physician, quality improvement specialist, policymaker, or patient advocate. By taking on these roles, students can gain a better understanding of the diverse perspectives and considerations that come into play in real-world healthcare discussions [23]. Simulating PDs within ESP courses can be a powerful tool for enhancing medical students' learning outcomes in multiple areas. This approach improves language proficiency, academic skills, and critical thinking abilities, while also enabling students to communicate effectively with diverse stakeholders in the medical field [27, 28].

Theoretical framework

The panel discussions in our study are grounded in the concept of authentic assessment (outlined by Villarroel, Bloxham [29]), which involves designing tasks that mirror real-life situations and problems. In the context of medical education, this approach is particularly relevant as it prepares students for the complex, multidisciplinary nature of healthcare communication. Realism can be achieved through two means: providing a realistic context that describes and delivers a frame for the problem to be solved and creating tasks that are similar to those faced in real and/or professional life [30]. In our study, the PDs provide a realistic context by simulating scenarios where medical students are required to discuss and present complex medical topics in a professional setting, mirroring the types of interactions they will encounter in their future careers.

The task of participating in PDs also involves cognitive challenge, as students are required to think critically about complex medical topics, analyze information, and communicate their findings effectively. This type of task aims to generate processes of problem-solving, application of knowledge, and decision-making that correspond to the development of cognitive and metacognitive skills [23]. For medical students, these skills are crucial in

developing clinical reasoning and effective patient communication. The PDs encourage students to go beyond the textual reproduction of fragmented and low-order content and move towards understanding, establishing relationships between new ideas and previous knowledge, linking theoretical concepts with everyday experience, deriving conclusions from the analysis of data, and examining both the logic of the arguments present in the theory and its practical scope [24, 25, 27].

Furthermore, the evaluative judgment aspect of our study is critical in helping students develop criteria and standards about what a good performance means in medical communication. This involves students judging their own performance and regulating their own learning [31]. In the context of panel discussions, students reflect on their own work, compare it with desired standards, and seek feedback from peers and instructors. By doing so, students can develop a sense of what constitutes good performance in medical communication and what areas need improvement [32]. Boud, Lawson and Thompson [33] argue that students need to build a precise judgment about the quality of their work and calibrate these judgments in the light of evidence. This skill is particularly important for future medical professionals who will need to continually assess and improve their communication skills throughout their careers.

The theoretical framework presented above highlights the importance of authentic learning experiences in medical education. By drawing on the benefits of group work and panel discussions, university instructor-researchers aimed to provide medical students with a unique opportunity to engage with complex cases and develop their communication and collaboration skills. As noted by Suryanarayana [34], authentic learning experiences can lead to deeper learning and improved retention. Considering the advantages of group work in promoting collaborative problem-solving and language development, the instructor-researchers designed a panel discussion task that simulates real-world scenarios, where students can work together to analyze complex cases, share knowledge, and present their findings to a simulated audience.

While previous studies have highlighted the benefits of interactive learning experiences and critical thinking skills in medical education, a research gap remains in understanding how medical students perceive the relevance of PDs in ESP courses. This study aims to address this gap by investigating medical students' perceptions of PD tasks in ESP courses and how these perceptions relate to their language proficiency, critical thinking skills, and ability to communicate effectively with diverse stakeholders in the medical field. This understanding can inform best practices in medical education, contributing to the development of more effective communication skills

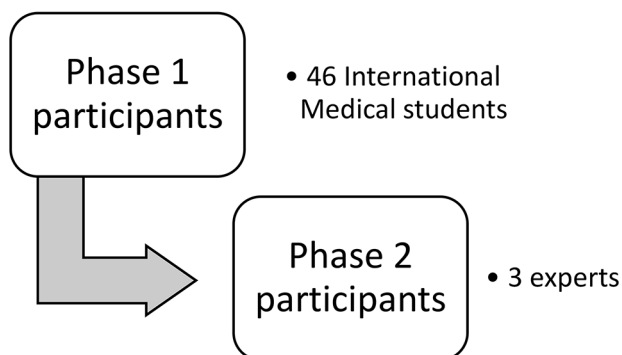


Fig. 1 Participants of the study in two phases

Table 1 Demographic characteristics of international students who participated in the research

Characteristics	Subcategories	Frequency (N)	Percentage (%)
Country	India	37	80.43%
	Lebanon	5	10.86%
	Pakistan	1	2.17%
	Iraq	1	2.17%
	Bahrain	1	2.17%
	Afghanistan	1	2.17%
Gender	Female	28	60.86%
	Male	18	39.13%
Age (Years)	19–21	46	100%
First Language	English	38	82.61%
	French	6	13.04%
	EFL (English as a Foreign Language)	2	4.35%
Semester	3rd	46	100%

for future healthcare professionals worldwide [23]. The research questions guiding this study are:

1. What are the perceived advantages of PDs from the perspectives of panelists and the audience?
2. What are the perceived disadvantages of PDs from the perspectives of panelists and the audience?
3. How can PDs be improved for panelists and the audience based on the insights of ESP instructors?

Methodology

Aim and design

For this study, a two-phase qualitative design was employed to gain an understanding of the advantages and disadvantages of PDs from the perspectives of both student panelists and the audience (Phase 1) and to acquire an in-depth understanding of the suggested strategies provided by experts to enhance PPs for future students (Phase 2).

Participants and context of the study

This study was conducted in two phases (Fig. 1) at Shiraz University of Medical Sciences (SUMS), Shiraz, Iran.

In the first phase, the student participants were 46 non-native speakers of English and international students who studied medicine at SUMS. Their demographic characteristics can be seen in Table 1.

These students were purposefully selected because they were the only SUMS international students who had taken the ESP (English for Specific Purposes) course. The number of international students attending SUMS is indeed limited. Each year, a different batch of international students joins the university. They progress through a sequence of English courses, starting with General English 1 and 2, followed by the ESP course, and concluding with academic writing. At the time of data collection, the students included in the study were the only international students enrolled in the ESP course. This mandatory 3-unit course is designed to enhance their language and communication skills specifically tailored to their profession. As a part of the Medicine major curriculum, this course aims to improve their English language proficiency in areas relevant to medicine, such as understanding medical terminology, comprehending original medicine texts, discussing clinical cases, and communicating with patients, colleagues, and other healthcare professionals.

Throughout the course, students engage in various interactive activities, such as group discussions, role-playing exercises, and case studies, to develop their practical communication skills. In this course, medical students receive four marks out of 20 for their oral presentations, while the remaining marks are allocated to their written midterm and final exams. From the beginning of the course, they are briefed about PDs, and they are shown two YouTube-downloaded videos about PDs at medical conferences, a popular format for discussing and sharing knowledge, research findings, and expert opinions on various medical topics.

For the second phase of the study, a specific group of participants was purposefully selected. This group consisted of three faculty members from SUMS English department who had extensive experience attending numerous conferences at national and international levels, particularly in the medical field, as well as working as translators and interpreters in medical congresses. Over the course of ten years, they also gained considerable experience in PDs. They were invited to discuss strategies helpful for medical students with PDs.

Panel discussion activity design and implementation

When preparing for a PD session, medical students received comprehensive guidance on understanding the roles and responsibilities of each panel member. This

guidance was aimed at ensuring that each participant was well-prepared and understood their specific role in the discussion.

Moderators should play a crucial role in steering the conversation. They are responsible for ensuring that all panelists have an opportunity to contribute and that the audience is engaged effectively. Specific tasks include preparing opening remarks, introducing panelists, and crafting transition questions to facilitate smooth topic transitions. The moderators should also manage the time to ensure balanced participation and encourage active audience involvement.

Panelists are expected to be subject matter experts who bring valuable insights and opinions to the discussion. They are advised to conduct thorough research on the topic and prepare concise talking points. Panelists are encouraged to draw from their medical knowledge and relevant experiences, share evidence-based information, and engage with other panelists' points through active listening and thoughtful responses.

The audience plays an active role in the PDs. They are encouraged to participate by asking questions, sharing relevant experiences, and contributing to the dialogue. To facilitate this, students are advised to take notes during the discussion and think of questions or comments they can contribute during the Q&A segment.

For this special course, medical students were advised to choose topics either from their ESP textbook or consider current medical trends, emerging research, and pressing issues in their field. Examples included breast cancer, COVID-19, and controversies in gene therapy. The selection process involved brainstorming sessions and consultation with the course instructor to ensure relevance and appropriateness.

To accommodate the PD sessions within the course structure, students were allowed to start their PD sessions voluntarily from the second week. However, to maintain a balance between peer-led discussions and regular course content, only one PD was held weekly. This approach enabled the ESP lecturer to deliver comprehensive content while also allowing students to engage in these interactive sessions.

A basic time structure was suggested for each PD (Fig. 2):

To ensure the smooth running of the course and maintain momentum, students were informed that they could cancel their PD session only once. In such cases, they were required to notify the lecturer and other students via the class Telegram channel to facilitate rescheduling and minimize disruptions. This provision was essential in promoting a sense of community among students and maintaining the course's continuity.

Research tools and data collection

The study utilized various tools to gather and analyze data from participants and experts, ensuring a comprehensive understanding of the research topic.

Reflection papers

In Phase 1 of the study, 46 medical students detailed their perceptions of the advantages and disadvantages of panel discussions from dual perspectives: as panelists (presenters) and as audience members (peers).

Participants were given clear instructions and a 45-minute time frame to complete the reflection task. With approximately 80% of the international language students being native English speakers and the rest fluent in English, the researchers deemed this time allocation

Time allocation for different stages of a panel discussion

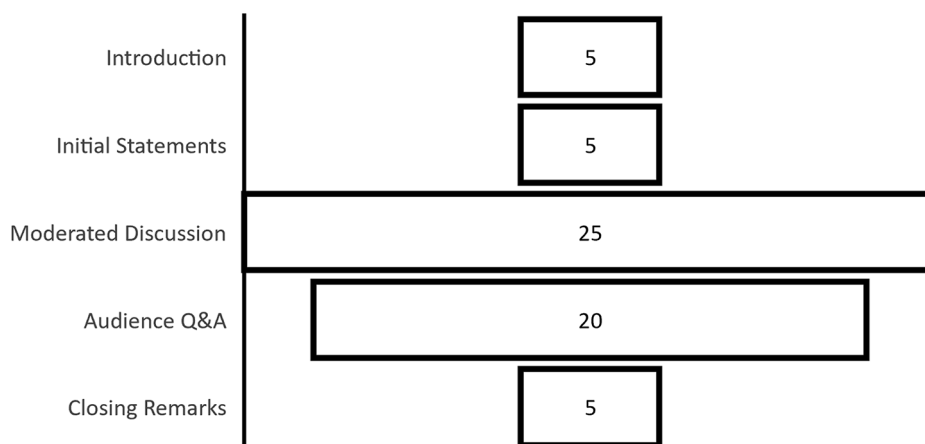


Fig. 2 Time allocation for panel discussion stages in minutes

reasonable. The questions and instructions were straightforward, facilitating quick comprehension. It was estimated that native English speakers would need about 30 min to complete the task, while non-native speakers might require an extra 15 min for clarity and expression. This time frame aimed to allow students to respond thoughtfully without feeling rushed. Additionally, students could request more time if needed.

Focus group discussion

In phase 2 of the study, a focus group discussion was conducted with three expert participants. The purpose of the focus group was to gather insights from expert participants, specifically ESP (English for Specific Purposes) instructors, on how presentation dynamics can be improved for both panelists and the audience.

According to Colton and Covert [35], focus groups are useful for obtaining detailed input from experts. The appropriate size of a focus group is determined by the study's scope and available resources [36]. Morgan [37] suggests that small focus groups are suitable for complex topics where specialist participants might feel frustrated if not allowed to express themselves fully.

The choice of a focus group over individual interviews was based on several factors. First, the exploratory nature of the study made focus groups ideal for interactive discussions, generating new ideas and in-depth insights [36]. Second, while focus groups usually involve larger groups, they can effectively accommodate a limited number of experts with extensive knowledge [37]. Third, the focus group format fostered a more open environment for idea exchange, allowing participants to engage dynamically [36]. Lastly, conducting a focus group was more time- and resource-efficient than scheduling three separate interviews [36].

Data analysis

The first phase of the study involved a thorough examination of the data related to the research inquiries using thematic analysis. This method was chosen for its effectiveness in uncovering latent patterns from a bottom-up perspective, facilitating a comprehensive understanding of complex educational phenomena [38]. The researchers

first familiarized themselves with the data by repeatedly reviewing the reflection papers written by the medical students. Next, an initial round of coding was independently conducted to identify significant data segments and generate preliminary codes that reflected the students' perceptions of the advantages and disadvantages of presentation dynamics PDs from both the presenter and audience viewpoints [38].

The analysis of the reflection papers began with the two researchers coding a subset of five papers independently, adhering to a structured qualitative coding protocol [39]. They convened afterward to compare their initial codes and address any discrepancies. Through discussion, they reached an agreement on the codes, which were then analyzed, organized into categories and themes, and the frequency of each code was recorded [38].

After coding the initial five papers, the researchers continued to code the remaining 41 reflection paper transcripts in batches of ten, meeting after each batch to review their coding, resolve any inconsistencies, and refine the coding framework as needed. This iterative process, characterized by independent coding, joint reviews, and consensus-building, helped the researchers establish a robust and reliable coding approach consistently applied to the complete dataset [40]. Once all 46 reflection paper transcripts were coded, the researchers conducted a final review and discussion to ensure accurate analysis. They extracted relevant excerpts corresponding to the identified themes and sub-themes from the transcripts to provide detailed explanations and support for their findings [38]. This multi-step approach of separate initial coding, collaborative review, and frequency analysis enhanced the credibility and transparency of the qualitative data analysis.

To ensure the trustworthiness of the data collected in this study, the researchers adhered to the Guba and Lincoln standards of scientific accuracy in qualitative research, which encompass credibility, confirmability, dependability, and transferability [41] (Table 2).

The analysis of the focus group data obtained from experts followed the same rigorous procedure applied to the student participants' data. Thematic analysis was employed to examine the experts' perspectives,

Table 2 Adherence to Guba and Lincoln Standards for trustworthiness in this study

Standard	Description
Credibility	Researchers conducted member checking with a subset of 5 participants, who reviewed 5 randomly selected reflection paper transcripts to verify the accuracy of interpretations. Peer debriefing was also used to discuss coding processes and challenge biases.
Confirmability	An audit trail was maintained, documenting data collection procedures, coding decisions, and theme development, allowing for external verification of the findings.
Dependability	Researchers followed a structured qualitative coding protocol, involving initial independent coding of a subset of papers, joint review, code refinement, and ongoing collaborative coding and discussion to ensure consistency.
Transferability	Rich descriptions of the research setting, participant characteristics, and data collection/analysis procedures were provided, allowing readers to assess the applicability of findings to other contexts.

maintaining consistency in the analytical approach across both phases of the study. The researchers familiarized themselves with the focus group transcript, conducted independent preliminary coding, and then collaboratively refined the codes. These codes were subsequently organized into categories and themes, with the frequency of each code recorded. The researchers engaged in thorough discussions to ensure agreement on the final themes and sub-themes. Relevant excerpts from the focus group transcript were extracted to provide rich, detailed explanations of each theme, thereby ensuring a comprehensive and accurate analysis of the experts' insights.

Results

1. What are the advantages of PDs from the perspective of panelists and the audience?

The analysis of the advantages of PDs from the perspectives of both panelists and audience members revealed several key themes and categories. Tables 2 and 3 present the frequency and percentage of responses for each code within these categories.

From the panelists' perspective (Table 3), the overarching theme was "Personal and Professional Development." The most frequently reported advantage was knowledge sharing (93.5%), followed closely by increased confidence (91.3%) and the importance of interaction in presentations (91.3%).

Notably, all categories within this theme had at least one code mentioned by over 80% of participants, indicating a broad range of perceived benefits. The category of "Effective teamwork and communication" was particularly prominent, with collaboration (89.1%) and knowledge sharing (93.5%) being among the most frequently

cited advantages. This suggests that PDs are perceived as valuable tools for fostering interpersonal skills and collective learning. In the "Language mastery" category, increased confidence (91.3%) and better retention of key concepts (87.0%) were highlighted, indicating that PDs are seen as effective for both language and content learning.

The audience perspective (Table 4), encapsulated under the theme "Enriching Learning Experience," showed similarly high frequencies across all categories.

The most frequently mentioned advantage was exposure to diverse speakers (93.5%), closely followed by the range of topics covered (91.3%) and increased audience interest (91.3%). The "Broadening perspectives" category was particularly rich, with all codes mentioned by over 70% of participants. This suggests that audience members perceive PDs as valuable opportunities for expanding their knowledge and viewpoints. In the "Language practice" category, the opportunity to practice language skills (89.1%) was the most frequently cited advantage, indicating that even as audience members, students perceive significant language learning benefits.

Comparing the two perspectives reveals several interesting patterns:

High overall engagement: Both panelists and audience members reported high frequencies across all categories, suggesting that PDs are perceived as beneficial regardless of the role played.

Language benefits: While panelists emphasized increased confidence (91.3%) and better retention of concepts (87.0%), audience members highlighted opportunities for language practice (89.1%). This indicates that PDs

Table 3 Advantages of PDs from the perspective of panelists

Theme	Categories	Codes	Frequency (Percentage)
Personal and Professional Development	Language mastery	- Increased confidence	42 (91.3)
		- Better retention of key concepts and information	40 (87.0)
		- Learning medical terminology and scientific jargon	38 (82.6)
		- Improve pronunciation	35 (76.1)
	Stimulating and rewarding	- Motivation/enjoyment	41 (89.1)
		- Inspired	38 (82.6)
		- Intellectual curiosity	36 (78.3)
		- A sense of accomplishment	34 (73.9)
	Effective teamwork and communication	- Knowledge sharing	43 (93.5)
		- Collaboration	41 (89.1)
		- Diversity and open-mindedness	37 (80.4)
		- Group dynamics	35 (76.1)
	Effective presentation skills	- The importance of interaction	42 (91.3)
		- Planning and organizing	40 (87.0)
		- Using visual aids	38 (82.6)
		- Managing nervousness	36 (78.3)
Professional growth	- Experiential learning	39 (84.8)	
	- Real-world application	37 (80.4)	
	- Career planning	34 (73.9)	
	- Leadership development	32 (69.6)	

Table 4 Advantages of PDs from the perspective of the audience

Theme	Categories	Codes	Frequency (Percentage)
Enriching Learning Experience	Language practice	- Opportunities for students to practice their language skills	41 (89.1)
		- Improvement in listening skill	39 (84.8)
		- Improvement in pronunciation	37 (80.4)
	Broadening perspectives	- Diverse speakers	43 (93.5)
		- Range of topics	42 (91.3)
		- Abundance of new information	40 (87.0)
		- Expansion of vocabulary	38 (82.6)
		- Enhanced their own presentation skills	36 (78.3)
		- Real-life panel scenario experience	34 (73.9)
	Student engagement and audience interaction	- Increases audience interest	42 (91.3)
		- Enjoyable, engaging, and entertaining	40 (87.0)
		- Varied voices to prevent boredom	38 (82.6)

Table 5 Disadvantages of PDs from the perspective of panelists

Theme	Categories	Codes	Frequency (Percentage)
Drawbacks of PDs	Academic	- Long preparation	40 (87.0)
		- Significant practice needed	38 (82.6)
	Workload Challenges	- Time-consuming nature	37 (80.4)
		- Balancing it with other studies	35 (76.1)
		- Waste of time perception	32 (69.6)
		- A burden for medical students	30 (65.2)
		- Incompatibility with demanding academic schedules	28 (60.9)
		- Diverse panel skills	36 (78.3)
		- Finding suitable panelists	34 (73.9)
	Coordination Challenges	- Lack of coordination between panelists	33 (71.7)
		- Diverse opinions among panelists	31 (67.4)
		- Team issues and coordination	29 (63.0)
		- Unwanted interactions	27 (58.7)

Table 6 Disadvantages of PDs from the perspective of the audience

Theme	Category	Codes	Frequency (Percentage)
Drawbacks of PDs	Time-related Issues	- Inefficient Use of Time	30 (65.2%)
		- Too long and boring	28 (60.9%)
		- Too long and stressful: overwhelming workload from other studies	26 (56.5%)
		- Not very useful during exam time	24 (52.2%)
	Interaction and Engagement Issues	- Repetitive format	38 (82.6%)
		- Limited Engagement with audience	36 (78.3%)
		- Boring	34 (73.9%)
		- Coordination and Interaction Issues	33 (71.7%)
		- Not practiced and natural	31 (67.4%)

offer complementary language learning benefits for both roles.

Interactive learning: The importance of interaction was highly rated by panelists (91.3%), while increased audience interest was similarly valued by the audience (91.3%). This suggests that PDs are perceived as an engaging, interactive learning method from both perspectives.

Professional development: Panelists uniquely emphasized professional growth aspects such as experiential learning (84.8%) and real-world application (80.4%). These were not directly mirrored in the audience perspective, suggesting that active participation in PDs may offer additional professional development benefits.

Broadening horizons: Both groups highly valued the diversity aspect of PDs. Panelists appreciated diversity and open-mindedness (80.4%), while audience members valued diverse speakers (93.5%) and a range of topics (91.3%).

2. What are the disadvantages of PDs from the perspective of panelists and the audience?

The analysis of the disadvantages of panel discussions (PDs) from the perspectives of both panelists and audience members revealed several key themes and categories. Tables 4 and 5 present the frequency and percentage of responses for each code within these categories.

From the panelists' perspective (Table 5), the theme "Drawbacks of PDs" was divided into two main categories: "Academic Workload Challenges" and "Coordination Challenges." The most frequently reported disadvantage was long preparation (87.0%), followed by significant practice needed (82.6%) and the time-consuming nature of PDs (80.4%). These findings suggest that the primary concern for panelists is the additional workload that PDs impose on their already demanding academic schedules. The "Coordination Challenges" category, while less prominent than workload issues, still presented significant concerns. Diverse panel skills (78.3%) and finding suitable panelists (73.9%) were the most frequently cited issues in this category, indicating that team dynamics and composition are notable challenges for panelists.

The audience perspective (Table 6), encapsulated under the theme "Drawbacks of PDs," was divided into two main categories: "Time-related Issues" and "Interaction

and Engagement Issues.” In the “Time-related Issues” category, the most frequently mentioned disadvantage was the inefficient use of time (65.2%), followed by the perception of PDs as too long and boring (60.9%). Notably, 56.5% of respondents found PDs stressful due to overwhelming workload from other studies, and 52.2% considered them not very useful during exam time. The “Interaction and Engagement Issues” category revealed more diverse concerns. The most frequently mentioned disadvantage was the repetitive format (82.6%), followed by limited engagement with the audience (78.3%) and the perception of PDs as boring (73.9%). The audience also noted issues related to the panelists’ preparation and coordination, such as “Not practiced and natural” (67.4%) and “Coordination and Interaction Issues” (71.7%), suggesting that the challenges faced by panelists directly impact the audience’s experience.

Comparing the two perspectives reveals several interesting patterns:

Workload concerns: Both panelists and audience members highlighted time-related issues. For panelists, this manifested as long preparation times (87.0%) and difficulty balancing with other studies (76.1%). For the audience, it appeared as perceptions of inefficient use of time (65.2%) and stress due to overwhelming workload from other studies (56.5%).

Engagement issues: While panelists focused on preparation and coordination challenges, the audience emphasized the quality of the discussion and engagement. This suggests a potential mismatch between the efforts of panelists and the expectations of the audience.

Boredom and repetition: The audience frequently mentioned boredom (73.9%) and repetitive format (82.6%) as issues, which weren’t directly mirrored in the panelists’ responses. This indicates that while panelists may be focused on content preparation, the audience is more concerned with the delivery and variety of the presentation format.

Coordination challenges: Both groups noted coordination issues, but from different perspectives. Panelists struggled with team dynamics and finding suitable co-presenters, while the audience observed these challenges manifesting as unnatural or unpracticed presentations.

Academic pressure: Both groups acknowledged the strain PDs put on their academic lives, with panelists viewing it as a burden (65.2%) and the audience finding it less useful during exam times (52.2%).

3. How can PDs be improved for panelists and the audience from the experts’ point of view?

The presentation of data for this research question differs from the previous two due to the unique nature of the information gathered. Unlike the quantifiable student responses in earlier questions, this data stems from expert opinions and a reflection discussion session,

focusing on qualitative recommendations for improvement rather than frequency of responses (Braun & Clarke, 2006). The complexity and interconnectedness of expert suggestions, coupled with the integration of supporting literature, necessitate a more narrative approach (Creswell & Poth, 2018). This format allows for a richer exploration of the context behind each recommendation and its potential implications (Patton, 2015). Furthermore, the exploratory nature of this question, aimed at generating ideas for improvement rather than measuring prevalence of opinions, is better served by a detailed, descriptive presentation (Merriam & Tisdell, 2016). This approach enables a more nuanced understanding of how PDs can be enhanced, aligning closely with the “how” nature of the research question and providing valuable insights for potential implementation (Yin, 2018).

The experts provided several suggestions to address the challenges faced by students in panel discussions (PDs) and improve the experience for both panelists and the audience. Their recommendations focused on six key areas: time management and workload, preparation and skill development, engagement and interactivity, technological integration, collaboration and communication, and institutional support.

To address the issue of time management and heavy workload, one expert suggested teaching students to “*break down the task to tackle the time-consuming nature of panel discussions and balance it with other studies.*” This approach aims to help students manage the extensive preparation time required for PDs without compromising their other academic responsibilities. Another expert emphasized “*enhancing medical students’ abilities to prioritize tasks, allocate resources efficiently, and optimize their workflow to achieve their goals effectively.*” These skills were seen as crucial not only for PD preparation but also for overall academic success and future professional practice.

Recognizing the challenges of long preparation times and the perception of PDs being burdensome, an expert proposed “*the implementation of interactive training sessions for panelists.*” These sessions were suggested to enhance coordination skills and improve the ability of group presenters to engage with the audience effectively. The expert emphasized that such training could help students view PDs as valuable learning experiences rather than additional burdens, potentially increasing their motivation and engagement in the process.

To combat issues of limited engagement and perceived boredom, experts recommended increasing engagement opportunities for the audience through interactive elements like audience participation and group discussions. They suggested that this could transform PDs from passive listening experiences to active learning opportunities. One expert suggested “*optimizing time management*

and restructuring the format of panel discussions” to address inefficiency during sessions. This restructuring could involve shorter presentation segments interspersed with interactive elements to maintain audience attention and engagement.

An innovative solution proposed by one expert was “using ChatGPT to prepare for PDs by streamlining scenario presentation preparation and role allocation.” The experts collectively discussed the potential of AI to assist medical students in reducing their workload and saving time in preparing scenario presentations and allocating roles in panel discussions. They noted that AI could help generate initial content drafts, suggest role distributions based on individual strengths, and even provide practice questions for panelists, significantly reducing preparation time while maintaining quality.

Two experts emphasized the importance of enhancing collaboration and communication among panelists to address issues related to diverse panel skills and coordination challenges. They suggested establishing clear communication channels and guidelines to improve coordination and ensure a cohesive presentation. This could involve creating structured team roles, setting clear expectations for each panelist, and implementing regular check-ins during the preparation process to ensure all team members are aligned and progressing.

All experts were in agreement that improving PDs would not be possible “if nothing is done by the university administration to reduce the ESP class size for international students.” They believed that large class sizes in ESP or EFL classes could negatively influence group oral presentations, hindering language development and leading to uneven participation. The experts suggested that smaller class sizes would allow for more individualized attention, increased speaking opportunities for each student, and more effective feedback mechanisms, all of which are crucial for developing strong presentation skills in a second language.

Discussion

Research question 1: what are the advantages of PDs from the perspective of panelists and the audience?

The results of this study reveal significant advantages of PDs for both panelists and audience members in the context of medical education. These findings align with and expand upon previous research in the field of educational presentations and language learning.

Personal and professional development for panelists

The high frequency of reported benefits in the “Personal and Professional Development” theme for panelists aligns with several previous studies. The emphasis on language mastery, particularly increased confidence (91.3%) and better retention of key concepts (87.0%), supports the

findings of Hartono, Mujiyanto [42], Gedamu and Gezahegn [15], Li [43], who all highlighted the importance of language practice in English oral presentations. However, our results show a more comprehensive range of benefits, including professional growth aspects like experiential learning (84.8%) and real-world application (80.4%), which were not as prominently featured in these earlier studies.

Interestingly, our findings partially contrast with Chou [44] study, which found that while group oral presentations had the greatest influence on improving students’ speaking ability, individual presentations led to more frequent use of metacognitive, retrieval, and rehearsal strategies. Our results suggest that PDs, despite being group activities, still provide significant benefits in these areas, possibly due to the collaborative nature of preparation and the individual responsibility each panelist bears. The high frequency of knowledge sharing (93.5%) and collaboration (89.1%) in our study supports Harris, Jones and Huffman [45] emphasis on the importance of group dynamics and varied perspectives in educational settings. However, our study provides more quantitative evidence for these benefits in the specific context of PDs.

Enriching learning experience for the audience

The audience perspective in our study reveals a rich learning experience, with high frequencies across all categories. This aligns with Agustina [46] findings in business English classes, where presentations led to improvements in all four language skills. However, our study extends these findings by demonstrating that even passive participation as an audience member can lead to significant perceived benefits in language practice (89.1%) and broadening perspectives (93.5% for diverse speakers). The high value placed on diverse speakers (93.5%) and range of topics (91.3%) by the audience supports the notion of PDs as a tool for expanding knowledge and viewpoints. This aligns with the concept of situated learning experiences leading to deeper understanding in EFL classes, as suggested by Li [43] and others [18, 31]. However, our study provides more specific evidence for how this occurs in the context of PDs.

Interactive learning and engagement

Both panelists and audience members in our study highly valued the interactive aspects of PDs, with the importance of interaction rated at 91.3% by panelists and increased audience interest at 91.3% by the audience. This strong emphasis on interactivity aligns with Azizi and Farid Khafaga [19] study on the benefits of dynamic assessment and dialogic learning contexts. However, our study provides more detailed insights into how this interactivity is perceived and valued by both presenters and audience members in PDs.

Professional growth and real-world application

The emphasis on professional growth through PDs, particularly for panelists, supports Li's [43] assertion about the power of oral presentations as situated learning experiences. Our findings provide more specific evidence for how PDs contribute to professional development, with high frequencies reported for experiential learning (84.8%) and real-world application (80.4%). This suggests that PDs may be particularly effective in bridging the gap between academic learning and professional practice in medical education.

Research question 2: what are the disadvantages of pds from the perspective of panelists and the audience?

Academic workload challenges for panelists

The high frequency of reported challenges in the "Academic Workload Challenges" category for panelists aligns with several previous studies in medical education [47–49]. The emphasis on long preparation (87.0%), significant practice needed (82.6%), and the time-consuming nature of PDs (80.4%) supports the findings of Johnson et al. [24], who noted that while learners appreciate debate-style journal clubs in health professional education, they require additional time commitment. This is further corroborated by Nowak, Speed and Vuk [50], who found that intensive learning activities in medical education, while beneficial, can be time-consuming for students.

Perceived value of pds relative to time investment

While a significant portion of the audience (65.2%) perceived PDs as an inefficient use of time, the high frequency of engagement-related concerns (82.6% for repetitive format, 78.3% for limited engagement) suggests that the perceived lack of value may be more closely tied to the quality of the experience rather than just the time investment. This aligns with Dyhrberg O'Neill [27] findings on debate-based oral exams, where students perceived value despite the time-intensive nature of the activity. However, our results indicate a more pronounced concern about the return on time investment in PDs. This discrepancy might be addressed through innovative approaches to PD design and implementation, such as those proposed by Almazayad et al. [22], who suggested using AI tools to enhance expert panel discussions and potentially improve efficiency.

Coordination challenges for panelists

The challenges related to coordination in medical education, such as diverse panel skills (78.3%) and finding suitable panelists (73.9%), align with previous research on teamwork in higher education [21]. Our findings support the concept of the free-rider effect discussed by Hall and Buzwell [21], who explored reasons for non-contribution in group projects beyond social loafing. This is further

elaborated by Mehmood, Memon and Ali [51], who proposed that individuals may not contribute their fair share due to various factors including poor communication skills or language barriers, which is particularly relevant in medical education where clear communication is crucial [52]. Comparing our results to other collaborative learning contexts in medical education, Rodríguez-Sedano, Conde and Fernández-Llamas [53] measured teamwork competence development in a multidisciplinary project-based learning environment. They found that while teamwork skills improved over time, initial coordination challenges were significant. This aligns with our findings on the difficulties of coordinating diverse panel skills and opinions in medical education settings.

Our results also resonate with Chou's [44] study comparing group and individual oral presentations, which found that group presenters often had a limited understanding of the overall content. This is supported by Wilson, Ho and Brookes [54], who examined student perceptions of teamwork in undergraduate science degrees, highlighting the challenges and benefits of collaborative work, which are equally applicable in medical education [52].

Quality of discussions and perception for the audience

The audience perspective in our study reveals significant concerns about the quality and engagement of PDs in medical education. The high frequency of issues such as repetitive format (82.6%) and limited engagement with the audience (78.3%) aligns with Parmar and Bickmore [55] findings on the importance of addressing individual audience members and gathering feedback. This is further supported by Nurakhir et al. [25], who explored students' views on classroom debates as a strategy to enhance critical thinking and oral communication skills in nursing education, which shares similarities with medical education. Comparing our results to other interactive learning methods in medical education, Jones et al. [26] reviewed the use of journal clubs and book clubs in pharmacy education. They found that while these methods enhanced engagement, they also faced challenges in maintaining student interest over time, similar to the boredom issues reported in our study of PDs in medical education. The perception of PDs as boring (73.9%) and not very useful during exam time (52.2%) supports previous research on the stress and pressure experienced by medical students [48, 49]. Grieve et al. [20] specifically examined student fears of oral presentations and public speaking in higher education, which provides context for the anxiety and disengagement observed in our study of medical education. Interestingly, Bhuvaneshwari et al. [23] found positive impacts of panel discussions in educating medical students on specific modules. This contrasts with our findings and suggests that the effectiveness

of PDs in medical education may vary depending on the specific context and implementation.

Comparative analysis and future directions

Our study provides a unique comparative analysis of the challenges faced by both panelists and audience members in medical education. The alignment of concerns around workload and time management between the two groups suggests that these are overarching issues in the implementation of PDs in medical curricula. This is consistent with the findings of Pasandín et al. [56], who examined cooperative oral presentations in higher education and their impact on both technical and soft skills, which are crucial in medical education [52]. The mismatch between panelist efforts and audience expectations revealed in our study is a novel finding that warrants further investigation in medical education. This disparity could be related to the self-efficacy beliefs of presenters, as explored by Gedamu and Gezahegn [15] in their study of TEFL trainees' attitudes towards academic oral presentations, which may have parallels in medical education. Looking forward, innovative approaches could address some of the challenges identified in medical education. Almazayad et al. [22] proposed using AI tools like ChatGPT to enhance expert panel discussions in pediatric palliative care, which could potentially address some of the preparation and engagement issues identified in our study of medical education. Additionally, Ragupathi and Lee [57] discussed the role of rubrics in higher education, which could provide clearer expectations and feedback for both panelists and audience members in PDs within medical education.

Research question 3: how can PDs be improved for panelists and the audience from the experts' point of view?

The expert suggestions for improving PDs address several key challenges identified in previous research on academic presentations and student workload management. These recommendations align with current trends in educational technology and pedagogical approaches, while also considering the unique needs of medical students.

The emphasis on time management and workload reduction strategies echoes findings from previous studies on medical student stress and academic performance. Nowak, Speed and Vuk [50] found that medical students often struggle with the fast-paced nature of their courses, which can lead to reduced motivation and superficial learning approaches. The experts' suggestions for task breakdown and prioritization align with Rabbi and Islam [58] recommendations for reducing workload stress through effective assignment prioritization. Additionally, Popa et al. [59] highlight the importance of acceptance

and planning in stress management for medical students, supporting the experts' focus on these areas.

The proposed implementation of interactive training sessions for panelists addresses the need for enhanced presentation skills in professional contexts, a concern highlighted by several researchers [17, 60]. This aligns with Grieve et al. [20] findings on student fears of oral presentations and public speaking in higher education, emphasizing the need for targeted training. The focus on interactive elements and audience engagement also reflects current trends in active learning pedagogies, as demonstrated by Pasandín et al. [56] in their study on cooperative oral presentations in engineering education.

The innovative suggestion to use AI tools like ChatGPT for PD preparation represents a novel approach to leveraging technology in education. This aligns with recent research on the potential of AI in scientific research, such as the study by Almazayad et al. [22], which highlighted the benefits of AI in supporting various educational tasks. However, it is important to consider potential ethical implications and ensure that AI use complements rather than replaces critical thinking and creativity.

The experts' emphasis on enhancing collaboration and communication among panelists addresses issues identified in previous research on teamwork in higher education. Rodríguez-Sedano, Conde and Fernández-Llamas [53] noted the importance of measuring teamwork competence development in project-based learning environments. The suggested strategies for improving coordination align with best practices in collaborative learning, as demonstrated by Romero-Yesa et al. [61] in their qualitative assessment of challenge-based learning and teamwork in electronics programs.

The unanimous agreement on the need to reduce ESP class sizes for international students reflects ongoing concerns about the impact of large classes on language learning and student engagement. This aligns with research by Li [3] on issues in developing EFL learners' oral English communication skills. Bosco et al. [62] further highlight the challenges of teaching and learning ESP in mixed classes, supporting the experts' recommendation for smaller class sizes. Qiao, Xu and bin Ahmad [63] also emphasize the implementation challenges for ESP formative assessment in large classes, further justifying the need for reduced class sizes.

These expert recommendations provide a comprehensive approach to improving PDs, addressing not only the immediate challenges of preparation and delivery but also broader issues of student engagement, workload management, and institutional support. By implementing these suggestions, universities could potentially transform PDs from perceived burdens into valuable learning experiences that enhance both academic and professional skills. This aligns with Kho and Ting [64] systematic review on

overcoming oral presentation anxiety among tertiary ESL/EFL students, which emphasizes the importance of addressing both challenges and strategies in improving presentation skills.

Conclusion

This study has shed light on the complex challenges associated with PDs in medical education, revealing a nuanced interplay between the experiences of panelists and audience members. The findings underscore the need for a holistic approach to implementing PDs that addresses both the academic workload concerns and the quality of engagement.

Our findings both support and extend previous research on the challenges of oral presentations and group work in medical education settings. The high frequencies of perceived challenges across multiple categories for both panelists and audience members suggest that while PDs may offer benefits, they also present significant obstacles that need to be addressed in medical education. These results highlight the need for careful consideration in the implementation of PDs in medical education, with particular attention to workload management, coordination strategies, and audience engagement techniques. Future research could focus on developing and testing interventions to mitigate these challenges while preserving the potential benefits of PDs in medical education.

Moving forward, medical educators should consider innovative approaches to mitigate these challenges. This may include:

- 1) Integrating time management and stress coping strategies into the PD preparation process [59].
- 2) Exploring the use of AI tools to streamline preparation and enhance engagement [22].
- 3) Developing clear rubrics and expectations for both panelists and audience members [57].
- 4) Incorporating interactive elements to maintain audience interest and participation [25].

Limitations and future research

One limitation of this study is that it focused on a specific population of medical students, which may limit the generalizability of the findings to other student populations. Additionally, the study relied on self-report data from panelists and audience members, which may introduce bias and affect the validity of the results. Future research could explore the effectiveness of PDs in different educational contexts and student populations to provide a more comprehensive understanding of the benefits and challenges of panel discussions.

Future research should focus on evaluating the effectiveness of these interventions and exploring how PDs can be tailored to the unique demands of medical education. By addressing the identified challenges, PDs have the potential to become a more valuable and engaging component of medical curricula, fostering both academic and professional development. Ultimately, the goal should be to transform PDs from perceived burdens into opportunities for meaningful learning and skill development, aligning with the evolving needs of medical education in the 21st century.

Future research could also examine the long-term impact of PDs on panelists' language skills, teamwork, and communication abilities. Additionally, exploring the effectiveness of different training methods and tools, such as AI technology, in improving coordination skills and reducing workload stress for panelists could provide valuable insights for educators and administrators. Further research could also investigate the role of class size and audience engagement in enhancing the overall effectiveness of PDs in higher education settings. By addressing these gaps in the literature, future research can contribute to the ongoing development and improvement of PDs as a valuable learning tool for students in higher education.

However, it is important to note that implementing these changes may require significant institutional resources and a shift in pedagogical approaches. Future research could focus on piloting these recommendations and evaluating their effectiveness in improving student outcomes and experiences with PDs.

Abbreviations

AI	Artificial Intelligence
EFL	English as a Foreign Language
ESP	English for Specific Purposes
PD	Panel Discussion
SUMS	Shiraz University of Medical Sciences

Author contributions

L.KH was involved in writing the proposal, reviewing the text, analyzing the data, and writing the manuscript. E. N was involved in designing the research and collecting and analyzing the data. Both authors have reviewed and approved the final version of the manuscript.

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Data availability

We confirm that the data supporting the findings are available within this article. Raw data supporting this study's findings are available from the corresponding author, upon request.

Declarations

Ethics approval and consent to participate

Our study, entitled "Evaluating Panel Discussions in ESP Classes: An Exploration of International Medical Students' and ESP Instructors' Perspectives through Qualitative Research," was reviewed by the Institutional Review Board (IRB) of the School of Paramedical Sciences, Shiraz University of Medical Sciences (SUMS). The IRB reviewed the study on August 14th, 2024, and determined

that formal ethics approval or a reference number was not required. This decision was based on the fact that the research posed minimal risk to participants and focused solely on their educational experiences without involving any intervention or the collection of sensitive personal data.

Consent for publication

Not Applicable.

Competing interests

We confirm that there are no known conflicts of interest associated with this publication and that this work did not receive any financial support.

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