



Localizing Virtual Exchange: Action-Oriented Frameworks and EMI Readiness in an Israeli Engineering Context

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Abstract

As English Medium Instruction (EMI) expands in Israeli higher education following the 2019 Council for Higher Education mandate, institutions are increasingly expected to prepare diverse local students for global academic and professional communication. This article examines a discussion-based Virtual Exchange (VE) embedded in a post-B2 English for Professional and International Communication (EPIC) course at an Israeli engineering college. Anchored in the Common European Framework of Reference for Languages (CEFR) action-oriented approach and Byram's model of intercultural communicative competence (ICC), the study considers whether and how VE can support speaking confidence, intercultural awareness, and EMI readiness. Case study data include quantitative survey responses from 39 former VE participants and follow-up interviews with five former students who subsequently entered EMI courses or professional settings. Findings suggest that the VE provided a useful psychological bridge: it lowered accent anxiety, normalized imperfect English, and encouraged students to speak more spontaneously. However, the study also identifies substantial limitations. The model remained largely conversational and general rather than discipline-specific, leaving students underprepared for technical vocabulary, engineering presentations, real-time Q&A, collaborative problem solving, and high-pressure EMI tasks. Additional local constraints included multilingual classroom realities, reliance on Hebrew in some EMI settings, demanding engineering schedules, and geopolitical anxieties. The article advocates for VE as a component of EMI support, and, for Israeli engineering students, more sustained, localized, asynchronous, and project-based VE models may be needed to connect intercultural learning with the disciplinary communication demands of EMI and global engineering workplaces.

Key Words: virtual exchange, EMI readiness, action-oriented approach, pluricultural awareness, telecollaboration, intercultural speaker, English Language Learners (ELLs), engineering education

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1. Introduction: EMI and the Local Reality of Israeli Engineering

The 2019 Council for Higher Education (CHE) mandate requiring undergraduate programs to include at least two English Medium Instruction (EMI) courses represents an important shift toward internationalizing Israeli higher education (Council for Higher Education, 2019). The policy reflects the increasing expectation that graduates, especially in science, technology, engineering, and mathematics (STEM), will be able to participate in global academic and professional environments. However, this internationalization policy intersects with a complex local reality. Many Israeli students, including engineering students, have limited access to physical mobility programs, and therefore have fewer opportunities to practice academic and professional communication in authentic international settings.

Israeli engineering English Language Learners (ELLS) also face particular linguistic and academic challenges. Many are required to study demanding technical content in English, a language that may be their second, third, or fourth language (Lawrence et al., 2017). In this context, EMI readiness cannot be reduced to vocabulary knowledge or grammatical accuracy. Students must also develop speaking confidence, willingness to communicate, academic interactional competence, and the ability to participate in multilingual and multicultural learning environments. Foreign language anxiety, communication apprehension, fear of negative evaluation, and accent anxiety may all reduce participation even when students possess adequate receptive English skills (Horwitz et al., 1986).

A post-B2 English for Professional and International Communication (EPIC) course at an Israeli engineering college has long aimed to strengthen students' oral proficiency and prepare them for academic and professional communication in English. In response to growing institutional interest in internationalization and EMI, a Virtual Exchange (VE) component was introduced into this course. The VE was intended to provide students with authentic English interaction, intercultural reflection, and opportunities to communicate with international peers without requiring physical mobility. As an Internationalization at Home initiative, it appeared especially relevant in a context where only a small proportion of students participate in Erasmus+ or other study-abroad opportunities.

Also, recent research on Israeli EMI points to the need for more inclusive and scalable support structures. Spector-Cohen et al.'s (2026) "Fostering Success in English-Medium Instruction: The

Tel Aviv University Approach” on student feedback for institutional innovation reports on research at Tel Aviv University that used qualitative analysis of student responses to EMI course evaluations to identify key themes and pedagogical implications for EMI support. Their work emphasizes that EMI support should be designed in response to students’ actual needs, not only institutional policy goals (Spector-Cohen et al., 2026). This perspective is central to the present study: the question is not simply whether VE is valuable, but whether this particular VE model was sufficiently localized for Israeli engineering students preparing for EMI and professional communication.

This article therefore evaluates the successes and limitations of a discussion-based VE model implemented in an Israeli engineering college. While findings suggest that the VE supported initial gains in speaking confidence, intercultural communicative competence (ICC), and learner agency, the interview data also indicate that these successes were limited by a significant gap between general intercultural conversation and the specific communicative demands of EMI engineering contexts. The article argues that VE may be useful, but only if it is adapted to local realities, discipline-specific tasks, and the institutional support needs of diverse Israeli students.

2. Literature Review: Action-Oriented Frameworks and VE Models

2.1 The Action-Oriented Approach and Learner Agency

The CEFR Companion Volume promotes an action-oriented approach in which learners are viewed as social agents who use language to complete meaningful tasks in authentic situations (Council of Europe, 2020). This approach shifts the focus from isolated language accuracy to communicative action, learner agency, mediation, plurilingual competence, and collaborative meaning-making. In this sense, successful language use is not defined by native-like performance, but by the ability to participate effectively in situated academic, social, and professional contexts.

VE aligns with this approach because it requires students to make real-time communicative choices, negotiate meaning, manage misunderstandings, and interact with peers from different linguistic and cultural backgrounds. Rooted in sociocultural views of learning, VE creates a digital space where students learn through social interaction and peer mediation (Vygotsky, 1978). For students preparing for EMI, this type of authentic interaction may be especially useful because EMI

classrooms often require spontaneous participation, collaborative problem solving, and the ability to engage with diverse perspectives in English.

2.2 ICC, ELF, and the Intercultural Speaker

VE is frequently connected to the development of ICC. Byram (1997, 2021) conceptualizes ICC through several components: attitudes of curiosity and openness, knowledge of social groups and practices, skills of interpreting and relating, skills of discovery and interaction, and critical cultural awareness. This framework is relevant for EMI because students must do more than understand disciplinary content; they must also communicate across cultural, institutional, and interactional norms.

In English as a lingua franca (ELF) settings, students often communicate with other non-native speakers rather than native speakers. This challenges deficit-based views of accented English and supports a broader understanding of communicative success. Gruber et al. (2023) argues that VE can prepare students as translanguaging agents who draw on their full linguistic repertoires to achieve mutual understanding. In the present study, this issue became important because many students reported feeling less anxious when they realized that their international partners also made mistakes and used English as an additional language.

2.3 From General Telecollaboration to Project-Based VE

Early telecollaboration models often emphasized general conversation and language exchange, while more recent VE and COIL models increasingly include collaborative, project-based tasks (O'Dowd, 2018; Hackett et al., 2023, 2024). Project-Based Language Learning (PBL) can be particularly relevant to EMI because it allows students to use language to complete disciplinary or professional tasks. Rather than only discussing cultural topics, students can collaborate on a product, solve a problem, prepare a presentation, or negotiate decisions in a shared project.

This distinction is central to the present study because the VE examined here was largely discussion-based. It supported intercultural conversation and speaking practice, but it did not require students to complete engineering-related tasks. Research on engineering students in intercultural teamwork suggests that engineering communication is highly contextualized, task-oriented, and dependent on collaborative problem solving (Jiang et al., 2023). For this reason, a

discussion-based VE may provide an entry point into confidence and ICC, but may not sufficiently prepare students for the discipline-specific demands of EMI engineering courses.

2.4 VE and Local Israeli Contexts

The importance of localizing VE can also be seen in Israeli research, as Hellerstein et al. (2023) describe a VE project that brought Arab and Jewish students together through English conversation during periods of social and political tension. Their model is useful for the present article not because it addresses EMI engineering directly, but because it demonstrates that VE in Israel must be sensitive to local social realities, identity dynamics, and the need for sustained dialogue. Their project suggests that English-mediated interaction can create a shared communicative space, but that such spaces require careful design, continuity, and awareness of local tensions.

The present study also extends this localization argument to EMI readiness. Israeli engineering students may need VE experiences that are not only intercultural but also connected to their academic disciplines, multilingual realities, and future workplaces. Thus, a VE model that succeeds in general conversation may still remain insufficient if it does not address the specific linguistic and communicative tasks students will face in EMI classrooms.

3. The Local Context: Israeli Engineering Students and EMI

The Israeli engineering context includes several variables that shape the implementation of VE. First, Israeli classrooms are linguistically diverse, including Hebrew, Arabic, Russian, and other linguistic backgrounds, and this diversity may complicate EMI because the language used for clarification or informal support may not benefit all students equally.

Also, EMI in Israel may involve what can be described as a local ‘Hebrew crutch.’ In some EMI settings, lecturers may shift to Hebrew to explain complex concepts or reduce classroom anxiety. Schvarcz, Wohlfarth, and Aguilar-Peréz (2024) identify student needs, expectations, and resources as important factors in EMI implementation, and this local reliance on Hebrew may be helpful for Hebrew-speaking students while creating inequities for Arabic-speaking, Russian-speaking, or other non-Hebrew-dominant students. In this sense, an English-only international VE

can provide a more equal communicative space, but only if students are prepared to use English for the specific academic tasks required.

In addition, engineering curricula are demanding and may often leave limited time for language development, intercultural reflection, or additional synchronous meetings. For example, students in software engineering, information systems, industrial engineering, and related fields must manage technical coursework, projects, laboratories, employment, and sometimes reserve military duties or family responsibilities. These constraints make scheduling and sustained participation in international VE difficult.

Furthermore, Israeli students often differ demographically from their European partners. Many begin academic studies after military service, travel, work experience, or family commitments, while some European peers begin university directly after secondary school. Interviewees in this study noted that these differences affected group expectations, task motivation, and communication styles. Finally, geopolitical instability can affect both the feasibility and emotional experience of international collaboration. Some students reported anxiety about being identified as Israeli in international contexts, suggesting that VE for Israeli students may involve affective and identity-related pressures not always addressed in standard ICC frameworks.

4. Case Study Design and Methodology

4.1 Research Questions

This study was guided by three research questions: (1) How do former participants perceive their ICC and confidence in English speaking as a result of their VE experience? (2) To what extent do former VE participants perceive that the experience prepared them to succeed in EMI courses? (3) To what extent do former VE participants perceive that the experience prepared them to succeed in professional contexts in multicultural and multilingual settings where English is used?

4.2 VE Context and Implementation

Since 2019, students in software engineering, information systems, and industrial engineering and management at an Israeli college have participated in a VE embedded in a 13-week post-B2 English for Professional and International Communication course. The course meets for two frontal hours per week, with approximately five to six weeks dedicated to the exchange. Students are

randomly grouped with peers from partner institutions abroad and meet online, usually through Zoom, once every week or two weeks depending on availability.

The VE was discussion-based rather than project-based. Meetings focused on assigned cultural topics, including introductions and rapport building, cultural dimensions, corporate culture, English as a lingua franca, university culture, and final reflection. These topics were designed to encourage speaking confidence, ICC, and reflection on English use in international contexts. However, they were not designed as engineering-specific collaborative projects.

4.3 Participants and Data Collection

Survey data were collected from 39 former VE participants who had completed the post-B2 course and had taken or were expected to take at least one EMI course. Participants were enrolled in software engineering, information systems, or industrial engineering and management programs. The survey included five demographic questions, 14 Likert-scale items from 1 strongly agree to 5 strongly disagree on speaking confidence, ICC, and EMI preparedness, and three open-ended questions asking students to elaborate on their experiences. The survey was in English and administered via Google Forms.

To deepen the survey findings, follow-up semi-structured interviews lasting 30-45 minutes each were conducted via Zoom with five former participants who volunteered after being solicited by the researcher. The interviewees were four males and one female, comprising four Hebrew speakers and one Arabic speaker, and were employed at the time. The interviews asked students to reflect on speaking confidence, foreign language anxiety, accent anxiety, ICC, former EMI coursework, and current professional communication. The interview data were especially important for identifying the limits of the VE model, since former students were able to compare the VE retrospectively with later EMI and workplace demands. Survey and interview questions are included at the end of this article in Appendices A and B.

As the researcher was responsible for forming the international groups for the virtual exchange, they had access to the email addresses of former students. The researcher contacted these students and invited them to volunteer to participate in the survey, administered through Google Forms, and to interview. Participation was voluntary. The researcher declares that there was no conflict of interest and that the study received approval from the institution's ethics committee.

4.4 Data Analysis

Open-ended survey responses and interview data were analyzed using reflexive thematic analysis (Braun & Clarke, 2006, 2021), supported by Saldaña's (2021) coding strategies. Responses were first read and reread for familiarization. In the first cycle of coding, descriptive codes were applied to meaningful segments of text, including codes such as 'fear of mistakes,' 'accent anxiety,' 'peer reassurance,' 'technical vocabulary gap,' 'presentation confidence,' 'Q&A difficulty,' 'cultural directness,' 'scheduling burden,' and 'geopolitical anxiety.'

In the second cycle, pattern coding was used to group these descriptive codes into broader categories, including confidence building, intercultural communication strategies, EMI preparedness, professional transfer, and missing EMI-specific skills. Themes were then developed through an iterative and reflexive process. The analysis was deductive in that it focused on the study's research questions and existing theoretical constructs, including ICC, foreign language anxiety, learner agency, and EMI readiness, but it also remained open to themes that emerged from participants' accounts, especially the conversational-professional gap and the need for discipline-specific VE.

5. Findings: Successes and Limitations of the VE Model

5.1 Successes: The VE as a Psychological Bridge

The survey and interview data suggest that the VE functioned most successfully as a psychological bridge into English communication. In the quantitative data, 82.1% of respondents agreed or strongly agreed that their confidence in speaking English improved. This finding was supported by interview data in which students described the VE as a low-stakes environment where they could speak with other non-native users of English, make mistakes, and still communicate successfully.

A major success was the lowering of accent anxiety. Several students reported that speaking with international peers helped them stop treating accent and error as evidence of failure. One student explained that when students from other cultures speak English as a second language and also make mistakes, *'you feel much more confidence.'* Another summarized the shift as learning to *'just speak, and don't think about the accent.'* A different participant described how the VE pushed English out of the *'backyard'* of his linguistic repertoire and gave it a more independent

communicative space. These comments suggest that the VE may have reduced fear of negative evaluation and communication apprehension, both central components of foreign language classroom anxiety (Horwitz et al., 1986).

The VE also appeared to support learner agency. Students did not only report feeling better about English; they described becoming more willing to act through English. One participant explained that they no longer needed to translate from Hebrew before speaking: *'I don't need to do it. I'm just speaking fluently... I'm just thinking about it in English.'* Another participant described the VE as an opportunity to make mistakes before higher-stakes professional contexts, explaining that he did not want his first English presentation to be at work. These comments align with the CEFR action-oriented approach, where learners are understood as social agents who use language to participate in meaningful situations (Council of Europe, 2020).

The VE also helped some students move from memorized performance toward spontaneous communication. One student connected the VE to a later EMI marketing presentation, explaining, *'I prefer to do a mistake but talk regularly... not to read... recite.'* This distinction is important because EMI success often requires students to respond, clarify, ask questions, and explain ideas rather than simply deliver memorized text. Thus, the VE's strongest contribution may have been its support for communicative confidence and willingness to participate, not its direct teaching of academic or technical English.

5.2 ICC and Professional Transfer

The interview data also support earlier survey themes related to ICC. Students described increased awareness of directness, politeness, feedback styles, task expectations, and the need to adapt communication across cultural contexts. One participant reflected that Israeli communication can be *'very straight ahead'* and explained that after the VE they tried to be *'less straight ahead'* with people from other cultures, giving interlocutors more space and keeping the conversation in a *'safe zone.'* Another described receiving direct feedback from a German partner and learning not to interpret it personally, concluding that this was part of *'culture communication.'*

These reflections correspond to several dimensions of Byram's ICC framework, including attitudes of openness, skills of interpreting and relating, and skills of discovery and interaction (Byram, 1997, 2021). They also suggest that VE may help students develop the intercultural

flexibility needed for EMI classrooms and global workplaces. Some participants reported professional transfer. One former student described using English at work to present project status, discuss risks, understand conflicts, and communicate with international customers. Another reported working with colleagues from Ukraine, the United States, and Georgia, and explained that the VE was helpful because they had not previously used English ‘*in professional manner.*’ They described presenting a problem to English-speaking developers and believed that before the VE they would have explained it less effectively.

Despite these successes, the findings should be interpreted cautiously. While they suggest that VE may contribute to professional readiness for some students, especially by increasing confidence and awareness of communication styles, they do not demonstrate that the VE fully prepared students for discipline-specific technical communication, as this was not the central aim of the VE. In fact, the same interview data that show psychological and intercultural gains also reveal significant limitations.

5.3 Limitation One: The Conversational-Professional Gap

Perhaps the most important limitation identified in the interview data is the gap between conversational English and the communication needed in EMI engineering courses. Again, the objective of the VE or justification for its implementation was not to directly serve as a preparation tool for EMI, though it did to an extent function as an entry point into English interaction. Students valued the chance to discuss culture, university life, workplace norms, and ELF, but several later recognized that these topics did not sufficiently resemble the tasks they encountered in EMI. The VE helped students in this study introduce themselves, compare cultures, and discuss general workplace expectations, yet their EMI courses required them to read technical texts, explain algorithms, present designs, solve mathematical problems, interpret diagrams, and participate in disciplinary discussions.

Students needed opportunities to use English to do engineering work. Their comments indicate that more field-related topics, especially software and technology-related tasks, would likely have increased motivation, perceived relevance, participation, and preparation for EMI and work contexts. This finding aligns with Jiang et al. (2023), who emphasize that engineering students’ intercultural teamwork requires communication around technical tasks, not only general social exchange.

5.4 Limitation Two: Missing Technical Vocabulary and Disciplinary Discourse

Some participants described a mismatch between the vocabulary practiced in the VE and the vocabulary needed for EMI. Discussions of university culture and corporate culture did not prepare students to read technical literature, describe engineering processes, write lab reports, or explain algorithmic reasoning in English. Students who felt comfortable speaking socially still reported lacking the lexical and discourse resources needed to participate accurately in EMI seminars. This limitation is especially important in the Israeli context because EMI support should address the actual academic tasks students face. Research by Spector-Cohen et al. (2026) on student feedback for institutional innovation emphasizes the need for inclusive EMI support models grounded in student-identified needs. The present findings similarly suggest that students do not need only more English exposure; they need targeted support for the language of their disciplines. In engineering, this may include explaining processes, defining variables, describing system architecture, interpreting data, presenting constraints, and using technical vocabulary under time pressure.

5.5 Limitation Three: Lack of Real-Time Technical Defense and Q&A Practice

Another identified missing component was practice in real-time academic defense. The VE discussions were generally polite, low-stakes, and conversational while EMI engineering courses may require students to justify design choices, answer questions from lecturers, defend a mathematical proof, respond to objections, and think on their feet using technical language. Some interviewees indicated that the VE did not prepare them for this type of interaction and that they needed more practice participating in unpredictable, real-time exchanges. In such situations, students must manage interruptions, repair misunderstandings, and defend academic decisions while maintaining clarity. A discussion-based VE can lower anxiety, but without structured Q&A simulations, technical presentations, and peer critique, it may not develop the interactional pressure management required in EMI engineering settings.

5.6 Limitation Four: No Collaborative Engineering Problem Solving

A further limitation brought up by the interviewees was the absence of collaborative problem solving. Engineering education depends heavily on troubleshooting, design negotiation, and shared reasoning. One participant described the difficulty of learning *'tough math in English,'* explaining that solving mathematical problems already required significant cognitive effort and that translating simultaneously into Hebrew added another layer of difficulty. Because the VE did not include a

PBLL framework, students did not practice reading schematics together, debugging code, negotiating technical solutions, or producing a shared engineering-related outcome. A more localized model could include technical case studies, software demonstrations, design reviews, simulated client briefs, collaborative troubleshooting, or short engineering pitches. Such tasks would better align with the action-oriented approach because students would use English to complete meaningful disciplinary actions rather than only discuss general cultural topics (Council of Europe, 2020; O'Dowd, 2018).

5.7 Limitation Five: Sustained Interaction Deficit

The model also had limited duration and lacked intensity. Although the exchange included repeated meetings, the interaction was concentrated into approximately five meetings across five to six weeks. This was enough to introduce students to intercultural communication, but likely insufficient for deeper critical cultural awareness or disciplinary communication development. Byram's (1997, 2021) framework implies a gradual developmental process in which learners move from noticing difference to interpreting, relating, and critically reflecting on cultural assumptions.

The need for sustained interaction is supported by Hellerstein et al. (2023), whose Israeli VE project brought Arab and Jewish students together through approximately 10-12 ongoing English conversation meetings during a period of social and political tension. Their model is not directly about EMI engineering, but it demonstrates the importance of continuity, trust building, and repeated dialogue in local Israeli VE design. In contrast, the present model may have encouraged polite and relatively safe exchange but without providing enough time for sustained intercultural negotiation or deeper relationship building. One participant even argued that frequency mattered for fluency, and that brief interaction every couple of days would have been more useful than one weekly meeting.

5.8 Limitation Six: Scheduling, Motivation, and Cognitive Load

Many students also described logistical and cognitive strain. The engineering students in this case study took heavy course loads, sometimes six to eight courses per term, so scheduling synchronous meetings with international partners across time zones became an additional burden, especially when meetings occurred outside class time. For students already managing mathematics, programming, laboratories, projects, and possibly employment and family responsibilities, the VE could become an extra requirement for some rather than an integrated learning experience.

Consequently, this issue affected motivation. Some students and partners approached the tasks differently. One participant described Israeli students wanting to *'finish efficiently'*, as in complete the required meeting task quickly and sufficiently then move on to higher priorities, while a European partner wanted to complete every task in detail. This created a *'thin rope'* between politeness, task completion, and frustration. Such cultural friction can be productive if it is guided through reflection, but it can also become emotionally challenging when students are already overloaded. These findings suggest that VE design for engineering students should reduce unnecessary logistical friction and increase disciplinary relevance.

5.9 Limitation Seven: Geopolitical Anxiety and Israeli Identity

The final limitation identified through participant responses, and perhaps the most relevant considering current world events, concerns geopolitical anxiety. Some students reported that the VE did not prepare them for difficult social situations connected to being Israeli in international contexts. One participant who studied abroad during the war reported feeling judged because of where they came from. Another explained that in some travel contexts, *'it's scary to say I'm from Israel.'* These comments indicate that VE for Israeli students may involve emotional and identity-related pressures that standard intercultural frameworks do not always address.

Perhaps a sub-limitation of the present VE in this respect is that it did not explicitly frame reflection around critical incidents as they arose. O'Dowd et al. (2020) show that integrating students' own online interactions into class work can heighten awareness of the cultural, linguistic, and digital issues underlying such incidents, though Sauro and Spector-Cohen (2023) caution that mentoring of this kind may resolve a critical incident at surface level while leaving socio-political tensions, including the exclusion felt by Israeli participants in their own exchange, unrecognized until after the exchange has ended.

6. Discussion: Re-Imagining VE for the Local Context

The findings suggest that the initial VE model was feasible and beneficial in limited ways, but not sufficient as a comprehensive EMI preparation tool. Its successes were mainly psychological and interpersonal: it reduced anxiety, normalized accented English, supported learner agency, and introduced students to intercultural communication. Its limitations were more consequential for EMI readiness: it did not sufficiently address disciplinary language, technical

interaction, collaborative engineering problem solving, sustained engagement, or the local social and geopolitical realities of Israeli students.

This distinction matters for English teachers and EMI planners implementing VE. VE should not be dismissed, but it should also not be treated as a transferable model that can be implemented in the same way across contexts. The question is not whether VE works, but which VE design works for which students, in which disciplines, and for which academic and professional goals.

6.1 Asynchronous-First Telecollaboration

One possible and practical adaptation is an asynchronous-first model. Because synchronous meetings created scheduling friction, future iterations could use shared digital workspaces, recorded video responses, discussion boards, collaborative documents, or project management tools. Then later synchronous meetings could be reserved for milestone events such as project planning, design review, and final presentations. This kind of model may reduce logistical pressure while still allowing students to practice English, collaborate internationally, and reflect interculturally (Hackett et al., 2024; O'Dowd, 2018). It may also reduce anxiety by allowing students to prepare responses before speaking.

6.2 Internal to External Scaffolding

Another adaptation could be internal-to-external scaffolding. Considering Israel's multilingual and multiethnic higher education context, students could first engage in structured digital exchanges with peers from different local linguistic and cultural communities, such as Hebrew-speaking and Arabic-speaking campuses. This would allow students to practice mediation, listening, disagreement, and identity negotiation in a local context before moving into international exchange. Hellerstein et al. (2023) provide a relevant and realistic example of how English-mediated VE can be adapted to Israeli social realities. Although their focus was not EMI, their work supports the idea that locally grounded VE can build trust and dialogue across difference.

6.3 Discipline-Specific PBL and Technical Q&A

Perhaps the most important adaptation derived from participant responses is discipline-specific integration. Future VE models for engineering students should move beyond general cultural discussion and include project-based tasks connected to students' academic fields. These might include collaborative software case studies, technical problem-solving tasks, mock design

reviews, code explanation and data interpretation, or engineering project proposals. Students should also practice real-time Q&A: defending design decisions, responding to critique, clarifying technical vocabulary, and explaining reasoning under pressure.

Such tasks would better support EMI readiness because they connect language use to academic and professional action. They would also respond to students' own feedback that more field-related topics, especially software and engineering topics, would increase interest, relevance, participation, and preparation for EMI and work contexts. O'Dowd et al. (2020) argue that successful VE implementation often depends on pedagogical mentoring and cross-disciplinary collaboration. In this context, though, English instructors, EMI lecturers, and engineering faculty would need to collaborate to ensure that VE tasks align with both language-learning goals and disciplinary expectations, thereby better supporting students' needs.

6.4 VE as One Part of Inclusive EMI Support

The findings also suggest that VE should be positioned within a broader network of EMI support. As previously mentioned, Spector-Cohen et al. (2026) emphasize the importance of using student feedback to design inclusive and scalable EMI frameworks, and the present study supports this view: students benefited from VE, but their responses also identified needs that VE alone did not meet. These included discipline-specific vocabulary, technical presentation practice, note-taking, reading technical literature, collaborative problem solving, and strategies for managing real-time academic interaction. So, with institutional support and coordination, VE could be extended to EAP and EPIC courses, EMI lecturer training, disciplinary writing and speaking support, and proposal presentations. This approach would be beneficial in Israel, where EMI students differ in linguistic background, educational trajectory, military experience, work responsibilities, and access to informal Hebrew support.

6.5 Future Research

A primary limitation of this study is its relatively small sample size and reliance on self-reported retrospective perceptions. Future research should employ longitudinal designs that include tracking students' actual grades, as well as measuring participation rates and evaluating presentation performance and confidence across subsequent EMI courses. Real-time discourse analysis of VE interactions could also show how students negotiate meaning, use technical vocabulary, manage misunderstandings, and develop pluricultural awareness over time.

Future research should also include EMI lecturers and engineering faculty. Instructors could be shown the VE model and asked what they think should be added or changed to better prepare students for EMI. Their perspectives could help identify gaps between student self-perceptions and classroom expectations. Future studies could also use large-scale student and faculty feedback to design more localized and scalable EMI support models.

7. Conclusions

This case study suggests that VE can be valuable for Israeli engineering students, but its value should be defined carefully. The VE helped students speak more confidently, reduced accent anxiety, encouraged agency, and introduced them to intercultural communication. These are meaningful outcomes, especially in a context where many students lack access to study abroad and may feel anxious about speaking English.

However, the limitations of the current model are substantial. A short, discussion-based VE centered on general cultural topics did not sufficiently prepare students for the linguistic and cognitive demands of EMI engineering courses. Students still needed technical vocabulary, disciplinary discourse, practice defending ideas in English, collaborative problem solving, and support for managing geopolitical and identity-related anxieties. In this sense, the VE functioned as a useful starting point, but not as a complete EMI-readiness model.

For Israeli engineering ELLs, VE may be most effective when it is deeply localized through sustained, project-based, and asynchronous models that are integrated into engineering curricula and broader institutional EMI support. Finally, institutions should treat VE as one component in a broader framework that connects language learning, intercultural development, academic preparation, and professional communication.

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Appendix A

Google Forms Survey: Virtual Exchange, Intercultural Competence, and Preparation for EMI

Introduction:

Thank you for participating in this survey. Your responses will help assess how the Virtual Exchange (VE) experience with German students has contributed to:

- your self-confidence when speaking in English.
- your understanding of different cultures (intercultural competence).
- your preparedness for taking content courses given in English (EMI courses) after our ATE course.

Please note:

Your responses will remain anonymous, and no identifying information will be collected. The data will be used solely for research purposes. Participation is voluntary.

The survey consists of three sections:

- Demographics
- Likert scale statements (1 = Strongly Agree, 5 = Strongly Disagree)
- Open-ended questions

Section 1: Demographics

1. What is your age? _____

2. What is your gender?

Male

Female

Non-binary

Other _____

3. What is your first language?

Hebrew

Arabic

Russian

Other _____

4. Do you speak any other languages? If so, what is your level?

Hebrew fluent / average / basic

Arabic fluent / average / basic

Russian fluent / average / basic

Other _____ fluent / average / basic

5. What is/was your field of study?

Software Engineering

Industrial Management Engineering

Other _____

Section 2: Likert Scale Statements

All responses are anonymous. Please answer honestly based on your personal experience.

1 Strongly agree

2 Agree

3 Neither agree nor disagree

4 Disagree

5 Strongly disagree

N/A Not applicable

Speaking Confidence

After participating in the VE ...

1. my confidence in speaking English has improved. ____
2. I overcame my fear of making mistakes when speaking English. ____
3. I now feel more confident speaking English with people from different cultural backgrounds. ____
4. I will feel more comfortable participating in content courses taught in English. ____

Intercultural Communicative Competence

Participating in the VE...

1. helped me become more aware of cultural differences in communication styles. ____
2. taught me how to adjust my communication when speaking with people from different cultural backgrounds. ____
3. has made me more open to different perspectives after discussing cultural topics in the meetings. ____
4. has improved my ability to explain aspects of my own culture in English. ____
5. has made me feel more prepared to work or study with people from diverse cultural backgrounds. ____

Preparation for EMI Courses

Participating in the VE helped prepare me for taking content courses in English by...

1. providing me with useful experience for participating in content courses taught in English. ____
2. preparing me to understand lectures, discussions, and assignments in English. ____
3. improving my ability to follow and contribute to academic discussions. ____
4. making me feel more confident about taking an EMI course in my field of study. ____
5. discussing academic topics in English. ____

Section 3: Open-Ended Questions

1. Speaking Confidence: How did participating in the VE influence your confidence in speaking English? Please describe any challenges you faced and how you overcame them.

2. Intercultural Competence: What was the most important thing you learned about communicating with people from other cultures through this experience?

3. EMI Preparation: In what ways did the VE prepare you for taking EMI courses in Israel?

Please give an example (*perhaps mention a course and task you successfully completed, or mention the skills you think are needed for success in EMI courses, and if the VE helped you acquire them*).

Final Thoughts: Please leave any comments that you may have:

THANK YOU!!!

Appendix B

Semi-Structured Interview Questions

Section 1: Demographics & Background

1. What is your age?
2. How do you identify in terms of gender?
3. What is your native language or languages?
4. What is your current self-reported English level (CEFR)?
5. How often do you use English outside the classroom (e.g., online, gaming, media, academic work)?
6. Have you previously participated in any intercultural or virtual exchange projects?
7. How comfortable do you generally feel communicating with people from other cultures?
8. Can you briefly describe your virtual exchange (VE) experience? (Who did you work with? What did you do?)
9. How long ago did you participate in the VE?

2. Speaking Confidence in English

(RQ1: confidence in English speaking)

10. Before the VE, how did you feel about speaking English? How do you feel now?
11. Can you describe a moment during the VE when you felt more confident speaking English?
12. Did the VE help you feel less afraid of making mistakes? How?
13. How comfortable are you now speaking English with people from different cultures? Can you give an example?
14. Did anything in the VE make speaking English easier or harder for you?
15. Looking back, what do you think changed the most in your speaking confidence?

3. Intercultural Communicative Competence (ICC)

(RQ1: ICC development)

16. What did you learn about communicating with people from other cultures?
17. Can you give an example of a misunderstanding or difference in communication during the VE? How did you handle it?
18. Did you change the way you communicate when speaking with people from different cultures? In what way?
19. How comfortable are you now explaining your own culture in English? Has this changed since the VE?
20. Did the VE affect how open you are to different perspectives? Can you explain?

21. Do you feel more prepared now to interact with people from different cultural backgrounds? Why or why not?

4. Preparation for EMI Courses

(RQ2: preparation for EMI learning)

22. Did the VE help you when you later took courses in English (EMI courses)? How?
23. Can you give a specific example of a course, task, or situation where the VE helped you?
24. How did the VE affect your ability to:
1. understand lectures in English?
 2. participate in discussions?
 3. work in groups?
25. Did the VE help you feel more confident in EMI courses? In what way?
26. Were there any challenges in EMI courses that the VE did *not* prepare you for?
27. If a student is about to take their first EMI course, how useful do you think a VE experience would be for them?

5. Preparation for Professional / Work Contexts

(RQ3: preparation for professional contexts)

28. Have you used English in a work or professional setting since the VE? (If yes, describe the situation.)
29. Do you think the VE helped you communicate with colleagues or clients from different cultures? How?
30. Can you give an example of a situation at work where skills from the VE were useful?
31. Did the VE help you feel more confident in professional communication in English? Why or why not?
32. How did the VE prepare you (or not prepare you) for real-world communication in multicultural environments?
33. What skills from the VE are most useful for your current or future career?

6. Reflection and Evaluation

34. Looking back, what was the most valuable part of the VE experience for you?
35. What was the most challenging part?
36. Do you think the impact of the VE lasted over time? Why or why not?
37. Is there anything you wish had been different in the VE?
38. Would you recommend this experience to other students? Why?

7. Closing Question

39. Is there anything else about your VE experience that we didn't ask about but you think is important?