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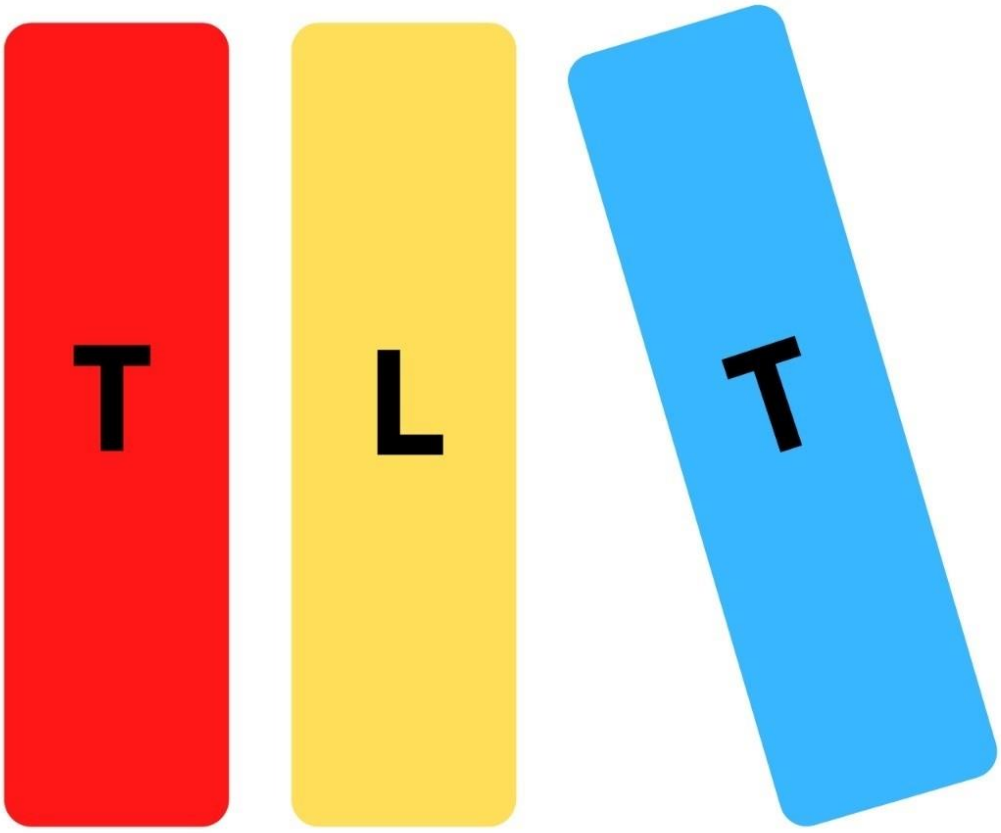

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CONTENT

RESEARCH ARTICLE

Navigating materials adaptation: English teachers' experiences in Turkish secondary schools

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Abstract
Teachers often adapt materials to create more effective learning experiences due to the unique characteristics of each classroom, considering varying student backgrounds and needs. Studies highlight the role of coursebooks, which are essential yet sometimes insufficient for addressing communicative and intercultural aspects of English language education. Hence, this qualitative study explores the adaptation of English language teaching materials by ten secondary school English teachers as part of the PRELIM3 Project. Specifically, it examines their perceptions of national coursebooks and their strategies for adapting project materials to enhance language teaching in the "PRELIM3" project, aimed at developing supportive language teaching materials aligned with the national curriculum for less developed regions in Türkiye. Data were collected through triangulation, including weekly teacher narrations of material adaptation experiences, semi-structured post-project training interviews, and analysis of weekly adapted coursebook activities. Additionally, teachers' conference presentations provided insights into classroom material adaptation, reflecting on students' language performance and reactions, besides teachers' use of materials. Content analysis and coding techniques were used to analyze narrations and interviews, while activities were evaluated based on English language skills targeted, alignment with lesson objectives, and responsiveness to student interests and needs. The study highlights the critical role of material adaptation in meeting students' language learning needs, revealing teachers' perceptions and strategies in addressing the limitations of national coursebooks. Findings underscore the need for contextually responsive materials and offer insights to improve English language education in diverse classroom settings.

Keywords
Coursebook, materials adaptation, curriculum, English language teachers

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Introduction

Adapting materials in search of the best coursebook (Korkmaz & Korkmaz, 2020, p.260) has become an inevitable process in language teaching due to the recent growth in diverse student populations. English language classes are filled with monolingual students and students of various ethnicities, native languages, cultures, and countries. Every class is unique and distinctive regarding the student population, learning and teaching atmosphere, language proficiency levels, students' interests and needs, teachers' backgrounds, and the local context. In line with the second language acquisition principles (Tomlinson, 2013), students need to be supported through activities that are exciting and relevant to their lives, address multiple learning intelligences and preferences, and provide opportunities to use English outside the classroom. Coursebooks should facilitate language learning for them through their instructional, elicitation, and exploratory nature. Accordingly, the best coursebook can be achieved through material adaptation addressing contextual factors such as student population, the role of English in the school, the testing and assessment system, and the syllabus (McDonough et al., 2013).

Considered a core component of English language teaching and learning, coursebooks are the primary or unique resources for many secondary school teachers worldwide (Bouckaert, 2019; Hutchinson & Torres, 1994). For teachers, they are the source of authority and security, organisers of the lesson content, and a practical and effective professional development strategy. For students, they are the source of language input and an opportunity to practise the target language with intercultural values in the classroom. However, as McDonough et al. (2013) stated, no coursebook is likely to be perfect or the best owing to students' differing needs, objectives, backgrounds, and preferred styles in local contexts. Hence, teachers often have to adapt materials to suit the needs of their local context (Hanifa & Yusra, 2023).

In Türkiye, English language coursebooks for grades 2-12 are prepared by national publishers, sent for revision to the Board of Education, and reviewed by a panel of experts appointed by the Board. These coursebooks are approved by the Board depending on the views of the panel (Board of Education, 2024). The Common

European Framework of References for Languages (CEFR) was employed to design and develop the curriculum, syllabus, and materials. So, as mentioned in the EFL Programme (MoNE, 2018), coursebook authors are encouraged to employ methodological choices in line with the CEFR, key competencies and values, and themes in the coursebooks. Accordingly, all state schools must use national coursebooks approved by the Board of Education. English language teachers are expected to make the most effective use of these coursebooks, addressing their students' needs and interests. However, as reported in studies by Vale et al. (2013), Dülger (2016), and Solhi et al. (2020), many English language teachers in Türkiye find these coursebooks significantly limiting regarding communicative aspects, intercultural integration, and addressing diversity in schools. Despite these studies, how English language teachers adapt materials into lived instruction is still under-explored (Li & Li, 2021).

As a remedy to the coursebook implementation limitations and scarcity of research, we report on the views and experiences of English language teachers in materials adaptation and use during the project called "PRELIM3: Developing Teacher Support Sources for the Secondary School English Language Teaching Programme in Less Developed Regions in Türkiye" funded by the British Council, NILE, and IATEFL, managed by the University of Sheffield, and partnered by Gazi University. The project aimed to develop English language teaching and learning materials parallel to the Secondary School English as a Foreign Language (EFL) Curriculum, as needed by the teachers working in rural areas in Türkiye. Understanding teachers' views and experiences on the national coursebook adaptation is essential because it reveals teachers' perceptions of classroom problems and ways of implementing the English Language Teaching (ELT) methodology in classroom activities (Li & Li, 2021; Tomlinson & Masahura, 2018). Borg (2006) also argues that exploring their perspectives and observing them adapt the coursebook is crucial to understanding teachers' views and beliefs. This study examines the opinions and classroom experiences of 10 project participant English language secondary school teachers who implemented project materials in English lessons through material adaptation strategies.

The following research questions guided the study:

- What are the reasons for English language secondary school teachers to make adaptations in national coursebooks?
- How do these teachers adapt the project materials in their English lessons?

Materials adaptation in ELT

As the dynamics of language and education evolve and diversify, teachers continually seek innovative approaches to engage learners effectively. Materials adaptation in ELT emerges as a pivotal strategy, enabling language teachers to tailor resources to meet the diverse needs, preferences, and learning styles of their students in local contexts because, as Tomlinson states, "no matter how good the materials are, they will not by themselves manage to cater to the different needs, wants, learning styles, attitudes, cultural norms and experiences of individual learners" (as cited in McDonough et al.,2013, p.64).

Materials adaptation refers to modifying existing teaching resources, such as textbooks, worksheets, multimedia, and online materials, to suit the specific objectives, contexts, and learner profiles. This flexibility allows educators to align instructional content with their students' linguistic, cultural, and cognitive requirements, fostering a more inclusive and interactive learning environment. Teachers can accommodate various learning modalities by customising materials to incorporate visual, auditory, kinaesthetic, and tactile elements (Tomlinson & Masuhara, 2018). This ensures that all students have equitable opportunities to comprehend and internalise the content effectively. Educators can incorporate authentic materials such as newspaper articles, songs, films, and advertisements, enriching the learning experience and promoting cross-cultural understanding through adaptation. By scaffolding content, providing vocabulary support, and simplifying language structures, when necessary, educators can ensure that instructional materials are accessible and understandable to all learners, regardless of their proficiency levels. This differentiation fosters a supportive learning environment where students feel challenged yet capable of mastering new language skills. Furthermore, material adaptation empowers teachers to address their classrooms' diverse linguistic proficiency levels and encourages creativity and innovation in

teaching practices (Mede & Yalçın, 2019). Rather than rigidly adhering to pre-designed materials, educators can modify, supplement, or create resources based on emerging pedagogical trends, technological advancements, and student feedback. This flexibility lets teachers stay abreast of evolving educational needs and adapt their instructional approaches, accordingly, enhancing their overall effectiveness of language instruction (McDonough et al., 2013).

However, effective material adaptation requires careful consideration of various internal and external factors, as McDonough et al. (2013) suggested. While external factors refer to what we have at hand, such as learner characteristics, physical environment, resources, and class size, internal factors are about what materials offer, such as choice of topics, skills covered, proficiency level, and grading of exercises. Similarly, Tomlinson and Masuhara state that factors such as local, regional, and national teaching environment, learners' demographic information, teachers' personalities, teaching styles and beliefs, and course objectives should be considered for effective material adaptation (as cited in Freda & Timmis, 2015). These factors are expected to match each other as closely as possible. Madsen and Bowen (1978, ix) refer to this matching as "congruence", which they see as essential for effective adaptation. Teachers must deeply understand their students' backgrounds, interests, and learning preferences to make informed decisions about adapting materials. Overall, effective adaptation will contribute both to the learning and teaching process.

As for the reasons to adapt, there are some possible areas of non-congruence, such as not enough focus on the grammar, too much unknown vocabulary in reading texts, inauthentic listening passages, not enough guidance on pronunciation, and inappropriacy for the age and proficiency level of the students. Additional factors include a lack of intercultural items in visuals and texts, too little variety or opportunity in communicative activities, and a need for more technical facilities. (Ahamat & Kabilan, 2022; Masuhara, 2022). Systematic support for materials adaptation was also highlighted as a need for teachers. Cunningsworth adds to the list the classroom dynamics, personalities involved, syllabus constraints, availability of resources, and learner expectations as reasons for adaptation (as cited in Freda & Timmis, 2015).

Material adaptation occurs in several stages, as various scholars propose (McGrath, 2013 Islam & Mares, 2003; McDonough et al., 2013). McDonough et al. (2013) regard the particular teaching context as central and emphasize personalising, individualising, and localising factors. Personalising refers to making the content relevant to learners' needs and interests. Individualising addresses learners' learning styles. Localising also considers the cultural and geographical differences and variations in the use of materials. The adaptation strategy by McDonough et al. (2013) includes five techniques: adding, deleting, modifying, simplifying, and reordering (Table 1, p.77). In "adding", teachers supplement more input (visual or written) into the content, considering the practical effect and timing. Deleting can be done by reducing the length of the material by subtracting from it. Modifying is related to the internal change in the approach or focus of the exercise. It can be done in both ways: rewriting (turning the material into a more communicative and relevant consent) and restructuring (changing the material according to learners and the learning condition). Simplifying is done on instructions, explanations, and visuals to clarify the input according to learners' levels. Reordering refers to putting the parts of a coursebook in a different order. McGrath (2013) states that teachers can adapt language instructions, exercises, explanations, examples, productions of learners, and forms of classroom interaction for giving instructions and clarifying meanings, topics, cultural content, and linguistic and cognitive demands of the learners.

Previous studies on material adaptation in ELT

EFL teachers worldwide have adapted and used materials differently for various purposes and levels in the English language teaching field so far. Prawiti, Jufrizal, and Hamzah (2020) examined the material adaptation techniques used by Indonesian English language teachers in senior and vocational high school coursebooks by the Centre for Curriculum and Textbook Development under the Ministry of Education and Culture of Indonesia. They observed and interviewed five ELT teachers and found these teachers mainly used adaptation techniques, such as expansion and re-writing, but ignored techniques, such as subtraction and reordering, owing to unfamiliarity. It highlighted the necessity of being familiar with coursebook adaptation techniques and

using them properly in the classroom. Priyanka and Selamat (2021) discussed the need to adapt learning materials in Indonesian schools to promote acquiring language skills, values, and 21st-century skills. It is emphasised that materials can be sequenced from comprehension tasks first and productive, interactive tasks next in adaptation. Hanifa (2018) explored an Indonesian EFL high school teacher's ways of adapting materials, perceived benefits, and challenges. It was observed that the teacher adapted materials by adding, deleting, modifying, simplifying, and reordering in the classroom. Although the adaptation facilitated the language learning process, some issues were raised, such as the absence of a section for sharing feelings, adjusting the difficulty level, dealing with teacher anxiety, and using the native language extensively. In-service teacher training and education for materials adaptation was reported as a crucial need to be addressed.

Halim and Halim (2016) investigated how and why teaching materials must be adapted by gathering novice and experienced EFL teachers' perspectives through interviews and questionnaires. Teachers were reported to believe no perfect coursebook existed and preferred to adopt materials rather than adapt them due to either a lack of resources or time. Liu (2016) shared the adaptation of authentic materials in the foreign language (L2) listening coursebook through graded tasks in the Chinese context. Li and Li (2021) also focused on the Chinese EFL context and explored how EFL teachers in China selectively used materials in language classrooms. Their findings showed that teachers adapted materials by adding, modifying, and simplifying due to the complex, situated, and interactive classroom context. Devi (2017) investigated EFL teachers' perceptions and practices regarding material adaptation in Nepal. In the study, it was reported that teachers mostly adapted tasks at the activity and unit levels. The primary adaptation technique was modification through reordering, omission, and reduction. The teachers perceived the EFL coursebooks in Nepal as not addressing Nepalese learners' cultural needs and interests, lacking visuals and examples to support meaning, and lacking audio materials, especially for listening texts. They reported the need for in-service training for materials adaptation, as well as time and support from their colleagues, to practise material adaptation more effectively in their classes.

In addition to the studies in different parts of the world, various studies in Türkiye have explored material adaptation from multiple aspects. Şimşek (2022) used a group of 14 multicultural preparatory learners' feedback to improve teachers' adaptation strategies. The teacher added two scaffolded grammar tasks through visual aids, collaborative group work, an explicit focus on grammar, and learner translations. Learners showed greater interest in activities and raised awareness of using the modal of deduction in context. Korkmaz and Korkmaz (2020) examined 120 ELT student-teachers' views and experiences in materials evaluation, adaptation, and creation through surveys and semi-structured interviews in Türkiye. The participants held positive beliefs about material adaptation and stated that when materials were adapted for a specific context, learners became more involved, motivated, and interested in the activities. They used personalisation and localisation strategies in materials adaptation to create a child-centred learning atmosphere in the teaching practicum. Also, the main reason for their adaptation was to enable primary EFL students to engage in communicative and fun activities while using English. Karatepe and Civelek (2021) aimed to investigate EFL teachers' views on the adapted pragmatic activity to teach requests. Teachers found pragmatic-awareness-raising activities helpful in teaching pragmatics. Mede and Yalçın (2019) examined the self-reported beliefs of 14 Turkish EFL instructors, seven novices and seven experienced, at a tertiary-level preparatory programme about textbook adaptation. They also explored which strategies were used frequently in their lessons through reflective essays, lesson plans, and semi-structured interviews. They found that EFL instructors shared positive beliefs about using adaptation strategies. Some techniques they used included raising learners' curiosity in the lead-in activity, teaching vocabulary and grammar, and increasing interaction through games. Deletion was also preferred for free-practice vocabulary structure activities. Modifications were made to newly learnt grammar topics and the content of speaking activities. Among the instructors' primary reasons for adapting materials were meeting the course objectives, the need to cater to learning styles, and increasing learner interactions

These studies discuss the importance and necessity of understanding teachers' views and experiences in material adaptation in English classes. Teachers' adaptation

practices are affected by their views of ELT methodology, the classroom context, learners' needs, ages, goals of learning English, interests, and language teaching policy, reflecting the nature of the partnership between the coursebook and the teacher. In other words, their adapting and using materials in English language teaching affects what they teach, how they teach, and how their students learn. Although there are a variety of studies investigating teachers' and student-teachers' perspectives on material adaptation, there is a scarcity of research on understanding EFL secondary school teachers' material adaptation views and in-class practices in Türkiye. To address this gap, this study focuses on 10 EFL secondary school teachers working in diverse regions of Türkiye. It explores their views of national coursebooks and in-class practices in adapting teaching materials from the PRELIM3 Project in their local English classes.

Methodology

Participants and research context

At the time of the study, the participants were 10 EFL secondary school teachers teaching English to 5th, 6th, and/or 7th graders in seven cities with different sociocultural backgrounds in Türkiye, namely, Şanlıurfa/Halfeti, Gaziantep/Şehitkamil, İzmir/Selçuk, Hatay/İskenderun, Van/Edremit, Trabzon/Ortahisar, Ağrı/Doğubeyazıt, Ankara/Sincan and İstanbul/Bağcılar. At first, there was a call for project participants on social media for teachers who taught these grades in Türkiye. Twenty-eight teachers applied, and their conditions were evaluated regarding project aims, timelines, and requirements. As a result, ten of them were chosen based on the purposive sampling method (Creswell, 2012) (Table 1). Their age ranged from 25 to 45. Three of them were novices, while seven of them were experienced teachers. They all used EFL coursebooks developed by national publishers and approved by the Board of Education in Türkiye.

Different trainers with expertise in materials adaptation trained these teachers weekly for two months to adapt and appropriately use web-based materials in their classrooms. Teachers shared their local teaching context through weekly online meetings (Table 2). They reported their coursebook use, adaptation experiences, and

students' language needs, while trainers introduced material adaptation stages, project materials, and sample adapted coursebook activities. Regarding the weekly training tasks, teachers were asked to adapt the web-based project EFL materials weekly in their classrooms, share these adaptation experiences, and prepare for their presentations at the project conference on February 23, 2024. Each meeting lasted 1,5 hours on Zoom. The project team determined the content of these meetings (aims, outcomes, and training materials).

Table 1.

Project Participants

Teachers	City	Experience of teaching	Age	Levels they teach
Teacher 1 (T1)	Şanlıurfa/Halfeti	One year	25	5th grades
Teacher 2 (T2)	Trabzon/Ortahisar	Two years	27	5th grades
Teacher 3 (T3)	Ankara/Sincan	Fifteen years	40	5th grades
Teacher 4 (T4)	Ağrı/Doğubeyazıt	Five years	31	6th grades
Teacher 5 (T5)	İstanbul/Bağcılar	Five years	31	6th grades
Teacher 6 (T6)	Van/Edremit	Five years	31	6th grades
Teacher 7 (T7)	İzmir/Selçuk	Fifteen years	42	5th grades
Teacher 8 (T8)	Hatay/İskenderun	Fifteen years	41	7th grades
Teacher 9 (T9)	Gaziantep/Şehitkamil	Eight years	32	7th grades
Teacher 10 (T10)	Trabzon/Ortahisar	Seventeen years	42	7th grades

Table 2.

Project Training weeks and content

Training weeks	Training content
Week 1 (December 13, 2023)	Project introduction: material adaptation
Week 2 (December 20, 2023)	Coursebook adaptation in ELT
Week 3 (December 27, 2023)	Adapting 5th grade EFL coursebooks: sample activities
Week 4 (January 3, 2024)	Adapting 6th grade EFL coursebooks: sample activities
Week 5 (January 10, 2024)	Adapting 7th grade EFL coursebooks: sample activities
Week 6 (January 17, 2024)	Teacher reflections on project materials and adaptation experiences in local contexts
Week 7 (January 24, 2024)	Localising the EFL coursebook
Week 8 (January 31, 2024)	Teacher preparations for the project conference presentations: building bridges between trainers and teachers

Data collection and analysis

In this qualitative study, data were triangulated and collected through weekly teacher narrations of material adaptation experiences, semi-structured interviews conducted at the end of the project training about their overall project and adaptation reflections, and their weekly adapted coursebook activities. Also, their stories of classroom material adaptation experiences, consisting of information on students' language use performance, their reactions toward the material, and teachers' material use performances, were reflected in their project conference presentations. These reflections were also noted in addition to the data tools. With three narrations and one interview per ten teachers, we collected and analysed thirty narrations and ten interviews throughout the project.

Data from narrations and semi-structured interviews were analysed using content analysis and coding (Creswell, 2012). Activities were analysed in terms of target

language skills and components, their alignment with the lesson plan objectives and duration, and students' language interests and needs. Ethical permission was obtained before the study. Teachers were informed about the study, agreed to participate voluntarily, and gave consent.

Results and Discussion

Through two research questions, this study aimed to understand the reasons for and experiences of ten PRELIM 3 Project participant teachers in materials adaptation. It was revealed that teachers had positive views on the teaching sources developed as a product of the project. They were observed adapting project materials into their lessons for various reasons, resulting from the non-congruence with external and internal factors (Madsen & Bowen, 1978).

Reasons to adopt national coursebooks

The first research question in this study was to explore secondary school EFL teachers' reasons for adapting materials in their English classes. As a result of the analysis of the narrations and semi-structured interviews, all Turkish EFL teachers in this study were unsatisfied with grades 5, 6, and 7 coursebooks for several reasons. The first common reason was the lack of in-class opportunities for the students' communicative use of grammar. As for the reasons for material adaptation, it was revealed that teachers found communicative use of grammar opportunities in the coursebooks limited, especially in productive skills activities. Communicative aspects of grammar activities have always been lacking in MoNE coursebooks, as revealed by Dülger (2016) and Solhi et al. (2020). As appears in the beliefs and views of teachers in studies by Şimşek (2022) and Korkmaz and Korkmaz (2020), teachers in this study believed in teaching grammar communicatively to young learners. They believed students would need to communicate accurately and fluently in real life, which would become possible by engaging them with functional and interactive use of grammar. For them, these students needed to use English outside the class for accurate speaking and writing purposes. They emphasised that pre-activities in the coursebooks should give them a real aim for communicative

purposes. That is why all teachers in this study highlighted that “they were searching for meaningful, communicative, and relevant activities that would enable students to use vocabulary and function of the grammar item in context” in the project presentation conference. This was reported to be the main reason for material adaptation in the class. The adaptation provided their students with more engaging and motivating learning opportunities, as Korkmaz and Korkmaz (2020) mentioned. Therefore, it can be argued that teachers' beliefs about materials use and their teaching practices cluster due to the top-down approach. In other words, limiting teachers with the MoNE coursebooks and expecting them to use them in English lessons may contradict their teaching beliefs. Regarding topic choice, activity quality, and real communicative purposes, national coursebooks were found to be problematic since they demotivate students to use English in the classroom. For example, T6 stated: “In Unit 3 of the 6th-grade book, we have to study both comparatives and present continuous tense with many mechanical exercises. They do not understand how and where they will use these structures in real lives.” This problem was also observed in an EFL teaching context at the tertiary level by Mede and Yalçın (2019). EFL instructors primarily adapted materials to increase learner interactions and communicative use of the target language in speaking activities. The communicative aspect of the activities is prioritised at all levels of language education.

Second, they mentioned the students’ interests and needs should be considered to make the English lessons lively, fun, engaging, and relevant. It was reported that students were in the technology era and interested in digital materials that would provide them with enriched language input and opportunities. From the narrations and reflections, it was understood that teachers had positive views on integrating technology in teaching English. They especially needed space in the coursebooks to use digital language learning and teaching materials (Kiddle, 2013). However, teachers pointed to the lack of digital and interactive language learning materials to meet these needs, as argued in Tomlinson’s study (2013). For example, T4 and T5 reported: “Also, in the 5th-grade and 6th-grade course books, there aren’t any video links we can watch via smartboard.” Similar to EFL teachers’ beliefs in Li and Li’s (2021) study, these teachers believed students could become active language users by integrating interactive games

and digital activities into the lessons. PRELIM 3 materials included interactive games where students can practice newly learnt grammar items in speaking and writing activities (see appendix x). T2 stated that "It was also beneficial to adapt the materials for unit or lesson revisions at the end of the lesson". Since the MoNE coursebook lacks fun activities, she believes it does not motivate students to participate actively in the class. As Tomlinson (2013) argues, according to the language acquisition principles, students should be supported through interesting, exciting, and relevant activities. Considering contextual factors enables teachers to address the diverse student populations regarding learning styles, language proficiency levels, and cultural background. As an answer to the need, "... we need funded experiments in which universities and publishers combine their expertise and resources to produce and trial innovative language learning materials… such cooperation…to be extremely rare in education." addressed by Tomlinson (2013, p.226), PRELIM 3 Project materials enabled teachers to address these varieties and the gap in the field.

Third, given the national coursebook contents, T7 reported that "More than three or four hours a week is needed to cover all the activities and objectives of the units." As expressed by Chinese and Nepalese teachers in Devi's (2017) and Liu's (2016) studies, teachers in this study needed more class hours to practise listening or speaking activities. For instance, the 7th-graders' English teacher (T7) emphasised the excessive number of grammar topics in the book and the lack of class hours to complete them:

Another reason is the number of units and the load of topics. The book contains ten units; students must pass the activities without absorbing the tasks or activities because of the time limitations or the number of students in crowded classes. They can't even have a chance to speak in English classes as expected. Teachers have to complete activities in a time given to them. Real communication opportunities are underestimated, and things are done superficially.

Accordingly, they made adaptations mainly both at activity and unit levels. One teacher also criticised the unattractive cover design of the 7th-grade coursebook and layout from the students' point of view.

The adaptation of PRELIM 3 Project materials into English lessons

The second research question focused on how these teachers adapted the PRELIM digital materials to their English classes. Teachers' answers revealed several details about the adaptation timing, techniques, and adapted course components. To start with the timing of the adaptation, teachers mostly preferred to adapt the digital content in the middle of the lesson to improve listening and speaking skills in communicative grammar teaching. They believed that a foreign language should be taught in an integrated way. So, they needed activities in which grammar was integrated into language skills, as found out by Şimşek (2022). First, they taught the subject from the coursebook. Then, in the second half of the lesson, they continued with the digital materials to practise the newly learnt items in context. For example, one of the 6th-grade teachers (T5) practised the comparative and superlative topic through "drag" and "fill in the blank" types of exercises in the listening part. She reported, "Such integrated activities increased student motivation and participation in class activities". Another 7th-grade teacher (T7) integrated the digital content into the lesson's three phases (pre-, while, and post-stages). He used these materials throughout the lesson as a whole class activity. Indonesian EFL teachers in Priyanka and Selamat's (2019) study also preferred this sequence of materials adaptation.

Among the adaptation techniques (McDonough et al., 2013), similar to Indonesian EFL high-school teachers in Hanifa (2018) study, "adding" was the primary technique used by the teachers. Since project materials were more attractive in terms of colour, sound, and context, they added these materials primarily to increase interaction among students in the classroom, motivate them, practice writing and vocabulary entertainingly, teach the content appropriately, and let them have fun while using English. Since they found the coursebooks uninteresting and full of mechanical exercises, they preferred "removing" as the second most popular technique. They removed repetitive and mechanical coursebook exercises to reduce the length of the material and added new ones aligned with the curriculum objectives from the digital content. "Simplifying" was also used for several purposes. Simplifying first helped teachers arrange the content appropriate to students' proficiency levels. T8, for example,

stated that: "In unit 3, "Biographies" of the 7th-grade content, students find new words difficult to understand in the texts in the unit. Also, they do not have a reason to use these words in real life, so they find it boring." She simplified the instructions for reading text questions so that they could be answered quickly. T3 reported, "I added songs for the activities I removed to avoid making long explanations. The class sang these songs through body language with the teacher's guidance by using the visuals in the project materials". Second, simplifying enabled the effective use of visuals and songs to clarify the input at any lesson plan stage. Sometimes, she sang these songs at the beginning of the lesson to energise them and revise the unit's vocabulary at the end. Only one teacher (T1) mentioned using the "reordering" technique to increase students' readiness levels before the while activities.

As reported in other studies, all teachers found that speaking activities were limited in the coursebooks (Ahamat & Kabilan, 2022; Masuhara, 2022). Thus, to compensate for the deficiency of the books, they preferred to add speaking activities in pairs and groups from the PRELIM digital content towards the end of the lesson. They reported that students needed help speaking accurately and fluently with each other. For instance, T7 stated, "I added a speaking activity before reading the text to help students facilitate comprehension and relate the topic to their lives." Similarly, T8 replaced the coursebook activities with a game from the digital content to revise Unit 4, "Wild Animals". He used gamification throughout the lesson in groups on the smart board. He reported that such a game increased their imagination and made the content meaningful. T5 also removed the activity which involved talking about Sally's weekend in the 6th-graders' coursebook and added two writing activities (one controlled and one guided) to help students use the time meaningfully through teacher-led questions and visuals. These features helped students enjoy writing in the classroom by practising "the time" topic. In unit 3 of the 6th grade, students first watched the quiz on the smartboard and then answered the questions to find the opposites of adjectives in the superlative form. Although they found it challenging, all students participated in the game. T2 mentioned, "I adapted the Unit 4 reading text activity in the 5th-grade coursebook by adding the video and the quiz game as a pre-activity to increase students' interest in the reading. Students answered the quiz items on the board, which created classroom interaction among them as they knew the

answers." T9 preferred to add a "correct the mistakes" exercise at the end of the lesson as a self-assessment tool for students. Students had the chance to correct the mistakes using their Simple past-tense knowledge in a reading text. Since they had the opportunity to get quick feedback on their answers, this exercise enabled them to practise grammar knowledge, reading skills, and critical thinking skills. The teacher appreciated the instant feedback on the exercises.

Teachers adapted materials in all stages of the lesson for various reasons, considering external factors such as the number of students in the classroom, students' interests in digital games, their expectations, and the existing coursebooks, and internal factors such as the difficulty level of vocabulary teaching practices, the sequence of language skills, and the weight of mechanical grammar exercises in the coursebooks. The adaptation techniques they preferred also match the ones suggested by McDonough et al. (2013) and McGrath (2013). Additionally, in adapting the project materials, teachers reflected on the local and national teaching environment, revealing their beliefs on language teaching and materials adaptation and the non-congruence resulting from the clash between these beliefs and the adhered coursebook. Among these beliefs, it became apparent that technology is a necessity, not an option, for teachers and students in materials adaptation. As also appeared in teachers' beliefs in Hanifa and Yusra (2023), they confirmed the existing MoNE coursebooks' limitations regarding integrating digital language learning and teaching materials.

Since they received weekly training on how to adapt the coursebook and the materials for each grade, they experienced no difficulty in the materials adaptation process. In the weekly online training, ten teachers from nine different cities in Türkiye gave feedback to each other and shared their local experiences in materials adaptation. This enabled them to collaborate with teachers from different contexts, learn from each other's lived stories, develop their language teaching methodology, revise their teaching techniques, and contribute to their professional growth.

Conclusion

This study explored ten Turkish EFL secondary school teachers' reasons and experiences in adapting PRELIM3 Project teaching materials into their classes in Türkiye. Through triangulated data, we answered two research questions. They preferred to make the adaptation in all stages of the lesson mainly to increase the communication and interaction opportunities among students in the class, to provide authentic audio input through digital interactive listening and speaking activities, and to avoid making long explanations before the activities or during the teaching stage. Hence, adding became the most preferred technique. Findings also showed that teachers had positive views towards the new materials, confirmed their beliefs on the communicative use of grammar in productive skills, highlighted students' needs to practice the language through digital materials, and appreciated the weekly training offered by project trainers for their professional growth.

There are certain limitations to the study. First, we did not take into account the students' first-hand feelings and experiences in using these materials for their language growth. Instead, we learnt about them through teachers' reflections and narrations. Second, we conducted the study with ten project teachers, adhering to the project content. Third, the participating teachers' classrooms were not first-hand observed while adapting the materials.

Accordingly, the study has some implications for future research and practice. In future studies, more teachers' experiences and reasons for materials adaptation can be investigated through first-hand classroom observations as well as narrations, semi-structured interviews, and reflection sessions. A mixed-research design can be employed to understand the congruence between teachers' beliefs and their actual adaptation experiences through quantitative data tools such as surveys or questionnaires and qualitative tools such as interviews and observations (Ahamat & Kabilan, 2022). In addition to secondary school teachers' experiences, future studies may include teachers from primary and high-school levels, instructors, and teacher educators from tertiary levels (Hanifa & Yusra, 2023). The teachers' materials adaptation techniques that emerged in this study may be context-bound and used for the purposes of the project.

Their adaptation preferences and experiences may differ in their actual teaching practices. Hence, these teachers may be observed after the project to understand how, when and to what extent they adapt other sources such as authentic texts, videos, and open-access digital tools, and how this affects their students' language learning experiences.

In collaboration with student-teachers in practicum, teachers in the role of mentors may share their materials adaptation experiences and assign them to teach a lesson via evaluating and adapting the MoNE coursebooks (Korkmaz & Korkmaz, 2020) so that student-teachers can gain more self-esteem in materials adaptation. McDonough et al. (2013) state that no coursebook is likely to be perfect. Therefore, teachers' search for the best coursebook will continue through effective materials adaptation practices to provide congruence between the external and internal factors in the local context. In-service materials development and adaptation training will likely become a continuing need for novice and experienced EFL teachers.

Ethics Committee Permission Information

This research study was conducted with the Research Ethics Committee approval of Gazi University, dated 18.04.2023 and numbered 2023-558.

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RESEARCH ARTICLE

Enhancing intercultural communication via the ENACT Web App in language teaching

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Abstract
Digital language learning provides an immersive context for language learners to engage in intercultural communication (Liaw, 2019; Dooly & Vinagre, 2021). This study investigates the impact of a digital tool, the ENACT web app (Communities, Languages, and Activities), on intercultural language learning from the pre-service English language teachers' perspective. The ENACT web app, which embraces the intercultural, digital, and communication skills of language learners, aims to develop the intercultural awareness and understanding of language learners through two-way knowledge-generating task-based activities. Ten pre-service English language teachers, who participated in the project as workshop facilitators, were initially engaged with the web app as users by completing a 2-week online training. After the training, they facilitated intercultural pairs in producing cultural activities in a task-based digital learning pedagogy in 3-5 hour sessions. They also completed final reflection papers at the end of the entire project engagement as a culminating product. To this end, this study presents mixed-method research with quantitative survey data and qualitative reflections of the pre-service teachers: (1) descriptive scores from pre and post-training responses to digital skills assessment and cultural awareness questionnaires, (2) reflective answers to open-ended questions about their gains in the e-portfolio in the middle and end of the online training, and (3) final reflection papers on intercultural understanding after the facilitation of the workshops. The survey findings showed that the pre-service teachers increased their cultural and digital knowledge through digital materials on the web platform. The thematic analysis of the reflections also indicated that they found the use of the task-based language teaching methodology effective in offering an interactive learning experience and enhancing learner involvement. The study suggests that integrating cultural tasks into the curriculum for language learning offers real-life learning experiences and contributes to both the language and content knowledge of the students.

Keywords
Technology-mediated task-based language teaching, intercultural communication, digital language learning, teacher education

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Introduction

Task-based language teaching (TBLT) has drawn researchers' and practitioners' attention since the 1980s (e.g. Doughty & Long, 2003; Ortega, 2009; Skehan, 2003). The origin of the TBLT can be traced back to Dewey's (1938, as cited in Thomas, 2013) work on experiential learning, representing a paradigm shift of conventional perspectives in language teaching, in particular concerning the use of meaningful, contextualized and authentic problem-based tasks in language teaching (Bygate, 2016; Long, 2015; Prabhu,1987)). Grounded in a usage-based and interaction approach to language learning, TBLT emphasizes the importance of experience and learner engagement in authentic interactions. To this end, authenticity is a key factor in TBLT in terms of the way teachers design tasks for learners (González-Lloret & Ortega, 2014; Kessler et al., 2021; Lai & Li, 2011; Littlewood, 2004; Nunan, 2004; Richards, 2005). To enhance the authenticity of the tasks and materials in language teaching, teachers must be able to design daily-life or real-world tasks and tasks should require learners to focus on meaning, have a clear outcome, and provide opportunities for interaction, thinking, and problem-solving (Ellis, 2003, 2009, 2017). In comparison to the other language teaching methodologies, TBLT appears to provide an ideal context for the use of technological innovations in language learning, as the technology-mediated TBLT promotes involvement around tasks in which learners use the target language for meaning-making (Gonzáles-Lloret, 2017; Lai & Li, 2011; Samuda & Bygate, 2008). Adopting a task-based language teaching methodology, our aim in this study is to investigate the impact of the ENACT web app on developing intercultural understanding of the pre-service English language teachers. The significance of the study is to increase the authenticity of language instruction by developing teacher candidates' intercultural competence through digital tools so that students can practice the target language in more context-rich environments. The study may contribute to the field by developing intercultural and digital competencies of both teachers and students.

Technology-mediated task-based language teaching

Digital technologies have become an integral component of modern society in many countries, making immense changes in almost every aspect of life, including health, education and environmental issues. Language education in this regard is no exception. Indeed, the last two decades have witnessed a growing body of research examining

computer-assisted language learning (CALL), aiming to integrate technology into the language learning classroom (e.g. Doughty & Long, 2003; Egbert, 2005; Lai & Li, 2011; Petersen & Sachs, 2015). CALL involves a wide variety of technological applications in language teaching, ranging from virtual learning to interactive whiteboards and mobile learning environments (Schmid, 2009; Shield & Kukulska-Hulme, 2008). For many years, there appears to be a consensus among researchers that advances in information and communication technologies provide valuable sources that we use to communicate, create and spread new information in schools. In an early study, Davis and Tearle (1999), for instance, argue that digital technologies have the potential to make a profound impact on strengthening teaching and motivating and engaging students. For Daniels (2002), digital technologies have paved the way for creating more student-centered learning settings. Similarly, Smith (2004) maintains that the use of technological tools provides learners with opportunities to negotiate for meaning, receive feedback and produce output. While in his previous work, Kessler (2013) emphasized the friendlier and diverse use of today's digital technologies than before, not only in the form of text and images but also in audio, videos and many other mediums available in social media tools, more recently, Kessler (2018) has pointed out that language teachers have access to many effective options for using technology to enhance their teaching skills. That is, teachers can select authentic and meaningful language content and present it to learners in and out of class (Egbert, Hanson-Smith, & Chao, 2007). In more specific terms, such technological advances allow teachers to create opportunities for learners to record their voices to improve pronunciation, which might later be accompanied by feedback from peers and other instructors. Cornillie and Desmet (2016) argue that technology-based activities and mini-games can improve learners' mastery of specific patterns, along with immediate feedback on their responses. These activities can be goal-directed in that learners will be able to practice their language skills. With a focus on writing in the form of digital stories by learners of Spanish in an advanced writing course, the Oskoz and Elola study (2014) note that producing digital stories allowed learners to go beyond conventional modes of presentation and interaction as they had a chance to include images and sounds as well as time for reflection. This is very much in line with Reinders & Hubbard's (2012) perspective that the integration of digital tools and activities also makes it possible for

learners to work together and construct knowledge collaboratively, which, in turn, supports them in developing autonomy over their own learning.

All these developments in language teaching have led to a shift toward the use of technology in the implementation of TBLT (e.g. Chong & Reinders, 2020; Ortega, 2009; Tavakoli, Lotfi & Biria, 2019; Ziegler, 2016). González-Lloret and Ziegler (2022) emphasized that technology-mediated tasks enable students to engage in authentic and meaningful interactions in EFL contexts where L1 speakers may have limited interactional opportunities to use the target language. In a way, technology-mediated TBLT can facilitate target language use through meaningful and authentic tasks that require engagement with peers. As has been discussed in detail in various work, the primary characteristic of TBLT is the *task* (Ellis, 2003, 2009, 2017). TBLT's learner-focused and experiential features are accomplished through learner engagement with real-life target language tasks which are believed to foster language acquisition (Van den Branden 2006). The research studies on the technology-mediated TBLT reveal that technology supports an increase in the amount of language production during task performance. For instance, the discourse in synchronous interaction was found to be similar to face-to-face conversation, and the discourse in asynchronous discussions was more restricted and resembled the initiation-response-feedback discourse found in teacher-centered classrooms (Sotillo, 2000). Furthermore, from a learner agency perspective, Lankshear & Knobel (2011) highlighted the importance of web-based technologies like blogs and wikis in language learners' creative skills.

Creating learner-centered classrooms has a crucial role in contemporary language teaching methodologies. Yamada (2009) reported that both the number of turns produced by learners and the number of L2 expressions increased when they communicated online. Levy and Stockwell (2006) have also indicated that technology-mediated tasks can maximize language learning opportunities outside of the classroom and create contexts for "genuineness" in interaction. They have shown that the use of technology can lead to active engagement and L2 communication. For example, the increased processing time with the use of L2 makes learners proofread and self-correct their language output and increases their attention to linguistic aspects of language in online communicative contexts, such as in digital games (Reinders & Wattana, 2015).

As is known, a common weakness of communicative approaches to foreign language teaching is a neglect of the intercultural dimension in language learning. In designing appropriate tasks in technology-mediated environments, task performance is mediated by technology because task performance in this environment is not just about language performance, but rather involves digital literacy, communicative competency, and intercultural understanding (East, 2012; Lamy, 2004; Kramsch & Thorne, 2002).

Although there are differences in social conventions and communication patterns, these differences can be motivating to communicate with learners from another culture using English as the lingua franca via technology. Technology-mediated tasks facilitate interaction among peers, and also encourage learners to interact with their teacher using technological tools. In addition, communication via technological means can facilitate scaffolding among learners because learners are more willing to ask questions and negotiate meaning (Park & Slater, 2014; Tsai, 2011).

Given the scope of the current study with a focus on the use of digital technologies in higher education, it will be useful to combine our discussion on TBLT with the notion of intercultural awareness in higher education students, from whom the data analyzed in this study come.

Undoubtedly, advances in digital technologies have also exerted a profound impact on higher education, particularly concerning internationalization processes, the aim of which is to integrate an international, intercultural and global dimension into the education of future generations. An important outcome of internationalization efforts in higher education is closely associated with educating interculturally competent students (Deardorff, 2006; Fantini, 2000). Given the diverse, multilingual and multicultural nature of almost all nations in today's world, training interculturally competent students constitutes a desired outcome of education and internationalization. The relevant question here is what exactly it means to be interculturally competent, a research area that has received much attention in the literature for over three decades (e.g. Byram, 1997). From various perspectives, intercultural communication competence refers to the ability to conduct effective and appropriate communication with others, while negotiating each other's cultural identities in a multilingual, multicultural, and diverse setting (e.g. Beebe, Beebe, & Redmond, 1999; Byram, 1997; Chen & Starosta, 1996,

1999; Fantini, 2000, among others). Interculturally competent individuals know how to handle interactions and achieve their communication goals by respecting different worldviews and cultural values. Considering internationalization trends in higher education, the importance of intercultural communication competence in today's multicultural and diverse communities is reflected in the increasing demands to equip young students with the ability to acknowledge, respect, tolerate and embrace cultural differences. As noted by Fantini (2000), 'Positive contact with other world views provides opportunities for individuals to experience a shift of perspective and an appreciation for both the diversity and commonalities among human beings' (p.30). This is compatible with the primary motivation behind higher education student involvement in this study.

Methodology

This study aims to explore the impact of technological applications on the intercultural understanding of pre-service English language teachers, with special reference to the use of the ENACT web app developed within the scope of an international project. The main aim of the project was to create and enhance communication between migrant and home community members in multicultural societies of today's globalized world through the integration of digital literacy, culture, and language. Four higher education institutions from four different countries were involved in the project and conducted intercultural and intergenerational workshops, bringing members of different cultures and generations to contribute to an online library of activities on the ENACT web app. The web app and more information about the ENACT project are available at https://enacteuropa.com/. This section is followed by the results of the data and their discussion.

Participants

The participants in this study were 10 facilitators who were senior-year undergraduate students in an English language teaching program. The ENACT project aimed at recruiting 10 facilitators at each participating higher education institution from among undergraduate students. The institutional principal investigator announced and introduced the project, inviting volunteer students to take part as facilitators. Ten

volunteer senior undergraduate students agreed to participate as facilitators. A total of eight facilitators completed online workshops. The ENACT project also aimed at the recognition of participation in the project at the higher education level. Therefore, the facilitators were offered to receive credits for their facilitator activities in their school teaching practicum course in the undergraduate program. Hence, one of the facilitators received credits for the ENACT project participation in the practicum course based on the evaluation of reflections throughout the project engagement. Random pseudonyms are assigned to each participant in the direct quotations presented in the qualitative data for the anonymization of data.

Data Collection

The data presented in this study were collected throughout the facilitator involvement stages of the ENACT project. The involvement process started with the online facilitator training program in early March 2021. Due to the COVID-19 conditions, the facilitator training program was conducted online over two weeks with synchronous and asynchronous events. The program mainly aimed at training the facilitators regarding potential areas of assistance and challenges in the communication of intercultural and intergenerational pairs while facilitating the ENACT app use and activity creation for the participants. To this end, the facilitators experienced the stages of an ENACT workshop as participants using the ENACT app and creating activities with partners from other cultures and languages from the four partner countries. The training also involved small discussions and interactive case studies for potential areas of difficulty such as conflict management or netiquette issues using web resources. A summary of the data collection sources and tools used in this study is provided in Table 1.

Table 1.

Data collection tools

Data source	Purpose	Duration
Digital competency survey	To observe the participants' progress in knowledge and awareness regarding the use of digital tools to create language and cultural learning materials	Before and after the two-week online facilitator training, the fill-out duration is not specified
Intercultural awareness survey	To observe the participants' progress in knowledge and awareness regarding the concepts of culture and language	Before and after the two-week online facilitator

		training, the fill-out duration is not specified
E-portfolios	To observe the participants' detailed reflections and interpretations of their experiences in depth around specified themes such as intercultural awareness, and digital competency, referring to particular cases or events they can report	At the end of week 1 and week 2 of the two-week online facilitator training
Final reflection papers	To observe the participants' focused interpretation of their experiences after facilitating intercultural workshops, a cumulative recollection of their involvement in the project	After all the intercultural workshops are completed

The facilitators filled out the e-portfolios in the form of short reflective diaries to note and reflect on their experience throughout the two-week training. They also filled out the digital competency and intercultural awareness questionnaires before and after the training.

Figure 1.

The timeline for the facilitator involvement in the ENACT

The workshop training involved each facilitator interacting with one intercultural pair to discover the ENACT app and create an activity of their own in the platform over three to four sessions while stimulating awareness-raising conversations and reflections on the experience. The ENACT web app cultural activity library involves the completed and published activities during the workshops that the participants in this study facilitated as part of project engagement. The activity library is available at https://enacteuropa.com/all-content

The facilitators also completed an overall reflection paper after completing their workshop sessions. They were asked to report their gains and opinions after the

experience regarding transversal skills (e.g., collaboration, conflict management, intercultural communication, etc.), field-specific skills (e.g., language learning, education, language teaching, etc.), and an overall evaluation of their experience. These reflection papers were also used for analysis in this paper.

The digital competency survey in the study comprises nine subheadings, exploring the participants' navigation skills in digital environments and how they evaluate, manage and develop digital content. Moreover, the statements used in the survey also aim to yield information about interacting and sharing through digital technologies. More importantly, the survey also aimed to reveal the participants' perspectives on their behavioral norms and know-how while using digital technologies, including their awareness and commitment to developing and integrating digital content as well as understanding copyright issues in digital environments.

The intercultural awareness questionnaire included items searching for opinions on the perceptions of the definitions of culture and language. The main aim was to find out the changes in the participants' opinions before and after the ENACT experience. The facilitators filled out the questionnaire before and after the online training programme, for which they were matched with a facilitator trainee from another partner country. The second part of the questionnaire aimed at the perceptions regarding their intercultural ENACT partner's language and culture before and after the experience.

Data Analysis

The current study was conducted following a mixed-methods paradigm involving both qualitative and quantitative data types to obtain insights regarding the research problem. The quantitative data were obtained through two surveys with items rated on a Likert-scale format. The evidence for the construct validity of the surveys is established in the theoretical frameworks presented in the ENACT project. The digital competency survey was largely developed based on the DigiComp V2.0 framework while the intercultural awareness questionnaire was developed based on previous assessment tools for attitudes towards cultures, languages, and cultural activities (Satar et al., 2022). Evidence for reliability also lies in the previous implementations of both surveys with data drawn from a larger group of participants as part of the intellectual outputs of the ENACT project, although the current study's dataset cannot provide an

efficient sample size for statistical calculations due to its nature. The internal reliability of the digital competency survey was examined using Cronbach's alphas before and after co-production workshops with a total of 78 international migrant and home community participants. The Cronbach's alpha coefficients were .939 and .950 before and after the workshop participation respectively (Satar et al., forthcoming). The intercultural awareness questionnaire was checked for test-retest reliability with Spearman rank correlation coefficients using data from 40 international participants, with moderate to strong correlations between the items from pre to post-workshop administration (Satar et al., 2022, p.19).

The coding steps in the qualitative data started with extensive reading of the data sets. All the textual data were pre-coded and divided into segments of categories. Then the categories were narrowed down by reducing the categories to the most recurring themes (Glaser & Strauss, 1967). To determine the common themes, the interpretative phenomenological approach was employed (Flynn & Korcuska, 2018). Throughout the analysis, an inductive approach was established to analyze the data to investigate the research questions. To ensure the trustworthiness of the study, the participants provided feedback about the transcriptions of their own interview data. Informed consent forms were obtained from the participants and the ethical committee approved the study.

Findings

Table 2 presents the average self-ratings of the facilitators before and after the facilitator training on a 4-point Likert scale. The ratings for the items before and after the facilitator training indicate an overall increase in the awareness and capabilities the facilitators gained regarding the digital literacy outcomes of the ENACT project. Although the number of facilitators filling out the questionnaire after the workshop decreased in number, the scores are reported for an overall indication of the trend in the items reflecting the target improvement areas of the ENACT project. The largest difference from pre- to post-training is observed in items 2, 6, 7, and 8, with an increase from below 3 points to 3.5 points from pre- to post-training, while the remaining items received 3 points and above even before the training. These rising items tap into skills in evaluating the credibility of online content, issues of netiquette and copyright, creating online

materials in various formats (e.g., video, sound, image), using different applications, and modifying existing material in various ways.

Table 3 below presents the self-ratings of the facilitators to the intercultural awareness questionnaire on a 5-point Likert scale, with 1 point representing "strongly disagree" and 5 points representing "strongly agree". The items reflect the target areas of improvement regarding intercultural awareness in the ENACT Project. The overall ratings indicate changes in the facilitators' perspectives about the definitions of culture and language, and perceptions of culture.

Table 2

Digital Competency Survey

Item	Pre-training (*N* = 6)	Post-training (*N* = 2)
1. **Browsing, searching and filtering data, information and digital content:** To articulate information needs, to search for data, information and content in digital environments, to access and navigate between them. To create and update personal search strategies	3.2	3.5
2. Evaluating data, information and digital content: To analyse, compare and critically evaluate the credibility and reliability of sources of data, information and digital content. To analyse, interpret and critically evaluate the data, information and digital content.	2.5	3.5
3. Managing data, information and digital content: To organise, store and retrieve data, information, and content in digital environments. To organise and process them in a structured environment.	3.2	3.5
4. Interacting through digital technologies: To interact through a variety of digital technologies and to understand appropriate digital communication means for a given context.	3.5	3.5
5. Sharing through digital technologies: To share data, information and digital content with others through appropriate digital technologies. To act as an intermediary, to know about referencing and attribution practices.	3.8	3.5
6. Netiquette: To be aware of behavioural norms and know-how while using digital technologies and interacting in digital environments. To adapt communication strategies to the specific audience and to be aware of cultural and generational diversity in digital environments.	2.8	3.5
7. Developing content: To create and edit digital content in different formats, to express oneself through digital means.	2.7	3
8. Integrating and re-elaborating digital content: To modify, renew, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge.	2.5	3.5
9. Copyright and licenses: To understand how copyright and licenses apply to data, digital information and content.	3	3.5

The second section on the table presents the items regarding the facilitators' international partners to try out the ENACT app pretending users to co-create ENACT app activities. They responded to the last items regarding their experiences with those international partners with whom they created an ENACT app activity while experiencing intercultural communication over the app use. The ratings to these items increased by 0.3 to 1.5 points from pre- to post-training, indicating that facilitators noticed differences in languages and cultures between themselves and their partners while gaining more knowledge and familiarity from their languages and cultures.

Table 3

Dimensions Intercultural awareness questionnaire

Item	Pre-training (*N* = 5)	Post-training (*N* = 2)
1. My language is the same as my culture.	3.6	2
2. I can tell a person's culture from their choice of clothes.	3.2	2.5
3. I like learning about other cultures.	4.6	4.5
4. I know many languages.	3.2	4
5. Language learning is easy for me.	4	4
6. I am a good language learner.	4.3	4.5
7. I like learning languages.	4.6	5
8. Language learning can be fun.	4.6	5
Do you know who you will work with (your partner) to co-produce a cultural activity on the ENACT app? If yes, please complete this section. Please indicate which one best describes what you think/feel about these statements:		
9. I am familiar with my partner's culture(s).	3	3.5
10. I know at least one of my partner's cultural activities.	3	4.5
11. I can understand my partner's first language.	2.2	3
12. I know a few words in my partner's first language.	2.8	4
13. I would like to meet other people from my partner's culture(s).	4	4
14. My partner and I have similarities in our culture or cultural activities.	2.8	2.5
15. My partner and I have similarities in our languages.	2.2	2

Our analysis of the qualitative data in this study appears to be compatible with the quantitative data presented above. This is the primary motivation behind the next section, where we focus on the participants' remarks on task-based learning and the relationship between language and culture and its implications for language teaching.

Increasing perspectives on language and culture in language teaching and learning

The qualitative and quantitative data analysis in this study contribute to several areas in the extant literature on language teaching. First, the data analyzed in this study have shown that even in an extremely difficult period of Covid-19 during which the students and teachers experienced almost complete lockdown in almost every part of the world (UNICEF, 2022), including the Turkish context, it was still possible for the higher education students to benefit from intercultural exchanges that they conducted with their partners. This is explicitly expressed in the following quotes from one of the participants of the study:

> "The best part of the training was that I had a chance to meet with many people from different countries, cultures. It was really nice to try to get to know each other and each other's culture, as well. I am glad to be a part of this project as I think though everything has to be changed from the beginning **due to covid,** the online training was highly well-structured. At first, I was a little bit scared as it seemed long per day, however, it turned out to be a super great experience!" (İnci, e-portfolio from online training**)**.

Despite the fact that the pandemic-related school closures that caused many disadvantages for millions of students worldwide (UNICEF, 2022; König & Frey, 2022), it is still important to emphasize academic, social and knowledge acquisition the participants of this study have gained through the ENACT web app. However, this does not rule out the importance of academic learning the participants could have gained through conventional face-to-face instruction. The following quote from one of the participants explicitly expresses the importance of more interaction in face-to-face settings:

> "I met new people as many as possible; however, I would expect to spend more time talking to them. That might be caused by the virus, though. If the programme had been held on **face-to-face settings**, we could have interacted more. Still, it felt amazing to discuss different issues and topics in an international setting during breakout rooms' gatherings." (İlke, Final Reflection Paper).

Second, the participants in this study assessed their learning patterns and expressed self-perceived reflections on digital skills and intercultural awareness skills, along with task-based learning. In regard to intercultural awareness, they appeared to be rather positive in their expanding knowledge, particularly in learning about other cultures (Table 2, Item 3), the highest rank on the scale both in pre-training and post-training (4,6-4,5 out of 5, respectively). The same applies to Item 13, where the

participants assessed their openness to meet from different cultures (4 – 4 out of 5). In some reflections, the participants described their experiences of meeting from different cultures as an eye-opening opportunity. One respondent, particularly, referred to the complex nature of culture in the following quotes, not only in terms of defining culture but also using intercultural perspectives in interaction, collaboration and sharing views and perspectives.

> "I learned that culture is not something that I can define. Yet, it is something that I define by being who I am. Therefore, it's a truly complex matter and we should carefully approach this topic. We need to socialize. It's very basic. That is the fundamental of Culture and what I learned through my Facilitator experience. As a newbie linguist and a skilled teacher, I had the chance to witness a dialogue between the children of two different cultures. Their interaction, thought forming, collaboration, sharing, commenting, criticizing… These were all amusing and fruitful to observe. I learned how to share with other facilitators…" (Ekin, Final Reflection Paper)

On similar grounds, another participant attempted to combine his theoretical knowledge on culture and intercultural awareness with the practice he experienced while using the ENACT app.

> "I learned about different theories explaining culture, and I thought about how I could define culture. I did practice translation, especially for designing the cultural activity. I am now able to think about the intrinsic relationship between culture and the languages we speak, and whether they reflect our cultural background. Also, I learned about the artifacts in other cultures." (Oğuz, e-portfolio from online training)

This appears to have been further corroborated in the following three reflections, where the participants, on the one hand, focused on selecting cultural materials and the accompanying activities, and their personal awareness of the link between culture and language learning.

> "During the material selection and activity preparation phase, I became much more aware of the critical notions in language learning. By grasping the importance of inviting learners with an unfamiliar world of words in a meaningful way, I paid much more attention to language teaching & learning…I find this term very precious as it reminds me of amazing sessions that we learned from one another by carrying our cultures with us and sharing many things to share our cultures." (İnci, Final Reflection Paper).

> "Working with such a group made me feel part of a transnational project where I felt I was contributing and learning a lot. It helped build a certain awareness towards languages and culture, and helped with learning how to research materials for such activities. [...] Yes, I definitely felt like I was part of a team. We were 2 people, me and my peer, and we first got to know each other informally a bit in order to create a sense of rapport; then moved on to talking about the project and what we would do. I really liked brainstorming and working together, using languages and culture." (Füsun, e-portfolio from online training)

> "I was able to learn a lot about intercultural communication. In my pair, one of the students (M) came from Kosovo and spoke several languages including Serbian, Turkish, English, and

> Albanian. The other student (E) was Turkish and she was only exposed to English as a foreign language. They were friends from the prep year and they were happy to see each other again thanks to this co-production workshop. They were eager to communicate with each other and during this time I was able to facilitate the communication between each member such that they would ask culturally-relevant questions to each other. They were often curious about the other cultural practices and they had a lot of opportunities to compare and contrast the two cultures. About intercultural communication, I also learned from them that sharing the same class with another person who comes from a different culture is highly beneficial for learning a new language. They said this was because they became more motivated and tolerated and developed positive attitudes toward other cultures and languages. I also took some notes of their answers in order to elaborate on them later." (Oğuz, Final Reflection Paper)

Such positive experiences on using the ENACT app with a culture-based model of learning overall indicate that the participants benefitted immensely during the conduct of the study.

Third, the participants were able to express their perspectives on the use of task-based methodology in language learning, a significant pillar of the ENACT project, the participants were expected to make progress on. One participant specifically referred to her prior knowledge on the use of task-based methodology:

> "As a student of FLED department, I was familiar with the concept of TBLT. It gave me an opportunity to apply the knowledge while producing my cultural activity." (Arda, Final Reflection Paper)

Data analyzed in this study also demonstrated that in addition to academic gains, the participants had a chance to reflect on their teaching skills and interpersonal communication skills. This becomes apparent in the following quotes:

> "I think I developed my competencies a lot in terms of cultural studies. I learned something new from each of my group mates and this was a great experience for me. As we also worked on **conflict management** by discussing which situations we may come across with and how to solve them. Thanks to those discussions, I feel much more prepared to be a facilitator for the upcoming training." (İnci, e-portfolio from online training).

> "I learned that intercultural groups necessitate certain teacher qualities: respect, appreciation, and sensitivity. The teacher should pay special attention to what they say relating to the culture of the student and try to make appropriate comments." (Oğuz, Final Reflection Paper).

> "I do not have any experience in this area (intercultural communication) yet; nevertheless, I joined some international courses through online platforms, soon I will be teaching at an international school, and I am looking forward to discovering my strengths and weaknesses with international students and colleagues." (İlke, Final Reflection Paper)

The first quote above highlights the importance of not only arriving at a better understanding of cultural studies and intercultural awareness but also the participant's consciousness about her personal traits of conflict management. The second quote, on

the other hand, emphasizes a teacher candidate's awareness of teacher qualities, elements of which necessitate respect, appreciation and sensitivity. The third quote is also important in terms of showing how the participant is eager to become aware of her strengths and weaknesses during the process. This should be taken as an asset for a young teacher candidate.

Last but not least, data analyzed in this study also indicate that the participants are well aware of the main tenets of the ENACT project, which aims to combine cultural elements with language teaching in a digital environment. This is explicitly seen in the following reflection:

> "Using the Internet as a socially responsible concept and providing a new dimension of culture and language interaction was at the heart of ENACT Project. I have learned and practiced applying the same values of kindness, openness and respect." (İlke, Final Reflection Paper)

Discussion and Conclusion

Since language cannot be isolated from the community and its speakers, culture becomes an inherent part of language learning. Knowing the significance of English as a global language, one of the primary aims of English language teaching is to improve learners' intercultural skills to increase communication among people (Kramsch, 2009). To prepare teacher candidates for making more socioculturally informed and interculturally engaged pedagogical decisions, intercultural awareness needs to be incorporated into language teacher education programs. Teacher candidates work more on designing intercultural tasks to promote authenticity in language learning. Engagement with the intercultural dimension of language learning facilitates involvement by improving L2 proficiency (Doğançay-Aktuna, 2005; Gedik-Bal & Savaş, 2022).

In line with previous studies on the relationship between language and culture and its implications for language teaching, our study demonstrates that the participants highlighted the importance of culture and interaction in learning contexts. Given that language is not only a means of communication but also a powerful tool used for social interactions, it is imperative to emphasize the intertwined nature of the connection between language and culture, as in a way culture is interpreted and mediated through language (e.g. Kramsch, 1995). Various studies in the literature have placed much

emphasis on the inevitable relationship between culture and language as well as language learning (Byram, 1993; Byram et al., 2017; Diaz, 1012; Duranti, 1997; Liddicoat & Scarino, 2013), and this study is no exception in that it provided supporting evidence from the participants, who were higher education students with the aim of becoming interculturally competent. Our findings indicated that the participants appeared to be well-equipped to conduct an online cultural workshop, while at the same time questioning and reasoning their practical and theoretical knowledge on various issues such as the close link between culture and language, digital technologies, task-based learning, as well as personal traits such as intercultural communication competence and conflict resolution skills. Given that we all live in a more globalized world where we are more likely to interact with multilingual and multicultural individuals from diverse communities (e.g. Beebe, Beebe, & Redmond, 1999; Byram, 1997; Chen & Starosta, 1996, 1999; Deardorff, 2006; Fantini, 2000), the participants of this study with their raised consciousness in intercultural awareness felt enabled to address the needs of their learner pairs and support them throughout the cultural activities. These practices are compatible with raising interculturally competent students as part of the internationalization efforts in higher education institutions (Deardorff, 2006; Fantini, 2000).

From a technological perspective, the participants of this study perceived the ENACT app as a positive learning opportunity for developing cross-cultural awareness and gaining intercultural citizenship in Byram et al's words (Byram et al, 2017). They experienced this digital tool as an opportunity not only to become more aware of establishing intercultural communication with people from different cultures but also to put their academic knowledge into actual practice during the cultural sessions that they had with the partner pairs. In some cases, they helped the learner pairs communicate, create and shape a joint cultural activity. In others, they provided feedback and solved some cross-cultural miscommunications during the workshops, while observing the learner pairs active engagement and language practice in a cultural context, though not purely focussing on the reception and the use of the language. These findings are also in line with previous studies on information and communication technologies that support learner-centered approaches where the learners take ownership of their learning during the learning process (e.g. Davis & Tearle, 1999; Kessler, 2018; Yamada, 2009).

Moreover, there is no doubt that as new technologies emerge, further research is needed to understand the impact of incorporating tasks and technology-mediated TBLT on language learning. There is a need to employ a more comprehensive guiding framework for technology-enhanced TBLT. There is also a need to search for successful implementation of technology-enhanced TBLT for learner preparation and teacher training. Engagement with a more integrated role in cultural knowledge leads some teachers to reflect more on integrating language and culture (Lai & Li, 2011). Recent research indicates that technology-mediated tasks are authentic and simulate real-life tasks and TBLT is a successful mediator of intercultural dimension (East, 2012), however, the participants of this study expressed a preference for face-to-face contexts over online platforms to enhance interaction and share cultural information.

Given that there is limited research that examines higher education students' development that incorporates both digital and intercultural awareness outcomes, the results of this study have the potential to shed light on pre-service teacher educators in particular those interested in adopting a technology and task-based model of intercultural development. Within the curriculum used in teacher education programs, the content of school experience and language teaching methods courses can be revised with an emphasis on digital and intercultural learning. Further practice is encouraged in practicum schools. The emphasis on digital and intercultural learning can also be integrated into the Community Learning Practices (Service Learning) course that is offered in the first year of the undergraduate program. Teacher candidates combine their theoretical and practical knowledge through collaborative experience in the community. Through service learning practices, teacher candidates can support their academic, digital, and professional development as well as their intercultural communication competencies.

Ethics Committee Permission Information

This research study was conducted with the Research Ethics Committee approval of Boğaziçi University, dated 18.12.2020, and numbered E-84391427-050.01.04-20432.

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Appendices

Appendix A. E-portfolio template for the online facilitator training

Co-production Workshop Facilitator Training e-Portfolio

Introduction

Why a facilitator e-Portfolio?

A portfolio is a set of materials, interactions and reflections that you collect during your training and which you consider evidence of your efforts, progress and learning. Gathering and reflecting on experiences in a portfolio will

- help raise your awareness for what happened during your training and
- help you gain a deeper understanding of the value of being part of the ENACT project team.

What is in this e-Portfolio?

The e-Portfolio begins with an Introduction. After the introduction are two sections of questions that ask you to think about your experience in your training and to provide examples of experiences and learning in four areas:

- Transversal skills (digital skills, intercultural collaboration, confidence)
- Field-specific skills (translation, education, cultural studies, conflict management etc)
- Team work and research skills (transnational collaboration, ethics, research procedures)
- Overall evaluations of the training

How to complete this portfolio?

During the training:

1. At the end of Week 1 and Week 2 reply to the questions asked for.
2. Include examples from your interaction to illustrate what you are saying. You may cut and paste examples from text-chats, comments on forums, pictures, screenshots from video interactions, or text from Google docs or the other types of technology you and your partners used to communicate.
3. Explain why you selected these examples, why you think they are important, and what you learned from them.

At the end of the training:

1. Save the final copy and submit your portfolio to the ENACT project team by email

Timeline

Complete Portfolio Questions for Week One by: **8 March 2021, Monday**

Complete Portfolio Questions for Week Two by: **15 March 2021, Monday**

Submit Portfolio by: **15 March 2021, Monday**

- *In all sections, write about what happened and what you thought or felt.*
- *Do not forget to include **examples** from your interaction to illustrate what you are saying.*
- *Answers can include **copy/paste pieces of your interactions, pictures, add screenshots, sound bites, photos, drawings, online posters or other things you created during the training**. **Or you can simply write about something** that happened during your training.*
- *Explain **why** you selected these examples (why are they important for you), and **what you learned from them**.*

Share as much or as little as you see appropriate. Focus on highlights of the training for you.

As you write, please follow these steps: Describe + Reflect + (Re-)evaluate: what, if anything, would you do differently next time?

Section A. Transversal skills

Transversal skills are skills that can be used in a wide variety of situations and work settings. These are not related to a particular job, task, academic discipline or area of knowledge. Write about **your**

experiences of developing your transversal skills such as digital skills, intercultural communication and collaboration, confidence, public speaking, etc. Please give examples and as much detail as you can.

Section B. Field-specific skills

Field-specific skills are skills that allow you excel in a particular job. Write about **your experiences of developing your field-specific skills such as translation, education, cultural studies, conflict management, etc.** Please give examples and as much detail as you can.

Section C. Team work and research skills

During your training were there times when you felt you were part of a transnational project team and developed your research skills and awareness?

1. Write about who were in the training group, what you accomplished together, and your role in training group. Did you feel you were part of a team? What was good about being part of a team?

2. Were you able to express your thoughts and feelings to others easily? Was there a time when you felt the most socially and emotionally involved in the group? Who do you think you understood/know best? Why?

3. What have you learned about research ethics and procedures

Section D. Your overall evaluation of the week 1 training

1. **What was the best aspect of the training for you?**
2. **What is your opinion of the materials, platforms, and content used in Week 1 of this training?**
3. **How can Week 1 of this training be improved?**

Appendix B. Final reflection paper templates the facilitators completed after the workshops

Co-production Workshop Facilitator Final Reflection Paper

- *In all sections, write about what happened and what you thought or felt.*
- *Do not forget to include **examples** from your interaction to illustrate what you are saying.*
- *Answers can include **copy/paste pieces of your interactions, pictures, add screenshots, sound bites, photos, drawings, online posters or other things you created during the training**. **Or you can simply write about something** that happened during your training.*
- *Explain **why** you selected these examples (why are they important for you), and **what you learned from them**.*

Share as much or as little as you see appropriate. Focus on highlights of the training for you.

As you write, please follow these steps: Describe + Reflect + (Re-)evaluate: what, if anything, would you do differently next time?

Section A. Transversal skills

Transversal skills are skills that can be used in a wide variety of situations and work settings. These are not related to a particular job, task, academic discipline or area of knowledge.

Write about **your experiences of developing your transversal skills:**

b. **digital skills:**
c. **intercultural communication:**
d. **collaboration:**
e. **confidence:**
f. **public speaking**

Please give examples and as much detail as you can.

Section B. Field-specific skills

Field-specific skills are skills that allow you excel in a particular job. Write about **your experiences of developing your field-specific skills:**

a. **language learning:**
b. **teaching:**
c. **online teaching:**
d. **leadership:**
e. **education:**
f. **intercultural education:**
g. **conflict management:**

Please give examples and as much detail as you can.

Section C. Ethics and research skills

What have you learned about digital ethics/netiquette and procedures?

Section D. Your overall evaluation of the workshop facilitation and other suggestions/comments if you have any:

1. What was the best aspect of the ENACT project for you?
2. How can the ENACT app be improved?

RESEARCH ARTICLE

Evaluating a task-based lesson plan: A case study of Turkish EFL learners

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Abstract
The world has seen a rise in the demand for foreign language instruction in recent years, and traditional textbook-based teaching strategies are unlikely to satisfy the demands of today's students. As a result, the interest in the Task-Based Language Teaching (TBL) approach has increased. This article describes and assesses a newly created, task-based English course that will be incorporated into the curricula. The lesson was designed, pilot-tested and revised before being introduced. This study investigates students' reactions to a task-based EFL lesson at a Turkish state university. Thirty-two Turkish preparatory students (20 female and 12 male) participated in the study. Learner impressions were investigated through oral and written data elicited through a questionnaire, semi-structured interviews, and audio recordings of the interaction in the task. The data analysis shows that despite initial hesitations, a TBL lesson brings variety into the EFL classroom; learners prefer learner-directed lessons with more opportunities to express themselves. They also confessed that their academic needs were sufficiently met and felt more independent. The study provides a model TBL lesson for educators to benefit from and inspires them to design their lesson programmes by integrating task-based activities. These results validate the potential of TBL for language learning. Thus, it should be considered an indelible part of EFL syllabi and courses.

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Keywords
Task-based language teaching (TBL), lesson plan, learner reactions, classroom practice, task-based activities.

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Introduction

Language teachers today understand the importance of Communicative Language Teaching (CLT), which helps students grasp the language in context and develop successful outside of the classroom, as well as the value and applicability of the student-centred, hands-on, functional, and adaptable approach (Shank & Cleary, 1994). Many facets of education have altered as a result. The teaching of second languages is not an exception to this paradigm change. In this sense, TBL has emerged as a popular approach in foreign language education, drawing the interest of educators, curriculum

designers, and researchers. Prabhu, regarded as the first significant figure who brought TBL into the ELT world (1987), describes a task as "an activity which allowed teachers to control and regulate that process, and required learners to arrive at an outcome from given information through some process of thought" (p. 24).

TBL achieves its primary goal by assigning students tasks where they need to negotiate meaning with one another. It implies that although students should have an objective to meet after the task, learning is primarily facilitated by the process rather than the outcome. Since communication is the foundation of language learning, tasks like "reading a map and giving directions, making a phone call, writing a letter and reading a set of instructions and assembling a toy" offer opportunities for meaning-making (Richards & Rodgers, 2001, p. 238). In short, the tasks are expected to encourage the four language skills by being regarded as the target language's input as well as output (Richards & Rodgers, 2001). As a result, TBL uses realia, including the internet, television, and newspapers, and thus, learners are exposed to the target language through authentic materials (Richards & Rodgers, 2001).

TBL has grown in popularity over the past few years and is advised as the future of ELT. Research has shown that TBL is effective for language learning, and more teachers across the globe are implementing it in their classrooms (Branden et al., 2009). In the history of foreign language instruction, tasks have taken on greater significance as the focus has shifted toward learner-centred and teacher-guided methods. This is because tasks give students meaningful contexts in which to use L1. The language tasks that form this methodology's foundation are crucial in language learning objectives because they aim to establish an environment where learners can engage in meaningful communication to support language acquisition.

In traditional learning environments, such as audio-lingual and grammar-translation, the language itself is the main focus rather than the meaning it expresses or how it is interpreted and used. The teacher's goal is for the students to learn the language's new vocabulary and grammatical rules. In order to help students become more proficient communicators, TBL is gaining popularity since it is a student-centred approach that helps them learn language forms, meanings, and functions by allowing them to engage in activities relevant to their everyday lives. According to Albino (2017), students perceive the connection between TBL and improved speaking ability and

vocabulary knowledge positively. As Chen and Wang (2019) have noted, TBL supports students' learning processes, helps them become more autonomous and capable of self-regulation, and improves their cognitive abilities from a sociocultural and SLA perspective. Carless (2012) claims that TBL is more successful in higher education in this regard. Given these, TBL serves as a viewpoint within the CLT framework, representing real-world problem-solving situations for educational objectives. Harmer (2001) advocates TBL by stating that students acquire the target language through task performance or problem-solving rather than learning language structures and their purposes.

A TBL program is organised around tasks chosen based on the findings of the needs analysis and arranged in a syllabus. Students' ultimate, program-ending goals are these primary tasks or the task types developed from them. By completing a series of pedagogic tasks to provide them with the language practice they need to complete the course's final objectives or target tasks, eventually, learners in a TBL program improve their language proficiency as they strive to master the course's main tasks. The features, conditions, and complexity of pedagogic tasks are changed to promote specific forms of language development (Norris, 2009). For instance, input provision, collaborative production, meaning negotiation, noticing and awareness optimisation, and feedback are alternately emphasised.

The assessment of program participants and program evaluation are the last phases in a TBL setting (Norris, 2009). Although these last steps are essential to TBL (Long & Crookes, 1993; Long & Norris, 2000; Norris, 2009), descriptions of TBL implementation hardly ever mention them (for a discussion of the difficulties in program evaluation, see Alderson and Beretta, 1992; Weir & Roberts, 1994; Ellis, 2003). While some researchers have provided examples of evaluations of TBL curricula (McDonough & Chaikitmongkol, 2007; Towell & Tomlinson, 1999; Van den Branden, 2006), others have offered frameworks and justifications to help systematise the design and implementation of performance assessment in an effort to integrate assessment and evaluation in TBL (Bachman, 2002; Byrnes, 2002; Byrnes at al., 2006; Mislevy et al., 2002). These studies used a range of qualitative instruments (diaries/learning notebooks, questionnaires, and observations) to evaluate the participants' experiences, perceived

language proficiency, and language results. The paucity of research in this field suggests that more program assessment models are desperately needed, with an analysis of the best instruments for conducting evaluations and a deeper comprehension of how to carry out potential post-evaluation programmatic adjustments. By offering an assessment of a TBL program that includes quantitative, qualitative, and comparative measures of its effectiveness, this article demonstrates an attempt to close this research gap.

Literature Review

Task-based learning

Task-Based Learning (TBL) was introduced by Prabhu in 1987 and further developed by scholars such as Nunan (1989) and Willis (1996) in response to shortcomings in traditional language teaching methods like the PPP (presentation, practice, production) model. TBL addresses criticisms aimed at the arbitrary selection of grammar points and the inadequacy of production stages that often do not align with learners' needs. Unlike conventional approaches, TBL emphasises the use of natural language through meaningful tasks that allow students to leverage their existing linguistic capabilities. This method prioritises the outcomes of tasks over the accuracy of language form. Although some studies (Ellis et al., 2002; Shintani & Ellis, 2010; Zhao & Ellis, 2022) have focused on tasks that invoke specific linguistic features, TBL proponents endorse unfocused tasks that foster organic language acquisition, aligning more closely with the principles of communicative approaches to language instruction.

The concept of a task in Task-Based Learning (TBL) has been defined by several scholars. Prabhu (1987) sees a task as an activity requiring learners to use information to achieve a specific outcome, while Nunan (1989) describes it as classroom work that engages learners in the target language with a focus on meaning rather than grammatical form. Willis (1996) emphasises that tasks involve using the target language for communicative goals to achieve tangible results. Despite the shared emphasis on communication over strict linguistic structure, the implementation of TBL faces challenges, including teachers' lack of understanding of tasks and an overreliance on grammar-based instruction. Learners accustomed to traditional methods may struggle to grasp task purposes, especially with low language proficiency. Additional structural

issues, such as large class sizes and inadequate resources, further complicate TBL application. Consequently, some scholars advocate for reevaluating or discontinuing TBL in certain educational contexts (Littlewood, 2014).). Willis also agrees with different definitions but highlights, not the definition but the primary purpose by stressing that "tasks aim to create a real purpose for language use and to provide a natural context for language study" (Willis, 1996, p.1), which will also be taken as the primary focus for this study.

Task-Based Learning (TBL) can present several challenges in educational settings, as noted by Ellis et al. (2020). Teachers often struggle to grasp the nature of tasks and remain overly concerned with grammar, leading them to depend on explicit language instruction. Moreover, students who are accustomed to traditional teaching methods may find it difficult to understand task objectives and struggle with assignments due to low linguistic proficiency, often reverting to their first language. Structural issues, such as large class sizes and limited resources, further complicate the implementation of TBL, prompting some scholars to question its viability (Littlewood, 2014). Nonetheless, educators retain the autonomy to adapt TBL to their contexts, and it is important not to disregard its methodological advantages in resource selection and syllabus design (Ellis, 2024). Contextual factors are essential for effective TBL application, not as a reason to abandon the approach but as indicators for applying flexible techniques to address real-world teaching challenges (Ellis, 2018; Long, 2014). Overall, TBL promotes a holistic approach to language learning, encouraging the integration of various language skills to meet communicative needs and fostering joint meaning-making among learners.

Task-Based Learning (TBL), as described by Nunan (2015), emphasises the importance of communicative language teaching by prioritising meaning over language structure in classroom activities. The central aim is to immerse students in realistic language use that extends beyond basic objectives, facilitating tasks relevant to everyday life, such as ordering food or navigating directions. While scholars have varying definitions, several core characteristics of TBL are widely recognised: a focus on real-world applications, a learner-centred approach, a balance between naturalistic language use and accuracy, and the necessity of teacher intervention to maximise task

effectiveness (Swan, 2005). TBL employs authentic communicative tasks and can incorporate post-task activities to enhance language accuracy. Moreover, tasks can draw from diverse sources, including written texts, recorded data, and students' personal experiences, thereby engaging learners through various methods like games and interviews.

The fundamental principle of task-based learning (TBL) emphasises experiential learning, suggesting that language skills are acquired through engagement and interaction (Dewey, 1938). In this context, the focus should be on the meaning conveyed rather than solely on the tasks being performed. Participants should be encouraged to employ a range of lexical and structural choices to express their thoughts, reflecting authentic language use as seen in non-academic contexts. Various task types are recognised, including problem-solving, decision-making, opinion exchange, and creative sharing of personal experiences, as well as topic-based tasks such as listing and comparing, alongside both real-world and pedagogic tasks (Pica et al., 1993; Willis & Willis, 2007; Nunan, 1989; Richards & Rodgers, 2014).

Teacher and learner roles

Task-based learning (TBL) is rooted in the principle of experiential learning, positing that language acquisition occurs through engagement and interaction, as noted by Dewey (1938). The emphasis is placed on meaning rather than merely task execution, with participants encouraged to utilise diverse lexical and structural options to articulate their thoughts, mirroring natural language use in real-life settings. TBL encompasses a variety of task types, including problem-solving, decision-making, opinion exchange, and sharing personal experiences, as well as topic-centric tasks such as listing and comparing. This approach incorporates both real-world tasks and pedagogical tasks, as outlined by scholars including Pica et al. (1993), Willis & Willis (2007), Nunan (1989), and Richards & Rodgers (2014).

Implementation of TBL

Task-based learning (TBL) offers an innovative framework for teachers. In TBL, the content of lessons is determined through central tasks rather than pre-determined subject matter. Effective lesson design is essential in TBL, focusing on three key phases of language acquisition. The pre-task phase helps students recall relevant vocabulary and

introduce new terms. Teachers provide clear guidance and examples to prepare students for the assignment. Activities during this phase aim to scaffold learning and enhance task completion, thereby fostering language acquisition.

The task cycle comprises three key components: group or pair work, reporting, and teacher support. During the planning phase, students engage in conversational lessons and formulate messages while the teacher monitors their progress and offers assistance. Students then prepare short reports on their tasks, rehearsing in their groups and seeking clarification from the teacher as needed. In the reporting phase, students present their findings to the class, with the teacher determining the presentation order and providing feedback. This stage emphasizes the importance of reflection, comparison, and addressing communication challenges, ultimately aiming to enhance learners' language skills through repeated practice and support.

The task cycle emphasises the structure of naturally occurring language, comprising two main stages: analysis and practice. In the analysis stage, the instructor highlights significant passages for students to examine, encouraging exploration of language forms and their meanings through activities that raise awareness, such as identifying relevant vocabulary and verb tenses. The practice stage follows, where the teacher selects language areas tailored to students' needs, providing exercises to build confidence and vocabulary. An optional follow-up allows learners to revisit similar tasks, identify patterns, and provide feedback on their experiences, further enhancing their engagement with the language.

Advantages and disadvantages of TBL

Task-Based Learning (TBL) presents numerous benefits for English as a Second Language (ESL) and English as a Foreign Language (EFL) learners by fostering active participation and enhancing motivation among students (Willis, 1996). This approach enables students to express their understanding through actions and aligns teaching more closely with their needs. TBL facilitates the application of procedural knowledge in real-world contexts, enriching students' comprehension of academic concepts and providing a basis for developing future discourse. Collaborative tasks encourage students to engage towards common objectives, allowing diverse perspectives to contribute to meaningful dialogues. The nature of these tasks results in outcomes suitable for group

evaluation, where students can assess their peers' work and reflect critically on their own contributions. Thus, TBL nurtures reflective practice and promotes critical awareness in learners (Ki, 2000).

The advantages of TBL can be summarised (Hişmanoğlu, 2011). Task-Based Learning (TBL) provides students with authentic language exposure, utilising various forms of input such as teacher talk, peer interactions, and texts for analysis. This approach allows for the production of spontaneous and meaningful language, even if not grammatically perfect. TBL encourages learners to engage in real-like tasks, enabling them to experiment with language through turn-taking, drafting, and revising reports during different task stages. By involving students in problem-solving activities, TBL motivates them to actively read, write, and listen, enhancing their awareness and reflection skills. Additionally, the approach enables students to focus on language form while balancing the natural chaos of language use, allowing for individualised progress without the constraints of a pre-selected language focus, in contrast to traditional PPP methods.

Task-Based Learning (TBL) has been recognised for its significant pedagogical advantages in promoting communication and authentic language use in language classrooms. However, it also faces notable criticisms. Ellis (2003) identifies three primary theoretical issues with task-based teaching: the challenge of teaching language purely as communication, the restricted nature of task-based communication, and the cultural relativity inherent in task-based approaches. Despite these concerns, the pedagogical value of tasks in fostering communication remains largely undisputed (Ellis, 2003, p. 328).

- TBL may be less effective for systematic language teaching in EFL contexts due to limited class time and lack of out-of-class exposure, suggesting better suitability for ESL environments.
- Requiring instant communication can overwhelm students, as they are expected to navigate their interlanguage and implement strategies like paraphrasing without prior training.
- TBL tends to favour more outspoken students, potentially alienating quieter individuals from group interactions.

- Students accustomed to traditional, teacher-centered methods may resist the lack of formal instruction and modeling in TBL.
- While interaction in TBL can be meaningful, it does not ensure grammatical accuracy, as learners prioritize task completion over correctness.
- TBL is aimed at providing a more effective language learning framework compared to PPP, but this is often not achieved in practice.
- Key aspects of TBL, such as task types and evaluation criteria, remain under-explored, risking ineffective implementation if applied without caution.
- The integration of TBL into school settings is insufficiently discussed, especially in challenging environments like crowded classrooms and under-resourced schools, alongside a lack of teacher training.

Finally, TBL proposes that language should be taught by connecting language learning to real-world situations, which may not be ideal for all contexts.

Recent studies

The studies looking into TBL and relevant to this study will be presented in this section. The effects of TBL on adult L2 learning were examined in Otake's (2016) study. It was discovered that both cognitive and non-cognitive factors influenced L2 learning success with TBL. Although it was unable to promote people's cognitive variables directly, TBL may have supported "explicit learning" and "extremely high motivation" as "non-cognitive variables." The input from TBL evolved into an "immersion experience" for effective language acquisition. The results confirmed that TBL aided in the accomplishment of adult L2 learners.

Ismaili (2012) investigated how TBL affected EFL students' speaking abilities. Sixty university students took part. TBL was used to instruct the experimental group for eight weeks. A speaking rubric was used to evaluate the oral proficiency of the students both at the start and finish of the course. A five-point Likert-type questionnaire gathered information on students' attitudes regarding TBL. The results demonstrated that students' post-test scores were higher. The findings show that TBL is a valuable approach for enhancing their communicative competence and that authentic materials were helpful. The assignments, in the opinion of the students, were inspiring and helpful

in expanding their vocabulary. The students preferred group and real-world activities over activities from the course book.Zhaochun (2015) contrasted the PPP and TBL teaching approaches to examine the impact of TBL on writing achievement. One group of Chinese second-grade English primary university students studied language through TBL, while the other group studied through PPP. A 16-week English writing course served as the treatment. They completed eight writing assignments, comprising six essay assignments, a pre-test, and a post-test. The findings demonstrated that TBL is useful for improving students' writing performance and competency in English writing classes in Chinese EFL settings.

Chen (2018) carried out a study to look into the connection between listening motivation among English majors and TBL. The study aimed to validate TBL's impact on students' motivation for listening and their achievement in listening. The study also demonstrated how TBL affected motivation across language proficiency levels. Lastly, the impact of TBL on students' motivation to learn English was investigated. High motivation levels sparked learners' interest in language learning and helped them complete tasks by lowering anxiety.

Alvarado and his colleagues (2023) analysed how teachers felt about using the TBL approach in public schools. 106 English teachers voluntarily responded to investigate EFL teachers' opinions regarding TBL instruction in classroom practice. Most English teachers stated that they benefit from TBL in their language classes. However, few teachers would use the approach in their classrooms due to inadequate texts and the challenge of large class sizes. This study is valuable because it demonstrates the opinions and comprehension of English as a foreign language instructor.

Sholeh (2023) provides a comprehensive picture of the difficulties and achievements related to the application of TBL by obtaining data from teacher interviews to understand TBL in language learning thoroughly. The study makes a strong case for TBL's effectiveness by combining theoretical ideas, real-world strategies, and educators' experiences. Sholeh (2023) advocates that teachers can successfully incorporate TBL into their teaching methods by providing teachers with information and techniques.

In another recent study (Almanza Molina, 2024), seventh-grade students' English-speaking abilities are studied to determine whether they are enhanced through gamification as a teaching strategy using a TBL approach. Based on students' preferences, a set of four tasks with game elements was proposed and then put into practice, and the data gathered from surveys, audio recordings, and field notes was assessed. It revealed that students gained confidence through gamified tasks and improved their fluency and pronunciation.

Al Kamli and Almalki (2024) conducted a mixed-methods study to examine difficulties experienced by 93 male and female EFL instructors in tertiary settings through TBL. The study's conclusions indicate that although EFL teachers demonstrated a solid understanding of engaging tasks, they still require more focused training on applying learning-oriented assessment. Additionally, the study demonstrates that the teachers encountered institutional, pedagogical, practical, and attitudinal barriers that hindered their ability to implement tasks better.

The assessment of TBL and its integration into the current curriculums are some of the crucial steps in Task-Based Learning (TBL). Nevertheless, they are often overlooked in discussions of TBL implementation. While some studies have provided examples of evaluating TBL curricula, a limited amount of research focuses on systematic design and integration of assessment within TBL. Various qualitative methods have been utilised to assess participants' experiences and language proficiency, highlighting the need for more comprehensive program assessment models. This article aims to address the existing gap by presenting a TBL lesson design and its evaluation that incorporates both quantitative and qualitative measures of effectiveness and recommendations for future evaluations and adjustments.

Research questions

The study findings will be guided by these research questions.

1. What are the preparatory English students' opinions about the TBL lesson?

2. How does the TBL lesson plan influence the preparatory English students' classroom performance?

3. How satisfied are the preparatory English students with the task and pre-task stages of the lesson?

Methodology

This study applies TBL to improve motivation and learning by collecting data through questionnaires, semi-structured interviews, and audio recordings and assessing the TBL lesson taught. According to Gibbs (1995), educational development aims to enhance teachers' methods in the classroom. Additionally, altering a lecturer's conceptions of teaching and practices accordingly and testing other methods, such as TBL, helps a lecturer better understand her students and their accomplishments for "a change essential for sustained pedagogical development" (Gibbs, 1995, p.18).

Participants

This lesson will be taught at a Turkish preparatory university class, where students must attend at least one year of full-time English classes to pass a final exam at the end of the year. The school follows a modular system covering grammar, vocabulary, listening, reading, speaking, and writing. The class consists of 32 students; 20 female (62,5%) and 12 male (37,5%). They are all native Turkish speakers. Their ages vary from 18 to 25. Their levels also range from low intermediate to intermediate. In general, the group loves activities that make them interact. They tend not to focus on producing correct language. They know complex grammar structures, but they do not reflect them on their performances; it is only at the knowledge level. This is also valid for their lexis knowledge. In reading, they can understand the whole text if it is not written in academic language.

Planned lesson

In this study, a TBL lesson was designed, implemented, and evaluated. The syllabus and the lesson materials (the coursebook in use) used in the School of Foreign Languages rely mainly on the PPP model. However, considering the benefits of TBL, which focuses on accurately using the target language, the preparatory students' attitudes were examined by the designed TBL lesson researchers (See Appendix 1 for the detailed lesson plan and lesson materials).

Lesson Objectives

1. To find out whether TBL works well with Intermediate students,
2. To find out whether they can utilise their previous knowledge without pre-teaching any language focus,
3. To find out whether students will be able to end up with a product,
4. To find out students' attitudes towards a task-based lesson,
5. To find out how students communicate when the focus is mostly on meaning,
6. To find out if having a real-life purpose motivates learners and
7. To determine whether TBL helps learners find their strengths and weaknesses.

Methods of Evaluation

Self-evaluation: The lesson will be recorded, and a questionnaire will be filled out.

Student evaluation: The students in my lesson will be asked to complete a questionnaire to express their feelings about the experience.

Data collection and analysis

The data for this study were collected in the spring semester of the 2023–2024 school year. Quantitative and qualitative data were collected by conducting a survey, semi-structured interviews and audio recordings for this investigation. In order to assess learners' reactions to task-based learning, the survey had three sections. It was adapted from Nunan's (2004) communicative task evaluation checklist. Using a five-point rating system went from "strongly disagree" to "strongly agree". Students' opinions regarding their own performance in the TBL lesson were discussed in the first section. Secondly, they were asked to assess the lesson itself in general. Lastly, learners were asked to share their justifications, responses, and thoughts regarding the lesson (See Table 1).

The survey was used to gather the quantitative data, and SPSS (Version 21) was used to analyse the answers statistically. According to Munn and Drever (1990), answers become more dependable when participants answer the same questions similarly. Nunan (1989) asserts that questionnaires can be used to investigate any facet of the teaching and learning process. By examining these questionnaires, teachers also

have the opportunity to learn about the effect of teaching strategies they employ in the classroom.

Analysing survey data for students' perceptions of the task was the first step in the data analysis process to determine how students felt about TBL. The interview and audio-recorded data were typewritten. The researcher reviewed the data several times to become acquainted with it as a first step. After that, the transcription and coding were completed. The coded data from the survey and the interviews were grouped under themes and sub-themes to present the findings. As noted by Creswell and Poth (2016), findings from several data sources were triangulated to support the evidence and ensure its reliability. Furthermore, a peer-reviewing procedure was carried out with the assistance of two colleagues. Quotations from the interview transcriptions were used as proof of themes and subthemes for the validity of the qualitative data, along with a peer review or debriefing of the data.

A qualitative content analysis approach was used to analyse the qualitative data gathered through interviews and audio recordings to fill in any gaps the quantitative data might have missed. There are multiple steps involved in this process. With the aid of the recordings, the data were first transcribed. The researcher then carefully reviewed these transcripts to group the data into pertinent categories and offer a meaningful reading of the examined material. The interviewees' answers to questions that emerged during the sessions and those posed during the semi-structured interviews also helped with the data classification. The interviewees' perspectives on pertinent data were summed up, contrasted, and illustrated using these quotes during the analysis stage. All of the interviews were conducted in Turkish and were translated into English. The participants were assured that only pseudonyms would be used for ethical purposes and that their identities would remain private.

Results

Survey results

32 translation and interpreting students completed the questionnaire to rate their performance in the TBL lesson and the lesson itself with a five-point Likert-type survey (totally disagree 1, disagree 2, I don't know 3, agree 4, totally agree 5). Table 1 below

can be interpreted as a satisfying lesson based on the learners' responses. Most of them said they enjoyed the task and found the lesson design interesting.

Table 1.

Survey Results

Part I. My performance	**Mean**
1. I have cooperated in group work.	5
2. I have solved the language-related problems by checking some resources (dictionary, book, website)	4.4
3. I have communicated mostly in English.	5
4. I have contributed sufficiently to the final product.	4
5. I can ask a question to a friend when I don't understand.	4.2
6. I have made suggestions to the group.	4.6
7. I have remembered words related to food and cooking.	4.4
8. I have used sequencers to give the instructions (First, next, then, after that, etc).	4.8
9. I am happy with my group's final product.	4.6
Part 2. The lesson	**Mean**
1. The lesson topic was useful.	5
2. The lesson held my attention.	5
3. The lesson was learner-centred.	4.8
4. The instructions were clear and easy to understand.	5
5. I enjoyed working with my friends.	4.2
6. The teacher gave us a chance to ask our questions.	5
7. The teacher has allowed us to practise the language focus.	5
8. The pace of the lesson was good.	4.6
9. I found the teacher's feedback helpful at the end of the activities.	5
10. The lesson was staged well.	4.6

However, some of them stated that they were shocked and felt stressed by the burden of the activity without being explicitly taught anything. In general, the lesson went well, and students worked collaboratively to produce the final version of the task. They were also willing to share their menu and were excited about choosing the best one for the jury.

The questionnaire results also show that the teacher's instructions and the aims of the lesson stages were clear. They found the task interesting and engaging. Students

confessed that they had realised their strengths (group work, taking notes, related) and weaknesses (related lexis, presentation skills). Students' needs were evident from the questions they asked in the planning and reporting phases of the task cycle. One of the weaknesses of the procedure was that as they did not focus on the language, the accuracy of their sentences failed, and their lack of lexical knowledge also challenged them.

Semi-structured interview results

At the end of the lesson, students were asked whether they would participate in a complementary interview to discuss their responses to the survey. Thirty per cent of the participants confirmed and stated their views about the lesson (n=10). Students loved experiencing participating in a popular competition task. They were grouped randomly. Apart from the language focus part, the lesson was fully student-centred. The teacher monitored students and observed how much they could do when they enjoyed the activity. The teacher challenged them by asking them to present their work in spoken and written forms, and they were happy and proud in the end. Some of the student statements are given below.

> *I enjoyed the lesson; I felt like I was in the Masterchef competition. S5*
>
> *I am really pleased with myself and my teammates as we have spoken only English and everybody in the group was so responsive and involved throughout. S8*
>
> *I found this lesson more learner-centred genuinely because the lesson was structured around what we can do and know. S9*
>
> *The lesson was all about what we have produced in the end, so everybody loved it because it was so much more learner-centred. S10*
>
> *I hope the lessons are always like this (like a task, competition). I was very busy doing the tasks, so I never got bored. S2*
>
> *Following the instructions made us reach the final product. S7*
>
> *I found the lesson enjoyable and useful because I can use the structures (transition words, adjectives, quantifiers) elsewhere. S6*

Some students were triggered by the competition, which motivated them to show their best. However, in the groups, they cooperated very well and nominated themselves

for different jobs (scribbler, vocabulary finder, presenter). They used many structures and vocabulary that were the lesson's focus. They had an apparent goal for the task, so their motivation was high, and they used only the target language throughout the task. They stated they can now give a recipe more effectively in different forms after the lesson's language analysis and practice stages. Another point worth mentioning is that if they did not get on well as quickly as possible, they would lose time, not finish it on time, and fall behind. If the responses were checked, one member from a group found the time allowance more than enough (they were asked to rehearse for their presentation). However, the other group struggled to decide many things about the task (even the dish's name) and wasted some time there. Some students were unhappy with some partners, which affected their motivation to finish the task on time.

Actually, everything was very good, but I felt like I worked harder in this lesson.

I did not like my partner.S3

The time given for some stages was tight (writing instructions).S1

We had a longer time than needed for some stages (writing instructions).S9

Audio-recorded data results

Students' interactions were recorded and transcribed, which confirms that they adapted to the lesson well and used all their linguistic repertoire to complete the task. The tasks were designed to make students discover the structures implicitly. The task was meaningful for them because it gave them a purpose. The students and I thought the task was worthwhile even though it lasted about two lessons (85 minutes).

Sample 1

S1: How do we serve it?

S2: In a big plate, I put the fish, and I put potato and onion on it.

S3:I feel it like a big dish, and I just add some salad, and serve it.

S4: I can't touch the fish, your fingers smell fishy. (Group 2)

Sample 2

S1: Wash your hands.

S2: And after you you wear gloves.

S1: Okay.

S3: Clean please.

S4: Then wash your fish.

S1: Wash your fish.

S2: Cut fish and

S5: Carrots (Group 3)

Task-based interaction had a few notable and unique features (Seedhouse, 1999). After giving the students assignments, the teacher stepped back to let them handle the interaction independently. If the students faced difficulties with the task, they could seek assistance from the teachers as they circulated the classroom, observed the interactions, and occasionally stepped in to help. To complete a task, the students communicated with one another; the task's completion -rather than the language used- was the pedagogical and interactional focus. Participants followed a turn-taking procedure, which was appropriate for effectively completing the task. As seen in task-based interaction samples 1 and 2, the participants collaboratively shaped the interaction's trajectory.

As students were noting and talking simultaneously, repetitions were common. The scribbler requested repetition when they did not yet complete noting the first piece of information, and the other participants oriented to her/him, and they all backtracked. As the extracts above showed, speakers tended to minimise the linguistic forms. There was a general tendency to use as little language as possible and to produce only what was required to complete the task. Turns were typically straightforward and brief syntactic constructions (Duff, 1986). Task-based interaction tended to result in highly indexical or implicit and context-bound interaction. Therefore, it was difficult for readers to understand if they were unfamiliar with the participants' tasks. Therefore, the task interaction appeared unimpressive when read in a transcript (Seedhouse, 1999).

These samples showed that TBL provides students with more learning opportunities than an upside-down PPP. It allows students to experience the target language regardless of studying it before. The data results and the researcher's

observation showed high satisfaction with the assigned tasks, and the students confirmed that the lesson's tasks aided their learning.

Evaluation and reflection

The assignment of creating a recipe sparked full participation from the students. They concentrated on meanings and put their ideas into words. There was a noticeable improvement in the students' performances in all stages of the task and a sense of alertness after the task was finished, which allowed me to keep the students' attention for longer. They were asked in lighthearted conversation whether they enjoyed the task and whether there was anything that could have been done better, and if so, how. A few students, for example, stressed that they felt proud because they used the target language during the whole task. Another group commented that they had the feeling of "not doing any grammar but still studying grammar" in the lesson for the first time.

Throughout the assignment, the teacher noted the students' responses to assess the task by seeing how it functioned and whether it fulfilled the objectives. From firsthand observations, it was noticeable that allowing students to express their opinions and make their own decisions increased their self-confidence. They seemed self-satisfied for successfully completing a challenging task. Some said they felt ecstatic to give a recipe like a native speaker on a food show.

More precisely, some male students who do not often participate in the lessons came up with the most creative ideas and were eager to express themselves. They also nominated themselves to present their final version of their dish. However, the analysis reveals that learners often minimised linguistic complexity during task-based interactions, opting for straightforward and brief constructions (Duff, 1986). This tendency leads to highly implicit and context-dependent interactions, making them challenging for outsiders to comprehend without prior knowledge of the tasks. Consequently, the resulting transcripts of these interactions may appear unremarkable (Seedhouse, 1999), as discussed in the analysis of the audio-recorded data section.

The importance of tasks based on students' responses to real-world events should be highlighted here. Firstly, they help students see English as a language they can use to express themselves, not just the narrow range of textbook information.

Second, learners unconsciously become exposed to the target language and begin to perceive language as more than just a linguistic entity subject to rules. Instead, students might associate the target language as a practical tool for expressing and exchanging ideas. Thus, a teacher can better design a task-based lesson by considering their student's areas of interest to raise their motivation and performance.

Discussion

This study examines how preparatory students feel about learning through a TBL lesson. Different patterns of interaction focusing on the student rather than the teacher talk only is vital for language learning (Al Kamli &Almalki, 2024). For the lesson based on TBL, students left insightful comments on nearly all tasks, expressing their satisfaction. According to Willis (1996) and Chen (2018), well-selected tasks encourage learners to engage in full interactions, which boosts motivation. Results indicate that students find presentations a very motivating task type. Although students left very positive comments on assignments, it is impossible to ignore the significance that they placed on presentations. Thus, students found great motivation from their presentations, which is a type of task. In survey and interview results, students only wanted to write about the tasks and how much they enjoyed their interactive language classes.

The study's findings were presented and guided by the research questions. Students had to read the assignment carefully in order to prepare a signature dish for a cookbook that was going to be published by a popular American master chef. Thus, they had to decide every detail of the task (recipe, ingredients, presentation, appearance, story) and employed all their linguistic repertoire to complete the task (cooking verbs, food nouns, quantifiers, sequencers, present tenses, etc.). According to Willis (1996), "students are reacting to the content and processing the text for meaning in order to complete the goals in all these tasks" (p. 30). A few studies (Al Kamli & Almalki, 2024; Alvarado et al., 2023; Chen, 2018; Lightbown & Spada, 1993) posit that communicative need is one of the elements that raise motivation in learning. Thus, it can be tracked that the students prepared and made their presentations with high motivation and expressed their extreme satisfaction with it.

Conclusion

This article examines whether the designed TBL lesson is viable and can be used in any EFL curriculum, from general-purpose EFL and ESL language courses to ESP courses at a private college or higher education settings. The results presented here are specific to EFL language classes at a state university in Türkiye. Both participating teachers and researchers benefited greatly from the development, application, and assessment of the tasks, which informed the teacher in terms of the weaknesses and strengths of learners, as well as how to address these weaknesses best. The study also emphasised that teachers can take control of their classroom by designing interesting, engaging, real-life-like tasks. Designing such a task can be daunting but also beneficial and fulfilling for a teacher. The teacher in this study attempted to improve the effectiveness of her lesson with a task-based lesson through critical, systematic examination and reflection. The teacher's perspective on TBL also improved due to her effective TBL lesson design. In conclusion, this article also sets an example for other educators willing to change the cycle of PPP lesson flow, design more learner-centred lessons, motivate their students by giving them tasks with clear outcomes and finally bring variety to their classrooms. The limitations of this study should be acknowledged due to the limited sample size and lack of task familiarity. Thus, we cannot draw broad conclusions about the Turkish EFL context or Turkish language teachers. We also note that the teacher only had two lessons to observe, which produced intriguing descriptive information about what happened in the classroom. However, many issues raised here are similar to those raised by earlier studies and will have broader applicability in the Turkish context. Seeing more TBL lessons would have given us a better foundation for generalisations. Despite these drawbacks, this research still contributes to our knowledge of the attitudes of students and teachers who integrate TBL into their EFL lesson plans.

Teaching with tasks is a popular approach, and research has shown that there are consequences to using these tasks in a classroom setting. Numerous studies have recommended using tasks in language classrooms, arguing that students become more motivated due to assigned tasks. Even though some researchers cautiously approach it regarding efficacy, TBL has come a long way in the last thirty years and is still a potentially helpful method worth-employing for many ESL/EFL teachers.

Ethics Committee Permission Information

This research study was conducted with the Research Ethics Committee approval of Gaziantep Islam, Science and Technology University, dated 03.04.202 and numbered 240000697.

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Appendices

Appendix 1

TBL Lesson Plan

AIMS

Main Aims By the end of the lesson, the learners will have presented a signature dish recipe for applying to a cooking competition.

Supporting Aims By the end of the lesson, the learners will have reviewed vocabulary related to food and cooking.

PROCEDURE

Time	Stage	Stage aims	Procedure	Interaction	Materials
13:00-13:05 5 (5)	**1. Pre-task**	Warm-up/ Generate interest in the topic and motivate Ss	Show pictures of some food and make them guess what they are going to study today. Ask sts to discuss the questions (4) What's your favourite homemade dish? What are the ingredients? How do you make it? How does it taste? How do you serve it? How often do you cook it? Elicit answers from the students.	T – Ss Pairs S-S T-Ss	Powerpoint slideshow with related pictures & questions
13: 05-13:28 23 (28)	**2. Task Cycle /Task** **Task Cycle/Plan**	Review and practise lexis about food and cooking. Write the different stages of a recipe. Edit the language of the recipe. Ensure students produce a well-written recipe.	Show them the jury members of Masterchef in 3 different countries (the UK, USA and Turkey) and elicit Masterchef competition and then show them the competition worksheet. You are going to design a signature dish to apply for Masterchef. You are going to work in a group of 4(depending on the attendance on the day) to come up with a dish. Stage 1: Decide the name of the dish, ingredients, cooking tools, level of difficulty, time and special features **(Task phase)** (5) Feedback: can you stop and give me feedback about what you have done. (2) Stage 2: Write the instructions (10) **(Task phase)**	T – Ss Pairs S-S T-Ss Ss-T	Powerpoint slideshow, the task, group work

			Feedback: Can you stop and give me feedback about what you have done. (2) Stage 3: Edit what you have done and get it ready to report. Decide who is going to present it. **(Plan phase)** (4)		
13:28-13:38 10 (38)	**3. Task Cycle/Report**	Present a recipe in oral and written forms. Listen to other groups' presentations and assess their work.	Ask Ss to present their work. The group members listen to other groups, use a checklist and assess their work. **(Report phase)** Please present your dish (10).	T – Ss S – Ss Ss-T	Powerpoint slideshow, the while-listening task
13:38-13:45 7 (45)	**4. Language Focus/Analysis**	Elicit the language used for writing a recipe. Study the language used for writing a recipe.	Ask students the language they used and needed for designing the recipe (7) **(Analysis Phase).** When writing your recipe, What kind of language helped you with ingredients/instructions? Where have you struggled more? Which parts were easy to do? T takes note of their answers on a Word document. Show them the language that helped them, go through them and ask if they need more help on any of them.	T- Ss Ss-T T-Ss	Powerpoint slideshow, the task worksheet
13:45-13:52 7 (52)	**5. Language Focus/Practice**	Practise the language used for writing a recipe.	Show them the recipe prepared by a Masterchef candidate and ask them to fill in the missing parts. Look at the recipe worksheet written by a Masterchef candidate and do the activities in pairs (5) **(Practice phase)** Get the answers and then show the answer key. (2)	T-Ss Pairs S – S T-Ss	Powerpoint slideshow, the gap-filling activity, group work
13:52-13:55 3(55)	**6. Review**	Consolidate and review the lexis and structures needed for writing a recipe. Clarify the language focus of the task and summarise the lesson.	What have we learned today? (3) Can you use these skills in your real life? Please fill in the questionnaires and send them back to me.	T-Ss Pairs S – S T-Ss	Powerpoint slideshow, student survey

MATERIALS

Material 1: The Task

Master Chef Competition

Hello Competitors,

Welcome to MASTER CHEF! I am Gordon Ramsay and today is the day you have ALL been waiting for. Your challenge is to create ONE signature recipe for my new cookbook. Not only will this challenge determine the best recipe in your class, but you will get paid as your dish is served in my restaurant.

I am asking you to write a recipe and present it well.

Material 2: The Worksheet for the Task

Master Chef Competition

1. **Name of the dish. (Stage 1) 5 mins.**
   Be original and make up a trendy name for your dish.
2. **Ingredients:**
   Write the ingredients that you need and the quantities. (Types of vegetables, fruit, meat and fish, spices and herbs, dairy products, drinks and others)
3. **Cooking tools:**
   Write the cooking tools you need.

   Bowls, pans, spoons, knives, plates, trays, oven, microwave, fridge, freezer, etc.
4. **Level of Difficulty**
   Mark the level of difficulty for cooking the dish.

   Easy Medium Difficult Expert
5. **Time**
   Say how much time you will need.
6. **Special features**
   Low fat Fat-free Suitable for vegetarians Suitable for celiacs
7. **Instructions (Stage 2) 10 mins.**
   Write the instructions for making your recipe step by step.

   Use

   - Time linkers: First, then, next
   - Example: Peel the potatoes, when it boils,… You can preheat the oven.
8. **Use pictures in your recipe.**

- Edit what you have done and get it ready to report. Decide who is going to present it **(Stage 3) 4 mins.**

Material 3: While-Listening Task

MASTERCHEF WHILE-LISTENING TASK

- Listen to what other group(s) has done and take notes.

1. What is their signature dish?
2. What are the ingredients? (Write 5 of them)
3. What are the instructions? (Write 3 processes)
4. What do you think of the dish in general?

5. Is there anything you find exciting?
6. What do you think of the presentation?
7. Is there anything in common with other group's work?
8. Do you think they can have a chance in Masterchef? Why (not)?
9. Make suggestions on how the group might improve their work.
   Adapted from Ribe & Videl (1993). Project Work.p. 73

Material 4: The Practice Task

Chef's Salad

A. Read this recipe for a chef's salad and fill in the gaps with the words given.

‣ add ‣ boil ‣ cut mix pour put remove serve slice ‣ salad

Instructions	***Chef's Salad***
• 1) ……. the eggs for 10 minutes.	**Ingredients**
• 2) ……. up the lettuce leaves and put them into a salad bowl.	2 eggs
• Cut the cheese and the chicken into small pieces and add them to the bowl.	8 lettuce leaves
• 3) …….. the cucumber and cut the tomato into pieces, then add them to the bowl.	150g Edam cheese
• 4) …….. the shell from the eggs, slice them and put them on top of the 5)	4 slices chicken breast
For the dressing	1 small cucumber
• 6) …….. the mayonnaise, tomato ketchup, olive oil and vinegar into a small bowl and ..... them well. 8) ……. salt and pepper.	1 large tomato
• Finally, 9) ……. the dressing over the salad.	**Dressing**
• 10) …… with fresh bread.	2 tablespoons mayonnaise
	1 tablespoon tomato ketchup
	1 tablespoon vinegar
	1 tablespoon olive oil
	Salt and pepper

B. Work with a partner. Tell the recipe with sequencers (First, then, next,…).

RESEARCH ARTICLE

AI-assisted grammar learning: Improving present perfect tense proficiency in EFL students

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Abstract
This study explores how artificial intelligence (AI)-assisted feedback mechanisms influence self-regulated learning (SRL) processes and grammatical accuracy among Turkish EFL learners focusing on the Present Perfect Tense.Conducted with 18 Turkish university preparatory students, this qualitative research employed pre- and post-writing tasks, interactive sessions with an AI chatbot, and an open-ended survey to explore learners' experiences. The findings reveal that 72% of participants demonstrated improved grammatical accuracy, while many reported enhanced autonomy and confidence. The study highlights the role of AI chatbots in fostering SRL behaviours such as goal-setting, self-monitoring, and reflection through immediate and adaptive feedback mechanisms. By addressing a critical gap in EFL grammar instruction, this research contributes to the growing evidence of AI's potential to personalise learning and support the acquisition of complex grammatical structures. Despite the study's promising outcomes, limitations such as the small sample size and lack of long-term assessments are noted. Future research should focus on larger and more diverse samples, longitudinal evaluations, and advanced AI features to further enhance language learning experiences.

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Keywords
AI-assisted language learning, Present Perfect Tense proficiency, Self-regulated learning, University students

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Introduction

The integration of artificial intelligence (AI) tools in language education has expanded rapidly in recent years. Numerous studies conducted between 2022 and 2024 highlight the increasing pedagogical potential of AI-driven platforms (Jiang, 2022; Chen, Huang, & Li, 2023; Dai & Liu, 2024). Among these technologies, AI chatbots are emerging as valuable tools in English as a Foreign Language (EFL) education due to their ability to provide immediate, personalised feedback and adaptive scaffolding. These features

support self-regulated learning (SRL), enabling learners to set goals, monitor progress, and refine strategies to address grammatical challenges effectively.

One of the most challenging grammatical structures for EFL learners, particularly those whose first languages lack directly comparable forms, is the Present Perfect Tense (Ellis & Barkhuizen, 2020; Crovitz, Devereaux, & Moran, 2022). This tense expresses actions completed at unspecified times or actions that began in the past and continue into the present. For Turkish learners, the absence of equivalent structures in their native language compounds these challenges, often leading to errors and frustration (Na, Ahn, & Kim, 2008; Ranjbari, Tabrizi, & Afghari, 2020; Yang, 2024). AI chatbots can address these difficulties by offering tailored, real-time feedback that supports autonomy and reduces reliance on repetitive, instructor-led approaches.

While prior studies highlight the benefits of AI-assisted feedback in enhancing learner autonomy and accuracy (Chen et al., 2023; Wang, Chen, & Lin, 2021; Lin, Wang, & Chen, 2020), relatively few have focused on how these tools influence SRL in mastering complex grammatical structures like the Present Perfect Tense. By helping learners notice errors, reflect on their strategies, and improve iteratively, chatbots provide scaffolding aligned with SRL principles. They offer immediate, precise guidance, fostering deeper understanding and reducing instructor fatigue (Kim, 2019; Sperling, Stenberg, McGrath, Åkerfeldt, Heintz, & Stenliden, 2024; Jamal, 2023).

The study aimed to explore how AI-assisted feedback mechanisms influence self-regulated learning (SRL) processes and grammatical accuracy among Turkish EFL learners focusing on the Present Perfect Tense. This focus addresses a gap in the literature by investigating how AI tools can bridge linguistic challenges and support targeted grammar acquisition, contributing to effective, learner-centred strategies tailored to this context.

The qualitative research design included 18 participants, a sample size justified by its ability to achieve data saturation and rich insights into learners' experiences (Creswell, 2007; Creswell & Poth, 2017). Participants shared similar educational and language proficiency backgrounds, facilitating a focused analysis of how AI chatbots impact SRL and grammar learning. This study employs a multi-method approach,

including pre- and post-writing tasks, AI chatbot interactions, and a qualitative survey, to explore:

- How AI-based feedback mechanisms influence learners' SRL processes in tense-related grammar tasks.
- Changes in grammatical accuracy before and after guided AI interactions.
- Learners' perceptions of increased autonomy and confidence in grammar learning.

Research Questions

1. How do Turkish EFL learners perceive and experience the influence of AI-assisted feedback mechanisms on their SRL processes when working with the English Present Perfect Tense?
2. In what ways do learners perceive changes in their grammatical accuracy, autonomy, and confidence after engaging with an AI chatbot?

Literature Review

Self-Regulated Learning in EFL Contexts

Self-regulated learning (SRL) plays a pivotal role in language acquisition, involving learners actively managing their cognitive, motivational, and behavioural processes. Zimmerman (2002) describes SRL as encompassing metacognitive strategies (e.g., planning, monitoring, evaluating), motivational factors (e.g., self-efficacy, interest), and behavioural skills (e.g., time management, resource use). In EFL contexts, SRL is critical for internalising linguistic rules, such as advanced grammar, while maintaining motivation and persistence (Oxford, 2001). This process also supports learner autonomy, an essential goal in modern language pedagogy.

Research consistently highlights positive correlations between SRL behaviours and language performance. For instance, Mahmoodi, Kalantari, and Ghaslani (2014) found that learners with higher self-regulatory behaviours demonstrated stronger motivation and better achievement in language learning. Pintrich (2005) emphasised how learners shape their learning environments by adapting strategies to match efficacy

beliefs and task demands. These findings underline the importance of fostering SRL to enhance EFL learners' proficiency.

Integrating SRL with technological tools, such as AI-powered applications, enhances learning outcomes by offering adaptive support. By providing real-time feedback and enabling learners to monitor their progress, AI tools align closely with SRL principles. This connection between SRL and technology offers a foundation for understanding how AI tools, like chatbots, can target specific grammatical challenges, such as mastering the Present Perfect Tense.

Meyer, Jansen, Schiller, Liebenow, Steinbach, Horbach, and Fleckenstein (2024) demonstrated that large language model (LLM)-generated feedback improves revision quality, increases task motivation, and elicits positive emotions in secondary school students. Their findings highlight the dual cognitive and emotional impact of AI tools, enhancing iterative learning and intrinsic motivation. Similarly, Ruwe and Mayweg-Paus (2023) emphasised the importance of personalised feedback language in AI systems, which enhances learners' trust in feedback, their self-efficacy, and motivation. These findings highlight the role of socioemotional factors in complementing cognitive gains in SRL contexts.

Technological enhancements in grammar learning

The integration of digital tools has transformed language learning, enabling personalised and adaptive experiences. Bikowski (2018) and Warschauer (2002) highlighted how mobile-assisted systems facilitate the acquisition of complex grammatical structures through interactive and responsive platforms. These technologies deliver grammar exercises and create immersive learning environments tailored to individual learners' needs. AI and machine learning advancements, such as natural language processing and adaptive algorithms, enable tools to provide real-time feedback that enhances learners' grammatical accuracy and confidence. For example, Wang, Chen, and Lin (2021) demonstrated the efficacy of mobile-assisted environments in improving Chinese EFL students' grammar through immediate, personalised feedback. Similarly, game-based learning and contextual simulations have shown promise in enhancing grammar acquisition, though their effectiveness varies (Lin, Wang, & Chen, 2020). Emerging technologies like augmented reality (AR) and virtual reality (VR) offer multisensory

opportunities that could further enrich grammar learning. By linking SRL principles with technological tools, these advancements empower learners to manage their grammar practice autonomously.

Despite these innovations, the application of AI tools to specific grammatical challenges, such as the Present Perfect Tense, remains underexplored. The Present Perfect Tense poses unique difficulties for many EFL learners due to its nuanced temporal relationships, which are often absent in their native languages (Ellis & Barkhuizen, 2020). AI tools, particularly chatbots, can bridge this gap by providing targeted, adaptive support that aligns with learners' self-regulated strategies.

Complementing these advancements, Meyer et al. (2024) found that AI-generated feedback fosters sustained engagement and intrinsic motivation by addressing not only grammatical errors but also socioemotional needs. Their research demonstrated that students perceive AI feedback as rewarding and empowering, which in turn boosts their confidence and persistence. Ruwe and Mayweg-Paus (2023) further suggested that personalised feedback language, particularly when used by AI systems, increases feedback acceptance and perceived effectiveness, thereby bridging gaps in traditional feedback mechanisms.

AI chatbots in language learning

AI chatbots have emerged as transformative tools in language learning, offering learners simulated conversational practice with immediate feedback. These tools can adapt to individual proficiency levels, fostering personalised learning experiences. Kim (2019) and Chen et al. (2023) highlighted how chatbots enhance grammar learning by providing targeted feedback and opportunities for sustained practice. One of the strongest attributes of AI chatbots is their adaptability. Beginners might receive basic feedback on sentence restructuring, while advanced learners engage in complex interactions requiring nuanced grammar and vocabulary integration. This flexibility ensures learners remain engaged and challenged, enhancing their motivation and self-regulation.

By encouraging learners to notice errors, reflect on their strategies, and iteratively improve, chatbots serve as strategic scaffolds that align with SRL principles. Notably, they offer immediate, targeted guidance without instructor fatigue, potentially

accelerating language gains and deepening learners' understanding of complex grammatical structures (Kim, 2019; Jamal, 2023; Sperling et al., 2024). For learners struggling with the Present Perfect Tense, chatbots provide context-sensitive feedback that reinforces accuracy and fosters autonomy.

Meyer et al. (2024) extended these findings by demonstrating that LLM-based feedback systems not only improve grammatical accuracy but also nurture positive emotions and self-efficacy. Their study revealed that students view AI chatbots as reliable and supportive, fostering a sense of trust and engagement in learning. Moreover, Ruwe and Mayweg-Paus (2023) highlighted the interplay between personalised feedback language and trust in AI systems, showing that such features create a more human-like and motivating learning experience, essential for long-term engagement.

Critical analysis and identification of gaps

While SRL and technology-enhanced grammar learning are well-documented, gaps remain in applying these frameworks to specific grammatical challenges. Few studies focus on integrating SRL strategies with AI tools to address the Present Perfect Tense, a structure particularly challenging for learners from linguistically diverse backgrounds like Turkish (Na, Ahn, & Kim, 2008; Ranjbari, Tabrizi, & Afghari, 2020). Additionally, much of the existing research emphasises quantitative outcomes, neglecting qualitative aspects such as learner perceptions and emotional responses.

The recent contributions of Meyer et al. (2024) and Ruwe and Mayweg-Paus (2023) address these gaps by highlighting the dual cognitive and affective benefits of AI-generated feedback. By integrating socioemotional factors, such as motivation and trust, into the design of AI tools, these studies pave the way for more holistic approaches to grammar instruction. This emerging evidence stresses the necessity of combining cognitive precision with emotional support to create effective and inclusive learning environments.

This study aimed to explore how AI-assisted feedback mechanisms influence SRL processes and grammatical accuracy among Turkish EFL learners focusing on the Present Perfect Tense. Integrating SRL strategies and frameworks like the technology acceptance model (TAM) (Davis, 1989) and the community of inquiry (CoI) (Garrison, Anderson, & Archer, 2000) provides a multifaceted understanding of how learners

interact with AI tools. TAM explores learners' perceptions of technology's usefulness and ease of use, while CoI examines the interplay of social, cognitive, and teaching presence in online learning environments. By applying these frameworks, this study contributes to a deeper understanding of AI's role in fostering learner autonomy, confidence, and grammatical proficiency.

Methodology

Research design

This study employed a qualitative exploratory design to examine how Turkish university preparatory students engage with AI-assisted strategies to enhance their understanding and use of the English Present Perfect Tense. This approach was chosen for its ability to capture the complexity of learners' experiences and provide detailed insights into their interactions with AI tools (Creswell, 2007; Creswell & Poth, 2017). Specifically, the study aimed to explore how AI-assisted feedback mechanisms influence self-regulated learning (SRL) processes and grammatical accuracy among Turkish EFL learners focusing on the Present Perfect Tense.

Setting and participants

The study took place entirely online, utilising the Zoom platform to support synchronous interaction and to simulate conditions increasingly common in real-world, technology-mediated educational contexts. Convenience sampling (Creswell & Poth, 2017) was employed to recruit 18 university preparatory students (10 female, 8 male; ages 18–23, M ≈ 20.5 years) enrolled at a private university in Istanbul, Türkiye. All participants were at an intermediate (B1, Common European Framework of Reference for Languages (CEFR, 2001) English proficiency level.The online setting allowed students from diverse geographic locations to participate without logistical constraints. Using digital platforms familiar to the participants minimised technical barriers and facilitated seamless integration of AI chatbots and other tools. This environment provided a realistic backdrop for examining AI-assisted learning, reflecting current trends where EFL learners increasingly engage with AI-driven support in remote and blended scenarios.

Although the sample size (N=18) is relatively small, it is justified by the qualitative research design, which prioritises data saturation and rich, context-sensitive insights over broad generalisability. In qualitative research, a sample size of 18 is considered sufficient to capture diverse experiences and achieve data saturation, where no new themes emerge from the data (Creswell, 2007; Creswell & Poth, 2017). Additionally, the homogeneity of the sample in terms of educational background and language proficiency facilitates a focused exploration of the research questions.

Data collection

Data were collected through a structured online workshop and a post-workshop open-ended survey. The workshop comprised three distinct tasks (see Appendix I) designed to engage students in controlled practice, open-ended questions, and free writing activities, all aimed at enhancing their proficiency in the English Present Perfect Tense.

An external teacher, who was also the participants' regular instructor, facilitated the workshop. The teacher explained the stages of the workshop in detail and monitored all activities to ensure participants followed the instructions and completed the tasks as required. During the workshop, the teacher actively observed participant engagement and ensured that all stages, pre-writing, AI interaction, and post-writing, were conducted as planned.

To track task completion, the teacher reviewed timestamped responses recorded within the AI chatbot platform. Any discrepancies or incomplete submissions were flagged for immediate follow-up, and instructions or procedures were clarified as needed. This approach ensured consistency and full participation throughout the workshop. The workshop lasted approximately 110 minutes and included multiple phases, each serving specific analytical purposes.

Introductory Remarks (≈20 minutes): An overview of the workshop's objectives was provided, the AI chatbot was introduced, and the tasks were explained to ensure that participants understood the procedure and their roles.

Pre-Writing Activity (≈30 minutes): Participants completed a writing task focused on using the Present Perfect Tense, establishing a baseline for their proficiency. Clear criteria were provided (e.g., accuracy of tense usage, sentence complexity) to ensure consistency in evaluation.

Interaction with the AI Chatbot (≈30 minutes): Students engaged with an AI chatbot specifically designed for language learning, receiving immediate, context-specific feedback on their use of the Present Perfect Tense. The chatbot employed adaptive strategies, offering hints, examples, and corrections aimed at promoting self-regulated learning (SRL). For instance, participants were encouraged to revise sentences, reflect on feedback, and gradually build more complex structures.

Post-Writing Activity (≈30 minutes): After interacting with the chatbot, participants completed a similar writing task to demonstrate potential improvements in accuracy and complexity. They were guided to incorporate feedback from the AI interactions into their new responses.

Additionally, an online open-ended survey (17 questions) (see Appendix II) was administered immediately after the workshop. This survey involved participants' reflections on their experiences, perceptions of the AI chatbot's usefulness, and any shifts in their learning strategies. The open-ended nature of the survey encouraged candid responses about motivation, engagement, and SRL aspects, thereby complementing the observational data collected during the workshop tasks.

Data Analysis Plan

All data sources—including pre- and post-writing samples, screenshots of AI interactions, and written survey responses—were analysed using inductive thematic analysis (Denzin, 2006). Two researchers independently coded the data, compared their findings, and resolved discrepancies through discussion. To enhance the credibility of the analysis, inter-coder reliability was assessed using Cohen's Kappa, which resulted in a coefficient of 0.82, indicating strong agreement between the two researchers. Any discrepancies in coding were discussed and resolved to ensure consistency and reliability in theme development.

Using the thematic coding scheme in Table 1, the study adopted a multi-method approach, including pre- and post-writing tasks, AI chatbot interactions, and a qualitative survey. The primary aim was to explore how AI-assisted feedback mechanisms influence learners' SRL processes and grammatical accuracy among Turkish EFL learners focusing on the Present Perfect Tense**.** Themes naturally emerged

from the data, shedding light on participants' experiences with the English Present Perfect Tense and the role of AI-assisted feedback in shaping their learning processes.

Illustrative examples of participant-generated texts and quotations were incorporated into the analysis to anchor interpretations in concrete evidence. For example, within the "Personalised and Immediate Feedback" theme, codes such as "Real-Time Correction and Clarity" and "Confidence and Anxiety Reduction" highlighted participants' experiences with the AI chatbot's feedback mechanisms. Similarly, under the "Autonomy and SRL" theme, codes like "Increased Autonomy in Learning" and "Enhanced Motivation and Engagement" reflected how AI tools supported independent learning and heightened student motivation.

The emergent themes were systematically organised into Table 1, providing a comprehensive overview of key findings, including improvements in grammatical accuracy, and qualitative shifts in learning behaviours. This structured approach facilitated a nuanced understanding of the data, highlighting both the strengths and limitations of AI-assisted strategies in enhancing English grammar proficiency and promoting SRL among Turkish EFL learners.

Ethical considerations

Ethical protocols were rigorously adhered to throughout the study to ensure the rights and well-being of participants. Informed consent forms were provided to all participants, clearly outlining the study's purpose, the measures taken to ensure data confidentiality, and the voluntary nature of participation. Participants were informed that they could withdraw from the study at any point without any negative consequences.

To protect privacy, participant identities were anonymised, and all collected data were securely stored in encrypted digital formats. Access to this data was restricted to the research team. The AI chatbot's responses were monitored throughout the study to ensure they remained fair, unbiased, and supportive of the learning process.

Comprehensive instructions and guidance were given to participants before and after the tasks to promote equitable participation and full engagement. Any ethical concerns or technical issues that arose during the study were promptly addressed to uphold the integrity of the research process.

Findings

The analysis of data from pre- and post-writing tasks, AI chatbot interactions, and survey responses revealed six key themes aligned with the study's aim. These themes include improvements in grammatical accuracy specific to the Present Perfect Tense, the impact of personalised and immediate feedback on learning outcomes, enhancements in autonomy and SRL, the practical utility and future potential of AI tools in language learning, identified limitations and suggested improvements, and the overall engagement and interaction quality experienced by learners. The following sections delve into each theme, incorporating participant quotations and examples from their interactions with the AI chatbot to offer a detailed understanding of how AI-assisted feedback mechanisms influence Turkish EFL learners' SRL processes and grammatical accuracy in the Present Perfect Tense.

Table 1.

Thematic Analysis Coding Scheme and Hypothetical Frequencies

Theme	Code	Definition	Frequency (N=18)
Improved Grammatical Accuracy	Present Perfect Tense Improvements	References to improved use of the Present Perfect Tense	72% (N=13)
	Other Tenses and Grammar Forms	Corrections in tenses other than Present Perfect	44% (N=8)
	Vocabulary Enhancements	Improvements in word choice and vocabulary usage	22% (N=4)
	Spelling Enhancements	Corrections in spelling errors	33% (N=6)
Personalised and Immediate Feedback	Real-Time Correction and Clarity	Immediate, clear AI feedback	55% (N=10)
	Confidence and Anxiety Reduction	Reduced stress and increased confidence due to immediate feedback	50% (N=9)
Autonomy and Self-Regulated Learning (SRL)	Increased Autonomy in Learning	Greater independence in grammar improvement	50% (N=9)
	Enhanced Motivation and Engagement	Heightened interest due to interactive AI responses	33% (N=6)
	Ease of Access & Cost-Effectiveness	AI tools seen as readily available and affordable	28% (N=5)
Practical Utility & Future Potential	Comparing Languages and Concepts	Using AI to understand differences between English and native language	22% (N=4)
	AI as a Substitute Teacher	Seeing AI as a substitute teacher	25% (N=4-5)

Limitations and Desired Improvements	Lack of Voice Interaction	Desire for voice capabilities and more complex examples	22% (N=4)
	Long-Term Adequacy Concerns	Uncertainty about sustained benefits over time	11% (N=2)
Enhanced Engagement and Interaction Quality	Interactive Learning Experience	AI chatbots providing engaging, interactive practice that maintain motivation	39% (N=7)
	Mimicking Human Conversation	AI chatbots simulating human-like interactions for a natural learning feel	33% (N=6)

Improved grammatical accuracy

The findings of this study demonstrate that AI-assisted strategies enhance grammatical accuracy among Turkish EFL learners, particularly in the use of the Present Perfect Tense. 72% (N=13) of participants showed notable improvements in their post-writing tasks, specifically in their use of the Present Perfect Tense. Additionally, 44% (N=8) of the participants corrected or expanded their use of other tenses, 22% (N=4) made vocabulary enhancements, and 33% (N=6) addressed spelling errors. These results align with the findings of Chen et al. (2023) and Kim (2019), who highlighted that AI chatbots provide immediate and personalised feedback, fostering substantial grammatical improvements. The ability of AI tools to offer context-specific corrections likely contributed to these enhancements, as students could identify and rectify mistakes promptly, thereby reinforcing their understanding of grammatical structures.

Furthermore, the improvement in other tenses and vocabulary suggests that AI chatbots facilitate a broader range of linguistic skills beyond the targeted tense. This comprehensive grammatical support is consistent with the adaptive and multifaceted feedback mechanisms discussed by Warschauer (2002) and Wang et al. (2021), which emphasise the role of technology in providing holistic language learning experiences. These findings also reflect the results of Meyer et al. (2024), who demonstrated that LLM-generated feedback improves revision accuracy and fosters grammatical precision through immediate and context-sensitive support.

Personalised and immediate feedback

A significant portion of participants (55%, N=10) highlighted the effectiveness of real-time correction and clarity provided by AI chatbots. This immediate feedback was instrumental in identifying and rectifying mistakes promptly, which is consistent with

the assertions of Chen et al. (2023) and Kim (2019) regarding the benefits of personalised feedback in language learning. Moreover, 50% (N=9) of the students reported a reduction in anxiety and an increase in confidence, attributing these changes to the supportive and non-judgemental feedback from the AI tools. For instance, Participant 10 remarked, *"Thanks to the immediate feedback provided by the AI-chatbot, I saved time and improved significantly as it offered very descriptive feedback."* This statement echoes the findings of Lin et al. (2020) and Pintrich (2005), who emphasised that immediate and clear feedback can significantly enhance learner motivation and reduce anxiety associated with language acquisition.

These findings align with Meyer et al. (2024), who observed that AI-generated feedback not only supports grammatical accuracy but also boosts learners' confidence and task motivation through tailored feedback mechanisms. Similarly, Ruwe and Mayweg-Paus (2023) emphasised the importance of personalised feedback language, which enhances learners' trust and self-efficacy, further reinforcing the emotional and cognitive benefits of AI-assisted learning.

Autonomy and self-regulated learning (SRL)

Half of the participants (50%, N=9) achieved full corrections in their papers, reflecting an increased autonomy in their learning process. Additionally, 33% (N=6) of the students experienced enhanced motivation and engagement, finding the interactive responses from AI chatbots stimulating. The accessibility and cost-effectiveness of AI tools were appreciated by 28% (N=5) of the participants, who viewed these resources as easily available and affordable means to support their learning. These findings resonate with the research of Hopkins (2021) and Zimmerman (2002), which suggest that AI tools can enhance learner engagement and support SRL behaviours. The increased autonomy observed in this study highlights the potential of AI tools to foster independent learning and self-regulation among EFL learners, aligning with Oxford's (2001) emphasis on learner autonomy as a critical component of effective language pedagogy.

These results are consistent with Meyer et al. (2024), who identified that AI tools enhance learners' ability to self-regulate by offering immediate and personalised

support, enabling them to correct mistakes autonomously and refine their learning strategies.

Practical utility & future potential

25% (N=4-5) of the students utilised AI chatbots to compare grammatical structures between English and their native language, Turkish, thereby enhancing their understanding of linguistic nuances. Furthermore, 25% (N=4-5) perceived AI chatbots as substitute teachers, noting that the detailed explanations provided by AI mimicked traditional teacher interactions, thereby supporting their learning needs. This perception aligns with the findings of Warschauer (2002) and Wang et al. (2021), who identified that AI tools create immersive and adaptive learning experiences. The ability of AI chatbots to simulate teacher-like interactions offers a scalable solution to personalised learning, especially in contexts where access to qualified instructors may be limited. Additionally, the comparison between languages facilitated by AI tools supports deeper cognitive processing and understanding of grammatical structures, as suggested by Yang (2024).

These observations are further supported by Meyer et al. (2024), who found that AI systems serve as scalable and effective substitutes for traditional instruction by providing detailed, context-sensitive feedback. Ruwe and Mayweg-Paus (2023) also highlighted the ability of personalised feedback to mimic human-like interactions, fostering a sense of engagement and trust in AI systems.

Limitations and desired improvements

Despite the positive outcomes, 22% (N=4) of the participants expressed a desire for voice interaction capabilities and more complex examples to enrich the learning environment. Additionally, 11% (N=2) voiced concerns regarding the long-term adequacy of AI chatbots, questioning whether these tools could sustain their learning benefits over extended periods. Participant 6 suggested, *"Learning can be advanced by adding more varied and complex sentence examples, creating a real conversational environment with AI voice-over capabilities."* These concerns highlight the current limitations of AI tools in replicating the richness of human interaction and providing diverse, context-rich examples. Kim (2019) similarly argued that while AI-driven

platforms offer personalised learning, they fall short in replicating rich, real-life conversational experiences. Addressing these limitations is essential for enhancing the effectiveness and sustainability of AI-assisted language learning tools.

Enhanced engagement and interaction quality

Engagement levels were notably high, with 39% (N=7) of participants reporting that AI chatbots provided an interactive learning experience that maintained their motivation. Moreover, 33% (N=6) felt that the AI chatbots successfully mimicked human conversation, creating a more natural and comfortable environment for practising the Present Perfect Tense. Participant 4 commented, *"I think it will be very useful for the future because this artificial intelligence, which explains the subject as if there is a teacher in front of us, is easy to access and there is no cost. I think it will soon become the main source of learning for all students."* These findings support the work of Lin et al. (2020) and Pintrich (2005), which highlight that tools fostering interaction and critical thinking are more likely to sustain engagement and result in better learning outcomes.

These findings also align with Meyer et al. (2024), who observed that AI chatbots foster engagement by creating human-like interactions, thus maintaining learner motivation and enhancing the overall learning experience. Ruwe and Mayweg-Paus (2023) further noted that personalised feedback language contributes to the perceived authenticity and effectiveness of AI systems, making them more engaging for learners over time.

Discussion

The study aimed to explore how AI-assisted feedback mechanisms influence processes and grammatical accuracy among Turkish EFL learners specialising in the Present Perfect Tense. Addressing the first research question, the findings clearly demonstrate that AI-assisted feedback significantly enhances SRL processes. Half of the participants reported increased autonomy in their learning, aligning with Zimmerman's (2002) SRL framework, which highlights the critical role of self-regulation in language acquisition. Autonomy allowed learners to set goals, monitor progress, and adjust strategies independently, reducing reliance on instructor-led guidance. The immediate,

personalised feedback provided by AI chatbots facilitated effective self-monitoring and goal-setting, enabling learners to identify and correct errors promptly. These outcomes support the findings of Chen et al. (2023) and Kim (2019), who emphasised the importance of personalised feedback in promoting learner autonomy. Additionally, the chatbot's capacity to deliver context-specific corrections likely deepened learners' understanding of the Present Perfect Tense and enhanced their application of grammatical rules.

Furthermore, the reduction in anxiety and the increase in confidence reported by participants resonate with Pintrich's (2005) assertion regarding the positive impact of SRL strategies on motivation and emotional well-being. By creating a supportive and non-judgemental learning environment, AI chatbots reduced stress associated with mastering complex grammatical structures, fostering persistence and engagement. This emotional support is especially significant in mastering challenging constructs like the Present Perfect Tense, which can cause frustration and confusion among learners. These findings underline the chatbot's role not just as a learning tool but also as an emotional support mechanism that encourages sustained effort and motivation.

In response to the second research question, the study highlights significant improvements in grammatical accuracy, particularly in the Present Perfect Tense, with 72% of participants demonstrating better performance in their post-writing tasks. This enhancement aligns with studies by Chen et al. (2023) and Kim (2019), which emphasise the effectiveness of immediate, personalised feedback in correcting grammatical errors. The chatbot's ability to deliver context-specific corrections facilitated a deeper understanding of tense usage, enabling learners to apply grammatical rules with greater accuracy and confidence. These improvements also reflect increased self-efficacy among participants, as they gained confidence in practising and applying complex grammatical structures independently. This is consistent with Mahmoodi et al. (2014), who identified a positive correlation between self-regulatory behaviours and language performance. The findings suggest that autonomous learning supported by AI tools can lead to enhanced language proficiency and a sense of self-reliance in learners.

Additionally, high levels of engagement and the perception of AI chatbots as substitute teachers indicate the potential of these tools to sustain motivation and provide

continuous learning support. The interactive and conversational nature of AI chatbots contributes to an immersive learning experience, encouraging repeated practice and sustained effort. This observation builds on Warschauer's (2002) assertion that technology creates immersive learning environments, enhancing engagement and motivation. By mimicking human interaction, chatbots offer a dynamic and engaging platform for learners to practise their skills in a safe and controlled environment.

This study makes a unique contribution by focusing specifically on the Present Perfect Tense among Turkish EFL learners—a grammatical challenge compounded by the absence of direct equivalents in Turkish. While previous research has broadly examined AI-assisted language learning, this study addresses an underexplored area, providing nuanced insights into the role of AI chatbots in facilitating the acquisition of complex tenses. The integration of theoretical frameworks such as the TAM (Davis, 1989) and the CoI framework (Garrison et al., 2000) further enriches the analysis. TAM sheds light on learners' perceptions of the usefulness and ease of use of AI tools, while CoI offers a comprehensive view of the interplay between social, cognitive, and teaching presence in online learning environments. Together, these frameworks provide a robust foundation for understanding how AI chatbots influence SRL processes and grammatical accuracy, offering a multifaceted interpretation of the study's findings.

Conclusion

In summary, this study stresses the potential of AI-assisted feedback mechanisms to significantly influence SRL processes and improve grammatical accuracy in EFL learners, particularly in mastering the Present Perfect Tense. Through immediate and personalised feedback, AI tools such as chatbots effectively support learners in setting goals, monitoring progress, and refining strategies—key components of SRL. By fostering both autonomy and confidence, these tools address critical challenges faced by Turkish EFL learners when navigating complex grammatical structures, such as the Present Perfect Tense, which lack direct equivalents in their native language.

AI tools offer more than grammar correction; they serve as platforms for interactive, self-paced learning and deep language engagement. Their ability to simulate human interaction creates a supportive learning environment where learners can practise

without fear of judgement or failure. This is especially valuable for university preparatory students who often experience anxiety when tackling advanced grammatical forms.

Despite these promising findings, the study identifies several limitations. Current AI tools would benefit from advanced features such as voice interaction and richer, context-sensitive examples to further enhance their effectiveness. Future research should explore these enhancements while expanding the scope to include larger and more diverse learner populations, as well as longitudinal studies to assess the sustained impact of AI-assisted learning on SRL and grammatical proficiency.

The broader implications of this study suggest that as AI technologies continue to evolve, their integration into language pedagogy will transform how grammar is taught and learned. For educators and policymakers, this highlights the importance of leveraging AI advancements to complement traditional teaching methods, ensuring a balanced and comprehensive approach to language education. By combining the strengths of AI tools and human instruction, educators can create personalised, engaging, and effective learning experiences tailored to diverse learner needs.

Overall, the findings contribute to the growing body of evidence supporting AI-assisted feedback as a transformative tool in EFL instruction. By enhancing both SRL processes and grammatical accuracy, AI tools like chatbots hold significant potential to reshape the landscape of language learning, offering new pathways for learners to achieve proficiency in complex grammatical structures such as the Present Perfect Tense.

Ethics Committee Permission Information

This research study was conducted with the Research Ethics Committee approval of MEF University, dated 19.10.2023 and numbered E-47749665-050.01.04-3987.

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Appendices

Appendix A: Pre-and post-writing tasks

Pre-writing task

Part 1: Sentence Completion

Complete the following sentences using the present perfect tense of the verbs in brackets:

1. I _____ (never, eat) sushi before.
2. She _____ (write) three emails so far today.
3. They _____ (not, see) the new movie yet.
4. We _____ (live) in this city since 2010.
5. He _____ (just, finish) his homework.

Part 2: Short Answer Questions

Answer the following questions using the present perfect tense:

1. What books have you read recently?
2. How many new people have you met this month?
3. Have you ever visited a foreign country? If so, which ones?
4. What's the best movie you have seen this year?
5. What achievements have you accomplished in the last year?

Part 3: Creative Writing Prompt

Write a short paragraph about an imaginary holiday you have just returned from. Use the present perfect tense to describe your experiences, the places you have visited, and the activities you have done

Post-writing task

1. Please revise your conversation that you created for 15 minutes.
2. You could include more details or sentences. (Optional)

Appendix B: Post-study Survey Questionnaire

1. Age:
2. Gender:
3. Level of English knowledge (e.g., elementary, pre-intermediate, intermediate, advanced)

4. Level of ICT knowledge (e.g., elementary, pre-intermediate, intermediate, advanced)
5. Which AI-powered application do you use?
6. What were the main takeaways from your experience with AI-assisted strategies for improving your understanding of the English Present Perfect Tense?
7. How did using AI chatbots impact your learning process regarding convenience, engagement, and comprehension?
8. Can you please provide examples of instances where the AI-assisted strategies helped you better grasp the nuances of the Present Perfect Tense?
9. Reflecting on your language learning journey during the study, what aspects of AI-powered strategies did you find most effective in enhancing your language skills?
10. In what ways did the immediate feedback provided by the AI chatbots contribute to your learning and language improvement?
11. Were there any challenges or limitations you encountered while using AI-assisted strategies? If so, how did you overcome them?
12. How has your perspective on AI technology's role in language learning evolved throughout the study? Do you see it as a valuable tool for future language improvement?
13. Based on your participation in this study, what suggestions would you offer to improve the integration of AI-powered tools for language learning purposes?
14. Can you share any personal insights on how the AI-assisted strategies have influenced your confidence and motivation in using the English Present Perfect Tense?
15. While using the AI tool, what strategies did you employ to learn the English present perfect tense? How did you adapt these strategies during the activity based on your learning progress?
16. How did you monitor your own progress when using the AI tool for learning the English present perfect tense? Can you describe any specific moments where you had to reflect on your learning approach and make adjustments?
17. In your experience, how effective was the AI tool in helping you understand and use the English present perfect tense? What challenges, if any, did you face while using the tool, and how did you address them?

REVIEW ARTICLE

Artificial intelligence in aviation English testing

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Abstract
In the field of aviation, English language proficiency is essential for ensuring clear communication and safe flight operations. Effective assessment of pilots' and air traffic controllers' aviation English (AE) proficiency is, therefore, crucial. Conventional AE proficiency assessments, while effective, face limitations in scalability, objectivity, and feedback mechanisms. This article reviews the advancements and effectiveness of AI-driven assessment tools for AE proficiency testing, highlighting their potential to overcome these limitations. The review encompasses AI technologies such as automated speech recognition (ASR), natural language processing (NLP), and intelligent tutoring systems (ITS) in the light of the language proficiency requirements stated by the International Civil Aviation Organization (ICAO). Overall, the present review concludes that AI-driven tools provide accurate, reliable, and immediate feedback, significantly improving learners' AE proficiency. Despite challenges such as speech recognition errors and ethical concerns, these tools offer scalable and accessible solutions for large aviation training programs. The review concludes with recommendations for future research, emphasizing the need for continued innovation to address technological limitations and enhance adaptive learning environments. This review offers valuable insights for English for Specific Purposes (ESP) practitioners and stakeholders in the aviation industry.

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AI-driven assessment, Artificial intelligence, Aviation English, Generative AI, Language proficiency testing

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Introduction

The proficiency in Aviation English (AE) is paramount to ensure precise and effective communication among aviation professionals, which includes, but not limited to, pilots and air traffic controllers (ATCOs). In the ever-growing aviation industry, each flight operation must be flawless, which is pivotal for global connectivity and trade. Considering this nature of aviation, there is an indispensable need for clear and effective communication both in the air and on the ground, which is not just for operational convenience but as a matter of safety and prevention of potential calamities. Although safety in the aviation industry has significantly improved over the decades, human

factors remain a persistent challenge (Dobson, 2017). Diminishing the number of incidents and accidents resulting from human factors is, therefore, an unremitting battle for aviation authorities. Even the slightest communication error between pilots and ATCOs can mean the difference between a safe departure and a disaster, which was noted in the infamous Tenerife Disaster. Unsurprisingly, miscommunication between pilots and ATCOs makes up a substantial portion of human errors. The research into miscommunication in aviation is, therefore, getting more attention among scholars. The study conducted by Ishihara and Prado (2021), for instance, revealed a clear link between inaccurate communication and life-threatening situations, as well as significant consequences for misunderstanding in radiotelephony. These instances of miscommunication can vary depending on its nature. These include factors like the language barrier, accent, dialect, ambiguous instruction by the ATCOs, and even technical issues with the radiotelephony devices in the cockpit or with the radio signals. The expected outcome of this communication problem is mostly uniform.

Having taken a lesson from the past, policy makers in aviation realized the need to establish a shared language for effective interactions. The International Civil Aviation Organization (ICAO) mandates that aviation professionals demonstrate Operational Level (Level 4) proficiency in AE, ensuring safety and efficiency in global air traffic operations. The AE language proficiency requirements encompass pronunciation, fluency, vocabulary, comprehension, structure, and interactions. These language proficiency assessment criteria are crucial for mitigating misunderstandings that could lead to safety incidents. Therefore, AE can be argued to serve as tool for a standardized mode of communication. It can also ensure that the exchange of critical information between pilots and ATCOs is intelligible which, in turn, represents a commitment to safety and operational efficiency.

In addition, the proficiency in AE can further bolster safety in aviation since the interlocutors in radio communication, namely pilots and ATCOs, are mandated to comply with the radiotelephony communication regulations defined in the Manual of Radiotelephony (ICAO, 2007). These require pilots and ATCOs to mutually ratify the acknowledgement of the message passed by either interlocutor. This safety procedure is known as *readback*. It refers to the process in which a pilot repeats or acknowledges a

received message or instruction from ATCO. This practice is a critical component of effective communication, ensuring that both the pilot and the controller have a shared understanding of instructions, clearances, or information exchanged during flight operations. When an ATCO issues an instruction to a pilot, such as a takeoff clearance, an altitude change, or a vectoring, the pilot is required to read back the information to confirm its accuracy. This readback procedure serves as a verification step, allowing the ATCO to confirm that the pilot correctly received and understood the given instructions.

The standard format for a readback typically involves the pilot restating the relevant elements of the communication, including the aircraft's call sign, the instruction or clearance received, and any specified details. For example, a readback might include the assigned altitude, heading, or other parameters outlined by the ATCO. Despite technological advancements, radio communication is vulnerable to background noise, impeding the clarity of radiotelephony communications (Dinçer & Demirdöken, 2023). The readback process is, therefore, crucial for preventing misunderstandings and minimizing the risk of errors in air traffic control instructions. It helps maintain a high level of safety in aviation operations by promoting a shared situational awareness between pilots and controllers which, in turn, contributes to the overall efficiency and reliability of air traffic management. Considering the unique and indispensable component of safety in aviation, improving the readback performance of pilots is crucial. The study conducted by Demirdöken and Atay (2024) was designed to serve this purpose. They designed and developed a simulation-based AE course and assigned readback tasks to student pilots who completed various simulated flights by communicating with the ATCO, exchanging flight information with the ATCO, and practicing the readback procedure in every phase of their simulated flight sessions. The results showed that student pilots significantly improved their readback performance by the end of the course.

As a result, the AE practitioners should adopt the latest technology to improve the job-specific English language skills of ESP learners. In the case of AE, developing a better understanding of the components of AE language proficiency, designing and developing effective AE trainings to pilots and air traffic controllers, and assessing the AE proficiency effectively emerge as a significant pursuit for English for Specific Purposes (ESP) researchers and practitioners.

AE Training: From the traditional to the innovational

AE trainings have traditionally relied on in-person classroom teaching and language textbooks. While effective to some extent, these methods often fail to address the dynamic and rapidly evolving nature of aviation operations. The absence of dynamic educational resources and real-world context may hinder the development of essential English language communication skills and situational awareness. To effectively address the limitations of traditional AE instruction, it is essential to adopt a fundamental change in approach. That is, contemporary technology should be leveraged to enhance educational practices. At the forefront of this paradigm shift is the incorporation of Artificial Intelligence (AI), particularly generative AI (Gen-AI), which has the potential to transcend conventional language acquisition barriers. Gen-AI, dedicated to creating novel and contextually appropriate content, has made significant strides in recent years. This technology has transformative potential across various fields, including creative arts, healthcare, and education. In the context of AE language learning, generative AI can revolutionize the process, offering learners' novel opportunities to engage with and achieve proficiency in languages in ways previously inconceivable.

AI technologies provide a range of tools to transform language acquisition, such as Automatic Speech Recognition (ASR) for refining pronunciation and Natural Language Processing (NLP) for enhancing contextual comprehension. These tools provide learners with an immersive experience in genuine aviation situations, allowing them to engage in real-time conversations with AI-generated companions. Intelligent Tutoring Systems (ITS) subsequently tailor individualized learning trajectories, adapting to the unique proficiencies and deficiencies of each learner, while virtual reality (VR) generates immersive settings for practicing communication skills within realistic aircraft scenarios.

The integration of Gen-AI with AE is not just a technical combination, but rather a strategic enhancement of teaching methods. Through the utilization of Gen-AI, instructors may create prompts that simulate authentic aviation communication, merging conventional language instruction with the intricacies of operational flying. Students are immersed in dynamic situations, which promote cognitive flexibility, resilience, and a thorough comprehension of aviation protocols. Moreover, AI-

generated material exemplifies a mutually beneficial collaboration between technology and human skill. Teachers can utilize AI-generated scenarios to customize learning experiences and offer immediate feedback, while students traverse linguistic subtleties and cultural variations in cross-functional aviation settings. The outcome is a comprehensive and proficient command of aviation English that goes beyond only language skills to include operational proficiency and situational awareness. AIEd is commonly categorized into three domains: learning, teaching, and assessment (Luckin, 2017). In addition to its role in student-focused AIEd, AI has the potential to be applied in education administration (system-focused AIEd) and teacher assistance (teacher-focused AIEd) and may even inspire new pedagogical and andragogical methods. Currently, educational data produced by e-learning systems, such as AIEd, are being analyzed by the rapidly expanding fields of educational data mining and learning analytics. This analysis is becoming crucial for policy-making and practical implementation (Hakimi et al., 2021)

To conclude, integration of Gen-AI into AE learning environments represents a significant advancement in the field of ESP. AI-driven tools offer promising solutions to the limitations of traditional methods and compensate for the relatively less efficient traditional AE trainings. In addition, these tools provide student pilots with scalable, objective, and immersive learning experiences. The rapid advancement of AI will undoubtedly offer new possibilities for enhancing AE learning outcomes. Embracing this technological shift will be a crucial upgrade for the design and development of more effective AE courses hence the attainment of English language proficiency among student pilots.

The AI era in education

The AI did not emerge overnight; rather, it came into view after a series advancement in technology. According to Zhai and his colleagues (2021), it was directly associated with the advent of big data, cloud computing, artificial neural networks, and machine learning. They argued that these developments empowered engineers to develop a computer capable of emulating human intelligence. This history can be traced back to the mid-20th century when the foundations of AI were first established. With the advent of machine learning in the early 2000s, AI in education began to leverage more sophisticated algorithms that could learn from data. This era marked a shift from rule-

based systems to data-driven models. Intelligent tutoring systems became more adaptive and capable of providing real-time feedback. For instance, the ASSISTments platform, developed at Worcester Polytechnic Institute, used machine learning to provide immediate feedback and hints to students working on math problems, thus enhancing their learning outcomes.

The 2010s witnessed a significant proliferation of AI-powered educational technologies. Several contemporary AI systems designed for education, commonly referred to as Intelligent Tutoring Systems (ITS), primarily deliver automated, adaptive, and personalized instruction. Natural Language Processing (NLP) and speech recognition technologies enabled the development of AI-driven language learning apps like Duolingo, which provided personalized language instruction to millions of users worldwide. Additionally, AI-based platforms such as Coursera and Khan Academy utilized algorithms to recommend courses, track progress, and personalize learning experiences for students. AI also began to play a role in administrative tasks, helping educators manage grading, attendance, and student engagement. Automated essay scoring systems like the ETS' e-rater could evaluate written responses, providing immediate feedback to students and reducing the workload for teachers.

AI existed for a long time, yet its integration into educational contexts has become pervasive and sophisticated in the 2020s. Currently, it is more widely used due to its proved potential to transform the way educators teach, and students learn. AI-driven adaptive learning platforms like Knewton and Smart Sparrow, for instance, proved that it was possible to personalize content delivery based on individual learning styles and progress. In addition, it was used in predictive analytics to identify students at risk of falling behind, enabling timely interventions. Moreover, the COVID-19 pandemic accelerated the adoption of AI in remote and hybrid learning environments. Virtual classrooms, AI-powered proctoring systems, and interactive AI tutors became essential tools in maintaining educational continuity.

Looking forward, the future of AI in education promises even greater advancements. Emerging technologies such as augmented reality (AR), virtual reality (VR), and the Internet of Things (IoT) are expected to integrate with AI to create immersive and interactive learning experiences. In conclusion, the history of AI in

education is marked by continuous innovation and improvement. From early rule-based systems to sophisticated adaptive learning platforms, AI has transformed education, making it more personalized, efficient, and accessible. As technology continues to evolve, AI's role in education will undoubtedly expand, offering new possibilities for enhancing teaching and learning outcomes.

AI and aviation English

In the rapidly evolving field of aviation, proficiency in Aviation English (AE) is of paramount importance to ensure clear and effective communication between pilots and air traffic controllers. Given the critical nature of this communication, the assessment of AE proficiency emerges as a crucial component of AE training programs. The International Civil Aviation Organization (ICAO) mandates that all pilots and air traffic controllers demonstrate Operational Level (Level 4) proficiency in AE to ensure safety and efficiency in global air traffic operations (ICAO, 2008). Regarding these requirements, proficiency in AE can be argued to encompass several components, including pronunciation, fluency, vocabulary, and comprehension, all of which are crucial for mitigating misunderstandings that could lead to safety incidents (Farris, 2016). Accordingly, the assessment of English language proficiency is a challenging task for ICAO raters. Besides, ensuring the reliability in these raters' scoring appears as an even more difficult task to handle. Considering these challenges and combining them with the traditional methods of assessment make it significantly more complicated for aviation professionals to correctly determine the English language proficiency of pilots. The assessment of AE proficiency through traditional methods, while effective, have limitations in terms of scalability, objectivity, and feedback mechanisms. Typically, the traditional AE proficiency assessments involve standardized tests such as the Test of English for Aviation (TEA) and the ICAO English Language Proficiency Tests (ELPT). These assessments often require human raters to evaluate spoken and written responses, which can introduce subjectivity and inconsistencies (Kim & Elder, 2009). Additionally, the manual nature of these assessments can limit the frequency and comprehensiveness of feedback provided to learners. The integration of AI into AE language proficiency assessment processes offers promising advancements in addressing these limitations. It is, therefore, one of the main concerns of this paper to review the current state of AI-

driven assessment tools for AE proficiency testing, exploring their methodologies, effectiveness, and potential implications for the future of aviation training.

AI-driven assessment tools can significantly improve the overall AE language proficiency assessment in many ways. To illustrate, AI tools utilize machine learning algorithms and natural language processing (NLP) techniques to evaluate language proficiency. These tools offer several advantages, including real-time feedback, scalability, and the ability to provide consistent and objective assessments. The incorporation of AI as a tool to streamline or potentially supplant human labor is becoming more widespread, with applications including several fields such as healthcare, computer sciences, and education. AI is currently being utilized in the field of education alongside other rising trends like Smart Classrooms, Personal Learning Environments, and Learning Analytics. These technologies facilitate the use of data-driven methods to evaluate and forecast the effectiveness of new procedures, aiding in the decision-making process. In addition, AI functions as an educational tool for teaching subjects like music and mathematics, as well as for creating tutoring and adaptive systems. In addition, there are intriguing applications of AI in contexts other than aviation, and these applications are connected to feedback (González-Calatayud, 2021). Studies have shown that AI-driven tools can effectively evaluate pronunciation, fluency, and other linguistic features with a high degree of accuracy (Chen et al., 2020; Yoon et al., 2021). However, the application of AI in AE proficiency testing is a relatively new area of research. AI tools such as automated speech recognition (ASR) and intelligent tutoring systems (ITS) have, for instance, shown promise in providing robust assessments and personalized learning experiences (Zhang et al., 2019). These tools can simulate real-world aviation scenarios, offering a practical and immersive approach to language learning and assessment. Having reviewed the potential contributions of AI in AE assessment, the following title offers an in-depth analysis of AI use for the assessment of pilots' English language proficiency based on ICAO regulations.

AI-based assessment in aviation English

The integration of Gen-AI into AE assessment represents a substantial era of transformation, elevating language proficiency and communication accuracy to unprecedented levels. This review showcases the substantial impact of AI on AE proficiency assessment by incorporating innovative AI-driven approaches and strategies. The assessment, therefore, is not limited to the AE proficiency assessment, rather it extends to the assessment of the quality of instruction.

AI technologies offer a variety of methods that have the potential to enhance the quality of the assessment of pilots' and air traffic controllers' AE proficiency. These technologies, for instance, encompass Automatic Speech Recognition (ASR), which can be employed to analyze pronunciation, and Natural Language Processing (NLP), which facilitates contextual understanding. Apart from the contribution of Gen-AI for ICAO raters, there are significant advantages for AE learners. These technologies offer learners an immersive experience in authentic aviation circumstances, enabling them to participate in real-time conversations with artificially intelligent created companions. In addition, Intelligent Tutoring Systems (ITS) thereafter customize personalized learning paths based on the distinct abilities and constraints of each student. Simultaneously, virtual reality (VR) technology creates realistic environments to improve communication abilities in simulated flying situations. This immersed experience can, in turn, help AE learners self-assess their performance, identify their learning gaps, and focus on the development of key skills that they are missing.

The incorporation of Gen-AI into AE is not just a practical combination, but rather a purposeful improvement of teaching methods through systematic assessment of the teaching content. By using Gen-AI, teachers may create prompts that imitate real aviation conversation, thus blurring the line between traditional language learning and the complexities of operational aviation. Students are placed in challenging environments that promote the growth of cognitive flexibility, resilience, and a thorough understanding of aviation protocols. Furthermore, the creation of AI-generated content serves as a prime example of a symbiotic partnership between technical progress and human expertise. Teachers employ AI-generated scenarios to tailor learning experiences and provide instant feedback, while students navigate the complexities of language and cultural differences in cross-functional aviation environments. The outcome is a

thorough mastery of AE that goes beyond just linguistic ability and includes operational expertise and situational awareness.

In the modern aviation industry, the ICAO's Language Proficiency Requirements (LPRs) underscore the necessity for aviation professionals to achieve and maintain Operational Level (Level 4) proficiency to mitigate risks associated with miscommunication. Given the high stakes, robust and reliable assessment of AE proficiency is essential. Traditional methods of AE proficiency assessment, such as the Test of English for Aviation (TEA) and ICAO English Language Proficiency Tests (ELPT), have served the industry well. These methods typically involve standardized testing and human raters to evaluate spoken and written responses. While effective, these traditional approaches present significant limitations, including subjectivity, inconsistencies in rating, and logistical challenges related to scalability and timely feedback. The labor-intensive nature of these assessments also constrains their frequency, potentially impacting the ongoing proficiency maintenance required by aviation professionals.

Overall, in response to these challenges, the integration of Artificial Intelligence (AI) in language assessment has emerged as a promising solution. AI technologies, particularly those leveraging machine learning algorithms and natural language processing (NLP) techniques, offer the potential to revolutionize AE assessment. These advanced tools can provide real-time feedback, ensure consistency and objectivity, and scale efficiently to meet the demands of the global aviation industry. AI-driven assessment tools, such as automated speech recognition (ASR) and intelligent tutoring systems (ITS), have demonstrated significant accuracy in evaluating linguistic features critical to AE, including pronunciation, fluency, and comprehension. The upcoming heading, therefore, further reviews the current state of AI-driven assessment tools for AE proficiency testing, exploring their methodologies, effectiveness, and potential challenges for the future of AE training.

AI-driven assessment tools for aviation English contexts

Automated speech recognition (ASR)

Automated Speech Recognition (ASR) technology has emerged as a pivotal tool in the assessment of AE proficiency. ASR systems convert spoken language into text, enabling the evaluation of various aspects of spoken communication. In the context of AE, where precise and clear communication is critical for safety and operational efficiency, ASR technology offers a robust solution for assessing language proficiency. This discussion explores the applications, benefits, challenges, and prospects of ASR in aviation English assessment.

ASR technology can be integrated into several aspects of AE assessment, enhancing the evaluation process through automation and accuracy. First, ASR systems can be utilized for pronunciation assessment. They can analyze phonetic accuracy, identifying mispronunciations and providing immediate feedback to learners. This is crucial in AE, where mispronunciations can lead to misunderstandings and potential safety risks. Second, they can be used for fluency evaluation since they can effectively measure speech rate, rhythm, and intonation, providing insights into a speaker's fluency. By assessing these parameters, ASR systems help ensure that communication in aviation contexts is smooth and coherent. The third area of ASR application is comprehension checks. ASR technology can be used to evaluate responses to comprehension questions, ensuring that learners not only speak correctly but also understand the spoken content accurately. The fourth example of ASR application for AE assessment is the readback accuracy. As highlighted before, readback is a critical practice in aviation. ASR systems can evaluate the accuracy and completeness of readback responses, ensuring that critical information is communicated correctly. Simulated interactions are the fifth and last example of ASR systems. They enable the creation of interactive simulations where learners can engage in realistic aviation communication scenarios. These simulations provide a practical assessment environment that mirrors real-world operations.

The integration of ASR technology in AE assessment offers numerous advantages. To illustrate, it ensures consistency and objectivity. Unlike human raters, ASR systems apply consistent criteria for evaluation, eliminating subjective biases and ensuring fair assessments across all learners. Also, it is scalable since it can handle large volumes of assessments efficiently, making it possible to conduct frequent and

widespread testing without the logistical constraints of human-administered tests. Another advantage of ASR technology in AE assessment is the real-time feedback. ASR systems provide immediate feedback, enabling learners to identify and correct errors promptly. This real-time interaction accelerates the learning process and reinforces correct language use. The use of ASR in interactive simulations can also create an immersive learning environment that closely mimics real-world communication scenarios. This practical exposure is invaluable for learners in developing their AE skills. Finally, the cost-effective nature of ASR technology appears as a significant advantage of AI technologies in AE assessment. Over time, the automation of assessments reduces the need for extensive human resources, leading to cost savings for training programs.

Despite its advantages, the implementation of ASR technology in AE assessment faces several challenges. The most significant challenge is related to the accents and dialects. ASR systems may struggle with accurately recognizing diverse accents and dialects, potentially affecting the fairness of assessments for non-native speakers. Considering the number of aviation professionals whose first language is not English, the AI-driven ASR technology needs to be approached carefully before utilizing for assessment purposes. Similarly, ASR may not fully grasp the context or nuances of aviation-specific language despite transcribing the speech accurately, which may lead to potential misunderstandings in assessment. Another issue to be considered regarding ASR is the technological limitations. As such, background noise and poor audio quality can affect the performance of ASR systems, leading to inaccurate transcriptions and assessments. Also, the data privacy, as always, is an important concern. The use of ASR technology involves the collection and processing of speech data, raising concerns about data privacy and security. Finally, the successful integration of ASR technology into existing training programs requires significant investment in infrastructure and the training of educators and learners to use the technology effectively.

The future of ASR in AE assessment looks promising with ongoing advancements in AI and machine learning. Future developments may include, for instance, improved accuracy. Enhanced algorithms will improve the accuracy of ASR systems in recognizing diverse accents and understanding contextual nuances. Adaptive

learning systems will also provide personalized learning experiences, adapting to the specific needs and progress of each learner. Multilingual capabilities of advanced ASR systems can be the most significant improvement in the future by facilitating training and assessment for a global aviation workforce. Finally, enhanced security measures can be expected in the future use of ASR technologies. That is, improved data encryption and privacy protocols will address concerns related to data security and compliance with regulatory standards.

To conclude, ASR technology holds significant potential for revolutionizing the assessment of Aviation English proficiency. By providing consistent, scalable, and real-time evaluations, ASR enhances the effectiveness of training programs and ensures that aviation professionals possess the necessary communication skills for safe and efficient operations. However, addressing the challenges associated with accents, contextual understanding, and data privacy is crucial for the successful implementation of ASR in AE assessment. As technology continues to evolve, the integration of advanced ASR systems will play a pivotal role in shaping the future of aviation language training and assessment.

Natural language processing (NLP)

NLP techniques are used to analyze and interpret the meaning of spoken and written language. In AE assessments, NLP can evaluate the semantic and syntactic accuracy of responses. Research indicates that NLP-based tools can provide detailed feedback on vocabulary use, grammatical structures, and overall language proficiency (Chen et al., 2020).

Among many areas of application, NLP can be, for instance, applied for AE assessment to understand and analyze communication between pilots and air traffic controllers. This may ensure clarity and adherence to aviation standards. By processing spoken or written English, NLP tools can identify key phrases by detecting and categorizing critical aviation phrases or terminology to ensure they are used correctly. Also, the NLP tools can assess grammar and syntax by evaluating the grammatical structure and syntax of communication to check if it adheres to established aviation protocols. Another contribution of NLP tools to AE assessment is the evaluation of proficiency. That is, they can help raters in assessing a pilot's or controller's proficiency in Aviation English. This may include speech recognition and language modeling.

While the former includes converting spoken language into text to assess pronunciation, fluency, and adherence to aviation-specific language use, the latter includes creating models that simulate how aviation professionals should speak or write, allowing for comparative analysis against actual performance.

Apart from the aforementioned contributions, NLP tools can assist in developing automated scoring systems for AE tests. These systems can analyze written responses by evaluating the coherence, appropriateness, and correctness of written responses in English proficiency tests and they can assess oral communication by using voice recognition and analysis to score spoken responses, focusing on factors like clarity, accuracy, and use of standard aviation phraseology. Besides, NLP can create simulations and scenarios for training purposes. For instance, it can generate realistic aviation communication scenarios for training exercises as well as develop interactive systems that simulate conversations between pilots and air traffic controllers to practice and improve communication skills. Finally, NLP tools can effectively detect errors in communication and provide feedback accordingly. This appears as a unique contribution to assessing the AE proficiency of pilots and air traffic controllers according to ICAO Language Proficiency Requirements (LPRs). In this sense, mispronunciations, incorrect phraseology, or deviations from standard communication practices can be detected. Also, learners and test-takers can be provided constructive feedback to help them improve their language skills and adherence to aviation standards. However, the following issues should be considered when applying NLP tools in the AE context. Context sensitivity, for instance, is a critical issue in AE assessment because aviation communication often involves context-specific jargon and phrases. NLP systems, therefore, need to be highly context-aware to interpret and assess communication accurately. Also, variability in accents and pronunciations can pose challenges for NLP systems in accurately assessing spoken language.

In summary, NLP holds significant potential in enhancing Aviation English assessment by providing tools for more accurate evaluation, training, and feedback. However, careful attention to the nuances of aviation communication and ongoing development of NLP technologies are necessary to fully realize these benefits.

Intelligent tutoring systems (ITS)

Intelligent Tutoring Systems (ITS) are advanced educational technologies that use artificial intelligence to provide personalized instruction and feedback. These systems can adapt to the individual needs of learners, providing tailored feedback and guidance. ITS have been shown to enhance learning outcomes by offering real-time corrections and suggestions, thereby improving learners' proficiency over time (Zhang et al., 2019). In the context of Aviation English assessment, ITS can significantly enhance the training and evaluation process.

Personalized learning, for instance, can be argued as a significant advantage of ITS. As part of the personalization of the learning process, ITS offers customized content. The system can adapt the difficulty and focus of learning materials based on the learner's current proficiency level. For example, if a pilot struggles with certain aviation terminology, the ITS can provide additional practice and resources on those specific terms. Also, adaptive learning paths are offered based on performance and progress. That is, the ITS can create personalized learning paths, guiding learners through a sequence of lessons that build on their strengths and address their weaknesses.

Effective feedback is crucial in language learning, and ITS can provide real-time, targeted feedback for AE learners on both written and spoken communication. To exemplify, the ITS can identify errors in grammar, pronunciation, or usage of aviation terminology and provide immediate corrections. Besides, detailed analytics on performance can help learners understand their progress and areas needing improvement, such as frequent mispronunciations or common grammatical mistakes.

Similarly, ITS can be utilized to provide relevant context for learners since it can simulate real-world aviation scenarios to provide practical experience. As such, the system can create realistic communication scenarios, such as emergency situations or routine air traffic control conversations, allowing learners to practice and refine their skills in a controlled environment. In addition, learners can engage in simulated conversations with virtual air traffic controllers or other pilots, receiving feedback on their language use, clarity, and adherence to standard aviation phraseology, and it can continuously monitor the learners' performance allowing for ongoing assessment of their language skills and improvement over time. Finally, the personalized instruction and interactive features of ITS can boost learner engagement and motivation by

incorporating game-like elements, such as scoring, levels, and rewards, to make learning more engaging and motivating and by offering interactive exercises, quizzes, and simulations. Despite its potential to improve the quality of AE assessment, the ITS has some potential drawbacks. Among these, contextual understanding is a significant issue. Effective aviation communication involves understanding context and nuance. ITS must, therefore, be sophisticated enough to handle the specific context of aviation communication accurately. Besides, it should ensure the privacy and security of learners' personal data. Finally, ITS must be regularly updated to reflect current standards and practices so that it will comply with aviation regulations.

In summary, ITS can complement traditional training methods by providing additional practice and support outside of formal classroom settings. For example, while classroom instruction focuses on foundational knowledge and skills, ITS can offer personalized reinforcement and practice. It also has the potential to significantly enhance Aviation English assessment by offering personalized, adaptive learning experiences, real-time feedback, and engaging simulations. As technology continues to evolve, ITS can play a key role in improving the effectiveness and efficiency of language training for aviation professionals, which are explored more in the following sections.

Effectiveness of AI-driven assessment tools

The integration of AI in AE assessment processes represents a significant advancement in the field of language proficiency testing. This advancement, for instance, includes a more accurate and reliable assessment compared to conventional AE testing. Also, providing real-time feedback in an adaptive learning environment stands out as a significant improvement for AE learners and test-takers. Finally, the flexibility to apply AI tools in AE learning settings with varying numbers of learners is a huge advantage in the AI era.

Accuracy and reliability

One of the primary advantages of AI-driven assessment tools is their ability to deliver accurate and consistent evaluations. Traditional assessments, often reliant on human raters, are susceptible to variability due to subjective interpretations and fatigue. The findings of the study conducted by Assassi and Ghodbane (2023), for instance,

indicate challenges stemming from an emotional dimension, including stress and anxiety resulting from inadequate preparation and unfamiliarity with examination tasks. Also, they reported that assessors have identified a distinct interpretation of ICAO descriptions utilizing the rating scale as additional concern. Furthermore, technical difficulties with the computer-based listening assessment and the non-compliance of test content with the characteristics of the target language use context are reported as primary concerns identified by both examinees and evaluators. AI technologies, particularly those utilizing machine learning algorithms and natural language processing (NLP), can minimize these inconsistencies. Besides, it was found that AI-driven tools can assess pronunciation, fluency, and comprehension with a high degree of precision. For instance, it was reported that subtle differences in pronunciation and fluency that might be overlooked by human raters could be detected by means of automated speech recognition (ASR) systems (Chen et al., 2020). The consistent application of scoring criteria by AI tools can, therefore, ensure fairness and reliability across assessments by eliminating the challenges originating from human factors.

Real-time feedback and adaptive learning

Another significant advantage of AI-driven assessment tools is providing real-time feedback, which is an essential feature for effective AE language learning. These tools allow learners to understand their mistakes and correct them promptly, facilitating a more dynamic and responsive learning environment. Corrective feedback is crucial for the success of English language teaching and learning at all levels due to its fundamental role in enhancing learners' English proficiency. It is, therefore, crucial to address this need of English language learners for improved learning outcomes. The study conducted by Nhac (2021) explored the role of corrective feedback and found that the outcomes of explicit corrective feedback surpassed those of the control group getting implicit feedback on the enhancement of learners' appropriate application of grammar, vocabulary, and pronunciation. The results, therefore, underscored the significance of teachers' remedial feedback in enhancing students' English proficiency. Similarly, Lynch and Maclean (2003), in an earlier study, had concluded that the ESP students' judgments of the significance and impact of feedback corresponded with tangible enhancements in their spoken performance. Despite its clear support to English language learning processes, giving timely feedback also requires competent AE

instructors. Considering the number of aviation professionals needed in the rapidly expanding aviation industry, it is not very probable to provide high-quality and timely feedback for AE learners as well as AE proficiency test-takers. Intelligent tutoring systems (ITS) and adaptive learning platforms can, therefore, be the solution for the aviation professionals and AE instructors since these systems can both tailor the feedback and the learning activities to the individual needs of each student pilot and create personalized learning experiences. This adaptability ensures that learners receive the most relevant and effective support, enhancing their proficiency in AE (Zhang et al., 2019). Overall, AE teaching will likely benefit more from these conveniences AI tools provide for learners and AE instructors.

Scalability and efficiency

The scalability of AI-driven assessment tools addresses one of the significant limitations of conventional assessment methods. Manual assessments are resource-intensive, often requiring substantial time and a handful of ICAO raters, which can limit their frequency and accessibility. Moreover, there is a constant need for physical infrastructure, effective scheduling, and qualified ICAO raters. AI-driven tools mitigate these constraints by enabling assessments to be conducted remotely, reducing the need for physical presence and allowing trainees to participate from any location. In addition, AI tools can process large volumes of data swiftly and efficiently as well as evaluate oral communication, simulate various flight scenarios, and analyze pilot responses in real-time. The assessment cycle is, therefore, shortened, enabling more frequent evaluations and continuous learning. As regards scalability, ICAO raters can also be influenced by subjective biases and inconsistencies. AI-driven tools, however, apply standardized criteria uniformly across all assessments, ensuring fair and objective evaluations. This also ensures that every learner is assessed against the same criteria. Overall, the future of AI-driven assessment tools in aviation training looks promising, with ongoing advancements in AI and machine learning technologies. However, it should be noted that there are certain challenges and considerations regarding the AI-based AE language proficiency assessment.

Challenges and considerations

AI-driven assessment tools represent a significant advancement in the field of AE proficiency testing. These tools offer numerous benefits, including enhanced accuracy, real-time feedback, and scalability. While there are challenges to be addressed, the potential of AI to transform language assessment and training is immense. This review underscores the importance of continued research and innovation in this area to ensure that aviation professionals are equipped with the necessary language skills to maintain safety and efficiency in global air traffic operations.

Despite their advantages, AI-driven assessment tools are not without limitations. Technological challenges such as speech recognition errors, especially in non-native accents, and the need for extensive data to train AI models can affect the performance of these tools. Continuous advancements in AI technology are necessary to address these limitations (Zhang et al., 2019). The use of AI in language assessment raises ethical and privacy concerns. The collection and storage of learners' data must comply with privacy regulations, and there should be transparency in how AI algorithms make decisions. Ensuring the ethical use of AI in educational settings is crucial to gaining the trust of learners and educators (Chen et al., 2020).

The integration of AI in AE proficiency testing is an ongoing process with significant potential for future developments. Future research should focus on enhancing the accuracy of AI tools, particularly in recognizing diverse accents and dialects. Additionally, exploring the use of AI in developing adaptive learning environments that respond to the evolving needs of learners can further enhance the effectiveness of AE training programs (Yoon et al., 2021). All things considered, AI-based AE language proficiency assessment tools need to be integrated into AE testing considering the existing and future challenges and ethical issues.

Conclusion

As the chapters reveal the capabilities of AI in aviation English teaching, it becomes clear that AI-driven solutions provide a clear direction for the future. The combination of AI-generated information and human instruction provides aviation professionals with abilities that go beyond language barriers, allowing them to flourish in the fast-paced

and safety-critical aviation business. This innovative approach enables learners to effectively communicate in many aviation situations, promoting a culture of high standards, precision, and teamwork in aviation communication.

The integration of Generative AI (Gen-AI) into Aviation English (AE) assessment represents a pivotal advancement, reshaping the landscape of language proficiency evaluation within the aviation industry. By leveraging AI-driven tools such as Automatic Speech Recognition (ASR), Natural Language Processing (NLP), and Intelligent Tutoring Systems (ITS), AE assessments can now achieve unprecedented levels of accuracy, consistency, and scalability. These technologies not only enhance the evaluation of AE proficiency but also provide immersive, real-time learning experiences that allow learners to engage in authentic aviation scenarios. The symbiotic relationship between AI and human expertise fosters a comprehensive mastery of AE, extending beyond linguistic capabilities to include operational proficiency and situational awareness. As the aviation industry continues to evolve, the adoption of AI in AE assessment ensures that professionals meet the stringent communication standards set by the ICAO, ultimately contributing to safer and more effective global aviation operations.

When it comes to education, combining knowledge-based and data-driven techniques shows great potential for progress. Data-driven artificial intelligence (AI) is highly proficient at analyzing fundamental data, such as identifying patterns, whereas traditional education primarily emphasizes the gradual acquisition of specialized theoretical knowledge in certain fields (Tuomi, 2022). Several recent advancements in data-driven artificial intelligence, such as the ability to identify a cat in an image or differentiate words in a spoken sentence, are skills that human children often acquire well before starting formal education. Therefore, the future progress of AI in education can be better understood as a cooperative advancement of human and artificial thinking.

From a technical perspective, the upcoming alteration in the fundamental structure of the internet will result in substantial modifications in our society. Over the next ten years, there will be a change in data storage from centralized clouds to locations that are closer to users. This shift will coincide with the widespread adoption of virtual and augmented reality technology. Additionally, there will be a growing integration of

the physical environment with the digital world in real-time. Technological advancements that connect cloud computing to edge devices, and machine learning, in addition to artificial intelligence (AI), are expected to have significant roles in this transition. Sensors will establish connectivity between various items and the upcoming version of the Internet, encompassing AI-powered vehicles, household appliances, factory production lines, public services, wearable gadgets, and potentially even mobile phones, if they continue to exist.

Overall, this review offers readers valuable insights to navigate the uncertainties surrounding the future of education. Our perceptions of the future are fundamentally influenced by our comprehension and analysis of the past. It presents a classification of AI systems in education, along with examples of the most advanced ones now available. Additionally, the article discusses the obstacles that need to be overcome to further advance the area. In light of the swift evolution of the technological landscape, it is imperative to contemplate the significance of education in this dynamic world. Although technological innovation is commonly associated with progress, it is crucial to carefully evaluate the timing and manner in which these changes correspond to significant and well-received advancements in education.

Ultimately, the transition from conventional language learning to AI-enhanced aviation English instruction is a noteworthy achievement. As we consider the future, the combination of AI and aviation English shows potential not only for achieving language proficiency but also for enhancing operational safety, fostering international cooperation, and promoting the joint pursuit of excellence in aviation communication. This voyage marks the beginning of a new era filled with endless possibilities, as technology and education come together to propel aviation professionals towards a more promising and interconnected future.

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