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Beyond Classrooms: High School Students' Experiences with Digital Competence and English Language Development in Etwinning Projects

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Abstract
This study explores high school students' perspectives on digital competence and English language skills in the context of e-Twinning projects. With the increasing integration of technology into education, digital competence has become a vital skill for students, especially in language learning environments. E-Twinning, as a European initiative promoting cross-border collaboration through digital platforms, offers a rich context for enhancing both digital and linguistic abilities. Adopting a qualitative research design, this study collected data from students who participated in e-Twinning projects across various high schools in Turkey. Data were gathered through semi-structured interviews and observations.The findings reveal that students perceived e-Twinning projects as highly beneficial for improving their English skills, particularly in speaking and writing, due to the necessity of real-life communication with international peers. Moreover, students reported significant growth in their digital literacy, including the effective use of online tools, collaborative platforms, and digital communication strategies. The results also indicate an increase in students' motivation, cultural awareness, and confidence in using English in authentic contexts. Despite these benefits, some challenges were identified. It was noted that the projects were not always carried out under ideal conditions, with limitations such as inadequate technical infrastructure, issues with mobile compatibility, and challenges in time management. The study concludes that integrating e-Twinning projects into the language curriculum can significantly support students' language development and digital skills. Recommendations are provided for educators and policymakers to facilitate more equitable and effective implementation of such projects in high school settings.

Keywords: eTwinning, digital competence, English language skills, language learning, student perspectives

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Introduction

The widespread use of digital technologies in rapidly evolving educational systems has necessitated the adoption of contemporary approaches in teaching. As education adapts to the digital age, pedagogies that integrate face-to-face and virtual environments with digital tools have become increasingly prevalent. In this process, instructional content has shifted from traditional text-based models to multimedia-supported structures that encourage community contributions (Thierstein, 2009).

E-Twinning is one such secure and free online learning platform where teachers and students from various schools collaborate to achieve shared goals. The platform's main objective is to contribute to the development of joint projects by all school levels through information and communication technologies, especially the use of the internet, and to create a collaborative working network among European schools. In 2004, the European Commission brought schools together through the European School Education Platform (ESEP) and created an informal school network. ESEP was officially established at a conference held in Brussels in 2005 (Gilleran, 2007). Since 2014, it has been closely integrated with Erasmus+, the European Education, Training, Youth, and Sport Programme. E-Twinning is perhaps the largest teacher network in the history of education for schools in Europe (Kearney and Gras-Velázquez, 2015).

Ten years after its inception, the e-Twinning initiative has evolved from a tool for teachers to find partners to carry out their planned projects into a rich teaching and learning community across Europe and a rapidly growing community among European schools (Brecko et al., 2014). According to official statistics from February 2021, approximately 926,784 teachers have registered on the platform, more than 216,720 schools from 28 member states of the European Union have joined the platform, and 121,101 projects have been included in the system. E-Twinning is also supported at the national level by 38 National Support Services and 8 Joint Support Agencies in 44 countries. The National Support Service (NSS) is the organization that represents and supports e-Twinning at the national level in each country. Each National Support Service provides education and support at the regional and national levels, organizes events, and conducts media and communication campaigns (General Directorate of Innovation and Educational Technologies, 2025).

E-Twinning projects are centered around thematic collaboration on the eTwinning platform and aim to equip students with a range of competencies. Throughout the project period, creative, original, and project-oriented activities planned in partnership are implemented collaboratively. eTwinning serves as a collaborative learning environment across Europe, standing out as a significant educational tool that enhances students' foreign language proficiency and digital literacy. Technology by itself is not a solution since it will only have a minimal influence unless it is combined with an effective teaching strategy.

The integration of Information and Communication Technology (ICT) is considered essential for facilitating and sustaining communication among participants (European Commission, 2021). Communication through ICT—even asynchronous tools like chatrooms and TwinSpace, as well as online meetings—enables students to interact with peers from diverse cultural backgrounds, engage in authentic language practice, and develop their digital communication skills within meaningful pedagogical contexts.

The portal provides teachers with an online environment where they can write projects, search for partners for their projects, and share ideas and practices. e-Twinning, a European initiative that promotes school collaboration through Information and Communication Technologies (ICT), offers countless benefits for students and teachers. After a teacher registers on the ESEP platform, the platform offers them the opportunity to write projects or participate in existing ones. After completing the project phase, they move on to collaborating with partner countries to include volunteer students in the system. The teachers and students participating in the project determine meeting frequencies. Students from all countries in the project are divided into mixed groups using the same system to complete a given group assignment, allowing them to communicate in English. The more frequent the online meetings, the more opportunities students have to speak the language. Presentations are made about the project stages and the topic, and ideas are exchanged.Moreover; there are also extra meetings where teachers plan without the students present.

Studies in the literature show that these projects contribute to students in various ways. Songmuang and his friends'research (2024) results showed that the students' approaches to learning English had changed as a result of dijital tools. Additionally, their study discovered that letting students actively plan utilizing a variety of applications to encourage engagement, introducing innovative content to reduce limitations expanding areas for self-directed learning, and offering platforms for disseminating student results could all improve with the help of using dijital tools.

Research done by Stergaki et al. (2025) investigates the development of students' linguistic, communicative, and collaborative skills through eTwinning projects. Teachers reported that participation in eTwinning projects helps students learn to accept and respect diversity, fosters an alternative way of thinking, and enhances their digital, linguistic, communicative, and collaborative skills. Empowering students language skills outside the classroom helps them improve their four skills by using them in real life communication.In another study done by Tran and Hoang (2021) a club-based strategy was implemented to help kids study outside of the classroom. In order to assist students improve their English proficiency and develop their 21st century abilities for both personal and professional growth, it placed a strong emphasis on meaningful communication, authentic assignments, student agency, community engagement, and learner leadership.

Another research indicates that eTwinning engagement enhances not only students' skills in cultural awareness, communication, and self-expression but also significantly contributes to teachers' digital literacy and professional development. In a comparative study across two European universities, Huertas-Abril & Palacios-Hidalgo (2023) revealed that participation in eTwinning substantially improved pre-service language teachers' digital competencies and pedagogical preparedness.

At the same time, e-Twinning projects provide an interactive learning environment that supports foreign language acquisition and contributes to the development of the four basic language skills (listening, speaking, reading, and writing) in a holistic way (Condruzbacescu, 2016). These projects, particularly those conducted in a multicultural communication context, enable students to develop their listening skills by exposing them to different accents and language usage patterns, and provide opportunities for them to practice speaking through online meetings and collaborative work. Students' natural development of language competence is fostered through interactive tasks that provide opportunities to use the target language in authentic communicative contexts (Long, 1985). The influence of eTwinning in higher education is examined in a study by Basantes (2025), which emphasizes the advantages of virtual interactions for language proficiency, digital literacy, and cultural awareness.

Additionally, the challenges that students faced throughout the application procedure were identified, and a number of recommendations were made to address these issues and improve the effectiveness of the projects. In addition to significant similarities, the study also revealed notable variances between the viewpoints of students from various nations regarding eTwinning initiatives.

In addition, e-Twinning projects include a wide range of creative and academic writing activities that encourage the growth of reading and writing abilities.With the help of useful assignments like group texts, blog entries, e-books, and narratives created for the project, students can effectively use reading strategies to improve their comprehension and critical thinking abilities. Students can improve their written expression skills in grammar, vocabulary, and style through peer evaluation procedures and group writing projects.

Students can see learning a foreign language as a useful tool for international communication rather than just an academic subject thanks to the structured, digital, and interaction-driven learning environment provided by e-twinning programs.To put it another way, the successful execution of e-Twinning programs depends heavily on the digital literacy and linguistic proficiency of the pupils.In this context, this study aims to thoroughly examine the contributions of e-Twinning projects to students' language development and digital literacy.There are studies in the literature that indicate that e-Twinning projects contribute to these two areas.

Importantly, these collaborative, digitally mediated environments align with Vygotsky's (1978) social constructivist theory, which emphasizes that learning occurs through social interaction and co-construction of knowledge, underscoring the role of eTwinning as a platform for meaningful, culturally embedded learning experiences.In e-Twinning projects, students engage in cross-cultural collaboration using digital platforms, which aligns strongly with the principles of social cognitive theory as discussed by Eggen and Kauchak (2013). According to this perspective, learning is significantly influenced by observing others, as learners acquire behaviors, skills, and attitudes through modeling rather than only direct reinforcement. Eggen & Kauchak emphasize that reinforcement and punishment shape learners′ motivation indirectly, creating cognitive expectations that guide behavior (Eggen & Kauchak, 2013). Within e-Twinning contexts, students observe peers from other countries using foreign language, collaborating creatively, and employing ICT tools. Witnessing such practices enables learners to imitate effective communication strategies, build digital literacy, and internalize collaborative behaviors. This process reflects the dynamic interplay between cognition, behavior, and environment that is central to Eggen & Kauchak's interpretation of social cognitive learning.

Furthermore; Paulo Freire (1970) established critical pedagogy, which stresses education as a way to develop critical consciousness and provide students the tools they need to challenge and change social reality. This viewpoint emphasizes how cooperative, cross-cultural activities in the framework of eTwinning initiatives foster learners' capacity to critically engage with global concerns, identify disparities, and create agency in communication in addition to honing their language and digital abilities. Students are urged to go beyond mechanical language practice and instead take part in conversations that dispel preconceptions, cultivate multicultural understanding, and inspire democratic engagement by interacting authentically with peers from a variety of backgrounds. Therefore, eTwinning programs can be seen as places to empower students to become critically reflective and socially conscious global citizens in addition to serving as skill-development platforms.

The educational impact of eTwinning projects can also be viewed through the perspective of digital learning theories, especially those influenced by digital literacies frameworks (Jenkins et al., 2009) and connectivism (Siemens, 2005). According to this perspective, learning is the process of building and navigating online communities, information networks, and tool sets. This theoretical position is supported by the multimodal and interactive aspects of eTwinning, which allow students to build knowledge cooperatively through digital platforms, produce and distribute content, and gain self-reliance as digital learners.

Digital learning theory emphasizes the development of crucial 21st-century abilities such as critical thinking, problem solving, cooperation, creativity, and media literacy. Technology-supported environments allow students to work on authentic assignments, solve problems interactively, and cooperate beyond the classroom. In this way, digital learning not only improves subject-specific knowledge but also provides learners with the skills required to succeed in fast changing global environments (Partnership for 21st Century Skills, 2009).

Digital tools and platforms dramatically improve learner motivation and engagement. Gamification, multimedia resources, and adaptive learning technologies give students with dynamic and individualized experiences that promote long-term interest in learning. Furthermore, digital learning analytics enable instructors to monitor learner progress and alter instruction accordingly, increasing participation and active involvement in the learning process (Johnson et al., 2016).

Additionally, students' reported experiences with Canva, PowerPoint, and Voki not only demonstrate how they have learned new skills, but they also represent the digital learning processes by which students adjust to new technologies, incorporate them into their daily routines, and develop lifelong learning habits. Accordingly, eTwinning is emphasized by digital learning theories as a potent setting where language and digital skills are jointly developed via technology-enhanced cooperation.

While the literature consistently underscores eTwinning's value for developing language skills—especially communicative abilities (Stergaki et al.,2025) critical gaps remain. Few studies have longitudinally examined whether these language gains are sustained beyond project participation, and there is limited exploration of how deep intercultural competence develops within eTwinning projects beyond surface-level exchanges (Karataş & Öztay, 2023). Moreover, there is a disconnect between these high-level standards and their practical implementation in classroom-based project work. The evolving demands of digital education—including integrating innovative tools, addressing infrastructural inequalities, and aligning classroom practices with policy frameworks—highlight the need for further research.

This research is considered important because it comprehensively evaluates the gains offered by e-Twinning projects by focusing on student experiences and provides a broader perspective by supporting the findings of previous studies. The results obtained aim to reveal the contributions of e-Twinning projects to digital skills and foreign language learning and to offer suggestions for the development of these projects. In this context, the research was designed using a phenomenological approach, and qualitative data collection methods, specifically interviews, were used in the study. Data was collected through semi-structured interview and observation forms from students attending a science high school in Ankara, Turkiye who had previously participated in e-Twinning projects. "What are high school students' opinions on the effects of eTwinning projects on digital skills and English language development?" was the issue that was investigated in this context.

Method

This study was designed using the phenomenological pattern, one of the qualitative research methods. In qualitative research, phenomenology is distinguished by its emphasis on interpreting lived experience from the viewpoint of the individual (Creswell, 2021). By exposing the subjective experiences and perceptions of individuals, phenomenology research seeks to expose the unique and question structural or normative assumptions rather than testing hypotheses or attempting to generalize findings to a larger population. This method is especially useful for breaking through accepted beliefs and conventional wisdom and for learning more about people's motivations and behaviors. This design made it possible to thoroughly investigate participants' perceptions, providing a full picture of high school students' experiences with eTwinning initiatives.

Study Group

The study group consists of twelve tenth grade students and they are enrolled in a public science high school in Ankara, which has really active engagement in multiple eTwinning projects and provide a rich context for exploring students' experiences in depth. The participants were selected using maximum variation sampling which cannbe explained as a purposive selection method designed to identify key topics from a variety of perspectives (Patton, 2014). However, the relatively small number of participants and the fact that they were all drawn from a single school may limit the generalizability of the findings. While the chosen group allowed for an in-depth exploration of diverse perspectives within that specific context, caution should be exercised in transferring the results to broader populations or different educational settings.

As Creswell and Poth (2018) states that in phenomenological research, the study group includes individuals who have firsthand experience with the phenomenon under investigation. Accordingly, sample sizes are typically kept relatively small, often around 10 participants, to reveal clear results for an in-depth exploration of their experiences. Based on their level of e-Twinning experience, the participants were split into three groups: four students who had never engaged in e-Twinning before, four students who were currently engaged in a project, and four students who had previously completed a project. The demographics of the students are detailed in Table 1.

Table 1. The demographics of the students

Participant	Gender	Age	e-Twinning Experience
P1	Female	16	Has not participated in any e-Twinning projects before.
P2	Female	16	Has not participated in any e-Twinning projects before.
P3	Male	16	Has not participated in any e-Twinning projects before.
P4	Male	15	Has not participated in any e-Twinning projects before.
P5	Male	15	Is participating in an ongoing e-Twinning project.
P6	Male	16	Is participating in an ongoing e-Twinning project.
P7	Female	15	Is participating in an ongoing e-Twinning project.
P8	Female	16	Is participating in an ongoing e-Twinning project.
P9	Female	16	Has participated in at least one e-Twinning project before.
P10	Male	16	Has previously participated in at least one e-Twinning project.
P11	Female	15	Has previously participated in at least one e-Twinning project.
P12	Male	16	Has previously participated in at least one e-Twinning project.

Data Collection Process

Data for this study was gathered using semi-structured interview and observation forms that the researchers had developed. The researchers carefully maintained the observation forms by active participation in online meetings and classroom sessions, enabling a comprehensive and contextualized description of the interactions and processes seen. The primary technique for obtaining information for phenomenological studies is interviewing (Creswell & Poth, 2018).

According to Patton (2015), interviews are a data collection technique that uses verbal communication techniques. The primary distinction between interviews and informal conversations is that the former are carried out with a specific objective and in accordance with a pre-established plan. The question-and-answer formats used in

interviews are considered tools for establishing rapport and gathering information throughout the data collecting phase.

The purpose of this study's interview questions was to gather students' thoughts and experiences on their digital competencies and English language ability. Prior to the interviews, the study's purpose was stated and participants were informed that they might withdraw from the study at any time. Individual, in-person interviews were conducted and each one was audio recorded before being transcribed. The interviews were conducted during the lunch break in the guidance room of the school where the pupils were enrolled. Each interview lasted approximately 20 minutes. To make the students feel more at ease, a little informal discussion was held with them before to the formal interview.

Data Collection Tool

In this study, a semi-structured interview and an observation form developed by the researchers were used. Semi-structured interviews can be described as lying between structured and unstructured formats. In this approach, the interviewer typically follows a prepared guide; however, depending on the characteristics of the participants, modifications can be made within this general framework. To examine different aspects of the subject, this could involve changing the questions, adding new ones, or leaving some out (Creswell & Poth, 2018).

The interview questions for this study were created by the researchers and sent to an expert for evaluation. To test them, two 10th students who were not in the study group were asked to read the questions aloud. Following this pilot testing, the final draft of the interview questions was created. Along with various modifications and follow-up questions, the semi-structured interview form consists of eight main questions. The interview questions were designed to explore and understand the students' digital competencies and English language ability.

During the project sessions, the researchers filled out the semi-structured observation form.In class and outside the classroom during the online meetings 4 observation forms were filled by the researchers and all the observations lasted nearly 9 classes,one of which lasted 40 minutes. All of the project's teachers and students gathered for these meetings to talk about planning, process assessments, and the project's progress. The meetings lasted one to one and a half hours and were conducted electronically.The researchers filled out the observation form while attending meetings for four active projects at the school where the data was collected. Before the primary observations, a pilot observation was conducted, and the form was adjusted as necessary.Following these modifications, the primary observations were conducted.

Data Analysis

The content analysis method, which is commonly used in qualitative research, was used to analyze the data collected for this study. As Creswell (2021) emphasizes, content analysis involves coding the data into meaningful categories, identifying themes, and interpreting patterns that emerge from participants' narratives . Determining and examining the nature of social reality is another area in which this technique excels.

The interview audio recordings were transcribed by the researchers, and the obtained transcripts were carefully read line by line for preliminary coding. Subsequently, expressions with similar meanings were grouped, and codes were generated. Based on these codes, themes were identified. The coding process was conducted using an inductive approach, and the data were structured directly based on participants' statements. Throughout the data analysis process, the researchers continuously compared the codes and themes, reaching a consensus. The findings were supported and interpreted through direct quotations from the participants' statements. Observation notes were also analyzed alongside interview transcripts to triangulate findings and enrich the description of students' experiences."

Validity and Reliability Studies

Following the transcription of the interviews, participants were asked to review the interview transcripts for member checking. Additionally, an independent field expert reviewed the transcripts and evaluated the adequacy of the responses. To ensure content validity, two 10th-grade students who were not part of the study group were asked to read the interview questions aloud and assess their clarity and comprehensibility. During the coding phase, the intercoder reliability between the researchers was calculated using Miles & Huberman's (1994:64) formula, yielding a similarity coefficient of 0.78.

Researcher Role

The researchers took on the roles of an active observers and interviewers for this investigation. The researchers were able to closely observe the organic flow of communication between participants by participating in both in-person and virtual project meetings. By playing two roles, the researchers were able to minimize observer bias and establish a connection with the students. The researchers made sure that the data collection procedure was genuine and considerate to participants' living experiences by taking a collaborative yet non-intrusive approach. In order to preserve the integrity and uniformity of the research process, the researchers also personally performed each interview and recorded the data.

Credibility

Throughout the investigation, a number of strategies were used to guarantee trustworthiness. The first step in member verification was giving participants the opportunity to verify their interview transcripts for accuracy and to make sure their opinions were accurately expressed. Second, the confirmation of emergent themes from various data sources was aided by the triangulation that was accomplished through the use of both observational data and interviews. Thirdly, an independent field expert reviewed the data and the coding procedure as part of the peer debriefing process. Rich, detailed descriptions and direct quotes from participants, which support the authenticity of the kids' voices, further increased the findings' credibility.

Transferability

In order to facilitate transferability, comprehensive contextual details about the research environment, participant demographics, and eTwinning project types were supplied. Readers can assess the findings' relevance to comparable educational contexts thanks to these descriptions. Additionally, a wider range of viewpoints were offered in the study due to the inclusion of varied student experiences made possible by the use of purposive maximum variation sampling. The findings may be a useful resource for educators, policymakers, and researchers who wish to duplicate or modify similar projects in various contexts because they provide insight into how students with varying degrees of eTwinning experience view digital competence and language development.

Ethical Considerations

Since the participants in the study were under the age of 18, their legal guardians were asked to complete a consent form indicating their permission for their children's participation in the research. In addition, ethical approval for this study was obtained from the Ethics Committee in Hacettepe University with the document number E-51944218-050-00004308467 on 30th of June,2025.

Findings

The results of high school students' perceptions of how involvement in eTwinning projects affected their digital literacy and English language development are presented in this section. Students' opinions on how these initiatives improved their technological proficiency and language learning experiences were highlighted by a number of interconnected themes that emerged from the examination of the interview data. These topics cover both perceived advantages and difficulties, and direct quotes are used to accurately represent the opinions of the students.

In order to allow themes and sub-themes to directly emerge from participant responses, the data were carefully coded using an inductive technique. A comprehensive coding scheme was created, and codes were grouped into more general thematic groupings to represent features and perceptions in the data. To improve the analysis's consistency and reliability, ongoing comparison and researcher confirmation were used throughout. The finished themes reflect recurrent viewpoints and observations made by the participants about the subject of the study. The main themes and sub-themes derived from the coding of the interview data are presented below.

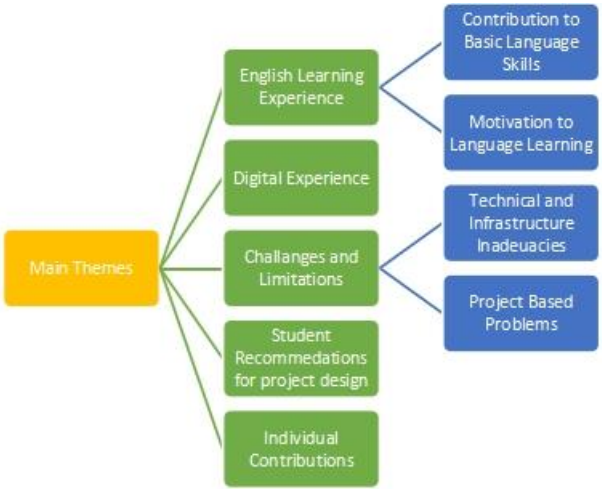

Figure 1. Themes Derived from the Analysis of the Interviews

The figure above outlines the thematic structure derived from the analysis of students' responses, highlighting their perceptions of the impact of eTwinning projects on their English language learning. In the following section, each of these themes is discussed in detail, supported by participant quotations and observational data to provide a deeper understanding of their experiences.

1. Findings Related to the English Learning Experience

Table 2. Sub-Themes, Codes, Participants, and Frequencies Related to the Theme of English Learning Experience

Sub-Themes	Codes	Participants	Frequency
Contribution to Basic Language Skills	Contribution to writing skills	P2, P3, P4, P5, P6, P8, P9, P10, P11, P12	10
	Contribution to reading skills	P2, P3, P4, P11	4
	Contribution to listening skills	P2, P3, P4, P5	4
	Contribution to speaking skills	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12	12
	Contribution to vocabulary development	P4, P5, P6, P7, P10	5
Motivation for Language Learning	Developing a positive attitude towards the language	P1–P12 (all participants)	12
	Expectation of improvement in the language	P1, P2, P5, P6, P12	5
	Increased self-confidence in using the language	P3, P7, P8, P9, P10, P11, P12	7
	Decrease in fear of speaking	P1, P3, P4, P5, P6, P7, P8, P9, P10, P12	10

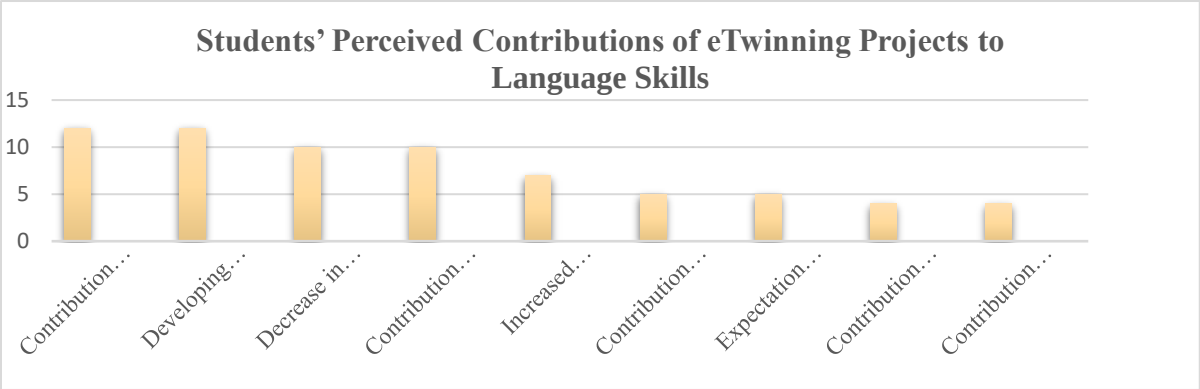

Figure 2. Students' Perceived Contributions of eTwinning Projects to Language Skills

Most participants stated that taking part in eTwinning projects had a positive impact on the four core language skills—listening, speaking, reading, and writing. Among these, speaking was the most emphasized skill, with students noting that activities such as Zoom meetings, presentations, and interactive conversations played an effective role in improving their speaking abilities. Consistent with these self-reports, online meeting and classroom observations revealed that students actively participated in peer-to-peer interactions during project-based tasks, demonstrated increased willingness to communicate in English, and used target language expressions spontaneously in authentic contexts. These observations further support the interview findings, indicating that the collaborative and communicative nature of eTwinning activities provided students with meaningful opportunities to practice and enhance their speaking skills.

> Google Meet meeting, 25.05.2025: During the presentation, students were willing to speak in English. Some students spoke fluently, while others spoke more slowly, but most of them were understandable. Students from different countries asked each other questions. Most of the students presenting explained the pages they created in English. They participated in the process using spontaneous expressions.

Additionally, the research done by Stergaki et al. (2025) concluded that eTwinning practices positively influenced students' English language skills and increased their level of classroom participation. Similarly, in their study, Karataş and Öztay (2023) reported that both teachers and students participating in eTwinning projects expressed that these projects provided various positive gains. For students, participation contributed to the development of digital literacy, language and communication skills, collaboration, self-confidence, and self-expression. For teachers, the projects supported professional development, digital literacy, project development, and teamwork skills. Additionally, another study done by Trun and his friends (2024) describes an original strategy that uses video-conferencing platforms to facilitate interaction between students from Vietnam and volunteer English speakers from other nations once a week. The project gives students the chance to improve their speaking and listening abilities in English while taking part in real-world discussions.In addition to improving the speaking and listening abilities of the learners, the project also stimulates them and boosts their confidence in using English, according to feedback from the participating students and volunteer communicators.

Some of the participants' statements are as follows:

> *"It actually helped me overcome my fear a little. I used to be a bit hesitant to speak English… In that sense, I can say it was educational." (P12)*

> *"We had conversations with the students there. We asked each other questions during the first introduction… I think my English vocabulary has improved." (P7)*

> *"I think speaking was the skill I improved the most. But my writing also got better because we had to prepare texts for the presentations." (P1)*

As these statements indicate, the project processes created an action-oriented and motivating environment where students had the opportunity to actively use their language skills.

2. Findings Related to the Digital Experience

Table 3**.** Codes, Participants, and Frequencies Related to the Theme of Digital Experience

Codes	Participants	Frequency
Getting to know new digital tools	P1, P2, P4, P5, P6, P7, P8, P9, P10, P11, P12	11
Learning different functions of the tools used	P3, P5, P6, P8, P7, P9, P10, P11, P12	9
Integrating digital tools into daily life	P1, P2, P5, P6, P7, P8, P9, P10, P12	9
Creating products with digital tools	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12	12

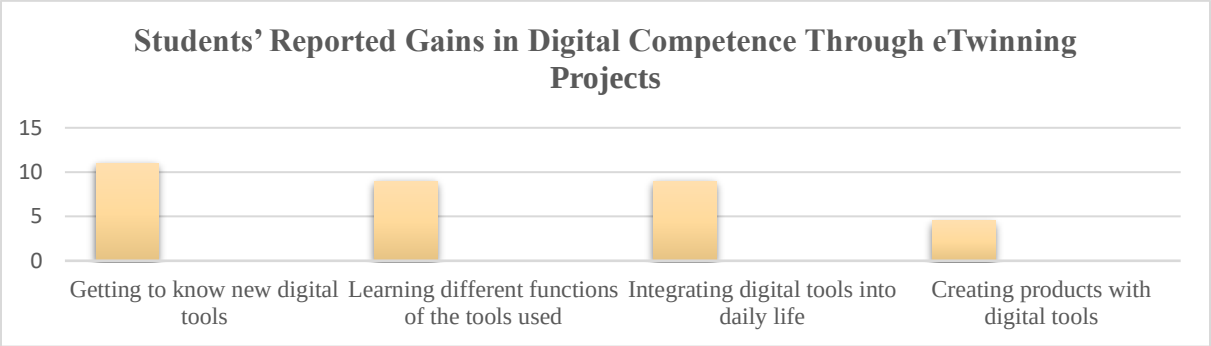

Figure 3. Students' Reported Gains in Digital Competence Through eTwinning Projects

All participants stated that through eTwinning projects, they created products using digital tools. Programs such as Canva, PowerPoint, Word, Zoom, and Voki were among the most frequently used digital tools. Eleven participants reported that they had the opportunity to discover new digital tools thanks to the projects, while nine stated that they had integrated these tools into their daily lives. Classroom observations supported these statements, as students were frequently seen collaboratively engaging with these platforms during project activities, particularly when designing visual content and preparing presentations. It was also noted that students displayed increased autonomy in selecting and utilizing digital tools, indicating a growing confidence and digital literacy that extended beyond the project context.It has been observed that such projects enhance students' language skills, digital competence, intercultural awareness, and motivation. According to parents' perceptions, students who participated in these projects showed improvement in both their level and competence in using technology (Basantes , 2025).

> Google Meet meeting, 30.05.2025: Students stated that they enjoyed using the applications assigned through monthly tasks and that they had made significant progress with many digital tools they had not known before. One student, who initially struggled with preparing presentations, shared that the frequent presentation assignments throughout the project helped them improve and become more confident in creating their own digital content.
>
> Google Meet meeting, 03.06.2025: Teachers exchanged ideas about various digital applications. For the tools unfamiliar to some, screen sharing was used to provide step-by-step explanations. It was collectively decided that these new tools would be integrated into the project work.
>
> Google Meet meeting, 05.06.2025: Students presented their work using various digital tools such as Canva and PowerPoint. While presenting, they explained the functions of the tools they had used. One student mentioned struggling with Canva templates but overcame the challenge by watching YouTube tutorials. Students demonstrated notable confidence in using digital platforms and were observed working collaboratively to complete their tasks.

Some of the participants' statements are as follows:

"I didn't really know how to use Canva… We prepared 3–4 presentations. So, it was really nice. I learned how to use Canva." (P12)

"We started learning the game rules. Now we open that game on the classroom board." (Referring to a game used during the project that they continued to play afterward) (P8)

"We created our own avatars with the Voki app. I designed a character that looks like me." (P9)

These experiences not only enhanced participants' skills in using digital tools but also supported their creativity and added enjoyment to the learning process.

3. Findings Related to the Challenges and Limitations Encountered

Table 4. Sub-Themes, Codes, Participants, and Frequencies Related to the Theme of Challenges and Limitations

Sub-Themes	Codes	Participants	Frequency
Technicaland Infrastructure Inadequacies	Mobile incompatibility	P8, P9, P10, P11, P12	5
	Internet access issues	P3, P7, P9	3
Project-Based Problems	Inequality in task distribution	P9, P11	2
	Time management problems	P1, P2, P4, P6, P7, P9, P11	7
	Mismatch in students' language levels	P10, P12	2
	Having to work with irresponsible group members	P8, P9, P11	3
	Age mismatch among student groups	P1, P2, P3	3
	Lack of clear instructions	P8, P11	2
	High number of participants	P3, P6	2
	Projects being too similar	P2, P4, P8, P9, P10	5

Although participants generally reported a positive experience, they also mentioned several challenges. One of the most frequently cited limitations was the lack of physical equipment and technical infrastructure. The need to access projects and complete tasks via computers, rather than mobile devices, was described as a difficulty by five students due to compatibility issues. Seven students stated that time management was not handled efficiently during the implementation of the projects, and the waiting periods between phases were sometimes too long for students, causing a loss of momentum. Working with groups of different age levels led to decreased motivation for some students. Additionally, five students expressed that the projects were too similar and repetitive, and they wished to be involved in more diverse and engaging projects. These interview findings were also reflected in classroom observations, where occasional delays in project phases appeared to reduce student engagement, and some younger participants were visibly less active during collaborative sessions with older peers. Furthermore, instances of technical difficulties—such as device incompatibility or insufficient access to equipment—were observed to disrupt the flow of activities, reinforcing the participants' reported concerns regarding infrastructure and time management.Some of the participant statements are as follows:

"There's no computer in the dorm. Uploading things with a phone is difficult. The platform requires a computer. It's hard to upload anything to the platform using a phone. Mobile compatibility should be improved." (P12)

"We were matched with a middle school level group. There was an age gap, and it led to a lack of seriousness." (P12)

4. Findings Related to Student Recommendations for Project Design

Table 5. Codes, Participants, and Frequencies Related to the Theme of Student Recommendations for Project Design

Codes	Participants	Frequency
Possibility to work face-to-face	P1, P3, P5	3
Fewer participants	P3	1
Focus on social issues	P12	1
Groups consisting of peers	P7	1

Although participants expressed general satisfaction with the overall structure of the projects, some offered suggestions to make the learning experience more effective and enjoyable. Three participants stated that they would prefer to take part in projects that involve face-to-face collaboration. This preference was also evident in classroom observations, where students appeared more engaged and motivated during in-person group discussions and hands-on collaborative activities compared to virtual interactions. These observations suggest that while online tools facilitated project implementation, integrating more face-to-face components could enhance students' sense of connection and overall engagement with the projects.

> Google Meet meeting, 05.06.2025: In mixed international groups, some students remained silent and kept their cameras off at the beginning. However, by the end of the session, most of them had turned on their cameras and participated actively to share their final products. This suggested a gradual increase in motivation through visible group engagement.
>
> Google Meet meeting, 30.05.2025: Some students were initially hesitant to speak and kept their cameras off, but by the end of the meeting, most of them turned their cameras on and started expressing their opinions. This indicates that direct interaction gradually increased their participation and motivation

One participant shared the following view:

> *"I would design international projects focused on social issues. That would catch everyone's interest." (P11)*

5. Findings Related to Individual Contributions

Table 6. Codes, Participants, and Frequencies Related to the Theme of Individual Contributions

Codes	Participants	Frequency
Communication with foreign peers	P1, P2, P7, P8, P9, P10	6
Cultural awareness	P1, P2, P3, P4, P5, P7, P8, P10, P11, P12	10
Sense of responsibility	P1, P4, P6	3
Experience of teamwork	P5, P6, P7, P11	4
Using the language in real interaction settings	P1, P2, P3, P4, P5, P6, P7, P8, P9, P11	10

Participants emphasized that eTwinning projects contributed not only to their academic growth but also to their personal development. The most frequently mentioned gains included developing cultural awareness, having the opportunity to use the language in real communication settings, and engaging in communication with foreign peers. Three participants said the projects helped them acquire a feeling of responsibility, and four said the initiatives helped them become better team players. These self-reports were supported by observations conducted both in-person and virtually, where students were seen showing interest in interacting with culturally appropriate content, managing project responsibilities, and functioning well in groups. These behaviors demonstrate how the programs fostered an environment that supported intercultural competency and critical soft skills like responsibility and cooperation.

> Google Meet meeting, 30.05.2025: One student stated that through the e-book, they learned how various Spanish dishes are prepared. Another student shared that thanks to the collaborative e-book, they discovered tourist attractions in Spain and Turkey they had not known before. These statements reflected their growing cultural awareness through project activities.

> Google Meet meeting, 05.06.2025: Italian students presented an e-book focused on traditional foods of their country. Each page was prepared by a different student and included visual elements. They explained the cultural background of the dishes during the presentation, which encouraged questions from students of other countries. This illustrated meaningful intercultural communication and sharing.

Similarly in the study done by Tran (2024) subjects like food, festivals, education, fashion, and transportation that are common across many cultures kept the participants interested. Since they have been exposed to these aspects of their own culture since birth and encounter them on every day, they found it easy to discuss them.With the help of these online meetings learners can improve their crosscultural awareness.

İnce and Çekik (2024) claim that eTwinning programs are a valuable tool for promoting sustainable educational changes and empowering students with global citizenship skills. Basantes (2025) claims that students who participated in eTwinning projects also showed improvements in their digital, collaborative, and modeling learning abilities. According to students, eTwinning is a project that provides the chance to work with people from different nations, acquire a foreign language, and become familiar with diverse cultures (Yılmaz, 2012). Regarding extracurricular learning possibilities, students actively developed ways to acquire English outside of the classroom. In the study it is explained that students made an effort to engage with foreigners as much as they could. To boost the likelihood of using English in real-life communication, students established friends with foreigners. Furthermore; it positively effects their productivity in English (Nguyen & Stracke, 2020)

By the project's conclusion, students also stated that they had become more proficient in a foreign language, developed self-confidence, learnt how to collaborate with others, and learned to appreciate cultural diversity. Some quotes from the participants are as follows:

> *"I made such wonderful friends. For example, I still talk to one of them. As crucial as learning the language was getting to know people." (P5)*
>
> *"Giving a presentation felt challenging at first, but I felt better after finishing it. I feel more at ease now." (P3)*
>
> *"I became aware that I was assuming greater responsibilities. I also started to better organize my time." (P2)*
>
> *"It felt great to converse with people from other nations. I now consider myself to be a more receptive individual." (P10)*

Figure 4. Overall Model of Findings: Gains, Challenges, and Recommendations

Based on these findings, it is possible to conclude that the efforts helped students improve their social and personal awareness, as well as their language and technical skills. Throughout the study, students actively participated in collaborative activities that promoted international communication and empathy, which greatly aided their social growth. For example, by collaborating with peers from other nations, students got a better awareness of different points of view and cultural nuances, improving their capacity to behave politely and successfully in a multicultural setting. Furthermore, the observations and the interwievs revealed improvements in self-confidence and autonomy, indicating an increase in personal awareness. In terms of language learning, the frequent use of digital communication technologies provided authentic opportunities for practicing English, resulting in significant improvements in linguistic competence. Furthermore, the integration of numerous technology platforms encouraged project collaboration while also developing students' digital literacy, which is an important skill in today's educational context. These various advantages emphasize each project's overall impact, proving that eTwinning projects go beyond academic accomplishment to promote broader social and personal growth.

Discussion, Conclusion, and Recommendations

This study revealed that eTwinning projects significantly enhanced students' English language proficiency, particularly in productive skills such as speaking and writing, alongside improvements in digital competencies. The strong emphasis on speaking skill development in participants' responses aligns with Stergaki et al (2025), who found that interactive project-based activities provide authentic contexts for language use. However, our findings extend this by showing that students not only improved their communication skills during project interactions but also transferred these abilities into other academic and social contexts, reflecting a more sustainable impact on language learning. This suggests that eTwinning projects function not merely as supplementary activities but as immersive environments where language becomes a tool for meaningful communication rather than an academic exercise.

It was also interesting how project-based work improved digital skills. Our participants reported incorporating these tools into their everyday routines and using them for creative product development, such as making presentations or avatars, even though previous studies (Çetin & İzci, 2021) focused on the function of eTwinning in promoting fundamental technology literacy. This portrays students as active creators of digital content rather than passive consumers, which is in line with digital literacy concepts that place an emphasis on participation, collaboration, and content creation (Jenkins et al., 2009). It was observed that participants embraced digital technology into their everyday lives and used them to build imaginative products. In this sense, students are becoming both digital consumers and creative artists (Karataş & Öztay, 2023).

At the same time, this study identified several barriers that limit the effectiveness of eTwinning programs. Concerns raised in the study by Stergaki and his colleagues (2025) are supported by technological challenges such poor mobile compatibility and insufficient infrastructure, which are persistent issues of digital inequality. The disappointing reports of project theme repetition and group composition inconsistencies indicate how eTwinning's design is still evolving in terms of project diversity and age-appropriate collaboration. Addressing these barriers is crucial for maintaining student participation and enhancing the educational value of such efforts.

Beyond academic achievement, eTwinning programs promoted social growth, collaboration, and cross-cultural awareness. According to Huertas-Abril & Palacios-Hidalgo (2023), who highlighted the value of eTwinning in developing global citizenship skills, young people reported being more confident and culturally sensitive while interacting with peers from different nations. Through actual cross-cultural interaction, students covered a number of perspective and explored the actual use of English. The combination of computer literacy, language acquisition, and intercultural competency highlights the various educational advantages of eTwinning programs.

In conclusion, high school students' digital competencies and English language ability can be enhanced through eTwinning programs. Additionally, students reported improvements in their social skills and intercultural understanding. From a theoretical standpoint, this study contributes to our knowledge of how project-based, digitally mediated cooperation aids in the development of digital literacy and language acquisition. The results demonstrate how eTwinning programs establish genuine zones of proximal development where students co-construct knowledge through significant cross-cultural contacts, drawing on Vygotsky's (1978) social constructivist theory. Jenkins et al. (2009) provided a participatory culture framework that is further supported by the active use of digital technologies for creative creation, emphasizing students as both language learners and members of a common online community. The study extends current models of collaborative and technology-

enhanced learning by integrating these theoretical perspectives and highlighting the dual roles of eTwinning projects as language-learning settings and incubators for 21st-century digital competencies.

However, for these projects to be implemented more effectively, there is a need to strengthen the technical infrastructure and increase the diversity of projects. In this context, the following recommendations are provided:

- The technical infrastructure should be improved, mobile compatibility should be enhanced, and equal digital access for all students should be supported.
- Project content should be diversified to avoid repetition of similar themes, and instead, original projects focusing on social issues, environmental topics, or scientific innovations should be developed.
- Student groups should be formed in a balanced manner according to age and language proficiency levels to ensure more effective interaction within the group.
- Students' active participation in project processes should be encouraged; guidance should be clear and simple, and task distribution should be equitable.
- Structures that allow for face-to-face or hybrid activities should be promoted to increase student interaction and strengthen their engagement with the projects.
- Teachers should be encouraged to integrate eTwinning projects into their language curricula as complementary activities that foster authentic communication and digital competence. Providing students with structured guidance, equitable task distribution, and feedback mechanisms can enhance their engagement and learning outcomes.
- School administrators should support the technical infrastructure necessary for effective eTwinning implementation, including reliable internet access and compatible devices. They are also advised to encourage professional development activities that familiarize teachers with innovative digital tools and collaborative project design.
- At the policy level, integrating eTwinning projects into national curricula and ensuring equitable digital access across schools can enhance both language learning and digital literacy. Policymakers should also promote long-term funding and institutional support to sustain international collaboration opportunities for students.
- Future studies could adopt longitudinal designs to measure whether eTwinning-driven improvements in language and digital skills persist over time or transfer to academic achievement.

Taking these recommendations into consideration is believed to enhance the sustainability and effectiveness of eTwinning projects, contributing to a more inclusive and meaningful learning experience for students.

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Authors Contribution Rate

The contributions to the study were as follows: Esen Nur Günerhan 40%, Şevval Karsavuranoğlu Atasoy 40%, and Eda Gürlen 20%.

Ethical Approval

Ethical permission (30th of June, 2025 /E-51944218-050-00004308467) was obtained from the Ethics Committee in Hacettepe University for this research.

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