

## The Use of Hypertext and QR Code as Multimodal Tools to Investigate EFL Learners' Autonomy

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Rec: 08.10.2025  
Düzeltilme: 13.11.2025  
Kabul: 28.02.2026  
Doi: 10.31464/jlere.1799664

### Key Words:

*learner autonomy*  
*Technological multimodality*  
*EFL learners*

### ABSTRACT

Empowering learners to take responsibility for their learning is a key goal in language education, now increasingly intertwined with digital literacy. This study investigates how EFL learners integrate technology into their learning processes, focusing on their autonomous use of technological tools for task completion. Hyperlinks and QR codes were used as technological affordances that participants could utilize beyond the classroom. Over seven weeks, a quasi-experimental design was conducted with 11 pre-intermediate EFL learners enrolled in a preparatory program at a Turkish state university. Data were collected through semi-structured interviews, reflection papers, and self-evaluation checklists and were analyzed using content analysis. Findings revealed that learners effectively harnessed technology to enhance autonomy, with collaboration emerging as a supportive factor in task completion. The study concludes that technology-integrated tasks can foster both learner autonomy and collaborative engagement, emphasizing the importance of actively involving learners in content creation.

### Acknowledgements

The authors extend their gratitude to the participants of this study for their time and commitment

### Statement of Publication Ethics

Ethical approval for this study was granted by the Institutional Ethics Committee of Social Sciences and Humanities Research and Publication at the Social Sciences University of Ankara on November 30, 2022 (Approval No. 59323). Participation in the study was entirely voluntary.

### Authors' Contribution

Both authors contributed equally to the development and completion of this manuscript.

### Conflict of Interest

The authors state that there are no conflicts of interest to disclose.

### Reference

Dişlen Dağgöl, G., & Demirkol, T. (2026). The use of hypertext and QR code as multimodal tools to investigate EFL learners' autonomy. *Journal of Language Education and Research*, 12 (1), 257-280.

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## Introduction

Empowering learners to take responsibility for their learning is a pedagogical goal relevant to all types of content teaching, including foreign language education (Smith, 2008). Since 21st-century education prioritizes learner individuality and recognizes that students learn at their own pace, there is a move towards designing flexible curricula that could accommodate personalized learning (OECD, 2019, 2020) through technology integration (Means, 2010). Given that today's learners are highly proficient with technology, empowering them to use educational technology independently for their learning is a highly meaningful endeavour in educational practice, especially in language education, which is inherently communicative (Magnusson & Godhe, 2019). Although students in higher education are often assumed to be proficient with technology, being labelled as digital natives (Ting, 2015), research indicates that they are not particularly skilled at using the technology for educational purposes (Lai & Hong, 2015). For learners to benefit effectively from technology to enhance their learning, they must recognize and exercise their agency to make informed decisions and meet the demands of technology-driven 21st-century education (O'Brien & Reale, 2021).

The primary motives for integrating technology into educational practices are to increase learners' motivation, enhance their knowledge, and offer a personalized learning experience (Fei & Li, 2025; Trust, 2018). The proliferation of educational technologies accessible on students' electronic devices encourages learners to make informed choices while exercising autonomy. The rationale of this study is based on the interpretation of autonomy as a social transformation where learners gradually develop critical awareness of effective ways of learning for themselves and feel empowered to make the informed decision about effective technologies they can benefit from (Lai, 2023; Raya et al., 2017).

The use of educational technology for second language teaching is a vast field, encompassing various aspects such as artificial intelligence (Kostka & Toncelli, 2023; Nghi et al., 2019), virtual reality (Chen, 2016; Chien et al., 2020), computer-supported collaborative learning (Dlab et al., 2020), and massive open online courses (Brooker et al., 2018; Van den Beemt et al., 2018). Golonka et al. (2014) categorize educational technologies into three groups: classroom-based technologies, mobile and portable devices, network-based social computing, and individual study tools. Among these categories, research on the role of technology categorized as individual study tools remains limited. Consequently, the extent to which language learners demonstrate autonomy in using these technological tools remains unclear. Additionally, to the best of the authors' knowledge, no other study in the Turkish context has specifically examined QR codes and hypertext production of EFL learners in relation to learner autonomy. Addressing this research gap, this study aims to explore the effect of a seven-week extra-curricular study that required the use of hypertexts and QR codes on EFL learners' exercise of learner autonomy. Acknowledging that the development of learner autonomy is a long process, this study aims to enhance learners' autonomy awareness by leveraging specific technological affordances for language learning. The findings were discussed in relation to how learners can become familiar with and gradually be guided into the sphere of autonomy in using technology for language learning.

## Literature Review

### Learner Autonomy

Approaching autonomy as an innate part of human nature, Little (2007) defines learner autonomy as “the product of an interactive process in which the teacher gradually enlarges the scope of her learners' autonomy by gradually allowing them more control of the process and content of their learning” (p. 26). Chan (2001), who views learner autonomy as an essential aspect of the language learning process, argues that fostering learner autonomy depends on two key requirements: providing learners with sufficient opportunities for participation and incorporating a variety of activities to maintain student motivation. Among the features characterizing learner autonomy, Little (2007) highlights the importance of providing learners with sufficient space to express themselves by assigning them responsibility in various phases of learning, including the identification of learning goals, choosing learning activities, and evaluating their outcomes. Additionally, Little (2007) advocates for two more features of learner autonomy in language learning: the systematic integration of reflective thinking into the learning process and the use of the target language to improve language proficiency.

Keeping the requirements of the 21st century in mind, which emphasize a more student-centered approach to curriculum design (Benson, 2006), research on language learner autonomy remains significant and multifaceted. This approach aims to create opportunities for learners to reflect on their experiences and to creatively transfer knowledge from one area, such as technology, to another, such as language learning (Czerkawski & Berti, 2020; Gao, 2013). Despite its popularity, how language learners display autonomy in using technological affordances outside the classroom is still a relevant (Girón-García, 2025; Lenkaitis, 2020) and under-researched area (Chik, 2018). Considering that autonomy entails learners' having the freedom and choice to shape their learning process, this study investigates the extent to which EFL learners exercise autonomy when encouraged to engage in a series of extra-curricular tasks requiring technology use.

### Technological Multimodality in Language Education

Meaning-making in language is accomplished through various resources that can be actualized in audio, textual, gestural, visual, and spatial modes (Liaw & Chen, 2023). To understand which modes learners use to enhance their learning, Mercer (2012) suggests examining learners' use of affordances – context-dependent resources that learners can individually choose to mediate and improve their language learning experience. While these affordances were primarily print-based in traditional schooling (Serafini, 2015; Walsh, 2010), the continuous growth of digital technologies allows for the enhancement of language teaching practices by combining print-based resources with technological affordances (Liaw & Chen, 2023). Technology in this study refers to the use of “computers and telecommunications hardware and software” (Trilling & Hood, 1999, p. 5) in designing educational tasks. Affordances provided by technology can take various forms (Feyzi Behnagh & Yasrebi, 2020), including note-taking on e-documents, adding pathways to other resources via hyperlinks, and incorporating QR codes or co-creating products via online documents. In this study,

technological affordances specifically refer to the participants' use of computers to create hyperlinks and QR codes.

Given that we live in a technology-driven world, researchers explored the technological affordances that EFL learners in the study context could integrate into their language learning tasks to develop their multimodal literacy. Considering the variety of available technologies, the study focused on technological affordances that were not part of the students' school curriculum, which are hyperlinks and QR codes. The surge of studies in AI technologies may appear to overshadow other educational technologies (Park, 2024); however, when learners engage in individual study, they can greatly benefit from affordances that allow them to create content according to their own preferences and at their own convenience. Inspired by the descriptions of Lang and Baehr (2023), a hyperlink in this study refers to a link embedded in a text that transforms it into hypertext and directs users to different sources that may include one or more textual, graphical, audio, or video formats. A major research strand related to hyperlinks has focused on their usefulness in reading texts. AbuSeileek (2011) found that providing hypermedia annotations helped learners better understand the text and improved vocabulary acquisition. Similarly, other studies reported that learners favored hyperlinks to reduce reading cognitive load (Garrett-Rucks et al., 2015; Hamdan et al., 2017) and to increase working memory capacity (Varol & Erçetin, 2021). In this study, we also opted to use hyperlinks, despite the recent surge in genAI research, as genAI may lead learners to become overly reliant on its benefits (Wan & Moorhouse, 2025). Our intention is to highlight alternative technological affordances that stimulate 'enthusiasm for engaging in processes that can lead them to exercise increased autonomy, such as independent thinking, source searching, and text generation on their own, rather than relying on genAI (Wan & Moorhouse, 2025).

With respect to the current study's focus, more pertinent findings arise from learners' perceptions of hypertext use. For example, Shang (2016a) investigated the potential relationship among online metacognitive strategies, hypertext, and motivation in relation to EFL learners' reading comprehension. Learners who reported being highly motivated also reported higher hypertext comprehension. In another study, Shang (2016b) found that undergraduate language learners, regardless of their gender and proficiency level, had positive attitudes towards hypertexts embedded in reading activities. Notably, the literature review reveals limited results regarding learners' perceptions of hypertexts and lacks discussion on the use of hypertexts as an indicator of autonomous learning.

The second technological affordance included in this study is the QR code, which stands for Quick Response code. QR codes allow mobile phone users to access additional electronic material through scanning the visual code with their mobile phones (Thorne, 2016). Among the benefits of QR codes in educational settings, Thorne (2016) highlights the time savings for teachers by eliminating the need to manually enter long URLs, providing learners with multimedia sources that can be adapted to their screen preferences, and sparking curiosity in learners. QR code technology has been researched in relation to various language skills, including listening and speaking (Huah & Jarrett, 2014), writing (Jeon, 2015), and pronunciation (Hsieh et al., 2023). A study directly employing QR codes as a tool for EFL teaching was conducted by Kuru Gönen and Zeybek (2022), who utilized four authentic reading texts enhanced with QR codes embedded in culturally bound elements. The study's

findings indicated better reading comprehension, vocabulary learning, and higher motivation in the participants, who also viewed QR codes as easy to use.

The growing popularity of multimodal resources in technology-mediated learning and teaching has underscored the importance of learner competences and awareness of available affordances, which engage them in tasks and hence promote a higher level of autonomy (Dewi et al., 2025; Hauck et al., 2021). Yet, these studies have explored hyperlink and QR code technology as affordances that are authored and served by others, such as teachers or material developers, for the learners' use rather than involving learners in creating products using these affordances themselves. There is a dearth of research on the impact of assigning learners the role of authoring hyperlinks and creating QR codes. To the researchers' knowledge, the only study investigating this aspect is by O'Hara and Pritchard (2008), which examined the vocabulary development of middle-school EFL learners and found promising results related to hypertext authoring. Yet, that study was mainly teacher-oriented, where the participants had to adhere to specific rules. Clearly, the field of hyperlink and QR code creation by learners is still an under-researched area, and this study aims to address this gap. The present inquiry has several merits. First, it is one of the pioneering studies to explore the creation of hyperlinks and QR codes by EFL learners in higher education. Second, it seeks to connect these tools with the concept of learner autonomy, investigating if and how EFL learners can use these technological affordances to exercise their own choice when given sufficient space. This study aims to answer the following research question:

Before/during/after the study, what were the EFL students' perceptions in terms of

- their autonomy in learning English
- the inclusion of hypertexts and QR codes in learning English?

## **Method**

### **Setting and Participants**

This study was conducted in a compulsory English preparatory programme at an EMI state university in Turkey. The research was designed as an extra-curricular activity involving 11 volunteer students who had just completed A1 level and were currently studying at the A2 level. Since the university uses English as the medium of instruction, these participants were highly motivated to improve their language proficiency. Data were collected during the data collection period by one of the researchers, who had previously taught the participants at the A1 level for 8 weeks (10 hours per week) before the study and had established a good relationship with them. As such, convenience sampling was used to select participants. The program the participants were enrolled in follows a modular system, so this research was designed to span one module and was conducted over a seven-week period. Demographic information about the participants is presented in Table 1.

**Table 1.** Demographics of the Participants

Participant No	Age	Department	Gender
P1	20	Psychology	F
P2	20	Economics	M
P3	20	Political Science	F
P4	19	Economics	F
P5	18	Law	M
P6	18	Economics	M
*P7	18	International Relations	F
P8	18	Law	M
P9	19	Psychology	F
P10	19	Political Science	M
P11	18	Sociology	F

\*P7 dropped out of the study in the fourth week of the data collection. Thus, the data from here were excluded from the dataset.

### Publication Ethics

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### Research Design

Qualitative in nature, the present inquiry employed a quasi-experimental research design, utilizing a one-group pre-test post-test design methodology. Over a seven-week data collection period, the participants completed consecutive tasks designed to provide a multimodal technology experience that fosters learner autonomy. Even though the study drew on qualitative data, quasi-experimental label was used due to the pre-planned and structured instructional design over a certain period. Nunan (2003) outlines a gradual approach to exercising autonomy, and the researchers adapted Nunan's framework to design the study around the constructs of learner autonomy and multimodality, as illustrated in Table 2.

**Table 2.** The Alignment of the study design with Nunan's framework (2003)

Descriptors of Nunan's framework (2003)	Study-specific measures taken to match each property
<i>Property 1:</i> To provide learners with clear instructions and task descriptions, that is, an easy-to-follow itinerary for activities	In each stage of this study, the participants were given clear prompts and encouraged to negotiate with the researchers whenever they needed clarification.
<i>Property 2:</i> To involve learners in the goal-setting stage with the assumption that this kind of involvement would give them a place for expressing their concerns, as well as motivation for the task completion	During the pre-study interview, the participants were asked about their motivation and aim(s) for taking part in the study. Additionally, they were free to collaborate or discuss with other participants whenever they felt the need.
<i>Property 3:</i> To encourage learners to carry English beyond the borders of the classroom for it to be integrated into their daily life	This study was carried out as an extra-curricular activity.

<i>Property 4 &amp; 5:</i> To lead learners to cast a critical eye over how they learn and what learning strategies they benefit from	Learner reflection in this study was facilitated through three reflective papers, written during the study, as well as the post-study interviews.
<i>Property 6:</i> To allow learners to have a say in what content they would like to learn or what tasks they would like to complete, so that their notion of making a choice in their learning is strengthened	In conducting this study, the participants were free to choose the subtheme they wanted to research, as well as the design and content of the brochures they were expected to prepare.
<i>Property 7:</i> To enable learners to be a part of task design and material development that can function both as an output of and a tool for their learning	The tasks involved preparing hypertext lists, creating a leaflet, and generating a QR code on it. These were tangible materials that the participants developed.
<i>Property 8:</i> To use materials developed by learners in such a way that learners should be given the opportunity to teach their friends through these materials	Each participant presented the leaflet they designed in a meeting, sharing what they learned about their chosen subtheme by referring to their leaflets.
<i>Property 9:</i> To guide learners to observe how language learning helps their social skills and intellectual development outside of the classroom	In the post-study interviews, the participants were asked about what technology they would like to use in the future after this study.

All the data collection was completed as an extra-curricular activity. Before the study, the participants were individually interviewed (Appendix 1: Interview Questions) and informed about the flow of the study, which is also displayed in Table 3.

**Table 3.** Flow of the Study

<b>Phases</b>	<b>Goal</b>	<b>Task</b>	<b>Intended outcome</b>
<b>Phase 1</b>	- Investigating the participants' use of technology in language learning	pre-study interview	Property 2 (see Table 2)
<b>Phase 2</b>	- Introduction of the main theme of the study (environmental pollution) - Teaching the participants how to add hyper-texts on a Word file	The participants were given a week to prepare their individual hyper-text word lists on the main theme.	Property 2, 4 & 5 (see Table 2)
<b>Phase 3</b>	- Choosing a subtheme of environmental pollution on which each participant would like to learn more.	The participants were given a week for extensive reading on those themes. They prepared a new hypertext list on the vocabulary they chose.  - They wrote a reflection paper on the task of the previous week.	Property 6 (see Table 2)
<b>Phase 4</b>	-Each participant introduced their list of hyperlinks by briefly describing what points they wanted to learn about their chosen theme.	The participants were told that they would prepare a first draft of a leaflet on their chosen theme.  - They wrote a reflection paper on the task of the previous week.	Property 6 & 7 (see Table 2)
<b>Phase 5</b>	The participants were provided individual feedback on their leaflet content.	They were assigned to add an audio recording of their own to their final leaflet content and	Property 6, 7 & 8 (see Table 2)

		include it via a QR code on their leaflet.	
		- They wrote a reflection paper on the task of the previous week.	
<b>Phase 6</b>	They presented their leaflet to other participants.	The participants were assigned to fill in a self-evaluation checklist on their audio-recordings.	Property 8 (see Table 2)
<b>Phase 7</b>	students' completion of self-evaluation checklists	-	Property 4 & 5 (see Table 2)
<b>Phase 8</b>	post-study interview	-	Property 4 & 5 (see Table 2)

\* Since Property 1 & 3 were relevant for the entire course of the study, they were not indicated separately among the intended outcomes.

## Research Tools

This study was designed to investigate whether the use of multimodal technological affordances would suggest improvements in EFL learners' awareness of autonomy. All data collection was conducted in Turkish to provide a comfortable experience for participants and to ensure that their limited language proficiency did not interfere with their expressive potential. Triangulation of data was ensured through the employment of the following research tools:

### *Pre-study interview*

Before the study, semi-structured interviews were conducted to elicit participants' reflections. The pre-study interview questions were piloted with three students who did not participate in the study. This stage aimed to elicit a general profile of participants' motivation to learn English, tendencies to rely on teachers during L2 learning, and their prior use of technology for language learning. The questions focused on how students experienced technology for language learning, as well as their engagement with the language learning process (Appendix 1).

### *Reflection paper*

Additionally, the participants wrote three papers in response to the reflective questions about the multimodal tasks they completed. The questions provided to learners were identical across the three papers (Appendix 2).

### *Post-study interview*

To track potential changes in students' perceptions of their dependence on teachers and the use of technological multimodality in learning English, students were also interviewed at the end of the study (Appendix 1).

### **Self-evaluation checklist**

Finally, the participants were given two self-evaluation checklists, one for finding how they viewed their speaking performance they shared via the QR code, and one for their self-perceptions on their strong points, goals, and ways of dealing with difficulties in learning English.

### **Data Analysis**

The data were subjected to content analysis. For the credibility of the data analysis procedure, the data were analyzed by following the rationale described by Ting (2015), and Schreiber and Asner-Self (2011). First, the researchers listened to audio-recorded interviews one by one and created transcripts for each interview. Both researchers read the transcripts separately to get familiar with the content of the entire dataset. As they read, they also created their own codes for the themes that emerged, and later, they negotiated these codes with each other to arrive at a proper coding system for generating categories under the themes. Codes, categories, and themes were composed for each data set obtained through interviews and reflection papers. For the data analysis, considering the concerns about providing percentages on intercoder reliability (O'Connor & Joffe, 2020), the researchers followed the rationale of Nacaroglu and Bektaş (2023) and ensured internal reliability of data coding through continuous negotiations and consensus-seeking for the creation of codes, themes, and categorization of themes in line with the hermeneutic nature of qualitative research. To ensure credibility, the participants' responses were presented through direct quotations (Creswell, 2003), and the data were triangulated using a series of data collection tools. To ensure transferability, the study phases, research design, participants, data collection tools, and data analysis were described in detail. To ensure dependability, one of the authors conducted the interviews herself, and the data were collected in detail, aligning with the study's nature and purpose. The authors reached a consensus on coding and the steps to follow in data analysis (Patton, 2014), and the analyses were presented without the authors' interpretations and biases in the findings section. To increase confirmability, the data were checked and rechecked to ensure coherence among the findings.

### **Findings**

The study's findings were presented in the following sections, organized according to the data-collection flow completed at each phase. Findings related to pre-interview, reflection papers, and post-interview were presented separately to show the students' views of different phases and their experiences with the use of hypertexts and QR codes.

#### **Findings of the Pre-Interview**

The analyses for the pre-study phase were conducted using data collected through participant interviews. The findings were organized according to the research questions, focusing on students' views regarding their level of exercising autonomy and the incorporation of technological multimodality in learning English.

**Autonomy Exercise:** Regarding the perceived autonomy of the participants, it was seen that they were dependent on the school to sustain their motivation and to understand the instructional content better. Yet, their answers also indicated that they had a certain degree of autonomy, as they viewed themselves as responsible for their own learning. They seemed to employ several self-study habits, which could hint at autonomous learning behaviours. However, these self-study habits appeared to be confined to cognitive learning strategies. Some examples were presented below.

Excerpt 2: *The activities that we do at school are more enjoyable, and they help me to perform them with greater motivation.*

Excerpt 3: *If the teacher did not teach the subject, I would abstain from grammar and get afraid of building new sentences.*

Excerpt 4: (Out of the school) *I watch movies in English, and I try to imitate the pronunciation.*

Excerpt 5: *I aim to learn 10 or 15 words daily, and I write these words in my notebook.*

Excerpt 6: *I try to perform daily revisions, I study vocabulary, I try to watch serials and I check the topics to be covered the next day at school.*

Despite their efforts for individual study independent from school, they seemed to lack metacognitive and motivational regulation strategies.

Excerpt 7: *While learning English, I do not set goals for myself. To learn English is a goal itself. I like studying spontaneously; planning does not work with me.*

Excerpt 8: *I make plans but I do not apply them.*

**Inclusion of technological multimodality:** When it comes to incorporating technological multimodality into the English language learning process, students reported using various phone applications or online videos to support their learning. Most of their preferences seemed to be based on watching or using the ready-made materials. Few were found to get involved in the production-based activities.

Excerpt 9: *I randomly choose a word from an online dictionary. There is also a mobile-phone application called Wall Street, which gives you sections from movies and you try to understand them.*

Excerpt 10: *I use an application called Grammarly, and I write what I have done daily. This application revises what I have written and I check it.*

Additionally, some of the tools they preferred were based on purely educational purposes, such as phone applications, e-dictionaries, watching language-learning related videos, e-resources from the course book, and websites for reading and writing practice or other exercises. Other ways of integrating technology into their self-study process included listening to music/ podcasts, watching serials with Turkish subtitles, watching animations for listening practice, and watching movies, which could also be considered for their entertainment value as well as educational goals.

## Findings of the Reflection Papers

The participants were asked to write three reflection papers in total to assess potential changes in their tendency towards exercising autonomy, as well as the inclusion of technological multimodality during the task completion stages. How they benefited from technological multimodality in their own learning process and to what extent they exercised autonomy throughout the processes were explored as the elements of students' reflections.

**Table 4.** Findings of the Reflective Papers related to Each Task

Tasks	Autonomy exercise	Inclusion of Technological Multimodality/ Perceived Gains
Task-1	Dependent on teacher's directions	Search-based gain Use of hyperlinks New vocabulary
Task-2	Dependent on teacher's directions	Intensive reading New vocabulary Use of hyperlinks
Task-3	Less dependent on teacher's directions	New vocabulary Intensive reading Writing a text Use of hyperlinks

As regards the participants' exercise of autonomy in task execution, it was seen that in the first two stages, the students were dependent on the instructor's directions; however, in the last task, the students reported having more sense of freedom in how they completed given tasks as a result of getting familiar with the process. For the initial task completion phases, the students seemed to find the following instructions necessary, and they perceived the dependence not as an opposite construct of autonomy.

Excerpt 11: *I depended on the instructor's directions. I tried to do what she asked me to do.*

However, getting acquainted with the tasks allowed them to feel more freedom during the completion of the final task.

Excerpt 12: *At this stage, I was not much dependent on the instructor as we were free to decide the number of words to be used in the sentences and the way we would express those sentences. So, I did not need more supervision; it was sufficient and balanced. It also helped me in my writing.*

Concerning the inclusion of technological multimodality into the language learning process, the responses indicated that the benefits of each task were related to vocabulary, reading, and the use of hyperlinks. Through the participants' reflection papers, the researchers pinpointed three gains from task 1 as being better searching skills, better vocabulary retention, and enjoyable use of technology through hyperlinks.

Excerpt 13: *Hyperlink building stage helped me to see different meanings of words, and adding visuals for those words let me visualize the English equivalents in my mind. I realized that visuality is more effective for my own language learning process. I intend to include visuals into my learning process.*

Excerpt 14: *I have always wanted to integrate my language learning with technology, but I did not know how to do it. Through the directions of my instructor, I discovered that it is actually an enjoyable way of learning, so definitely it will always be in my learning process.*

Excerpt 15: *I found this stage beneficial since I searched the English equivalents of the Turkish words and used the hyperlink method on Word program to learn their meanings. This both improved my search skills and allowed the retention of these new words. I will use this method while learning new words to remember them easily.*

In task 2, intensive reading was mentioned in addition to the new vocabulary and the use of hyperlinks cited in task 1.

Excerpt 16: *I found this stage useful for language learning because I got the chance to read various texts while searching for sources for my topic. I realized that I can use sources written in English while making a search and this increased my motivation to learn English.*

Apart from vocabulary, the use of hyperlinks and readings, in task 3 writing as a productive skill was cited among the gains from the relevant stage.

Excerpt 17: *In this stage, writing a paragraph in English improved my grammar knowledge. It encouraged me for my prospective assignments and projects when I started my major. Searching sources written in English and trying to build my own sentences taught me a lot more than my studies did so far. I saw the improvement in my English and became happy.*

As a final task in the data collection process, the students completed a self-evaluation checklist in which they assessed their accuracy, fluency, pronunciation, and intonation during the voice recording they presented via a QR code. The underlying aim was to track the participants' exercise of autonomy by focusing on the solutions they found for any problems they pinpointed related to these aspects. The participants' responses indicated that they were mainly worried about mispronunciation and referred to e-dictionaries frequently during their task preparation. Regarding how they could improve their speaking performance, none of the participants mentioned alternative technological affordances, including adding hyperlinks to the words whose pronunciation was challenging for them. Moreover, none of the participants mentioned QR codes as tools that they could benefit from in learning English, neither for sharing their own production with others nor for employing them as sources of the English language.

### **Findings of the Post-Interview**

**Autonomy Exercise:** One of the primary purposes of the post-interview was to identify probable changes in the students' perceptions of autonomy. The students reported perceived changes in their autonomy while learning English. Not avoiding sources written in English from now on and allocating some time to study individually, without being given a task or responsibility, stood out as two important categories.

Excerpt 18: *I will definitely search resources in foreign websites from now on; I will not use only Turkish websites because there can be some differences in terms of information. Foreign websites may give more details depending on the topic.*

Excerpt 19: *I understood that I can do such things as learning new words, researching and dealing with grammar mistakes even without being given a responsibility*

The students also highlighted the positive role of freedom they experienced in their decision making during the tasks.

Excerpt 20: *Taking independent decisions such as word limitation, selection of topic and sources made me happy. I did not use many sources since I wanted this text to be my own product. If you had given tasks and exerted restrictions, I would have had greater difficulty and it would have been fruitful for me. It was enough for me to write to the extent that I can make sense of it. I prefer that the instructor gives tasks, but I can be free in details.*

Excerpt 21: *Trying to produce our own sentences on a new topic was quite beneficial. .... And I liked taking my own decisions on selection of pictures, sentences and sources*

Taking independent decisions appeared to have positive effects to some extent. Although they needed the instructor's guidance, they seemed to enjoy making their own decisions. Moreover, the students expressed their content for doing something independent of school tasks, which was an indication of their autonomy.

Excerpt 22: *I liked exerting an effort and doing an extra-curricular activity. I do not feel that I am learning English just by studying from a course book; however, making a first-hand search and building your own sentences take you one step further.*

Experiencing all these with a group of friends was also viewed as positive in terms of seeking help from them.

Excerpt 23: *While working individually, I also sought help from my friends since I felt confused. I did not do everything on my own, for example while preparing QR code, I asked my friends about how to do it because I did not understand it. They gave me feedback and then I could do it. I liked the idea of task completion with my peers.*

***Inclusion of Technological Multimodality:*** The students were also asked whether they intended to continue using what they gained from the study based on their technology experiences. The salient response in terms of the sustainability of multimodality was the use of hyperlinks in their further studies. There was no mention of QR codes as potentially beneficial for their language learning.

Excerpt 24: *... I did not know hypertext at all, and I think I can benefit from it from now on. I can prepare a digital text, add hyperlinks for the words whose meanings I do not know and keep the links on the text until I fully learn them, and I can share the text with my friends.*

Excerpt 25: *... QR codes were difficult but enjoyable. I don't think they were very useful for me since I didn't focus on the details, but they could be good for those who are curious... I enjoyed working with hypertext, especially when trying to find a meaningful image for each word.*

## **Discussion**

The current inquiry focused on raising awareness among EFL undergraduates of autonomous language learning through the use of technological multimodal devices. The study's highlights were students' self-perceptions of autonomy in task completion when using

hyperlinks and QR codes. The findings suggested insights into potential changes in students' perceptions of their autonomy and the sustainability of multimodal learning.

To draw a general picture of participants' willingness to learn English through their autonomous actions, they were asked questions about their general motivation to learn English and autonomous language learning preferences. It was found that initially they were inclined to have more extrinsic motivation, needed school guidance, and they seemed not to prefer a totally independent language learning mode. This finding appears to echo Gan et al. (2023), who report that extrinsically motivated students rely heavily on others for guidance. Similarly, Kashefian-Naeeni et al. (2024) suggest offering autonomy-supportive environments to EFL students to boost their intrinsic motivation. Regarding the use of technology in their learning process, participants reported that they preferred phone applications, videos, podcasts, e-dictionaries, and e-resources from their course books for learning English prior to the study. The findings reflected that students prefer using ready-made content more than productive multimodal tools. Accordingly, L2 teachers are no longer merely passive users of coursebooks; rather, they serve as mediators between pedagogy and learning materials in today's technology-enhanced language classrooms. They should be empowered to digitize instructional resources to address the immediate needs of the digital-age learners (Tajeddin & Asadnia, 2025). This indicates the need for opening more space for learners to experience autonomy through productive activities via the employment of technological tools.

The present inquiry demonstrated that at the end of the study, the adaptation to the structure of tasks allowed the participants to feel less dependent on the instructor's guidance. However, there is a critical point to note that students deemed following the instructor's directions as positive and necessary. In other words, dependency was perceived as commitment. It was important to them to demonstrate loyalty to the instructor's instructions. The reason for such a tendency could be cultural upbringing. Turkish society places greater value on the social perception of teaching (Ilgan et al., 2018), considering it a respected profession (Çöğmen & Aslan, 2023). Therefore, while showing dependency on the instructor's supervision in a real sense, they also seemed not to view dependency as the opposite end of the spectrum within the frame of independent learning. Nevertheless, they favoured the sense of freedom and independent decision-making.

Instilling multimodality into the study also caused some changes in the approach to technology, and students seemed to gain a higher awareness of technology use in their language learning process at the end of the study. The perceived sustainability and benefits of hyperlinks were seemingly higher among other forms, such as voice recordings and QR Codes, in the present study. Zou and Teng (2023) reached a similar finding and showed that most of the participants found multimedia annotation-supported vocabulary learning interesting and effective. Other studies have indicated that hyperlinks can compensate for inadequate vocabulary (Chen & Yen, 2013; Huang, 2018). Likewise, in the study examining the effect of digital reading tools among both digital reading group and traditional reading group, Noori (2025) found that the digital group surpassed the traditional group in both comprehension and vocabulary and suggested that the superior vocabulary learning of the digital group can be attributed to the interactive qualities of digital texts, which provide supplementary features—such as audio, videos, and hyperlinks—that are unavailable in printed materials. In fact, the

practical application of hyperlinks, especially their role in vocabulary retention, could be a reason for students to use them more from now on.

At the end of the study, the students reported higher confidence in searching for English-language resources. Their self-belief in comprehending those texts seemed to increase. Such a positive change could help students to get more courageous, curious, and active in their language learning process, which could pave the way for greater success. One of the important changes in the participants' perceptions of autonomy was assuming responsibility for learning without waiting for a task from the teacher, which also constitutes one of the basic tenets of autonomy. As a matter of fact, what seems significant is that students could feed more positive ideas about autonomy if they are informed properly and given a chance to practice it. Although transferring information to students without involving them in the learning process may appear easier and less time-consuming, both the short-term and long-term outcomes of such an approach are likely to be more sustainable and concrete. When students manage their learning by, for example, planning what to learn and reviewing the topic, they could be more effective learners (Wong et al., 2021). What is more, the learning process is also likely to be more enjoyable and meaningful for students. The study by Hadwin et al. (2015) found that learning where students take active roles promotes interest and motivation. Similarly, Jehanghir et al. (2024) reported the positive influence of EFL learners' autonomy on their academic motivation and grit. According to Schunk and Zimmerman (2012), students' assuming active roles to facilitate continuous learning symbolizes independent learning, and it involves using their knowledge, making plans, and making decisions. In the present study, participants experienced a sense of freedom when given the opportunity to make their own decisions regarding the tasks. Providing learners with choice helps them make informed decisions while enabling the identification of their own interests and needs (Basri, 2023). Cotterall (2000) views the basic feature of instructional programmes fostering autonomy as giving guidance without taking control of learners' decision-making. However, instructors should also be aware that autonomous learning cannot happen in a short period of time, as it is actually a process, and there are different steps to be taken in different stages.

Additionally, it should be noted that peer-work could also be an important factor in allocating more autonomy to language learners, as shown in various studies referring to the constructive role of collaboration on learner autonomy (Shi & Han, 2019; Şener & Mede, 2023; Turan-Öztürk, 2016; Yasmin & Naseem, 2019). This also hints that independence or autonomy in language learning does not always mean individual study. Students may feel more relaxed and less anxious when studying with their peers, especially when consulting them. The current study also indicated that extra-curricular activities could allow students to produce without any constraints. Although it is not always possible for instructors to conduct extracurricular activities within their busy schedules, encouraging students to participate in volunteer activities could further foster their sense of autonomy. Teachers' behaviours in formal settings occupy a pivotal place in impacting students' autonomous learning with technology in informal environments (Lai, 2013).

### Conclusion and Pedagogical Implications

Technology has been a component of autonomy discussions since the introduction of autonomy into the context of language education back in the 1970s (Lai, 2019), and in an era of Education 4.0, a term used to define different ways in which education is blended with technology (Panagiotopoulos & Karanikola, 2020), it seems desirable for learners to get acquainted with various uses of technology in their own learning process. Therefore, this study set out to facilitate the gradual move into students' taking more proactive steps in their language learning process through introducing different technological multimodal devices to them under the supervision of the instructor. It could be remarked that EFL students in this study got to know different uses of technology, experienced making their own decisions in the process and enriched their learning with technology-use. Considering the different phases of autonomy, the selection of proper tasks holds great importance in instilling the notion of more independent language learning. Both students and teachers should recognize that autonomy develops through a process and does not emerge immediately. In line with the requirements and needs of the 21st century, this learning process should be integrated with various technological devices, enabling students to cultivate self-directed learning through technology. It should be noted that fostering autonomy does not necessarily require advanced digital tools. Low-threshold technologies could be integrated into language learning to design autonomy-supportive tasks. To illustrate, teachers could embed QR codes in reading and listening and direct students to various optional resources. Likewise, student-generated hyperlinks can be incorporated in writing tasks as a vocabulary-enhancing activity. It should be noted that English teachers should also be equipped with technological knowledge. The digital era necessitates not only knowledge of content and teaching methods but also the integration of technology in language instruction; hence, it is also important for teachers to have adequate TPACK (technology, pedagogy, and content knowledge) levels. As İşler and Yıldırım (2018) proposed, such knowledge could also be refined even in initial teacher education by encouraging pre-service teachers to design technologically mediated materials.

One limitation of the study is the relatively short duration of seven weeks, which may not have been adequate to observe the long-term impact of technology integration on learner autonomy. This is especially relevant, given that the participants were beginner-level students who had recently completed their A1 class. Therefore, further studies should be conducted to enhance the effectiveness of technology in language learning beyond the classroom walls. Likewise, more studies with more participants could yield more generalizable results.

### References

- AbuSeileek, A. F. (2011). Hypermedia annotation presentation: The effect of location and type on the EFL learners' achievement in reading comprehension and vocabulary acquisition. *Computers & Education*, 57(1), 1281–1291. <https://doi.org/10.1016/j.compedu.2011.01.011>
- Basri, F. (2023). Factors influencing learner autonomy and autonomy support in a faculty of education. *Teaching in Higher Education*, 28(2), 270–285. <https://doi.org/10.1080/13562517.2020.1798921>
- Benson, P. (2006). Autonomy in language teaching and learning. *Language Teaching*, 40(1), 21–40. <https://doi.org/10.1017/S0261444806003958>

- Brooker, A., Corrin, L., De Barba, P., Lodge, J., & Kennedy, G. (2018). A tale of two MOOCs: How student motivation and participation predict learning outcomes in different MOOCs. *Australasian Journal of Educational Technology*, 34(1), 73–87. <https://doi.org/10.14742/ajet.3237>
- Chan, V. (2001). Readiness for learner autonomy: What do our learners tell us? *Teaching in Higher Education*, 6(4), 505–518. <https://doi.org/10.1080/13562510120078045>
- Chen, I. J., & Yen, J. C. (2013). Hypertext annotation: Effects of presentation formats and learner proficiency on reading comprehension and vocabulary learning in foreign languages. *Computers & Education*, 63, 416–423. <https://doi.org/10.1016/j.compedu.2013.01.005>
- Chen, J. (2016). EFL learners' strategy use during task-based interaction in Second life. *Australasian Journal of Educational Technology*, 32(3), 1–17. <https://doi.org/10.14742/ajet.2306>
- Chien, S. Y., Hwang, G. J., & Jong, M. S. Y. (2020). Effects of peer assessment within the context of spherical video-based virtual reality on EFL students' English-speaking performance and learning perceptions. *Computers & Education*, 146, 1–20. <https://doi.org/10.1016/j.compedu.2019.103751>
- Chik, A. (2018). Learner autonomy and digital practises. In A. Chik, N. Aoli, & R. Smith (Eds.), *Autonomy in language learning and teaching*, (pp. 73–92). Palgrave. [https://doi.org/10.1057/978-1-137-52998-5\\_5](https://doi.org/10.1057/978-1-137-52998-5_5)
- Cotterall, S. (2000). Promoting learner autonomy through the curriculum: Principles for designing language courses. *ELT Journal*, 54(2), 109–117. <https://doi.org/10.1093/elt/54.2.109>
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative and mixed methods approaches*. Sage Publications.
- Czerkawski, B., & Berti, M. (2020). Language learning in the 21st century: current status and future directions. In B. Dupuy, & M. Grosbois (Eds.), *Language learning and professionalization in higher education: pathways to preparing learners and teachers in/for the 21st century* (pp.11–35). Research-publishing.net. <https://doi.org/10.14705/rpnet.2020.44.1100>
- Çöğmen, S., & Aslan, Y. (2023). Feride the wren: teaching profession for Turkish language pre-service teachers. *Journal of Teacher Education and Educators*, 12(1), 123–145. <https://dergipark.org.tr/en/download/article-file/2746576>
- Dewi, D. S., Hartono, R., Wahyuni, S., & Lestari, S. (2025). Fostering learner autonomy in EFL setting through multiliteracy pedagogy: A case in tertiary education. *Australian Journal of Teacher Education (Online)*, 50(2), 1–19. <https://files.eric.ed.gov/fulltext/EJ1481132.pdf>
- Dlab, M. H., Boticki, I., Hoic-Bozic, N., & Looi, C. K. (2020). Exploring group interactions in synchronous mobile computer-supported learning activities. *Computers & Education*, 146, 1–18. <https://doi.org/10.1016/j.compedu.2019.103735>
- Fei, X., & Li, C. (2025). A study of the development of language communication ability facilitated by technology-empowered learning strategies: take English language learning as an example. *International Journal of Sociologies and Anthropologies Science Reviews*, 5(4), 89–96. <https://doi.org/10.60027/ijasar.2025.6227>
- Feyzi Behnagh, R., & Yasrebi, S. (2020). An examination of constructivist educational technologies: Key affordances and conditions. *British Journal of Educational Technology*, 51(6), 1907–1919. <https://doi.org/10.1111/bjet.13036>
- Gan, Z., Liu, F., & Nang, H. (2023). The role of self-efficacy, task value, and intrinsic and extrinsic motivations in students' feedback engagement in English learning. *Behavioral Sciences*, 13, 1–13. <https://doi.org/10.3390/bs13050428>
- Gao, X. (2013). Reflexive and reflective thinking: A crucial link between agency and autonomy. *Innovation in Language Learning and Teaching*, 7(3), 226–237. <https://doi.org/10.1080/17501229.2013.836204>

- Garrett-Rucks, P., Howles, L., & Lake, W. M. (2015). Enhancing L2 reading comprehension with hypermedia texts: Student perceptions. *CALICO Journal*, 32(1), 26–51. <https://doi.org/10.1558/calico.v32i1.26131>
- Girón-García, C. (2025). The potential of online tasks to facilitate autonomous language learning with the use of online dictionaries in a higher education ESP classroom. *Alicante Journal of English Studies*, 42, 25–51. <https://doi.org/10.14198/raei.25252>
- Golonka, E. M., Bowles, A. R., Frank, V. M., Richardson, D. L., & Freynik, S. (2014). Technologies for foreign language learning: A review of technology types and their effectiveness. *Computer Assisted Language Learning*, 27(1), 70–105. <https://doi.org/10.1080/09588221.2012.7003.15>
- Hadwin, A. F., Jarvela, S., & Miller, M. (2015). Self-regulated, co-regulated, and socially shared regulation of learning. In D. H. Schunk, & B. Zimmerman (Eds.), *Handbook of self-regulation of learning and performance*. (pp. 65–84). Routledge. <https://doi.org/10.4324/9780203839010.ch5>
- Hamdan, N. A., Mohamad, M., & Shaharuddin, S. (2017). Hypermedia reading materials: Undergraduate perceptions and features affecting their reading comprehension. *Electronic Journal of E-learning*, 15(2), 116–125. <https://academic-publishing.org/index.php/ejel/article/view/1825>
- Hauck, M., Satar, M., & Kurek, M. (2021). Where multimodal literacy meets online language learner autonomy: "digital resources give us wings". In C. Fuchs, M. Hauck, & M. Dooly (Eds.), *Language education in digital spaces: Perspectives on autonomy and interaction. educational linguistics* (vol. 52, pp. 85–111). Springer. [https://doi.org/10.1007/978-3-030-74958-3\\_5](https://doi.org/10.1007/978-3-030-74958-3_5)
- Hsieh, W. M., Yeh, H. C., & Chen, N. S. (2023). Impact of a robot and tangible object (R&T) integrated learning system on elementary EFL learners' English pronunciation and willingness to communicate. *Computer Assisted Language Learning*, 1–26. <https://doi.org/10.1080/09588221.2023.2228357>
- Huah, G. L., & Jarrett, B. W. (2014). Integrating QR codes and mobile technology in developing listening and speaking skills in the teaching of English language. *International Journal on E-Learning Practices (IJELP)*, 1(1), 25–38. <https://jurcon.ums.edu.my/ojums/index.php/ijelp/article/view/184>
- Huang, H. B. (2018). Computer multimedia aided word annotation for incidental vocabulary acquisition in English reading. *Educational Sciences: Theory & Practice*, 18(6), 3417–3427. <https://doi.org/10.12738/estp.2018.6.248>
- Ilgan, A., Aslanargun, E., Kılıç, Y., & Shaukat, S. (2018). Comparing Turkish and Pakistani teachers' professionalism. *International Education Journal: Comparative Perspectives*, 17(2), 1–15. <https://openjournals.library.sydney.edu.au/index.php/IEJ>
- İşler, C., & Yıldırım, Ö. (2018). Perceptions of Turkish pre-service EFL teachers on their technological pedagogical content knowledge. *Journal of Education and Future*, 13, 145–160. <https://dergipark.org.tr/en/download/article-file/420171>
- Jehanghir, M., Ishaq, K., & Akbar, R. A. (2024). Effect of learners' autonomy on academic motivation and university students' grit. *Education and Information Technologies*, 29(4), 4159–4196. <https://doi.org/10.1007/s10639-023-11976-2>
- Jeon, Y. J. (2015). A study on technology embedded English classes using qr codes. *International Journal of Contents*, 11(1), 1–6. <https://doi.org/10.5392/IJoC.2015.11.1.00>
- Kashefian-Naeeni, S., Shokrpour, N., & Pakdel, F. (2024). Optimizing EFL learning: exploring the role of learner background factors and the nuances of their effects on intrinsic and extrinsic motivation among university students in a mixed-methods study. *BMC Psychology*, 12(535), 1–24. <https://doi.org/10.1186/s40359-024-02034-8>

- Kostka, I., & Toncelli, R. (2023). Exploring applications of ChatGPT to English language teaching: Opportunities, challenges, and recommendations. *The Electronic Journal for English as a Second Language*, 27(3), 1–19. <https://doi.org/10.55593/ej.27107int>
- Kuru Gönen, S. İ., & Zeybek, G. (2022). Using QR code enhanced authentic texts in EFL extensive reading: A qualitative study on student perceptions. *Education and Information Technologies*, 27(2), 2039–2057. <https://doi.org/10.1007/s10639-021-10695-w>
- Lai, C. (2013). A framework for developing self-directed technology use for language learning. *Language Learning & Technology*, 17, 100–122. <https://hub.hku.hk/bitstream/10722/187559/1/content.pdf?accept=1>
- Lai, C. (2019). Technology and learner autonomy: An argument in favor of the nexus of formal and informal language learning. *Annual Review of Applied Linguistics*, 39, 52–58. <https://doi.org/10.1017/S0267190519000035>
- Lai, C. (2023). *Insights into autonomy and technology in language teaching*. Castledown Publishers.
- Lai, K. W., & Hong, K. S. (2015). Technology use and learning characteristics of students in higher education: Do generational differences exist?. *British Journal of Educational Technology*, 46(4), 725–738. <https://doi.org/10.1111/bjet.12161>
- Lang, S., & Baehr, C. (2023). Hypertext, hyperlinks, and the world wide web. In O. Kruse, C. Rapp, C. M. Anson, K. Benetos, E. Cotos, A. Devitt, & A. Shibani (Eds.), *Digital writing technologies in higher education* (pp. 51–61). Springer. [https://doi.org/10.1007/978-3-031-36033-6\\_4](https://doi.org/10.1007/978-3-031-36033-6_4)
- Lenkaitis, C. A. (2020). Technology as a mediating tool: videoconferencing, L2 learning, and learner autonomy. *Computer Assisted Language Learning*, 33(5), 483–509. <https://doi.org/10.1080/09588221.2019.1572018>
- Liaw, M.-L., & Chen, H.-I. (2023). Guest Editorial: contextualized multimodal language learning. *Educational Technology & Society*, 26(3), 1–4. [https://doi.org/10.30191/ETS.202307\\_26\(3\).0001](https://doi.org/10.30191/ETS.202307_26(3).0001)
- Little, D. (2007). Language learner autonomy: Some fundamental considerations revisited. *International Journal of Innovation in Language Learning and Teaching*, 1(1), 14–29. <https://doi.org/10.2167/illt040.0>
- Magnusson, P., & Godhe, A. L. (2019). Multimodality in language education--implications for teaching. *Designs for Learning*, 11(1), 127–137. <https://doi.org/10.16993/dfl.127>
- Means, B. (2010). Technology and education change: Focus on student learning. *Journal of Research on Technology in Education*, 42(3), 285–307. <https://doi.org/10.1080/15391523.2010.10782552>
- Mercer, S. (2012). The complexity of learner agency. *Apples- Journal of Applied Language Studies*, 6(2), 41–59. [https://jyx.jyu.fi/jyx/Record/jyx\\_123456789\\_40858](https://jyx.jyu.fi/jyx/Record/jyx_123456789_40858)
- Nacaroğlu, O., & Bektaş, O. (2023). The effect of the flipped classroom model on gifted students' self-regulation skills and academic achievement. *Thinking Skills and Creativity*, 47, 1–18. <https://doi.org/10.1016/j.tsc.2023.101244>
- Nghi, T. T., Phuc, T. H., & Thang, N. T. (2019). Applying AI chatbot for teaching a foreign language: An empirical research. *International Journal of Scientific and Technology Research*, 8(12), 897–902. <https://www.ijstr.org/final-print/dec2019/Applying-Ai-Chatbot-For-Teaching-A-Foreign-Language-An-Empirical-Research-.pdf>
- Noori, A. (2025). Enhancing EFL reading instruction with digital tools: Effects on comprehension, vocabulary, and engagement. *Journal of Social Sciences-Kabul University*, 7(4), 289–313. <https://doi.org/10.62810/jss.v7i4.264>
- Nunan, D. (2003, September 27-28). *Nine steps to learner autonomy* [Online]. In M. Olofsson (Ed.), *Symposium 2003: Arena andraspråk* (pp. 193–204). HLS Förlag.

- O'Brien, E., & Reale, J. (2021). Supporting learner agency using the pedagogy of choice. In S. Hase, & L. M. Blaschke (Eds.), *Unleashing the power of learner agency*. (pp.87–96). EdTech Books. <https://edtechbooks.org/up/choice>
- O'Connor, C., & Joffe, H. (2020). Intercoder reliability in qualitative research: debates and practical guidelines. *International Journal of Qualitative Methods*, 19, 1–13. <https://doi.org/10.1177/1609406919899220>
- O'Hara, S., & Pritchard, R. (2008). Hypermedia authoring as a vehicle for vocabulary development in middle school English as a second language classrooms. *The Clearing House. A Journal of Educational Strategies, Issues and Ideas*, 82(2), 60–65. <https://doi.org/10.3200/TCHS.82.2.60-65>
- OECD. (2019). *OECD future of education and skills 2030*. [https://www.oecd.org/content/dam/oecd/en/about/projects/edu/education-2040/1-1-learning-compass/OECD\\_Learning\\_Compass\\_2030\\_Concept\\_Note\\_Series.pdf](https://www.oecd.org/content/dam/oecd/en/about/projects/edu/education-2040/1-1-learning-compass/OECD_Learning_Compass_2030_Concept_Note_Series.pdf)
- OECD. (2020). *What students learn matters: Towards a 21st century curriculum*. OECD Publishing. <https://doi.org/10.1787/d86d4d9a-en>
- Panagiotopoulos, G., & Karanikola, Z. (2020). Education 4.0 and teachers: Challenges, risks and benefits. *European Scientific Journal ESJ*, 16(34), 114–128. <https://doi.org.10.19044/esj.2020.v16n34p108>
- Park, H. E. (2024). The double-edged sword of generative artificial intelligence in digitalization: An affordances and constraints perspective. *Psychology & Marketing*, 41(11), 2924–2941. <https://doi.org.10.1002/mar.22094>
- Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice*. Sage Publications.
- Raya, M. J., Lamb, T., & Vieira, F. (2017). *Mapping autonomy in language education: A framework for learner and teacher development*. Frankfurt-am-Main, Germany Peter Lang.
- Schreiber, J. B., & Asner-Self, K. (2011). *Educational research: The interrelationships of questions, sampling, design and analysis*. Wiley.
- Schunk, D. H., & Zimmerman, B. J. (Eds.). (2012). *Motivation and self-regulated learning: theory, research, and applications*. Routledge. <https://doi.org/10.4324/9780203831076>
- Serafini, F. (2015). Multimodal literacy: From theories to practices. *Language Arts*, 92(6), 412–423. <http://www.jstor.org/stable/24577533>
- Shang, H. F. (2016a). Online metacognitive strategies, hypermedia annotations, and motivation on hypertext comprehension. *Journal of Educational Technology & Society*, 19(3), 321–334. <http://www.jstor.org/stable/jeductechsoci.19.3.321>
- Shang, H. F. (2016b). Exploring demographic and motivational factors associated with hypertext reading by English as a foreign language (EFL) student. *Behaviour & Information Technology*, 35(7), 559–571. <https://doi.org/10.1080/0144929X.2015.1094827>
- Shi, W., & Han, L. (2019). Promoting learner autonomy through cooperative learning. *English Language Teaching*, 12(8), 30–36. <https://doi.org.10.5539/elt.v12n8p30>
- Smith, R. (2008). Learner autonomy. *ELT Journal*, 62(4), 395–397. <https://doi.org/10.1093/elt/ccn038>
- Şener, B., & Mede, E. (2023). Promoting learner autonomy and improving reflective thinking skills through reflective practice and collaborative learning. *Innovation in Language Learning and Teaching*, 17(2), 364–379. <https://doi.org/10.1080/17501229.2022.2047694>
- Tajeddin, Z., & Asadnia, F. (2025). Teachers' collaborative reflections on classroom materials: From traditional consumers to digital materials developers and teacherpreneurs. *RELC Journal*, 56(2), 287–304. <https://doi.org/10.1177/00336882231222036>

- Thorne, T. (2016). Augmenting classroom practices with QR codes. *TESOL Journal*, 7(3), 746–754. <https://doi.org/10.1002/tesj.257>
- Ting, Y. L. (2015). Tapping into students' digital literacy and designing negotiated learning to promote learner autonomy. *Internet and Higher Education*, 26, 25–32. <https://doi.org/10.1016/j.iheduc.2015.04.004>
- Trilling, B., & Hood, P. (1999). Learning, technology, and education reform in the knowledge age or "we're wired, webbed, and windowed, now what?". *Educational Technology*, 39(3), 5-18. <http://www.jstor.org/stable/44428527>
- Trust, T. (2018). Why do we need technology in education?. *Journal of Digital Learning in Teacher Education*, 34(2), 54–55. <https://doi.org/10.1080/21532974.2018.1442073>
- Turan-Öztürk, D. (2016). *The effect of collaborative activities on college-level EFL students' learner autonomy in the Turkish context*. (Publication No. 441145). [Master's thesis, Bilkent University]. Ankara.
- Van den Beemt, A., Buijs, J., & Van der Aalst, W. (2018). Analysing structured learning behaviour in massive open online courses (MOOCs): An approach based on process mining and clustering. *International Review of Research in Open and Distributed Learning*, 19(5), 37–60. <https://doi.org/10.19173/irrodl.v19i5.3748>
- Varol, B., & Erçetin, G. (2021). Effects of gloss type, gloss position, and working memory capacity on second language comprehension in electronic reading. *Computer Assisted Language Learning*, 34(7), 820–844. <https://doi.org/10.1080/09588221.2019.1643738>
- Walsh, M. (2010). Multimodal literacy: What does it mean for classroom practice?. *The Australian Journal of Language and Literacy*, 33(3), 211–239. <https://doi.org/10.1007/BF03651836>
- Wan, Y., & Moorhouse, B. L. (2025). Challenges of AI in language education. In Y. Wang, A. Alm, & G. Dizon, (Eds.), *Insights into AI and Language Teaching and Learning* (pp. 32–52). Castledown Publishers. <https://doi.org/10.29140/9781763711600>
- Wong, J., Baars, M., de Koning, B. B., & Paas, F. (2021). Examining the use of prompts to facilitate self-regulated learning in massive open online courses. *Computers in Human Behavior*, 115, 1–27. <https://doi.org/10.1016/j.chb.2020.106596>
- Yasmin, M., & Naseem, F. (2019). Collaborative learning and learner autonomy: Beliefs, practices and prospects in Pakistani engineering universities. *IEEE Access*, 7, 71493–71499. <https://doi.org/10.1109/ACCESS.2019.2918756>
- Zou, D., & Teng, M. F. (2023). Effects of tasks and multimedia annotations on vocabulary learning. *System*, 115, 1–15. <https://doi.org/10.1016/j.system.2023.103050>

## Appendices

### Appendix 1: Interview questions

#### Pre-study semi-structured interview questions

- 1- What is your ultimate goal in learning English as a foreign language?
- 2- Do you feel dependent on teachers and school or prefer to be independent while you are studying English?
- 3- How do you integrate technology into your language learning process if you are already using it?

#### Post-study semi-structured interview questions

1- Have you found this study useful in terms of language learning?

- If yes, what aspects were useful? How are you going to integrate your gains into your language learning process?
- If not, why?

2- How dependent were you on your teacher's guidance throughout this study?

3- Have you experienced making your own decisions? If yes, did you enjoy making your own decisions or did you feel a bigger need for the support from the teacher?

4- Is there any aspect of this study that you are planning to maintain?

5- You have experienced integrating technology into your language learning? What do you think about it?

6- Having completed the study, do you feel any change in terms of taking more active role in your own learning process and being more independent of teachers?

### **Appendix 2: Reflection paper questions**

1- Have you found this specific phase of the study useful in terms of language learning?

- If yes, what aspects were useful? How are you going to integrate your gains into your language learning process?
- If you found it useless, why and what aspects?

2- How dependent were you on your teacher's guidance for this specific phase of the study?

3- Would you prefer more support from the teacher during the completion of this specific phase of the study?

3- What did you like/dislike about this specific phase of the study?

4- What was a difficult aspect of this specific phase of the study? How did you overcome this difficulty?

5- Did you feel any need to make a change about this specific phase of the study?

### Appendix 3: Sample productions of the students

#### NATURAL RESOURCES

Natural resources can be described as that consist on the earth independently of human actions. There are two types of natural resources: Renewable resources and non-renewable resources. Renewable resources is sustainable in nature. Other one is exhaustible.



**RENEWABLE RESOURCES:** These resources are solar energy, wind energy, wave energy.

-**Solar Energy:** Solar energy produces heat, causes chemical reactions and generates electricity.

-**Wind Energy:** The description of wind energy is produce energy with wind panels.

-**Wave Energy:** Wave energy is that can be harnessfrom the motion of the waves. Wave energy is not very common today. Because turbines are very damaged in storms.

**NON-RENEWABLE RESOURCES:** These sources are coal, natural gas, oil.

-**Coal:** It is a sedimentary rock of herbal origin. It takes millions of years to form.

-**Natural Gas:** Natural gas is a combustibile gas mixture of fossil.

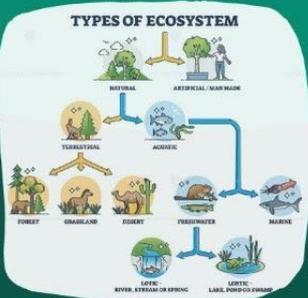
-**Oil:** It is natural combustibile mineral oil. Oil is made of hydrocarbons. It is thicker than water and not purified. It is extracted from the ground.

#### ABOUT REASONS AND SOLUTIONS:



# BE KIND YOUR PLANET IT'S THE ONLY ONE WE HAVE!

**WE MUST PROTECT OUR ENVIRONMENT TO SUSTAIN BIOLOGICAL LIFE. WHEN YOU LOOK AROUND, YOU CAN SEE A GREAT ECOLOGICAL BALANCE. DISRUPTING THAT BALANCE IS DAMAGING MILLIONS OF LIVING THINGS AND ECOSYSTEMS. YOU CAN ALSO SUPPORT THE MAINTENANCE OF THE ECOLOGICAL BALANCE THROUGH THE PRECAUTION OF ENVIRONMENTAL PROTECTING.**


### SIMPLE THINGS YOU CAN DO TO HELP PROTECT THE EARTH

#### Plant a tree

Trees provide food and oxygen. They help save energy, clean the air, and help combat climate change.



#### Buy organic

Organic Food production helps preserve local wildlife. To avoid toxic chemicals, using of mixed planting as a natural pest control measure.



#### Plastic free

Put a tote bag in your handbag, pocket, or car wherever you go. You'll be surprised how many bags you don't need to get. Get a reusable water bottle or coffee cup.



#### Conserve water

The less water you use, the less runoff and wastewater that eventually end up in the ocean.



#### Reduce, reuse, and recycle.

Cut down on what you throw away. Follow the three "R's" to conserve natural resources and landfill space.



### What is the biodiversity?

Biodiversity is usually defined as the billions of unique living organisms that live on Earth and the interactions between them. Prof David Macdonald, from the University of Oxford, said: "Without biodiversity, there can be no future for humanity."

### Why is the biodiversity important?

Biodiversity is declining at a rate never before seen in human history. In the last 100 years, 83 percent of wild mammals and half of their plant species have gone extinct. The humans who responsible for all this are represent only 0.01 percent of all living things.

### What is the ecosystem?

Ecological systems that occur with the mutual relations of the living things in a certain area and their inanimate environments surrounding them and that are continuous are called ecosystems. The natural environment is the ecosystem. The natural environment is the spontaneous environment that was not formed by human hands.

An ecosystem has four basic components;

- 1-Inanimate beings. (inorganic and organic substances)
- 2-Primary producers. (green plants – autotrophs)
- 3-Consumers (those who eat plant and animal substances – hetotrophs)
- 4-Decomposers (bacteria and fungi – saprophytes)

