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Research paper

Fostering 21st Century Skills of Adult Learners Via Authoring Tools: A Case from Türkiye

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Abstract

Throughout recent decades, the bonds between technology and classrooms have become stronger day by day. In such a setting, various language classrooms all over the world have started to utilize technological tools. Authoring tools that allow students to create content are among these tools, and they are commonly used in many settings. Hence, the present study aims to understand the perceptions of English as a Foreign Language (EFL) learners regarding the use of authoring tools in developing 21st-century (C21) skills. Data were gathered through semi-structured interviews and minute papers from 33 university students over the course of an academic term. Findings point out that most participants perceived significant gains in communication, collaboration, creativity, and presentation skills. However, the development of critical thinking was less frequently acknowledged. Thematic analysis highlights that the integration of authoring tools in project-based tasks not only backed up language skill acquisition but also increased learners' confidence and engagement in the classroom. Such a sample procedure might also be utilized in other disciplines like STEM, engineering, or other fields of education.

Keywords: *21st Century Skills; Authoring Tools; Adult Education; Language Classrooms.*

1. Introduction

Because educational paradigms shift to fit well with 21st-century demands, the integration of technology into language education has become of high importance. Such tools put forward dynamic, interactive platforms to enrich traditional learning environments and to encourage students to engage in authentic communication, collaboration, and content creation. In other words, these platforms pave the way for new content creation opportunities tailored to be used for language classrooms all over the world.

Integrating 21st-century skills and authoring-technological tools into language classrooms has gained increasing scholarly attention in recent years. Studies conducted in the field highlight that equipping teachers with digital literacy, critical thinking, creativity, and collaborative skills is of high importance for effective language instruction in contemporary classrooms [1]. In such a case, Yeni and Can [2] conducted a study with language teachers and reported that teachers are more aware of how to integrate 21st Century Skills and digital tools—such as AR, VR, and CALL—into their teaching to create more authentic and engaging learning experiences. Furthermore, Ertmer and Ottenbreit-Leftwich [3] found that language teachers who receive training in authoring tools such as Canva, Genially, Powtoon, and H5P are more likely to design interactive and student-centered learning environments that foster communication and learner autonomy. In another study, it was found that Turkish EFL pre-service teachers favoured the use of technological tools and demonstrated that integrating Web 2.0 tools into teacher education programs significantly enhances their ability to design materials aligned with 21st-century competencies [4]. A study in a similar vein, the results suggest that while teachers show a positive attitude toward technology use, continuous professional development is needed to ensure the effective and pedagogically sound integration of these tools [5].

This study aims to explore how EFL students perceive the influence of authoring tools on their development of C21 skills within a Turkish university context.

1) How do adult students perceive authoring tools to foster their 21st-century skills?

2. Methodology

2.1. Method

As the method of the study, qualitative research methods were utilized. In that sense, as it was mentioned in Fraenkel et al. [6], the ideas of the participants were gathered via semi-structured interviews and minute papers, and the results were evaluated via content analysis.

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2.2. Participants

Thirty-three EFL students enrolled in a university-level language course participated in the study. When the academic term ended, semi-structured interviews were conducted with all participants, and minute papers were collected periodically throughout the course.
Data Collection and Analysis
Qualitative data from the interviews and minute papers were subjected to thematic analysis. Emerging themes were categorized based on frequency and relevance to the development of C21 skills. Accordingly, five major categories were subjected to detailed examination.

2.3. Procedure

After students studied via authoring tools throughout a term, the students were asked to take comments on minute papers about how they perceived. Once collecting data for 6 weeks, the students were asked to take part in semi-structured interviews in which they were asked to respond to open-ended questions about the process of using authoring tools to foster 21st-century skills.

3. Findings and discussion

3.1. Perceptions of Web 2.0 tools and C21 skills

Out of 33 participants, 31 reported that their C21 skills improved with the use of Web 2.0 tools, alongside gains in language proficiency. Some participants acknowledged improvements in creativity, collaboration, and communication, while others expressed uncertainty about the development of their critical thinking skills.
Participant 1: “To reach all that information and to develop your skill at the same time means a lot to me… I guess they were helpful on this issue, although I can’t claim the same for my critical thinking skill.”
Participant 25: “I got anxious… I thought it would be a difficult term… I think they helped us a lot not only for C21 skills but also for language skills.”
These comments indicate the dual benefit of using Web 2.0 tools—not only facilitating language development but also promoting essential 21st-century competencies. However, they also indicate the problems with critical thinking skills. Therefore, minute papers have been collected for a deeper analysis of this issue. Figure 1 below displays such an analysis via word cloud.

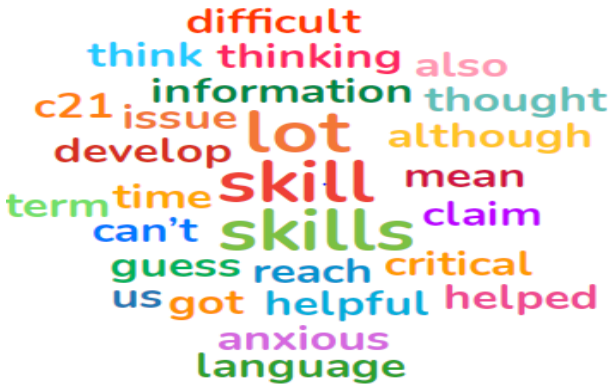


Fig. 1: Word Cloud About How Students Perceive Web 2 0 and Authoring Tools.

As it can be seen from Figure 1 above, the participants' responses indicate the fact that Web 2.0 tools play a significant role in enhancing 21st-century skills (C21), particularly in areas such as communication, collaboration, and creativity. In this respect, this result aligns with existing literature, which emphasizes the interactive and participatory nature of Web 2.0 technologies as catalysts for learner engagement and skill development [7]. The fact that 31 out of 33 participants reported improvements suggests a strong perceived efficacy of these tools in educational settings. However, the mixed responses regarding critical thinking highlight a common challenge; while Web 2.0 tools provide access to diverse content and perspectives, they do not automatically foster deeper cognitive processing unless guided by instructional strategies [8]. Participant 1’s uncertainty reflects this gap, underscoring the need for intentional pedagogical designs to promote higher-order thinking. On the other hand, Participant 25’s transformation from anxiety to appreciation illustrates how effective integration of these tools can also support emotional engagement and language learning, reinforcing their multifaceted educational value.

3.2. Presenting via Web 2.0 tools

The most frequently cited benefit pertained to student presentations using digital tools. These platforms enabled learners to create engaging visual content and present it in ways they had not experienced during previous traditional education.
Participant 22: “We used one of the storytelling programs at our first presentation… It was funnier to use it since it was more interactive. We enjoyed a lot while using these tools.”
Participant 15: “I memorized all the subjects… but when I started to speak, I got excited… We did our presentation thanks to a user-friendly tool.”
Participant 6: “We were excited, we made some mistakes, but with the Web 2.0 tool, we have felt like professional speakers.”
Participant 14: “Using this tool was a great opportunity to show those facts [about animals].”
Participant 4: “Presenting was a new idea for me… We just studied grammar, so presenting via Web 2.0 tools was a frightening idea for me. Then, I understood that they helped me more than I thought.”
In line with the abovementioned remarks, it can be said that the novelty of presenting through digital tools seemed to motivate students, leading to increased engagement, preparation, and self-reflection. Much as initial anxiety was reported by some, the overall experience was described as empowering and enriching. Figure 2 below displays the word cloud prepared thanks to minute papers.



Fig. 2: Word Cloud for the Category "Presenting Via Web 2.0 Tools".

The word cloud obtained via the minute papers (Figure 2) illustrates frequently used terms such as create, speak, and present, which reflect active engagement and learner-centered experiences. The prominence of these verbs suggests that students perceived the learning activities as opportunities to express themselves, practice communication skills, and engage in meaningful tasks. Moreover, positive terms like good, better, and fun appeared more frequently than negative expressions, putting forward a predominantly favorable reception of the activities. Such a lexical trend indicates that learners associated the tasks with enjoyable and productive experiences, potentially enhancing motivation and willingness to participate. On the other hand, there is a scarcity of negative terms, which may also reflect a safe and supportive classroom environment in which students feel comfortable experimenting and contributing. The presence of action-oriented and affective language underlines that the integration of the instructional design contributed to fostering not only cognitive engagement but also emotional and social aspects of learning. These findings are in a similar vein with the goals of 21st-century education, emphasizing creativity, communication, and learner autonomy; thus, the word cloud indicates a useful snapshot of learner perceptions.

3.3. Remarks of the participants vs. studies in a similar vein

In that sense, the findings of the present study are in accordance with many studies in the field. It is widely discussed in the related studies that the integration of authoring tools into educational settings has become a powerful strategy for fostering 21st-century skills, especially in language learning and teacher training contexts. Authoring tools—such as blogs, wikis, digital storytelling platforms, and multimedia editors—enable learners to become active creators of content rather than passive consumers, thereby promoting creativity, autonomy, and critical thinking ([9]; [10]). Such tools foster collaborative learning environments where communication and problem-solving are embedded in authentic tasks, aligning well with the competencies outlined in frameworks like DigCompEdu [7]. According to Mishra and Koehler [11], effective use of such tools within the TPACK model allows educators to integrate technological knowledge with pedagogy and content, creating meaningful learning experiences that address both cognitive and digital demands. Moreover, authoring tools offer learners opportunities to engage in multimodal expression and iterative production, both of which are essential in developing higher-order thinking and digital fluency ([12]; [13]). In this regard, Silva [14] argues that authoring technologies not only support skill development but also provide alternative and authentic means to assess competencies such as collaboration and creativity. Taking the present study's findings into consideration, the present study, of which results are in accordance with the literature, strongly favors the integration of authoring tools as a catalyst for equipping learners with the complex and interconnected skill sets required in the 21st-century knowledge economy.

Despite the increasing integration of technology into English as a Foreign Language (EFL) education, the development of learners' critical thinking skills remains an underexplored area in the literature. Much of the existing research focuses predominantly on technological tools' effectiveness in enhancing language proficiency—such as vocabulary acquisition, reading comprehension, and speaking fluency—rather than on fostering higher-order thinking skills ([15]; [16]). While digital platforms and online learning environments have become common in EFL settings, studies often emphasize usability, student motivation, or linguistic outcomes without thoroughly investigating how these platforms can support or hinder critical thinking [17].

Moreover, studies that do address critical thinking tend to do so in traditional, face-to-face EFL contexts, overlooking the unique cognitive opportunities and challenges presented by digital learning environments [18]. The absence of a clear pedagogical framework for embedding critical thinking in technology-mediated language instruction further contributes to this gap [19]. As a result, there is limited empirical evidence on how digital tools can be purposefully designed or implemented to cultivate learners' analytical reasoning, problem-solving, and reflective thinking within EFL classrooms.

This study addresses this gap by investigating the integration of critical thinking strategies within a technology-enhanced EFL curriculum. By focusing on how digital tools can be aligned with critical thinking objectives, the research aims to provide pedagogical insights and practical implications for educators seeking to move beyond language acquisition toward cognitive development in online or blended learning contexts.

It is also worth to note down that the design of tasks in technology-enhanced environments plays a crucial role in fostering critical thinking among EFL learners. Kessler [9] emphasizes that pedagogically informed task design—not merely the use of technology itself—is key to promoting meaningful engagement and higher-order thinking. When digital tools are used with intentional tasks that require analysis, evaluation, and synthesis, learners are more likely to develop critical thinking skills. For instance, incorporating debate prompts into digital storytelling projects can encourage students to articulate arguments, consider multiple perspectives, and justify their opinions with evidence. In such tasks, students may use video editing platforms or collaborative digital spaces (e.g., Padlet, Flip, or Canva) to craft narratives that reflect nuanced viewpoints on complex issues, such as environmental sustainability or cultural identity. These activities not only support language development but also create authentic contexts in which learners engage in critical reflection and dialogue [9]. Thus, by designing tasks that require learners to think critically within digital platforms, educators can leverage technology to move beyond surface-level language practice toward deeper cognitive engagement.

4. Conclusion

In accordance with the abovementioned findings, it is possible to assert the idea that integrating Web 2.0 tools into EFL instruction contributed to students' development of 21st-century skills, particularly in areas of presentation, communication, and creativity. While most learners recognized these gains, fewer were confident about improvements in critical thinking. These findings support the use of digital tools in fostering both linguistic and cognitive development and encourage further incorporation of technology-driven methodologies in language education. It is possible to claim that critical thinking skill development might be supported through the use of authoring tools by engaging learners in active content creation, problem-solving, and reflective practice. Such tools make users analyze information, organize ideas, and make design decisions, thus encouraging higher-order thinking skills [20]. The moment learners construct digital artifacts, they not only process knowledge more deeply but also evaluate its accuracy, coherence, and relevance which aligns with the core processes of critical thinking [21]. Furthermore, authoring tools provide interactive feedback and revision cycles, allowing learners to refine their reasoning and problem-solving strategies [11]. Making learning in authentic, technology-rich tasks, these tools enable meaningful contexts for applying and developing critical thinking. In that sense, such applications might go beyond the walls of Turkish classrooms, in that authoring tools might pave the way for a more globalized atmosphere in language classrooms with their particular emphasis on communication.

Moreover, the data revealed that learners' engagement with Web 2.0 tools transformed the traditionally passive role of students into more active, reflective, and collaborative participants in their own learning. This shift is particularly meaningful in EFL contexts, where learners often lack real-world opportunities to apply language in meaningful ways. The interactive nature of Web 2.0 tools, combined with their visual and multimodal features, supported learners in expressing their ideas with greater confidence and creativity. This also encouraged more learner autonomy, as participants had to plan, design, and deliver digital content themselves, often outside the boundaries of traditional textbook-driven tasks. The positive emotional responses seen in the word cloud and participant quotes suggest that this autonomy was empowering, enhancing both motivation and a sense of ownership over learning.

However, it is worth noting that despite the overall positive reception, there remains uncertainty among some learners regarding the development of their critical thinking skills. This hesitation could be attributed to the nature of tasks assigned or to students' unfamiliarity with recognizing and articulating their own cognitive growth. While tools such as digital storytelling, collaborative presentations, and discussion boards do hold potential for fostering critical thinking, their effectiveness largely depends on the instructional design. If the activities focus more on information sharing rather than on challenging assumptions, comparing viewpoints, or generating original solutions, learners may not fully experience the benefits of higher-order thinking. Therefore, future implementations of Web 2.0-based tasks should include explicit scaffolding for reflection, questioning, and analysis to more effectively nurture critical thinking alongside other competencies.

To build on the present study, further research should explore the long-term impact of Web 2.0 integration on different dimensions of 21st-century skills, particularly in diverse language learning contexts. Comparative studies that analyse different types of authoring tools—such as podcasts versus digital storytelling, or blogs versus collaborative wikis—could yield deeper insights into which tools are more effective for which skill sets. Additionally, it would be beneficial to include teacher perspectives, as their digital pedagogical knowledge and beliefs significantly shape how these tools are integrated. In sum, while this study confirms the promise of Web 2.0 tools in supporting communication, creativity, and collaboration, it also highlights the need for thoughtful, theory-informed instructional design to fully realize their potential in fostering critical and reflective learners. Future studies could compare the efficacy of collaborative wikis versus individual blogs in fostering critical thinking, using mixed-methods designs to assess long-term skill development.

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