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Digital language learning support for Greek Certification (Ellinomatheia): An
approach for refugees and migrants aged 15 and above

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*To my beloved children
Angeliki and Alexandros*

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Abstract

This study explores the usefulness and necessity of a digital tool for the learning of the Greek language for displaced populations aged 15 years and older, with special emphasis on unaccompanied minors. The aim of the study was to understand the educational needs of this group, as well as the challenges they face due to their particular characteristics, such as their psychological situation, trauma and need for social integration. The literature review highlighted the significant digital divide that exists between displaced populations and European societies, as well as the need to develop a tool that integrates Greek language and culture in order to promote language learning, social integration and enhance job opportunities. The work also focuses on the need for free internet access and the integration of features that allow learning without a constant connection, as unstable internet access is a common problem for refugees and migrants. Through the use of a focus group discussion involving experts from different fields (education, technology, legal issues, psychology etc.), it was found that the need for a digital tool adapted to the educational needs of this group is great. Particular emphasis was placed on the need to incorporate features related to artificial intelligence and personalisation of content, cultural sensitivity, and the linking of content to the requirements of the Greek language certification exams. The study also reveals that, although significant steps have been taken to integrate refugees and migrants into Greek society, gaps remain, especially for those groups that cannot access the public education system or language certification. However, the development of such a tool could to some extent reduce the digital divide and discrimination against refugees and migrants, offering them equal opportunities in education and vocational rehabilitation. The research highlights the importance of accessibility to free educational tools and the creation of platforms that meet the needs of these vulnerable populations, and suggests specific guidelines for the development of these tools, while respecting the rights and specific circumstances of refugees and migrants.

Keywords: *displaced populations, second language, unaccompanied minors, digital language learning*

Introduction

Almost a decade has passed since the beginning of the refugee crisis in 2015, marked by a massive influx of migrants and refugees from countries such as Syria, Afghanistan, and Pakistan. Beyond providing housing, medical care, and psychological and legal support, the integration of adult and minor refugees and migrants into education became a priority. People living in shelters, camps, and hostels for unaccompanied minors needed to learn the Greek language. For minors, integration into the public education system was particularly important, although many challenges had to be overcome before every child could attend school. Non-formal education and the support of civil society organizations played a crucial role in providing refugees and migrants with access to educational activities.

Greek language courses were at the forefront of educational efforts, as integration into the host country is closely tied to language learning. At the same time, rapid technological development has reshaped daily life, with governments pushing for the technological upgrading of every aspect of life to better serve citizens. However, a significant digital divide exists in terms of access, knowledge, and skills. Important steps have been taken in both education transformation and digital language learning. In recent years, efforts have been made to develop digital materials for teaching Greek as a foreign language in Greece.

This study aims to examine the requirements and criteria for creating a digital language learning tool specifically designed for refugees and migrants aged 15 and above. It will explore the unique characteristics and needs of this target group in order to propose a tool that meets their educational needs. While a wide range of educational material is available for learning Greek as a foreign language, much of it, though valuable for teachers, is not fully suited to refugees and migrants entering Greece. This is because it lacks important elements such as inclusiveness, integration of visuals and intercultural content, and activities that leverage the linguistic and cultural backgrounds of the learners. Additionally, the need for quick acquisition of basic vocabulary, such as for navigating daily life (e.g., transportation and shopping), has driven the creation of more relevant educational materials. The aim of this study

is to investigate how a digital learning tool can be effectively designed and optimized to help refugees and migrants aged 15 and above successfully prepare for and achieve Greek language certification (Ellinomatheia). The study will examine the challenges faced by this demographic, identify their specific educational needs, and assess the effectiveness of digital learning features in supporting their language acquisition.

In this context, the scientific question guiding the study is how a digital learning tool can be effectively designed and optimized to support refugees and migrants aged 15 and above in achieving Greek language certification (Ellinomatheia). To address this question, the study will also explore the challenges faced by refugees and migrants in preparing for Greek language certification exams, the specific educational needs of this demographic when preparing for certification, and which digital learning features are most effective in helping this target group achieve certification. Furthermore, the study will investigate how a digital tool can be optimized to meet the specific requirements of Greek language certification for refugees and migrants aged 15 and above.

Literature review

Displaced population definition

Displaced populations or displaced persons refer to individuals or groups who have been forced or compelled to leave their homes or places of habitual residence as a result of various factors, such as armed conflict, generalised violence, human rights violations or natural or man-made disasters. In the global context, displacement can occur across international borders as well as within the same country, and often involves people fleeing situations that threaten their safety and well-being. The reasons for displacement are typically rooted in the urgency to escape situations of violence, persecution or the destruction of their livelihoods due to disasters. These people may become refugees if they cross international borders, or internally displaced persons if they remain within their own country but are forced to leave their homes (Sironi, Bauloz, & Emmanuel, 2019). For the purposes of the present study, the term "displaced populations" is used to encompass all individuals or groups who have

left their homeland in search of safety and better living conditions, without narrowing the focus exclusively to refugees or migrants in legal terms. This broad approach is intended to acknowledge the wide variety of experiences that displaced individuals go through and to recognize that all individuals in these circumstances have the same fundamental needs, including the need to acquire the language skills necessary to integrate into their host communities.

Legal framework: access to education for all

This paper examines the feasibility of developing a suitable digital language learning tool for people with refugee and migrant backgrounds aged 15 and above. This as a consequence of the need to provide appropriate educational support according to the needs of both minor and adult learners. However, education is a fundamental right of every human being, enshrined at national, European and international level.

In Greece, the right to free education is enshrined in Article 16 of the Constitution (Official Gazette of the Government, 2019) which provides, *inter alia*, that “All Greeks have the right to free education, at all levels, in state educational institutions. The State shall support students who excel, as well as those who need assistance or special protection, depending on their abilities”. According to Vlachopoulos, despite the fact that Article 16 para. 4 refers to Greeks "it is difficult to accept that our constitutional order does not wish to provide education to foreigners and through this to integrate them into Greek society (Vlachopoulos, 2017).

On the other hand, the right to education is enshrined in a number of binding documents at European and international level. In particular, Article 26 of the Universal Declaration of Human Rights (United Nations, 1948) explicitly states that Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages, Article 2 of the European Convention on Human Rights (1950) (Council of Europe, 1950) states that no one shall be deprived of the right to education, while the Charter of Fundamental Rights of the European Union, in particular Article 14, states that everyone has the right to education and "the right of parents to ensure the education and teaching of their children in conformity with their religious,

philosophical and pedagogical convictions shall be respected, in accordance with the national laws governing the exercise of such freedom and right (European Union, 2012).

At the same time, it is important to stress that the Declaration against discrimination in education states that this Convention aims to eliminate discrimination in education, ensuring that all children, regardless of their background, have equal access to education. It is an essential instrument for promoting education as a universal human right. With regard to persons belonging to minorities, the Convention on the Rights of the Child (United Nations General Assembly, 1989) explicitly states that all persons belonging to ethnic, religious and linguistic minorities, and in particular a child belonging to such a minority, shall not be deprived of the right to enjoy his or her own culture, to practise his or her own religion and to use his or her own language. It is therefore very important that, in addition to access to education in general, every individual, irrespective of origin, religion and language, should be able to enjoy the elements of his or her own identity within the framework of free and unrestricted access to education. Access to education is therefore a right for all, and the 2030 Agenda for Sustainable Development makes it explicitly clear in target 4.5 that *By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations* 4.6 *By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy* (United Nations, 2015).

With regard to students with a different linguistic and cultural background from the host country, Law 4540/2018, Article 13, provides that minors during their stay in the country have access to the public education system and it is mandatory that education starts within three months after the completion of the identification process of the minor. Informal education may also take place within the accommodation centres. However, if access to education is impossible for the minor, special and appropriate measures must be taken (Official Gazette of the Government, 2018). In particular, for unaccompanied minors the guardian is responsible for education and training, such as enrolment of the represented unaccompanied minor in school, access to non-formal education or vocational training services, cooperation and communication with teaching staff, provision for learning the mother tongue, Greek

and other foreign languages (Official Gazette of the Government, 2022). Accordingly, adult beneficiaries of international protection are allowed access to the general education system and to training programmes under the same conditions as third-country nationals legally resident in Greece (Official Gazette of the Government, 2019).

The development of additional appropriate educational material for foreign students with the above characteristics therefore seems to be necessary. Despite the fact that education is a fundamental right, there are still children and young people with refugee and migrant backgrounds who have not been integrated into the public education system for various reasons. However, according to Law 4415/2016 Article 21, intercultural education aims, in addition to the enrolment of children with different cultural backgrounds in schools with native children, to develop appropriate school curricula, books and educational materials (Official Gazette of the Government, 2016). However, it should not be overlooked that compulsory education in Greece is 9 years and that special provision should be made for minors over 15 and adults. According to Article 14 Directive 2013/33/EU on the reception requirements for applicants for international protection, preparatory courses including language courses should be provided to facilitate access to the education system (European Parliament & Council of the European Union, 2013).

It is therefore understandable that although there is a broad legal framework at national, European and international level for access to education for all without exception, as well as specific directives and regulations for persons belonging to minority groups and vulnerable populations, there are still some who do not enjoy this right. Therefore, in the context of preparatory support for students with free access characteristics, this paper examines the development of a digital solution for the learning of the Greek language by people aged 15 and above who are in Greece as a host country and are learning Greek as a second language.

Addressing the digital divide for displaced populations

The digital divide is a multifaceted issue that extends beyond the availability of technological devices. It includes gaps in internet access, inequalities in digital literacy and the inability to use ICTs effectively for educational purposes. These inequalities

disproportionately affect marginalised populations, including refugees, migrant families and displaced persons, who often lack the technological resources needed to fully participate in educational opportunities. As ICTs become increasingly central to modern education, the implications of these disparities become more pronounced, particularly in second language learning, where access to tools and resources is vital to success (López Montero, Delgado Baena, Vela-Jiménez, & Sianes, 2021).

The digital divide can be categorised along several dimensions: access, use and outcomes. At the first level, the digital divide refers to differences in physical access to technology, such as computers and the Internet. This divide is evident among migrant families and displaced populations. For example, while mobile phones are widely available, they often lack the functionality required for complex educational tasks. Many families in these groups also lack fixed internet connections, relying instead on public spaces or limited mobile data for connectivity. This disparity creates significant educational challenges, particularly for children trying to complete schoolwork or access digital learning platforms.

The second digital divide focuses on differences in the ability to use technology effectively. For many displaced people, limited access to digital literacy programmes exacerbates this gap, preventing them from taking full advantage of the tools available. This digital literacy gap often reflects wider social and economic inequalities, as digital literacy requires not only access to devices, but also ongoing exposure, training and support. Schools in deprived urban areas, for example, face the dual challenge of providing students with technology tools and ensuring they have the skills to use them effectively (Felton, 2015).

The third level of the digital divide concerns the outcomes of ICT use, such as improved education, employment opportunities and social inclusion. Even when access and skills are addressed, systemic inequalities often prevent marginalised groups from taking full advantage of technological developments. These inequalities are not only technological, but deeply rooted in social, economic and political structures that perpetuate inequality in new, digital forms (Gorski, 2005). For displaced and marginalised populations, mobile technologies in particular are a lifeline. They provide access to educational resources, enable communication and support social inclusion. Mobile learning solutions are cost-effective and flexible, overcoming the

time and place constraints that often limit traditional education. This adaptability makes them particularly valuable for refugees and migrants, who often face disruptions in formal education.

Second language learning presents unique challenges in the context of the digital divide. For many refugees and migrants, learning the language of the host country is essential for integration, yet access to language learning tools is often limited. Public classrooms in underserved areas, where many displaced people begin their language learning journey, often lack adequate technological resources. Teachers must therefore make the most of what is available, often relying on smartphones, which are more accessible but less flexible than computers (Akinlar, Ugurel-Kamisli, Yildiz, & Bozkurt, 2023). While smartphones cannot replace more advanced technologies, they can support basic language learning activities such as vocabulary and listening exercises. With proper pedagogical design, even these limited tools can significantly enhance language learning (Lozano & Izquierdo, 2019).

Mobile technologies also play a crucial role in increasing motivation and engagement, which are key to successful language learning. By allowing learners to track their progress and interact with others, these tools help to maintain interest and create a sense of achievement. For refugees in particular, mobile devices can also serve as a means of connecting with their new community, facilitating both linguistic and cultural integration. These benefits, however, depend on addressing the wider barriers of the digital divide, including internet access and digital literacy.

Policy interventions are also crucial. Governments and international organisations need to recognise that the digital divide is as much a social and economic issue as it is a technological one (Felton, 2015). Addressing these systemic inequalities requires targeted investment in infrastructure, teacher training and curriculum development, as well as initiatives to make digital tools more accessible and affordable for underserved populations.

Characteristics of second language learners aged 15 and above

In Greece, as in most countries as aforementioned, compulsory education is up to the age of 15-16 years. This framework reflects a general focus on ensuring that

younger children receive at least a basic level of education, which is often seen as a prerequisite for future opportunities in life and work. Consequently, emphasis has been placed on the compulsory education programme, with integration and support initiatives designed to address the unique needs of children with refugee and migrant backgrounds. These programmes aim to foster inclusion by addressing linguistic, cultural, and psychological barriers while ensuring access to basic educational services. However, the needs of adolescents and young adults, those aged 15 to 18, and even older, often fall outside the scope of these programmes. This age group, particularly within displaced populations, faces significant obstacles as they attempt to continue their studies where they left off in their country of origin or start anew, whether in secondary education, university, or vocational training. These obstacles are compounded by systemic gaps in educational policies and practices that fail to adequately accommodate their circumstances.

This study focuses on the displaced population aged 15+ years, with a particular emphasis on unaccompanied minors. This demographic represents one of the most vulnerable subsets within the broader population of displaced individuals. Unaccompanied minors face unique and multi-layered challenges that stem from their separation from family and support networks. According to recent data, there are 2,414 unaccompanied minors in Greece, of whom 89% are boys and 11% are girls. Only 15% of this group is under the age of 15 (Ministry of Migration and Asylum, 2024), meaning the vast majority fall into the 15+ category targeted by this analysis. For these young people, the lack of documents verifying prior education poses a critical barrier to resuming their studies. This issue is further compounded by the legal and bureaucratic procedures that accompany their arrival in the host country, including age assessments and the appointment of legal guardians (European Council on Refugees and Exiles, 2023). Together, these factors create significant obstacles to exercising their right to access education.

The challenges unaccompanied minors face extend beyond education and into other critical areas of life, such as accessing the labour market. Education and employability are intrinsically linked, thus, the inability to continue their studies has direct repercussions on their future prospects. Without access to adequate educational opportunities, unaccompanied minors are often excluded from

meaningful employment, which exacerbates their vulnerability and limits their ability to achieve independence. This connection between education and employability underscores the importance of targeted interventions that address the specific needs of this population. Educational programmes designed for this demographic must recognize the unique pressures they face, particularly in relation to the way young people and adults learn. These programmes should not only provide knowledge but also emphasize the potential benefits of education, including improved quality of life, greater access to job opportunities, and enhanced social integration (Kontakos & Govaris, 2006).

It is therefore important to understand that learning the language of the host country represents a particularly crucial stage in the integration process for unaccompanied minors and all displaced persons. Language proficiency is a gateway to broader social and economic opportunities. For unaccompanied minors, mastering the host country's language opens doors to education and employment, while also facilitating communication and interaction with the local population (Mogli & Papadopoulou, 2018). This, in turn, can foster a sense of belonging and inclusion, which is essential for their psychological well-being.

Research on second language learning among displaced populations reveal that participants encounter a range of difficulties. These challenges extend beyond the technical aspects of language acquisition, such as learning grammar, pronunciation, and the structural nuances of the new language. Many learners also face practical barriers, including a lack of time to attend language courses. This issue is often linked to the legal procedures that occupy much of their time upon arrival in the host country, as well as the lack of financial resources needed to support their participation in educational programmes. Additionally, it is important to acknowledge the emotional burdens that displaced populations carry. Experiences of trauma, loss, and displacement can create significant psychological barriers, limiting their ability to engage fully with the language-learning process and with education more broadly (Al Masri & Abu-Ayyash, 2020). For unaccompanied minors, these emotional challenges are often amplified by the absence of familial support, making it even more difficult for them to focus on their studies.

In response to these challenges, Greece has developed a national strategy (Ministry of Migration and Asylum, 2022) for the protection of unaccompanied minors. This strategy includes measures aimed at facilitating their integration into the education system. One of its key provisions is the assessment of the level of knowledge and skills that unaccompanied minors possess upon their arrival. This assessment is intended to inform the creation of differentiated educational pathways that align with their individual needs and circumstances. Within the formal education system, these pathways are designed to provide tailored support, enabling unaccompanied minors to catch up academically and progress alongside their peers.

However, despite these efforts, the phenomenon of school drop-out remains a significant challenge. Many unaccompanied minors struggle to remain engaged in formal education due to the combined pressures of systemic barriers, personal challenges, and socio-economic constraints. Recognizing this issue, the inclusion of unaccompanied minors in non-formal education programmes has been strongly encouraged. Non-formal education offers a more flexible and accessible alternative to traditional schooling, allowing displaced minors to acquire essential knowledge and skills outside the constraints of the formal education system. Such programmes can be particularly effective in addressing the specific needs of unaccompanied minors over the age of 15, who may require alternative approaches to learning that accommodate their unique circumstances.

Given the complexity of these challenges, it is clear that creating appropriate programmes and educational tools for displaced minors over 15 years of age is not merely a policy imperative but a moral one. These programmes must be designed with a deep understanding of the diverse needs of this population, ranging from linguistic and academic support to emotional and psychological care. By addressing these needs in a comprehensive and inclusive manner, educational initiatives can play a transformative role in empowering unaccompanied minors to overcome the obstacles they face and build a future of hope.

Learning approaches for displaced populations aged 15 and above

Digital learning has become very much a part of everyday life, mainly due to the widespread use of mobile devices such as phones and tablets. These devices are used either as stand-alone tools for learning or as key components of face-to-face teaching. Before discussing the different approaches to learning for displaced populations, it is important to explore some data that should be taken into account when designing learning tools and programmes. First of all, refugee children, and especially unaccompanied minors, have suffered trauma during their lives, which may prevent them from learning. In addition, some may speak more than one mother tongue or have been exposed to different languages during their journey. On the other hand, adults rely more on their prior knowledge and are aware of their responsibility toward the process of learning a second language. These positive aspects that adult learners have can be overshadowed when there is a refugee or migrant background, mainly due to emotional factors (Council of Europe, n.d.).

However, it seems that, especially for language learning, adults rely on self-directed learning using technological tools to integrate learning into their busy lives (Ho, 2018). Besides, as has been mentioned before, adults learn to solve problems as a motivation, and at the same time, in many cases, they are ready to learn (Roberson, 2005). During the process of integration in the host country, however, newly arrived refugees have to complete the registration and asylum application process, start courses in the official language, and secure housing (AbuJarour, 2022). Later they will seek employment or integration into an educational institution. The use of technology through learning platforms from the first stage, as well as distance learning, can have significant benefits. The term free digital learning, therefore, refers to free access to digital learning tools that are accessible to all. Research suggests that free digital learning tools should take into account their differentiated characteristics and needs. It has been shown that minors over 16 years of age have higher digital literacy and ease of use. In addition, unaccompanied minors have indicated in surveys that they have a significant desire for additional learning resources to practice on their own time and at their own pace (Colucci, Smidt, Devaux, Vrasidas, Safarjalani, & Castaño Muñoz, 2017). As the movements of this population are quite frequent, the provision of education through a specific digital tool gives a sense of stability that is much needed (Fuller & Hayes, 2020).

The term personalized learning is found in the literature with some conceptual differences. It is important, as emphasised, to have a personalised learning space, especially for minors aged 14–16 (Tomé-Fernández, García-Garnica, Martínez-Martínez, & Olmedo-Moreno, 2020). This is because the use of information in a self-organised way leads to the acquisition of skills linked to the already existing knowledge of social networks and the use of technology. Therefore, virtual learning environments seem to be conducive to learning (García-Garnica, Martínez-Martínez, Tomé-Fernández, & Olmedo-Moreno, 2021). Another interpretation of personalized learning for the group of refugees and migrants is related to the different levels of knowledge and the general heterogeneity that exists (e.g., literacy, cultural background, interruption of studies, etc.) that dictate the use of educational digital tools adapted to the individual needs of each user (Castaño-Muñoz, Colucci, & Smidt, 2018).

Another approach to learning using digital tools is blended learning. As an approach, it is mainly relevant to the formal education system, but it is also applied in non-formal education programmes. Blended learning can occur in environments where mobility is limited, or the educational infrastructure is non-existent or weak (Dridi, Radhakrishnan, Moser-Mercer, & DeBoer, 2020). Here, too, there are different conceptual interpretations of the term blended learning. Some argue that it is a combination of teaching methods, others a combination of teaching approaches, or finally a combination of online and face-to-face teaching. The latter interpretation seems to capture more accurately what actually happens in blended learning environments. However, it is important to clarify that the term "online" is not associated with distance learning but mainly with the use of a digital learning tool alongside face-to-face teaching in the presence of a teacher (Bonk & Graham, 2006). This is because, although blended learning is considered a cost-effective approach to learning, it is theoretically recognised that, especially for refugees and migrants, contact with their peers and teachers is important. Thus, digital learning should complement rather than replace face-to-face learning (Castaño-Muñoz, Colucci, & Smidt, 2018).

Interestingly, despite the fact that personalised learning and blended learning are recognised as mainstream learning approaches for displaced populations, it seems that further research in the field is needed to ascertain in which age groups and under

which circumstances one method is more appropriate than the other. In the context of the present research, and in light of the age limit of 15+, it seems that serious consideration should be given when designing free digital learning initiatives for second language learning. These include whether they will be for use only online or in a blended learning environment, whether they will be designed with a target group of refugees and migrants or the general population wishing to learn a second language, and finally whether they will be accompanied by some support or not, especially for those who are not so familiar with the use of new technologies (Colucci, Castaño Muñoz, & Devaux, 2017).

Digital language learning platforms: criteria and use cases

The use of new technologies in language learning has grown rapidly in recent years. On the one hand, the great penetration of technology in every aspect of modern life and, on the other hand, the covid19 pandemic have brought new realities to the educational community and to those who wish to acquire knowledge without necessarily the presence of a teacher or educational staff in general. Particularly in the field of language learning, many online platforms have been developed that promise fast, autonomous and personalised learning. In this chapter we will examine the criteria for the development of a language learning platform and present selected examples of platforms that are also aimed at those who wish to learn other languages or exclusively Greek. It is important to mention that when trying to develop a language learning platform, it is important to take into account the target group to which the tool is addressed. More specifically, age, cultural background, living conditions, motivation, goals are some of the data that need to be taken into account when designing a digital language tool.

It is a fact that the development and design of language learning tools, especially for refugee populations, follows different criteria tailored to their specific needs and circumstances. This field is still relatively new, with most relevant studies appearing after 2018. Language learning is identified as a primary focus of these applications, in line with the critical role of overcoming language barriers for refugee integration and education. The applications often target beginners in the host country

language, particularly benefiting newly arrived refugees or those living in camps. Conversely, refugees who have spent more time in urban areas prioritise educational apps that target broader areas of learning, including vocational skills. Effective language learning platforms for refugees often include free access, offline functionality, multimedia integration suitable for different age groups, and grading to support progressive learning. In addition, the relevance of the content to the cultural and practical everyday experiences of refugees is an important factor in the effectiveness of the application (Drolia, Papadakis, Sifaki, & Kalogiannakis, 2022).

A key criterion is the ability to sustain motivation. Platforms can achieve this by tracking user performance and allowing learners to share progress reports with relevant institutions such as, schools or employers. This functionality provides a sense of achievement and aligns language learning with tangible goals, such as securing educational or employment opportunities. In addition, contextual vocabulary learning is a critical need reported by refugees. By collecting dictionary and location data, platforms can identify relevant vocabulary specific to the learner's current environment. For example, a refugee visiting a hospital could receive suggestions for medical terminology. This contextual approach not only supports immediate communication, but also enhances long-term vocabulary retention, and seamlessly integrates language learning into daily life through ubiquitous learning features. In addition, fostering identity appreciation and self-expression is critical to increasing engagement. By collecting information about a refugee's background, work experience and interests, the platform can offer personalised content that allows learners to discuss their cultural heritage, personal stories and aspirations. Such materials not only enhance language skills, but also affirm learners' sense of self-worth and cultural identity. Social learning and community integration are equally important, but more difficult to address through traditional means (Abou Khalil, Helou, Flanagan, & Pinkwart, 2019). Refugees often report a need for meaningful social interactions, friendships with locals, and a sense of equality. While these social needs are difficult to meet within the confines of a language app, platforms can collaborate with community-based programmes (Perez Peguero, 2024) or include features that encourage group learning or connections with local volunteers. Finally, platforms should be adaptive, catering for a wide range of learning paces and styles, while being

user-friendly and culturally sensitive. By addressing these criteria holistically, language learning platforms can not only teach the host country's language, but also empower refugees to integrate socially, emotionally and economically into their new communities.

In the search for applications and tools for learning the Greek language, one of the first things that was found is that the majority of learning tools are aimed at a wide audience and are aimed at learning multiple languages. There is very limited data on the production of free digital material for the learning of Greek language only and thus for the acquisition of Greek language skills. One of the best known language learning platforms is Duolingo. As its developers state "*Duolingo is the fun, free application for learning languages through short short short lessons. Practice speaking, reading, listening and writing to build your vocabulary and grammar skills*". Duolingo is a language learning platform that offers courses in many languages. Users can start by selecting their target language and, if they already have some knowledge, take a placement quiz to get started at the appropriate level. To encourage consistent practice, users set daily experience point targets and earn rewards for meeting them. Progress is tracked through a streak system, where completing at least one lesson a day extends the streak, while missing a day resets it to zero. For some users, Duolingo includes a "hearts" system, where each mistake removes one of the five available hearts. When all hearts are lost, the user must wait for them to regenerate before continuing. Mistakes also trigger extra practice and exercises. Correct answers, on the other hand, are rewarded with small bonuses and positive feedback at the end of the session. Users can also interact with the community through discussion forums dedicated to individual questions. The platform enhances motivation by fostering a sense of competition and integrating learners into a supportive community (Kannan & Munday, 2018). The lessons are organised around themes such as family, food and travel. These topics introduce vocabulary and some basic grammatical concepts, although detailed explanations are minimal. Exercises include tasks such as translations, multiple choice questions, word recognition and spelling. In addition, optional challenges such as extending streaks, competing with others, or earning rewards for specific achievements add an element of fun and motivation to the learning process (Mitchell Shortt, Tilak, Kuznetcova, Martens, & Akinkuolie, 2021).

Although, as the developers state on the relevant website, artificial intelligence has been used for several years to quickly and efficiently create the content of the platform, already in 2024 new AI features were added, but they are not part of the free version of the platform (Duolingo, n.d.).

The next platform presented is the Akelius digital language learning tool (Akelius Foundation, n.d.). Its developers introduce it with the statement "*Welcome to the Akelius language learning app. Learn one of the eleven languages below: English, Arabic, French, German, Greek, Italian, Spanish, Polish, Portuguese, Russian, and Swedish. Enjoy a learning experience without commercial advertisements*". The Akelius platform, developed jointly by the Akelius Foundation and UNICEF in collaboration with implementing partners since 2018, is designed to help children and adults learn languages more effectively. It integrates rich, interactive multimedia resources, including original videos, audio, graphics, text, songs, and games. This diverse content is tailored to the needs and interests of learners, providing meaningful and engaging material. Beginners benefit from teacher-selected content to guide their learning process, while more advanced students can explore the platform independently, accessing content that matches their proficiency. A distinctive feature of the Akelius platform is its ability to cater to different learning styles and levels through its interactive and multimodal content. By offering engaging material, it helps sustain student motivation and supports teachers in crafting lessons that address diverse classroom needs. In blended learning settings, the Akelius platform effectively complements face-to-face instruction, serving as a valuable tool to enrich traditional teaching methods (UNICEF, n.d.). Research on the Akelius platform's use in METAdrasi's non-formal education programs highlights its significant impact on students aged 6–18 years. Students reported that using the platform during lessons enhanced their active participation and promoted collaborative learning. It also accelerated knowledge retention and made the learning process more enjoyable, leading to a transformation in conventional teaching practices. The platform's multimodal approach surpasses simple digital reproduction of educational materials, enhancing the role of printed resources and strengthening the overall educational process (Papaioannou, Tsilomeleki, & Valakos, 2022). The platform aligns with the Common

European Framework of Reference for Languages (CEFR) levels¹, ranging from A0 to B2. It incorporates inclusive features, making it an effective tool for learners from diverse cultural and linguistic backgrounds. Furthermore, it offers a multilingual dictionary and supplementary resources for educators. It is important to note that the platform is accessible on PCs, smartphones and tablets. It is completely free and contains no paid content. A key feature is its offline functionality, which allows users to download courses for situations where internet access is unavailable. However, the developers have not mentioned any features involving the use of artificial intelligence.

As mentioned above, there is no systematic effort to create a free platform for learning Greek exclusively as a foreign or second language. There are platforms such as "STA ELLINIKI"² and "Ellinopoula"³ which, however, target children of the Greek diaspora. Furthermore, access to the material is subject to certain conditions and is not freely available. Finally, there is the KLIK app⁴ from the Center for the Greek Language, which is based on the official series of teaching manuals "Klik sta Ellinika," but it comes with a fee and usage conditions.

In conclusion, displaced people face unique challenges in language learning and their needs vary according to their age, cultural background and living conditions. It is clear that effective language learning platforms for displaced populations need to meet certain criteria. These include free access, offline functionality, cultural relevance, adaptability to age and level, and features that motivate learners by incorporating personal and contextual experiences. Platforms that follow these principles not only support language learning, but also empower users by promoting cultural integration, social inclusion and personal development. The evaluation of these platforms highlights the critical importance of tailoring digital language learning tools to the specific needs of displaced learners.

¹ For more information visit the website of Center for the Greek Language. https://www.greek-language.gr/certification/sites/greeklanguage.gr.certification/files/Common-Levelmatching_0.pdf

² For more information visit the website of Sta Ellinika platform <https://www.staellinika.com/el/home>

³ For more information visit the website of Ellinopoula <https://www.ellinopoula.com/el/>

⁴ For more information visit the website of Center for the Greek Language <https://greeklanguage.gr/%cf%8c%cf%81%ce%bf%ce%b9-%cf%87%cf%81%ce%ae%cf%83%ce%b7%cf%82-klikapp/>

The potential of AI in second language learning

In today's interconnected and technologically advanced world, the need for effective and accessible language learning tools is greater than ever. People from all backgrounds - whether they belong to minority groups, displaced communities or individuals seeking to improve their cognitive and professional skills are constantly looking for innovative ways to learn new languages. With the advent of digital platforms, language learning has changed dramatically. While digital tools have been around for years, the integration of AI into language learning platforms offers unprecedented benefits, opening up new dimensions of personalisation, accessibility and efficiency. This chapter explores the integration of AI in language learning, highlighting its benefits, limitations and potential for future development. It also examines the lack of AI-based tools for learning Greek, as an example of a gap in the current technological landscape.

The introduction of AI into language learning has changed the way learners approach language acquisition. The main benefit is the personalisation of content. AI-powered tools can adapt their materials to each learner's cognitive style, level and pace. By analysing user performance data, these platforms can present content in a way that matches an individual's learning preferences, making the process both efficient and engaging. Another key benefit is interconnectivity. AI-powered platforms, often hosted online (Rebolledo Font de la Vall & González Araya, 2023), allow users to interact with peers from around the world. This enables learners to practice with others in real time, fostering a sense of community and providing hands-on conversational experiences, even for those separated by geographical distances. AI tools are also cost-effective. While many platforms are not free, they are generally more affordable than enrolling in traditional face-to-face classes. The reduced cost democratises access to language learning, making it available to a wider audience, especially those who might otherwise struggle to afford traditional education. Beyond the mechanics of learning, AI enriches the user experience by incorporating cultural insights. Language is deeply intertwined with culture, and AI-powered platforms can introduce learners to the customs, traditions and social norms of the target language. This exposure helps learners not only master the language, but also gain a deeper

understanding of the cultural context, which is invaluable for meaningful communication. In hybrid learning models, where AI tools are used alongside teacher guidance, the benefits are amplified. Teachers can rely on AI for repetitive tasks such as grading assignments, analysing student progress and providing immediate feedback (Yang & Kyun, 2022). This allows educators to focus on more complex, human-centred aspects of teaching, such as fostering creativity, cultural sensitivity and nuanced communication skills.

One of the most innovative applications of AI in language learning is the use of chatbots. These virtual conversational agents offer unique benefits to learners. For example, users often feel less intimidated interacting with a machine than a human tutor, reducing the anxiety associated with making mistakes. Chatbots can patiently repeat material as often as necessary, allowing learners to consolidate their understanding without fear of judgement. Many chatbots combine text and speech, allowing learners to practice reading, writing, listening and speaking simultaneously. This multimodal approach improves their overall skills. In addition, chatbots provide instant feedback on grammar, vocabulary and pronunciation, which can significantly accelerate learning (Haristiani, 2019). However, despite their innovative potential, chatbots still have limitations that require further development, such as addressing their novelty factor and increasing their ability to handle complex conversational contexts.

While the benefits of AI in language learning are numerous, certain challenges need to be addressed in order to maximise its potential. The lack of human interaction remains one of the most critical limitations. Although AI tools promote learner autonomy, human interaction plays a crucial role in language learning. Teachers provide emotional support, cultural insight and nuanced feedback that machines cannot fully replicate. Another limitation is the difficulty AI systems have in capturing the cultural and contextual nuances of language. Idiomatic expressions, regional accents and cultural nuances are integral to mastering a language. Without exposure to these elements, learners may struggle in real-world communication, leading to gaps in their practical language skills (Rebolledo Font de la Vall & González Araya, 2023). The use of AI platforms also raises ethical concerns. Data privacy is a pressing issue, as these tools often collect sensitive user information, such as learning habits, personal

preferences and progress reports. Ensuring that this data is stored securely and not misused is paramount. Another challenge is algorithmic bias. If the training data for AI systems is not diverse and representative, it can lead to skewed learning experiences that disadvantage certain groups of users (Kannan & Munday, 2018). Finally, not all learners have equal access to the technology needed to use AI tools. Digital divides resulting from economic or geographical disparities can limit the reach of these innovations, leaving marginalised groups behind. Addressing these issues is essential.

The future of AI in language learning is both promising and exciting. Emerging technologies such as virtual reality and augmented reality have the potential to revolutionize the field. Virtual reality could create immersive simulations where learners practice languages in lifelike scenarios. Similarly, augmented reality could overlay real-time language assistance in physical environments, helping learners interact seamlessly in the real world. Advancements in natural language processing (NLP) will further refine AI's capabilities. As natural language processing NLP algorithms become more sophisticated, AI tools will be better equipped to understand and produce complex language structures, detect subtle errors, and adapt dynamically to learners' needs (Rebolledo Font de la Vall & González Araya, 2023). Furthermore, the development of advanced personalized learning algorithms will enable AI platforms to provide highly tailored experiences. These algorithms could adapt not only to a learner's pace and style but also to their evolving goals, creating a dynamic and responsive learning environment.

In conclusion, AI has changed the landscape of language learning, offering benefits in terms of personalisation, accessibility and efficiency. From promoting cultural understanding to enabling cost-effective and interactive learning experiences, AI tools have opened doors for learners worldwide. However, their limitations, including the lack of human interaction and ethical concerns, must not be overlooked. As the technology continues to evolve, the integration of virtual reality, augmented reality and natural language processing will push the boundaries of what AI can achieve in language learning. By addressing existing challenges and prioritising ethical considerations, AI has the potential to deliver transformative educational experiences, empowering learners to master new languages.

The significance of the Greek Language Certification (Ellinomatheia)

Mastering the language of the host country is a crucial step for refugees and migrants seeking to integrate into their new environment. Language skills not only provide immediate practical benefits, such as communicating with the local population and carrying out daily activities such as shopping or seeking medical care, but also pave the way for long-term opportunities. These include access to employment, higher education and vocational training, enabling individuals to obtain professional certifications or academic degrees. However, achieving these outcomes is not automatic, it requires coordinated national efforts and robust, structured programmes to deliver high-quality language training.

In Greece, where many refugees and migrants live, free language learning programmes play a crucial role in supporting this integration process. These programmes are made possible by the efforts of non-governmental organisations, voluntary groups and academic institutions, which together address the urgent need for Greek language training. Information on available programmes can be found on official platforms such as the website of the Ministry of Migration and Asylum. For example, the General Secretariat for Vocational Education, Training and Lifelong Learning offers organised courses at different levels - A1, A2, B1 and B2 - providing structured pathways for learners to progress. These courses are particularly important for third-country nationals seeking long-term resident status in Greece, as they include modules on Greek history and culture. Upon successful completion of the exams, participants receive official certificates attesting to their language skills and understanding of Greek society, which can open doors to education, employment and deeper cultural integration⁵.

At the heart of this certification process is the Centre for the Greek Language, the official body responsible for organising and overseeing the Greek language examinations. Established to ensure a standardised and objective assessment of Greek language skills, the Certificate of Attainment in Greek serves as formal proof of one's

⁵ For more information visit the website of Ministry of Asylum and Migration <https://migration.gov.gr/migration-policy/integration/draseis-koinonikis-entaxis-se-ethniko-epipedo/pistopoiisi-ellinikis-glossas/>

ability to communicate effectively in Greek. This certification is particularly valuable for individuals pursuing specific opportunities, such as higher education or professional employment. For example, certification at level B2 is a prerequisite for enrolment at Greek universities, while certification at level C2 signifies complete fluency and is essential for access to advanced professional roles, including teaching or working in Greek institutions.

The certification system was formalised in 1998 under the auspices of the Ministry of Education, which defined the structure and requirements of the examinations. Subsequent ministerial decisions have refined the content, format and skills assessed at each level, ensuring that the certification remains credible and relevant. The Centre for the Greek Language, designated as the official authority for the administration of these exams, provides detailed resources on its website, including information on certification levels, exam syllabi and test centres throughout Greece. This centralised approach ensures that learners have access to reliable information and a clear understanding of the certification process.

The exams themselves follow a structured framework, as defined by Presidential Decree 60/2010⁶, and assess a range of language skills. At the basic levels, such as A1 and A2, candidates are assessed on four key skills: listening, reading, writing and speaking. These basic skills are essential for effective communication in everyday contexts. As candidates progress to higher levels - B1, B2, C1 and C2 - an additional component, 'Use of Language', is introduced. This section focuses on grammar and vocabulary, reflecting the increasing complexity and depth of language skills required at these levels. For refugees and migrants, particularly those preparing for higher-level certificates, structured training programmes are essential to ensure that they are equipped to meet these rigorous standards.

The Certificate in Greek offers multiple benefits to refugees and migrants and serves as a cornerstone for their integration into Greek society. First and foremost, it provides an expert and objective assessment of an individual's language skills and

⁶ Greek Government. (2010). Presidential Decree 60/2010 - Government Gazette 98/A/30-6-2010. Amendment of Presidential Decree 363/1998: Certificate of Greek language proficiency, type, conditions for obtaining, examination process and content, conditions for participation, and regulation of related details (A' 242). Official Government Gazette. <https://www.e-nomothesia.gr/kat-ekpaideuse/pd-60-2010.html> <https://www.hellenicparliament.gr>

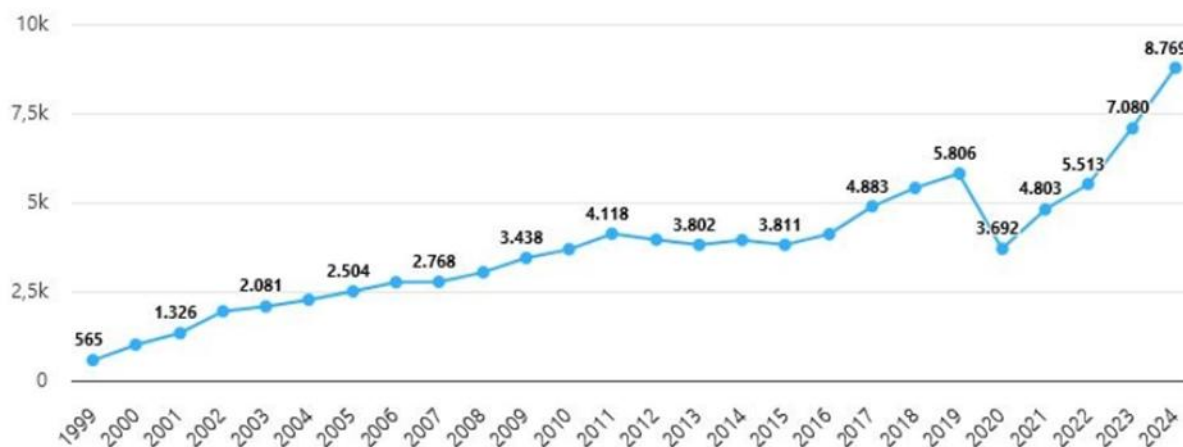
offers formal recognition of their abilities⁷. This certification is often a prerequisite for access to employment opportunities, particularly in professions that require proficiency in the language. It also allows European Union citizens to apply for civil service jobs in Greece, provided they meet the level-specific language requirements for their desired position. It is also essential for those wishing to enrol in Greek higher education institutions, where a B2 level certificate is a mandatory requirement (Ministry of Education and Religious Affairs, Culture and Sports, 2013).

While significant progress has been made in providing language education, meeting the specific needs of refugees remains a challenge. Refugees often face special circumstances that distinguish them from other learners, including interrupted education, trauma and the pressures of adapting to a new environment. In recognition of these challenges, textbooks have been developed specifically to prepare candidates for certification exams (Abou-Khalil, Helou, Flanagan, Pinkwart, & Ogata, 2019). However, these materials are primarily aimed at beginners at levels A1 and A2, leaving a gap for learners aiming for higher levels of proficiency. To address this, there is a need for additional pedagogical resources that reflect a diverse range of learners. experiences, motivations and needs of refugee learners (Diakogeorgiou, 2024). Tailored learning materials, combined with systematic and structured preparation, are essential to support refugees in achieving higher levels of certification. Accelerated learning programmes that take into account the specific circumstances of refugees can further increase their chances of success and enable them to progress more effectively through the language learning process.

In addition to traditional classroom-based training, the development of digital tools offers a significant opportunity to fill the existing gaps in language training for refugees. Digital tools can offer flexible and scalable solutions, providing learners with access to interactive exercises, multimedia resources and culturally relevant content. Such tools can accommodate the different learning paces and lifestyles of refugees, allowing them to prepare for certification exams at their convenience. By integrating features that address the specific needs and experiences of refugee learners, digital platforms can play a transformative role in supporting language learning efforts.

⁷ For more information visit the website of Greek Language Center <https://www.greek-language.gr/certification/node/4.html>

Graph 1. Greek language certification participants per year (1999-2024)⁸



In recent years, participation in Greek language certification exams has increased significantly, especially during the peak of the refugee crisis. This trend underlines the growing recognition of the importance of language skills for integration. However, the COVID-19 pandemic temporarily interrupted this progress and led to a decline in participation rates (graph 1.). Financial barriers, such as exam fees, are also a challenge for many refugees and migrants, especially those aged 15 and over. Addressing these financial barriers is critical to ensuring equitable access to certification opportunities. Subsidising the cost of exams or providing targeted financial support can help displaced people overcome these barriers and enable them to pursue language learning without additional burden.

The Certificate of Greek is much more than a credential. It is a gateway to meaningful participation in Greek society. By enabling refugees and migrants to access education, employment and professional opportunities, the Certificate plays a crucial role in promoting social inclusion and mutual understanding. To maximise its impact, a comprehensive strategy is needed that combines free access to high-quality educational materials, tailored resources for refugee learners, and innovative digital tools that support flexible learning. Addressing these challenges will empower

⁸ For more information visit the website of Greek Language Center <https://www.greek-language.gr/certification/index.html>

refugees and migrants to build a better future, contribute meaningfully to their new communities, and strengthen ties between displaced populations and host societies.

Methodology

Research design

This research was conducted using focus groups in 2024. The researcher first clarified the purpose and objectives of the study. After developing a guide for the focus group discussions, suitable participants were identified as key informants for the topic under study. Potential participants were verbally informed of the purpose and value of their participation. A meeting date was then arranged to suit participants' schedules. Participants were informed that their participation would remain anonymous and that the results would be used for research purposes only. The focus group conversation was recorded and transcribed. The data was then analysed as will be shown in the next chapter.

Data collection method

For the purposes of this study, a qualitative data collection method was chosen, specifically the focus group technique. This method involves bringing together a group of participants who are guided by a facilitator through a structured discussion. The central aim of using the focus group method is to gather rich, detailed insights into participants' thoughts, experiences and opinions on a very specific topic of interest. Unlike other data collection methods, which may rely on individual responses, the focus group emphasises the interaction and dynamic exchange of ideas between participants. This interaction is a crucial element as it allows for the co-creation of meaning, where ideas are shaped, challenged and developed through group dialogue (Bryman, 2016).

The research sample

A total of ten people took part in the study. Two were men and eight were women. In order to ensure better data collection and a comprehensive examination of the specific issue, an interdisciplinary team was selected to participate in the focus group. The following categories of professionals participated: linguist, guardian for

unaccompanied minors, AI expert, legal expert, professor of Greek as a foreign language, policy maker, NGO worker, education expert and psychologist. This study used purposive sampling, which allows the researcher to use their judgment to select a sample that is most useful for the needs of the topic being examined (Robson, 2010).

The research tool

As mentioned earlier, a guide was created for the focus group in order to explore the data required for this specific study. The questions in the questionnaire were as follows. The time allocated for the completion of the focus group was one and a half hours.

1. What are the main characteristics of this target group (e.g. cultural background, level of education)?
2. What specific challenges do they face in learning a second language such as Greek?
3. How can a digital language learning tool designed for beginners in Greek be tailored to effectively support the specific needs and goals of this group?
4. What specific learning needs or preferences should be taken into account for this population?
5. How can a digital language learning tool address literacy issues or limited previous educational experience?
6. What cultural or linguistic elements are critical to include to ensure relevance and engagement?
7. Are there any legal or systemic barriers that may affect refugees and migrants access to Greek language certification exams?
8. What specific challenges do unaccompanied minors face in accessing education or technology?
9. How can a digital language learning tool ensure inclusivity for users with limited access to technology or low digital literacy?
10. How can AI be used to personalise the learning experience for A1 and A2 learners (beginners)?
11. What are the main technical challenges in developing and deploying a digital language learning tool for this target group?

12. What will distinguish this digital language learning tool from similar tools for this target group, making it innovative and unique?

The questions chosen were primarily designed to collect data of varied interest, as the focus group, as mentioned earlier, is characterized by interdisciplinarity. Participants were able to express their views on topics outside of their own professional or research fields, thereby contributing to a diversity of perspectives in the data.

Key Findings

This chapter presents the results of the focus group discussion, organised by each specific question asked during the session. The aim is to carefully examine and present the most important issues raised by the participants in order to provide an in-depth understanding of their perspectives. Throughout the chapter, key phrases and insights are included exactly as they were expressed by the participants, allowing for a clear representation of their views. The discussion will focus on identifying the core themes and patterns that emerged, while also highlighting the diversity of opinions and experiences shared by the group. In this way, the chapter will provide a comprehensive overview of the main issues raised during the focus group, providing valuable data for subsequent analysis.

Characteristics and educational backgrounds of displaced populations

The target group for this study is diverse, consisting of refugees and migrants from countries like Syria, Afghanistan, Somalia etc.. They bring with them a rich variety of languages such as Arabic, Farsi, and Sorani, and their cultural backgrounds shape how they learn. As one participant noted, *“This group includes young people from diverse countries who often arrive with different linguistic abilities.”* However, their educational experiences vary significantly. Some have completed formal schooling, while others have faced major disruptions. As one respondent explained, *“Some might have university degrees, while others haven’t had access to formal education at all.”*

Refugee children, in particular, often have large gaps in their schooling. *“50% of unaccompanied minors in Greece today are Egyptian, at best, they have finished primary school,”* shared one participant. Many refugees have been out of school for

more than three years, and some, especially girls, may have never attended school at all. Literacy in their first language also varies, with one participant noting, *“There are people who have not even studied in their country... they may not know the mechanisms of writing and reading in their native language.”* These challenges affect how they approach learning Greek.

The emotional needs of the group also play a critical role in their education. Many have experienced trauma from war, displacement, and loss, making learning more difficult. *“They’re resilient, but many are also dealing with trauma, which can make learning a bit more challenging,”* said one respondent.

Despite these barriers, many participants are motivated to learn Greek to integrate into society. However, others see it as a temporary skill, which affects their level of engagement. Their familiarity with technology provides an opportunity to design digital learning tools that are effective and engaging. As one participant suggested, tools should be *“attractive and interesting”* and adaptable to different educational levels and needs. These tools must accommodate not only their diverse learning backgrounds but also their emotional and psychological challenges, ensuring that all learners have a fair chance to succeed.

Challenges in learning Greek as a second language

Learning Greek as a second language presents significant challenges for displaced refugees and migrants, especially those aged 15 and above. One of the primary hurdles is the linguistic difference between Greek and their native languages. Greek’s unique alphabet is a major obstacle, especially for individuals whose native languages use non-Latin scripts, such as Arabic or Farsi. As one respondent noted, *“The Greek alphabet is completely new to many, which adds an extra layer of difficulty.”* For those who speak Arabic, the differences extend beyond the alphabet, the reading direction of Greek (left to right) is opposite to the right-to-left reading direction in Arabic, creating an additional barrier. As another participant explained, *“Greek has a radically different written symbol system... with Arabic, the difference is not only in symbols but also in reading direction.”* This makes the transition to Greek even more daunting.

In addition to the alphabet, Greek's complex grammar is another challenge. The language's system of noun declensions, gender correspondence, and verb conjugations can be overwhelming, especially for those who have gaps in their previous formal education. *"Greek is tough for beginners, especially if their first language has a different alphabet or grammar structure,"* one participant stated. Learners with limited formal schooling find it harder to grasp grammatical rules and syntax, further hindering their ability to progress.

Beyond linguistic difficulties, psychological and emotional factors also play a major role. Many refugees and migrants are coping with trauma, stress, and uncertainty about their future. *"The trauma and psychological stress associated with displacement can hinder cognitive and emotional readiness for learning,"* one respondent shared. Emotional factors, such as fear of making mistakes or lack of confidence, can prevent active participation in language classes. *"A lack of confidence and fear of making mistakes can discourage active participation in language learning,"* another participant explained. These psychological barriers can make it difficult for learners to focus on and absorb new information.

The external circumstances these individuals face also complicate language learning. Unstable housing situations, economic pressures, and the constant uncertainty of their status make it hard for them to prioritize language learning. As one participant stated, *"They're often balancing a lot, like trying to work, finding stability, or even dealing with uncertainty about their future."* Moreover, many refugees and migrants lack access to structured educational programs or immersive environments where they can practice Greek daily. *"The lack of access to immersive environments where they can practice Greek daily limits their progress,"* was noted by one respondent.

Lastly, practical issues such as limited access to digital technologies also pose significant challenges. Without the proper technological equipment, internet access, or familiarity with digital tools, refugees and migrants struggle to engage with online learning resources. *"Often, refugees and migrants do not have the appropriate technological equipment, direct access to the internet, and familiarity with new digital technologies,"* one participant observed. These challenges are compounded by their

limited time, frequent relocations, and the lack of long-term educational programs due to resource constraints.

Tailoring criteria for digital language learning tool

To effectively support the specific needs and goals of displaced refugees and migrants learning Greek, a digital language learning tool must be tailored to address their diverse linguistic, social, psychological, and technological challenges. First and foremost, the tool should have simple and clear navigation to cater to users with limited digital literacy. As one respondent emphasized, *“The tool should be super easy to use, with visuals and audio guiding them through it.”* Many learners may not be tech-savvy, so ensuring a user-friendly interface is crucial. Additionally, offline access is essential for users who may have unreliable internet connections, making it important to design the tool with flexibility and accessibility in mind. As another participant noted, *“Provide instructions in the learners' native languages or widely spoken languages (e.g., English, Arabic, French).”*

The content of the tool should be both practical and engaging. Focus on everyday language needs such as asking for directions, shopping, or communicating with a doctor so learners can immediately apply what they've learned in real-life situations. *“Start with practical, everyday Greek what they'll need immediately,”* said one respondent. This not only helps learners feel more confident in their abilities but also keeps them engaged by showing the immediate relevance of the language to their daily lives. Gamification can be an effective strategy for maintaining interest and motivation, particularly for younger learners. *“Using games or rewards can really help hold their attention,”* one participant suggested. Short, gamified exercises can keep learners motivated and prevent them from feeling overwhelmed.

A successful digital tool should also incorporate multimedia elements such as audio, visuals, and interactive exercises. For instance, pairing spoken Greek with text and images can help learners understand new vocabulary and concepts more easily. Interactive features, such as voice recording or matching tasks, encourage active participation and reinforce learning. One participant recommended, *“Interactive*

exercises that encourage active participation like voice recording or matching tasks can be invaluable.”

The tool should offer self-paced learning, allowing users to progress according to their individual needs and learning speeds. Given that learners in this group come from varied educational backgrounds and may have different levels of prior knowledge, the tool must be adaptable to accommodate these differences. As one participant noted, *“The tool should be adapted to each individual’s needs and pace, which vary from person to person.”* In addition, the inclusion of real-life scenarios that align with their daily experiences such as navigating public transportation or accessing healthcare helps make the lessons more relevant and practical.

Finally, the tool should be mobile-friendly and compatible with smartphones, as many displaced individuals may not have access to computers. The tool must be designed to be as attractive and accessible as possible for younger learners, especially teenagers who are already familiar with mobile technology. As one participant emphasized, *“If it is something that goes into the mobile phone, not wanting a computer...children do not have access to computers.”* Additionally, the tool should be engaging enough for teenagers, offering content that is relevant to their daily lives, including job market-related terminology, rather than overly simplistic vocabulary like “fruits and colors.”

Learning needs or preferences

First, lesson length and flexibility are critical. As one respondent pointed out, *“They need lessons that are short and focused...many of them have irregular schedules or can’t dedicate hours at a time.”* Therefore, the tool should offer short, engaging lessons that can be completed in 10-15 minutes, allowing learners to fit them into their unpredictable routines.

Another important factor is the focus on practical language. Many learners prefer to focus on skills they can immediately apply to daily life, such as *“introducing themselves, using public transport, or handling basic bureaucratic procedures.”* This highlights the importance of real-life scenarios in lessons, which make the content feel

relevant and useful. Verbal communication and listening skills are key areas, as learners often prioritize these over abstract grammar rules. As one participant noted, they prefer *“practical, hands-on learning”* to theoretical concepts.

Visual and audio aids are also essential to support understanding, especially for those with limited literacy skills. Incorporating images, videos, and voiceovers for text helps bridge gaps in comprehension. Additionally, speech recognition features and pronunciation assistance can boost learners’ confidence and improve speaking abilities. Finally, personalization is crucial. The tool must adapt to different learning paces and levels to ensure that no one feels left behind or overwhelmed. This approach helps to create a sense of progress and achievement, essential for maintaining motivation. As one respondent noted, *“Personalization is also critical, the tool should adapt to their pace and level.”*

Digital language learning and literacy issues

A digital language learning tool can address literacy issues and limited educational experience by employing a multimodal approach that caters to different learning styles and levels of literacy. As one participant suggested, *“If someone isn’t literate, the app needs to rely more on visuals and audio rather than heavy text,”* emphasizing the importance of non-text-based methods. This approach can be particularly helpful for learners who may have limited formal education or are illiterate in their native language. The tool could start with basic lessons, such as learning the Greek alphabet, before gradually introducing vocabulary and grammar.

Multimedia presentations, such as images, videos, and interactive exercises, are effective in bridging gaps in literacy. These elements help learners grasp concepts without the need for heavy reading. As one respondent noted, *“Audio instructions are a great help for those who struggle with reading.”* Voice commands and auditory guidance can further support learners by providing instructions in a spoken format, making it easier for those with limited literacy to follow along. The use of repetitive activities is also crucial in reinforcing learning, particularly for individuals who may struggle to retain information. For instance, integrating activities like tracing Greek

letters or basic literacy exercises can help learners build foundational skills. Immediate and detailed feedback ensures that learners understand their mistakes, which fosters improvement and self-confidence.

Personalization is essential to address varying literacy levels. The tool should adapt to each learner's pace and needs, ensuring that no one feels overwhelmed or left behind. Simple language and clear instructions are key in making the tool accessible to all learners, regardless of their prior educational experiences. As one respondent pointed out, *“The language used in the tool should be simple and clear, avoiding jargon or complex sentences.”*

Cultural and linguistic elements

To ensure relevance and engagement, it is crucial for a digital language learning tool to incorporate cultural and linguistic elements that reflect the learners' experiences and backgrounds. As one participant pointed out, *“Teaching the basics of Greek culture is just as important as the language.”* Introducing cultural aspects, such as formal and informal greetings or simple customs like saying *“Kali Orexi”* before a meal, helps learners connect more deeply with the language. Including real-life scenarios they will likely encounter, such as navigating a Greek supermarket or visiting a clinic, further strengthens the learning experience and makes it more practical.

As one respondent stated, *“Cross cultural and global topics attract more interest.”* Including a variety of perspectives will make the learning experience more inclusive, especially for displaced populations who may come from diverse cultural and linguistic backgrounds. The tool should reflect Greek traditions, food, festivals, and common expressions, while also respecting and valuing the learners' own cultural identities. For example, offering multilingual support for basic navigation or using familiar terms from their own languages can help bridge cultural gaps and make the platform more accessible.

Respect for linguistic diversity is another key factor. The tool should not only teach Greek but also incorporate the possibility of translating basic words or phrases into the learners' native languages when needed. This approach ensures that learners feel seen and understood in their cultural and linguistic identities. Additionally,

integrating inclusive language, avoiding stereotypes, and recognizing idiomatic differences can further reduce misunderstandings and foster better communication. Finally, the tool must be adaptable to the socio-emotional needs of the target group. As one respondent noted, *“It’s important to take into account the socio-emotional profile of these individuals.”*

Legal and systemic barriers to accessing Greek language certification

There are several legal and systemic barriers that can affect refugees' and migrants' access to Greek language certification exams. One major issue is the need for proper identification to register for the exams. Many refugees and migrants may not have the necessary documentation due to their legal status or asylum process. As one respondent mentioned, *“Legal documentation is often required to enroll in official certification exams, which can exclude refugees and migrants without proper paperwork.”*

In addition to documentation, the cost of the exams can also pose a significant barrier. *“Exams can also be expensive, which is a huge barrier,”* stated one participant. For refugees and migrants, who may already face financial difficulties, paying for these exams can be out of reach. Furthermore, the lack of testing centers, especially in rural or remote areas, makes access even more challenging. *“There aren’t always enough testing centers, especially if they’re living in more remote areas,”* another respondent pointed out.

Another systemic issue is the limited availability of government or NGO-funded programs offering free language training and exam preparation. These programs may not be accessible in all regions of Greece, particularly outside major cities. This lack of support can make it harder for refugees and migrants to prepare for the exams and gain the necessary skills. Finally, even the emotional and psychological barriers, such as lack of motivation or feeling unsupported, can also play a role. As one participant noted, *“The lack of motivation, the emotional state of these individuals, and the lack of support from those around them”* can all hinder their ability to pursue language certification.

Unaccompanied minors and use of technology

Unaccompanied minors face a number of significant challenges in accessing education and technology, many of which stem from their unique circumstances and vulnerabilities. One of the most pressing issues is the lack of access to essential resources. As many UAMs live in shelters or temporary housing, they often lack consistent access to devices and reliable internet connections, which are crucial for digital learning. *As one respondent mentioned, “Some don’t even have a phone, or if they do, they might not have data or a reliable internet connection.”* This limitation can make it difficult for UAMs to engage with online educational platforms or technology-based learning tools, further hindering their ability to access education.

Moreover, unaccompanied minors often face challenges in digital literacy. Many have had limited exposure to technology or devices used for learning, which can slow their adaptation to digital tools. *One respondent pointed out that UAMs may not have prior experience using devices for learning, which complicates their ability to use educational technology effectively.* This lack of familiarity with technology can create an additional barrier, as they may struggle to navigate learning platforms without guidance.

Language barriers also play a significant role in hindering access to education. In addition to these practical challenges, UAMs face emotional and psychological hurdles. *Many have experienced traumatic events, such as displacement, loss of family, or exposure to conflict.* These traumatic experiences can result in mental health issues that make it difficult for them to focus on their studies or engage with technology. *As one respondent noted, these minors may face challenges such as “mental health challenges that hinder their ability to focus on education or technology use.”*

Finally, the lack of a stable home environment creates additional difficulties. UAMs may not have the necessary encouragement or supervision to help them stay engaged with education, whether it’s formal schooling or digital learning. Furthermore, constant moves between shelters or accommodation centers can disrupt their education and make it difficult to maintain continuity in learning.

Inclusivity as a basic element in digital language learning tool

First, offline functionality is essential. *As one respondent mentioned, “Offline functionality is a must, they need to be able to download lessons and use them without the internet.”* Many users may not have consistent internet access, so being able to access lessons offline ensures that they can continue learning regardless of their connectivity situation. Additionally, the tool should work on older devices, as not everyone has the latest smartphones. *“The app should work on older devices too, since many might not have the latest smartphones,”* a respondent highlighted. This ensures that even users with limited resources can still benefit from the tool.

The design of the tool should be simple and user-friendly, with clear instructions and easy navigation. *“The tool needs to be really simple to use, think big buttons, clear instructions, and step-by-step guidance,”* one respondent advised. Interactive elements that guide users through the app, such as visual prompts and clear audiovisual material, are essential to help those who might not be familiar with technology. *“User-friendly design, audio-visual material, and instructions, working across different platforms—including mobile phones, tablets, and desktops, offline mode,”* another participant mentioned. These features ensure that the tool is accessible to a wide range of devices and users.

To further enhance inclusivity, the tool should require minimal data and be lightweight enough to function on devices with lower specifications. *“The tool should be lightweight, requiring minimal data to run and functional offline after the initial download,”* stated one respondent. This would minimize the costs associated with data usage and make it more accessible to users in low-resource environments.

Tutorials or help sections are also important, particularly for users who are new to digital tools. *“Video tutorials on how to use the app can also help first-time users,”* one person suggested. This can support users in understanding how to navigate the tool effectively, especially for those with low digital literacy. Finally, offering support in multiple languages, including a version of the main menu in users’ native languages, can further help bridge the digital divide. *“The main menu should be*

offered in their native language,” another participant noted, making the tool more accessible and less intimidating.

Personalizing the learning journey with AI

AI can play a significant role in personalizing the learning experience for beginner learners (A1 and A2 levels). One way AI can help is by adapting to each learner's pace. *As one respondent pointed out, “AI can adapt to the learner’s pace...if someone struggles with a concept, the tool can automatically provide more practice or simpler explanations.”* This ensures that the learner doesn't feel overwhelmed and can progress at a comfortable speed.

AI can also offer targeted feedback, which is essential for beginners. *For example, “AI could offer pronunciation feedback, which is super important for learning a language like Greek,”* said a respondent. With the help of voice recognition, AI can analyze the learner's pronunciation and suggest improvements. It can also adjust the difficulty of lessons based on the learner's performance. *“AI can adjust lesson difficulty based on user performance, providing easier or more challenging exercises as needed,”* noted one participant. If a learner struggles with specific topics, like verb conjugations, the tool can offer more practice in that area.

AI can make learning more interactive as well. *“Chatbots could even simulate real conversations to help them practice speaking,”* stated one respondent. This helps learners practice speaking and get real-time feedback, making it feel like they are having a conversation with a real person. Finally, AI can suggest lessons tailored to each learner's strengths and weaknesses. *“Based on each user’s strengths and weaknesses, the AI can recommend specific lessons or exercises, ensuring that the learning journey remains relevant and effective,”* one respondent explained. This ensures that each learner's experience is unique and aligns with their needs, making learning more engaging and productive.

Technical challenges in developing a digital language learning tool

When developing a digital language learning tool for refugees and migrants, several technical challenges arise. One major issue is ensuring that the tool works across a wide range of devices, especially since many users may have older smartphones with limited storage or processing power. *As one respondent pointed out, "One big challenge is making it accessible on a wide range of devices."* Ensuring compatibility with these low-cost, older devices requires careful optimization, which can be resource-intensive.

Another significant challenge is ensuring the tool works well in areas with limited or unreliable internet access. This means providing offline functionality, so learners can continue their education without the constant need for a data connection. This challenge is noted by several respondents, with one highlighting, *"Connectivity issues in remote or underserved areas also require the tool to function offline."*

Moreover, the design of the tool must be intuitive and user-friendly, particularly for users who may not have prior experience using digital platforms. *As stated by one respondent, "Keeping the app intuitive for people who might not have used apps before" is essential.* The tool must balance simplicity with the ability to offer more complex features like AI or personalized content, without overwhelming the user.

Another critical issue is the integration of culturally sensitive content. Given the diverse cultural and linguistic backgrounds of refugees and migrants, ensuring that the tool is inclusive and respectful of various languages and customs is crucial. *As one respondent mentioned, "The different levels of learners and their different cultural and social backgrounds are a challenge."* Lastly, privacy and data security are important considerations, particularly given the vulnerable status of the target population. The tool must adhere to strict privacy standards to protect user data. Overall, developing a digital language learning tool for this population requires navigating these technical complexities to ensure it is accessible, effective, and secure.

Unique aspects of the digital language learning tool

The digital language learning tool for refugees and migrants can distinguish itself from other tools by combining a variety of innovative features designed to meet the unique needs of this target group. One key distinguishing factor is the tool's strong focus on cultural relevance and real-life situations that learners will encounter in Greece. As one respondent pointed out, *"The tool should teach the language in contexts learners will encounter in Greece, making the learning process more practical and directly applicable to their everyday lives."* This feature not only helps learners understand the language in a meaningful context but also ensures that the tool is highly relevant to their actual needs. This real-life, culturally immersive approach sets the tool apart from generic language-learning apps that may not focus on the specific challenges faced by this group.

Another innovative element that will distinguish this tool is its use of AI-driven adaptive learning. Through artificial intelligence, the tool can track each learner's progress and adapt the content to suit their personal needs and abilities. As one participant noted, *"AI can assess individual progress and adjust the learning material accordingly, making sure each user gets lessons at their appropriate level."* This ensures that no learner is left behind or overwhelmed by content that is too difficult. AI allows the tool to offer personalized feedback, highlighting areas where a learner may need more practice, while reducing repetition in areas they have already mastered. This level of customization and personal support is particularly valuable for beginners (A1 and A2 learners), who may face difficulties in grasping certain aspects of the language. By offering personalized learning journeys, the tool enhances engagement and ensures that learners are not stuck or discouraged at any point in their journey.

In addition to the AI-driven personalization, the tool's offline capabilities are a major distinguishing feature. *"Offline capabilities, along with support for multiple languages, are crucial for making the tool accessible to all users, regardless of their internet access or language proficiency,"* explained one respondent. This is especially important in contexts where internet access can be limited or unreliable, such as in refugee camps or remote areas. Allowing learners to access key lessons without needing constant connectivity ensures that they can continue learning at their own pace, even in challenging environments. The combination of AI and offline

functionality creates a powerful tool that caters to users with varying levels of digital access.

Moreover, the tool incorporates multimedia elements, such as videos, audio clips, and interactive exercises, to provide a well-rounded and engaging learning experience. As one participant mentioned, *"The tool should use a mix of written, audio, and video content to cater to different learning styles."* This multimedia approach helps learners engage with the language through different channels, which is particularly important for beginners who may struggle with written content alone. Videos and audio clips can enhance comprehension, while interactive exercises can make learning more enjoyable and dynamic.

Another unique feature is the emphasis on simplicity and intuitive design. The tool is built to be user-friendly, ensuring that learners with limited digital literacy can easily navigate the app. As one participant noted, *"The interface should be simple, with large buttons and clear instructions, so even people who are not familiar with technology can use it easily."* This ease of use is essential for refugees and migrants, many of whom may not have prior experience with digital tools.

Lastly, the inclusion of community-building features, such as forums or peer support groups, further enhances the tool's ability to foster integration and socialization. As one respondent pointed out, *"The tool could offer a space for users to interact with each other, share experiences, and offer support, helping them feel less isolated."* Creating a sense of community within the app can make a big difference in supporting learners emotionally and psychologically, especially for refugees and unaccompanied minors who may feel alone in a foreign country. This social element, coupled with continuous guidance from an AI tutor or interactive assistant, ensures that learners are never left without support.

Discussion

The results of the focus group data collection are highly informative and address the research question to a significant extent. A major gap identified in the Greek context is the development, distribution, and use of a digital tool dedicated solely to learning

the Greek language. The selection of participants, along with the interdisciplinary nature of the group, proved to be highly effective, as the diverse expertise and knowledge shared contributed significantly to the conclusions drawn. Key themes emerged from the discussion, including factors such as varying educational backgrounds, psycho-emotional states, and trauma, all of which affect the learning process. Additionally, the need for free internet access, the importance of offline functionality, the integration of artificial intelligence features, and the promotion of multiculturalism and inclusivity were all highlighted as essential components. Furthermore, the alignment of the tool's content with the requirements of Greek language proficiency exams was identified as a crucial factor in motivating learners.

While this study provides valuable insights, it also has limitations, primarily due to the small number of participants in the focus group. Despite this, the study opens up new avenues for research into the rights of displaced populations, not only to have unhindered access to education but also to benefit from the technological advancements available today. Addressing this issue is key to bridging the digital divide and reducing the discrimination faced by refugees and migrants. Only through such efforts can we begin to mitigate these disparities to some extent.

Conclusion

The aim of this study was to explore the need for and usefulness of a digital language learning tool specifically designed for displaced populations aged 15 and over, with a focus on unaccompanied minors, who face both the challenges of displacement and the vulnerabilities of their age. Through a detailed literature review and an investigation of the needs and characteristics of this particular group, the research highlighted the significant barriers that these populations face in accessing education and acquiring language skills, particularly Greek, which is essential for their integration into Greek society.

The findings from this study have illuminated several key aspects related to the development of an effective digital language learning tool for refugees and migrants, which can be categorized into five main criteria: accessibility and usability, technical

features, cultural and linguistic relevance, security and privacy considerations, and certification and employment integration. These criteria, derived from the challenges and needs identified during the research, are essential to ensuring that the tool is not only functional but also supportive, inclusive, and empowering for the target user group.

A fundamental requirement for the proposed digital language learning tool is its accessibility. Refugees and migrants, especially unaccompanied minors, often face barriers to accessing the internet, either due to unreliable connectivity or lack of digital devices. Many use older smartphones or devices with limited processing power, and this must be taken into account when designing the platform. It is essential that the tool is optimized for lower-spec devices, enabling it to work across a variety of platforms, including mobile phones, tablets, and desktops. The design should be simple yet efficient, ensuring that it can be used effectively by individuals with limited digital literacy. In addition to device compatibility, internet connectivity is a significant challenge in many refugee and migrant communities. Therefore, the tool must offer offline functionality. Many refugees and migrants reside in areas with poor or no internet access, making it crucial that lessons and content can be downloaded and accessed offline. Furthermore, given the often high data costs associated with internet usage in many regions, the tool should minimize data consumption, ensuring that users can continue their studies without incurring excessive costs.

The technical features of the language learning tool need to be designed with the specific needs of displaced populations in mind. As mentioned above, device limitations and unreliable internet connectivity are persistent problems, so the tool must be lightweight and operate effectively with minimal resources. The interface should be user-friendly, with clear instructions and visual prompts to assist users, many of whom may be unfamiliar with using digital tools. Features such as large buttons, straightforward navigation and simple step-by-step instructions will enhance usability, especially for people with little previous experience of digital learning.

Another important technical feature is the integration of artificial intelligence (AI) for personalised learning. AI can play a key role in adapting lessons based on individual progress and needs. For example, the system can assess a user's performance and adjust the level of difficulty to ensure that learners are not

overwhelmed, but are challenged enough to continue progressing. AI can also be used to provide immediate feedback, particularly in areas such as pronunciation, grammar and vocabulary, helping learners to quickly correct mistakes and improve their skills.

Given the diverse cultural backgrounds of refugees and migrants, including unaccompanied minors, it is essential that the digital language learning tool is not only linguistically accurate but also culturally relevant. Lessons should include elements of Greek culture and everyday life, such as customs, local expressions and practical situations that learners are likely to encounter in Greece. This will not only make the language more relatable, but will also ensure that learners can effectively cope with real-life situations such as shopping, using public transport or visiting a health facility. The tool must also respect the linguistic diversity of its users by offering multilingual support. While Greek should be the primary language, key instructions and explanations can be provided in several languages spoken by the refugee and migrant population, making the tool more accessible. In addition, the tool must be designed to accommodate and respect different linguistic backgrounds, using inclusive language and avoiding cultural or linguistic stereotypes.

The vulnerability of refugee and migrant populations, especially unaccompanied minors, requires strict security and privacy measures. The language learning tool must comply with international data protection laws and standards to ensure that user information is handled securely. This is particularly important when dealing with sensitive data, such as personal information or documentation related to their legal status or education. The tool must implement robust encryption protocols to protect user data and ensure anonymity to prevent misuse by third parties. In addition, the use of AI and data analytics to personalise the learning experience must also comply with privacy regulations. The platform should allow users to opt in or out of certain data collection practices, and provide clear information on how their data will be used. These features are essential to build trust and ensure that vulnerable users are not exposed to potential risks.

The ability to demonstrate language skills is crucial for refugees and migrants, as it has a direct impact on their integration into the labour market and society. The Greek language certification system plays an important role in securing employment and legal residence status. However, there are significant barriers to accessing

certification exams, such as high costs, lack of necessary documentation and limited availability of test centres, especially for displaced persons. The digital language learning tool should therefore aim to bridge this gap by providing preparatory materials and resources to help users build the skills necessary to pass language proficiency exams.

In addition, the tool should explore ways to support learners in obtaining certification without the barriers posed by traditional examination systems. For example, the tool could include internal assessments or practice exams that provide certification-like recognition of language skills, especially for those who may not be able to access official exams for legal or financial reasons. Given the strong link between language skills and employment opportunities, the tool should also include work-related language skills, focusing on vocabulary and scenarios that learners are likely to encounter in the workplace. This could include specialised vocabulary for different professions, as well as practical skills such as understanding workplace instructions and engaging in professional communication.

This study highlights the importance of developing a digital language learning tool tailored to the needs of displaced populations, particularly refugees and migrants aged 15 and above. The criteria identified in this research provide a comprehensive framework for creating a tool that is not only effective in teaching Greek, but also inclusive, accessible and supportive of learners' wider needs. These criteria, which emphasise accessibility and usability, technical features, cultural and linguistic relevance, security and privacy, and certification and employment integration, need to be considered holistically in order to create a tool that addresses the unique challenges faced by refugees and migrants.

Incorporating these criteria into the design of the tool will ensure that it meets the educational needs of displaced populations, enabling them to acquire the language skills necessary to integrate into Greek society and improve their opportunities for employment and social participation. Furthermore, by providing an inclusive, culturally sensitive and safe learning environment, the tool can significantly contribute to reducing the barriers that refugees and migrants face in accessing education, fostering a sense of empowerment and improving their overall well-being.

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