

Digital Tools as an Enabler for Educational and Training Processes: The Case Study of REFUGEEClassAssistance4Teachers Project [†]

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Abstract: Digitalization has transformed all aspects of life, from social interactions to the working environment and education, something that accelerated with the emergence of COVID-19. The same stands for education and training activities, where the use of digital tools has been gradually advancing and become merely online because of the virus. This brought forth the need to discuss further the applications, benefits, and challenges of digital tools within the framework of the education and training process, and the need to study examples of successful applications. This study aims to support both these requirements by presenting the case study of REFUGEEClassAssistance4Teachers project and its outcomes.

Keywords: digital tools; training; project; case study

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1. Introduction

Digitalization has transformed all aspects of life, from social interactions to the working environment and education [1]. This digital transformation went along with all Information and Communications Technology (ICT) developments and accelerated because of the COVID-19 outbreak [2]. Within the framework of educational and training processes, the incorporation of technology is not something new, but the pace of Information Technology (IT) advancements and the development of disruptive technologies has left education and training related actors to react and adopt them once they have been applied to other industries first [1].

Even when applied, the use of digital tools for education and training has received mixed reviews from the involved parties (educators and students). That element underlines its potential benefits and disadvantages, as well as the need to study examples of applied digital tools for education and training purposes so that we can get feedback from users and improve processes [3–6]. Moreover, the sudden changes and disruption that COVID-19 brought to the educational and training system at the global level, stress the need to further discuss the involved barriers to overcome and which methodologies to implement [7].

This study will initially present a brief literature review of the associated terminology. Then, the authors will present the digital tools that were developed, tested, and reviewed within the framework of the European Union (KA2-Cooperation for Innovation and the Exchange of Good Practices, Strategic Partnership for School Education) project, named as “Training for teachers how to cope with refugee children in their class” (REFUGEEClassAssistance4Teachers). The specific project was chosen as a case study for successful digital tools implementation within education and training purposes.

Literature Review

According to scholars, there is a need to define the terms digitization, digitalization, and digital transformation since they are used interchangeably [1,8]. Legner and his colleagues have adopted the following definitions:

- Digitization: “the technical process of converting data and information from analogue into digital formats, meaning adoption and usage of binary digits”;
- Digitalization: “the processes of transition toward non-physical information storage, transmission, and processing by using digital technologies”;
- Digital transformation: “comprehensive applications of digital technologies in all facets of society to improve and extend products and services, and the creation of new digital alternatives” [8] (p. 301).

However, the integration of ICT in educational and training environments has evolved through the years and has affected the nature of the teaching and learning environment and its description, as shown in Table 1 (based on the work in Reference [1]):

Table 1. Terms used to describe educational and training environments based on technological (use of ICT) and geographical (distance from the location of instruction) characteristics.

Term	Description
e-Learning	broadly defined as almost any activity making use of ICT
Online Learning	part of distance learning; also used as a general term for educational environments using ICT, computers, and the Internet; learner is at a distance from the tutor or instructor
Blended Learning	use of both online and face-to-face instruction
Mobile Learning	any form of learning through the use of a mobile device

A few of the tools that can be used for this learning process are, namely, Online training platforms; Webinars (e.g., Zoom webinar, GoToWebinar); Video-streaming (e.g., YouTube); Web-based text processors (e.g., Google Docs, Microsoft Sharepoint); Web-based project organization and communication tools (e.g., Microsoft Teams); Applications (Apps); Augmented and Virtual Reality; Videogames; Cloud Storage; Digital libraries, etc. [9,10].

From the students' perspective, and especially the generation of the millennials that was born into technological advancements, the incorporation of a few of these aforementioned tools for educational purposes has come smoothly, while the educators struggle more. Overall, the integration of these digital tools into the educational and training processes has gained mixed reviews ([5,9]). Something that the emergency of COVID-19 has stretched even more since it put many countries and their educational systems into a forceful transition from face-to-face to 100% online status. Based on the literature review, Table 2 summarizes the main benefits and disadvantages that are derived from the usage of digital means:

Table 2. Benefits and disadvantages of digital tools ([1,5,6,9–12]).

Benefits	Disadvantages
Enabling students to collaborate more effectively	Exclusion because of access to IT infrastructure
Inclusivity of academic exchanges	Low interaction (e.g., hard to engage in informal talks)
Reduction of the time and costs of organizing sessions	Low student engagement/high level of dropout
Saving of resources	Result in higher stress levels and reduced personal well-being
Enabling more diverse working environment (geographical and time flexibility)	Low digital competence of educators

As far as the methodology that was chosen for this study, the authors decided on the presenting the case study of the REFUGEEClassAssistance4Teachers project and its applied

outcomes. Regardless of the scientific area, the case study as a research methodology provides researchers with the opportunity to focus on a “case” and maintain a complete and real-world angle [13]. The following section (Section 3) fully describes its framework and the digital tools that were developed and tested during the duration of the project.

2. Case Study of REFUGEEClassAssistance4Teachers Project

Twenty-first-century education and teaching practices offer the technical capability to educate via mobile/online technologies and provide education anytime, anywhere [6]. This is exactly what has been embraced by the 3-year REFUGEEClassAssistance4Teachers project, funded by the Erasmus+ KA2-Cooperation for Innovation and the Exchange of Good Practices, Strategic Partnership for School Education program, bringing together refugee, inclusive education, and technology partners from Turkey, Bulgaria, Greece, Serbia, and Belgium. The main aim of the project was to support teachers who were given the delicate task of educating children with a refugee background [14].

Among the more than 3.6 million Syrian refugees registered in Turkey, 21.9% are children [15]. Similar high percentages are seen also among refugees in European countries. Many of these children have seen the worst possible atrocities during their travels towards safety and have been traumatized. As a result, when they enter the host country’s school system, they tend to often isolate and display disruptive behaviour [16].

It is a challenging task for teachers to try to engage with these children, as well as assess their state of mind, and stimulate communication [16]. In order to identify the needs of both the teachers and the students, the consortium of the project undertook an extended survey among the related parties in all partner countries. To facilitate this and meet the derived needs, the project focused on developing digital tools such as mobile Android application, online portal, and educational videos to support the teachers in their interaction with pupils with a refugee background. Overall, digital means have been used by several NGOs and governments that deal with refugee-related issues such as social integration, education and training, funding, seeking of work, communication, etc. [17–20]. This application was piloted in all partner countries, whereby both the teachers and children were invited to participate and engage with each other.

2.1. The Developed Digital Tools

2.1.1. REFUGEEClassAssistance4Teachers Mobile Application

This app assists teachers in cooperating with their students through a variety of ways:

- Providing access to learning material (training materials, practices, videos, guidelines) for the teacher.
- Access to online forums for teachers to share their experiences.
- Symbol supported communication whereby both the teacher and the pupils can communicate via symbols available in the national partner language (Dutch, Bulgarian, Greek, Turkish, and Arabic), (see Figure 1) based on a bilingual Arabic/English symbol dictionary (Tawasol) (see Figure 2) of frequently used words in spoken and written communication represented by recognizable images and pictograms, relevant to the cultural background of the refugee children. This is especially relevant there where spoken language otherwise would create a barrier.
- Translation support which allows to translate from the national host country language to Arabic, Persian, French, Turkish, Russian, Pashto, and English (see Figure 3).
- The “wheel of emotions” (see Figure 4), as developed by the American psychologist Robert Plutchik (1927–2006), is used to allow children to express their emotions in an attractive and acceptable manner. Using this approach, the children can express different emotions (see Figure 5).

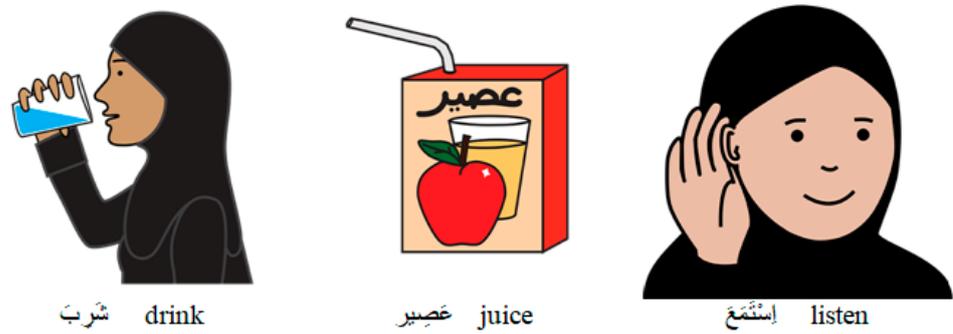


Figure 1. Tawasol symbols and their English/Arabic matching word [21].



Figure 2. Tawasol symbols used in symbol talk functionality. This example shows how a female refugee child explains that as a girl she is able to leave the house and go to a birthday party [21].

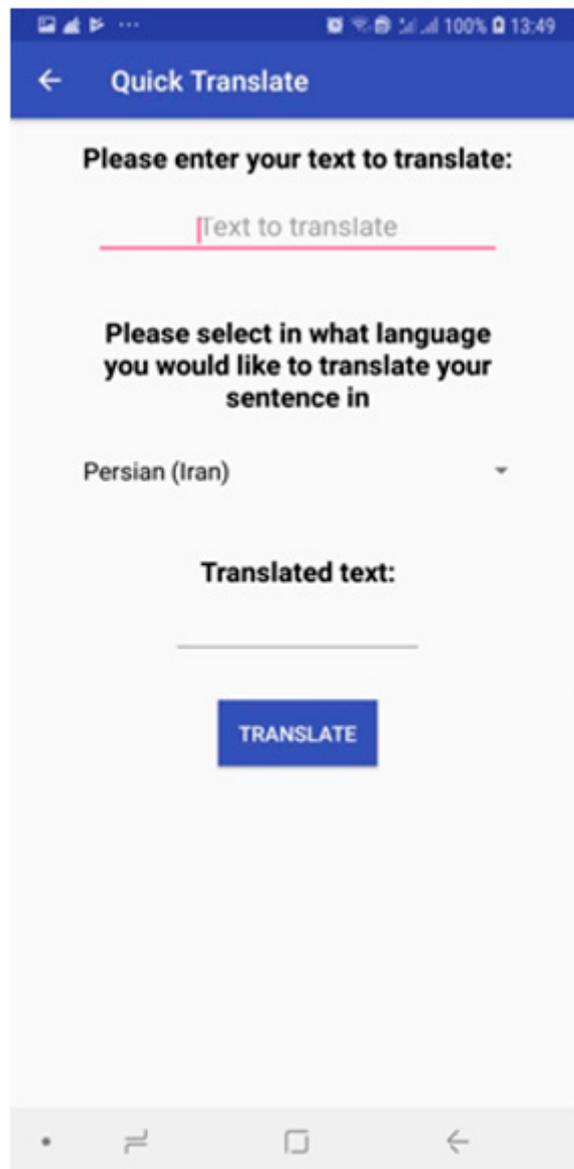


Figure 3. Integrated translation functionality [21].

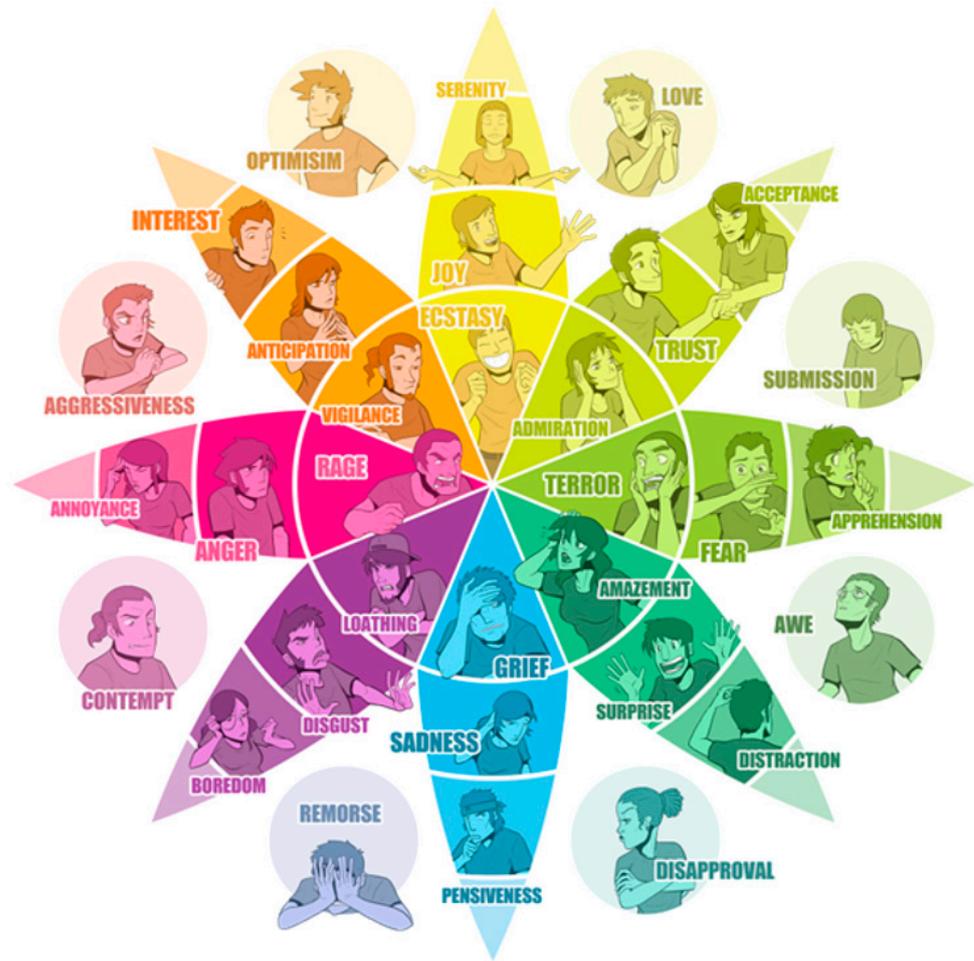


Figure 4. Robert Plutchik’s “wheel of emotions” [22].



Figure 5. Robert Plutchik’s “wheel of emotions” as applied in project’s mobile application: (a) Select the feeling, (b) Receive short clarification of what was selected, (c) Obtain explanation about the selected feeling [21].

2.1.2. REFUGEEClassAssistance4Teachers Portal

The peer support portal (see Figure 6) was developed for teachers who have children with refugee backgrounds in their classrooms. The multilingual portal offers peer support where teachers can ask for help, offer support, schedule support meetings, and establish focus groups. The portal also offers resources in the following areas: socio-cultural, psychological, and physical development, rights to train refugees, basic language/communication training, good practices across Europe, supports video movies, and guidelines for schools.



Figure 6. Interface of REFUGEEClassAssistance4Teachers portal [21].

2.1.3. Videos

Supporting educative animated videos for a range of scenarios were created (see Figure 7). They are linked to key areas that teachers need to be taught so that they can strengthen the refugee pupil engagement, and were created, based on real cases in each partner country:

- welcome process
- mental health of teachers working with refugee children
- social, cultural, and religious aspects in a diverse society
- communication and language teaching
- mental and physical health of refugee children

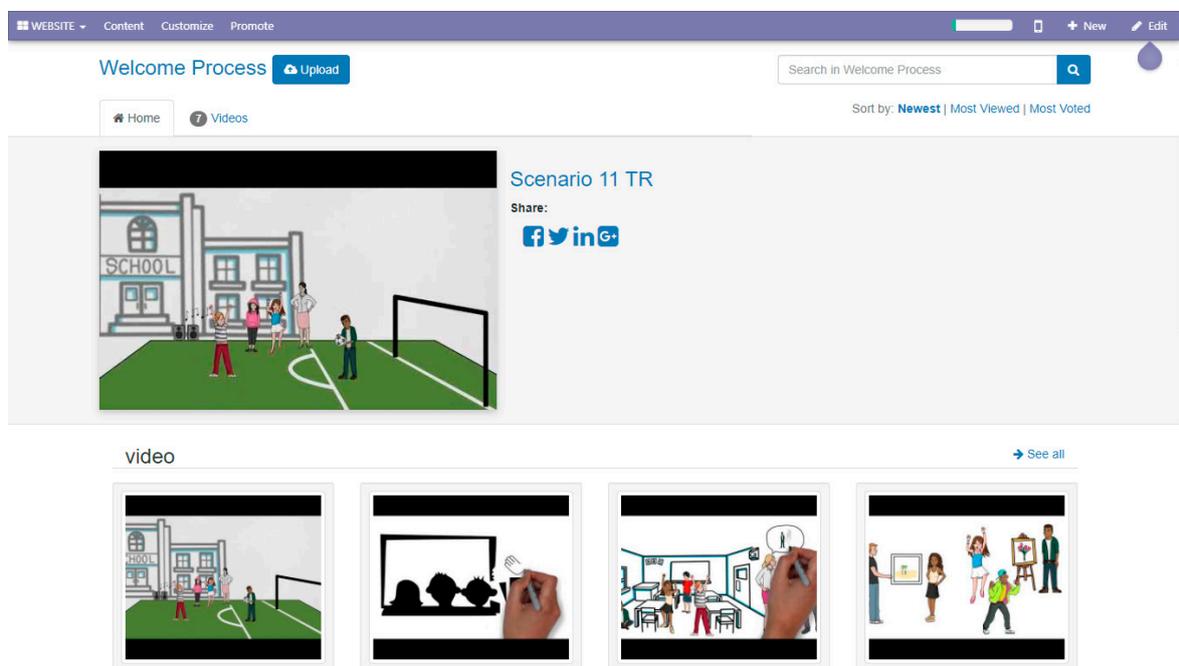


Figure 7. Screenshot of welcome process supporting video [21].

2.2. Piloting Process Feedback

The piloting was organized in Turkey, Bulgaria, Belgium, and Greece and reached 306 teachers in various schools where children with a refugee background follow lessons. Apart from using the various tools with the target group, they also provided their feed-

back afterward, which confirmed the usefulness of the created tools and their daily applicability. The majority of the participants were very satisfied with the content, with emphasis on the Videos and the Mobile Application.

Because all outcomes have been made freely available via <http://www.teachers4refugees.eu/>, third parties can build further on these materials and adapt them to their own country's situation and needs.

3. Conclusions

This study focused on the use of digital means for educational and training purposes, presented its background and the case of the accomplished European Union project "Training for teachers how to cope with refugee children in their class" as a best case study example for the development of digital means that serve the needs of the target group within the framework of training and education purpose. The choice of the specific project was built primarily on its innovative character with developing these types of tools for teachers and refugee children, and on the fact that ahead of designing their specifications, the project took into consideration the explicit needs of the end users, something that should work as a parameter when approaching the specific topic.

Digital tools may be the source of both benefits and challenges, but the era of COVID-19 revealed the need for a more structured and mature approach towards their integration into education and training and the study of other successful applied methods.

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