An Overview of Mobile Learning for Refugee Students: Juxtaposing Refugee Needs with Mobile Applications' Characteristics

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Abstract: The mass influx of refugees into Europe since 2013 and their educational challenges have increased the need for high-quality refugee education. One proposal for addressing these challenges was to leverage mobile devices for educational purposes (mobile learning). Although significant research has been done in this field, mobile learning's effectiveness on different social groups has yet to be explored. The present review paper aims to outline: (a) the factors that challenge refugee education, (b) the use of smart mobile devices by the refugee population, (c) the conflicting views about the effect of mobile learning in refugee education, and (d) the proposed characteristics for mobile refugee applications as found in the literature. A juxtaposition of refugee needs with the characteristics of mobile learning apps is attempted. By surveying the literature, the present paper concludes that mobile learning seems beneficial for refugees in two ways: providing refugees access to education and improving the quality of the provided refugee education. However, it is not a one-solution-fits-all regarding their education. At the end, future research proposals are included.

Keywords: refugees; refugee education; mobile learning; mobile applications; smart mobile devices

1. Introduction

In recent years, the mass influx of refugees has exceeded the number of refugees from the Second World War [1]. In 2019, it was estimated that worldwide, a person had to flee his or her country roughly every two seconds [2]. Over sixty million forcibly displaced people, notably from Syria, Iraq, Afghanistan, Asia, and Eastern Africa, crossed the borders that year to seek shelter in Northern Europe and other countries worldwide [2]. In 2015 in Europe, 1.3 million asylum applications were received, far exceeding the number of applications in previous years [3]. The unprecedented number of refugees (over 100 million people) during the second decade of the 21st century (2010–2019) made many researchers talk about a "global refugee crisis" [4–6].

Children and teenage refugees have constituted a significant portion of the refugee population. In 2018, the United Nations High Commissioner for Refugees (UNHCR) reported that approximately half of the 25.4 million refugees were under the age of 18 [2], while in 2019, the number of refugee children reached 30 to 34 million [6]. Refugee education has emerged as a priority throughout Europe due to the large number of refugee children, their resulting impact on the composition of schools' student population, and the need to integrate refugees into their host countries. The crucial role of refugee education has been recognized by governments and organizations worldwide [7,8]. The United Nations Educational, Scientific and Cultural Organization (UNESCO) outlined the role of education as an essential tool to "ensure peaceful societies" and prevent intolerance and discrimination [9] (p. 7). Refugees must build their capacity by gaining relevant knowledge, skills, and competencies [10].

However, 13 million youths have been reported as being behind in school [5]. On average, each refugee has spent approximately 17–20 years in exile [11,12]. With that in mind, United Nations Children's Fund (UNICEF) has warned that the risk of a "lost generation" of refugee children will be increased if educational opportunities are not provided rapidly [5,13–15]. Many countries have adopted an educational plan for refugees within their integration policy. However, education remains a challenging task for refugees for several reasons/factors—even with such policies being implemented.

According to the UNHCR, in 2019, only 63% of refugee children worldwide had access to primary education, 24% to secondary education, and only 3% succeeded in obtaining a higher education degree [16]. In 2016, the European Commission proposed the use of technological breakthroughs (e.g., the Internet and smart mobile devices) together with the use of interactive learning through them, as a way of addressing the requirements for education and the faster integration of refugees [17,18]. Although many NGOs, European and UN agencies have invested in mobile devices to provide access and enhance refugees' education, there is limited research on the effect of mobile learning on refugees [14,19,20].

This article aims to outline the field of mobile learning for refugees. The main identified issues include the various challenges of refugee education, how they use smart mobile devices, and the effect (advantages and disadvantages) of mobile learning on students in general and refugee students in particular. Afterward, research findings combine mobile learning apps' proposed literature characteristics with refugees' educational needs. In the end, conclusions and proposals for future research are included.

2. Methodology

A rapid literature review was conducted to understand the current knowledge in mobile learning for refugees. Based on this aim, a review protocol was developed. The corpus of research was selected based on criteria relevant to the topics mentioned above of the most cited published articles in the English language within the last ten years (2010–2020). Selected literature was retrieved from known databases such as ERIC (Education Resources Information Center), BASE (Bielefeld Academic Search Engine) and Google Scholar by entering the following keywords and Boolean Operators (*, AND): "mobile AND refugee *", "mobile learning AND refugee education", "refugee * AND smartphone *", and "refugee * AND app *." The primary literature search was conducted in June 2020, and an additional search was carried out in September 2020. Available sources of grey literature and the websites of key organizations in the field (e.g., UNHCR, UNESCO, and UNICEF) were included. In some cases, the "snowballing" technique was followed (i.e., citation-based search). Among the 19,700-plus extracted publications, only 29 were found eligible after duplicate removal and abstract screening. After the second literature search, five more articles were added. A total of 34 records were used in this review, in addition to other general citations {i.e., literature regarding refugee education (11 sources), mobile learning (26 sources) or other (21 sources)}.

3. Findings

3.1. Challenges in Refugee Education

A significant heterogeneity has characterized the groups of refugee students in terms of origin, language acquisition, socio-cultural and educational background, life experiences, place of residence, living conditions, health, and legal status [21–23]. Such heterogeneity adds to the complexity of refugee education and needs to be taken into account. Several researchers have introduced various factors that challenge refugee education [21–35]. In this article, a selected number of factors, including a prior model (see Figure 1) associated with refugee learning, were reviewed and summarized in Table 1.
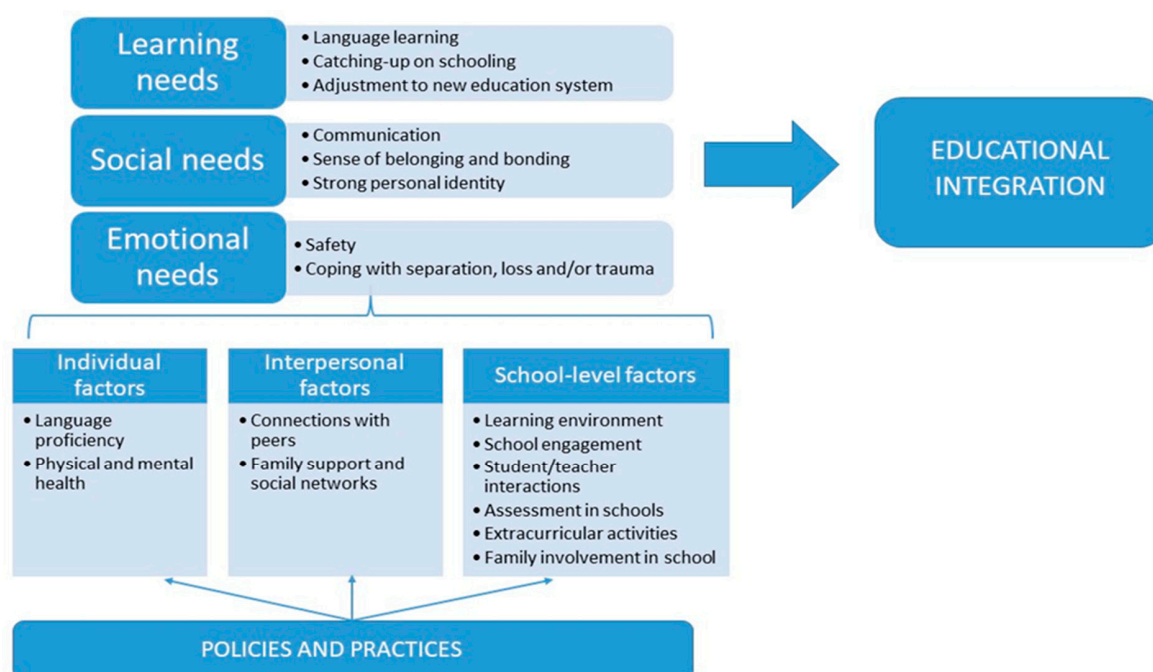
Figure 1. A holistic model for the educational integration of refugee children [24].

Table 1. Selected factors influencing refugee learning.

Groups of Factors Challenging Refugee Education				
A. Living Conditions	**B. Learning Needs**	**C. Emotional Needs**	**D. Socio-Cultural Differences**	**E. Host Country's Educational System**
Place of residence [22,25]	Lack of language literacy in their native language [26]	Mental health issues and psychological situation [22,24]	Cultural background [22,32,33]	Absence of a coherent curriculum and non-qualified teachers [26]
Health issues [23]	Lack of acquisition of the host-country language—Language barrier [21,22,24]	Dealing with traumatic experiences [30,31]		Issue of lost documents and difficulty in recognizing prior educational award papers [21]
	Low levels of acquisition of English language [22]	Lack of family and social network support [24]	Family's educational and socio-cultural background [34]	High academic requirements of school subjects—Inappropriate educational material and texts for students with low levels of literacy [35]
	Lack of digital literacy skills [27–29]			High socio-cultural requirements of school subjects [30,35]

All the gathered factors were classified into five key categories (a. living conditions, b. learning needs, c. emotional needs, d. socio-cultural differences, and e. educational system of the refugee host country), all of which will be analyzed below (see Table 1).

3.1.1. Living Conditions

Refugees spend a critical amount of time moving from place to place, either across countries to reach their desired host country or being transferred from, or between, temporary refugee camps to urban areas [25]. The residence (e.g., living in refugee camps or urban areas) seems to play an essential role in their living conditions and, therefore, their educational performance [14]. Refugees living

in refugee camps often experience more impoverished living conditions than refugees living in urban areas, e.g., lack of electricity, internet connectivity, or access to educational institutions [36]. Research has shown that poor living conditions in camps, continual changes in places of residence or country, and rising health problems increase the risk of refugees dropping out of school or interrupting their learning [22,23].

3.1.2. Learning Needs

Due to war conflicts and the increasingly aggravating situations in their countries, refugee children usually have gaps in their education. Refugee students find it difficult to cover these gaps while learning a new language and adjusting to their host country [10,31]. Issues such as low or zero acquisition of their native language, lack of knowledge of the host country's language and low level of a "universal" language (English) proficiency, in combination with low levels of literacy and skills due to their stay for extended periods in refugee camps, are usually common [19,22,26]. The "language barrier" is particularly challenging for students, who usually are accepted in the host country's formal educational system, but with no or little knowledge of the instruction language in schools, the chances of falling behind are rising [21,24]. Lastly, although digital literacy skills seem to be essential in the 21st century, refugee women and children may lack such proficiency [27–29]. Due to socio-cultural and financial reasons, some refugee families may have only one mobile device, which usually belongs to their male heads. Thus, the opportunities for cultivating their digital literacy skills could be minimal.

3.1.3. Emotional Needs

Refugee students usually have to overcome traumatic experiences in pre-and post-migration periods [31]. A study on Syrian refugees noted that 79% of the refugee children had experienced loss due to a family member's death, and about 60% of the children were eyewitnesses of physical violence or shootings [37]. A significant number of refugee children have lost one or both of their parents or siblings. This fact has resulted in the loss or a lack of children's family network support [31]. Many refugee children also have to cope with the loss of the broader social web of interpersonal relationships, e.g., relatives and friends [31]. The lack of interpersonal networking in their social environment comes in opposition to children's need for belonging, bonding with significant others, communication, and connection with their peers and could worsen the refugee children's already aggravated psychological condition [24]. Torture, war experiences, loss of and separation from their loved ones before arriving in the host country, in combination with loneliness, stress—due to the ignorance of the laws, the language, the culture, and the urban lifestyle—and traumatic experiences in dealing with poor living conditions, racism, and discrimination in the new host country's environment are the usual issues which, according to Cerna [24], seemed to affect refugees' well-being in the long term. All the above traumatic experiences could pose challenges and obstacles to refugee students' academic success [30]. Common mental health issues that have arisen are depression, post-traumatic stress disorder (PTSD), alienation, isolation, and social marginalization [22–24,31].

3.1.4. Socio-Cultural Needs

One of the school's essential functions is the transmission and reproduction of its dominant social group [30]. Refugee students have to handle their different cultural backgrounds and are unaware, for the most part, of the culture of their host country. According to Hall's iceberg metaphor model of culture (see Figure 2) [38], the most considerable portion of cultural aspects, which include some beliefs, values, and thought patterns of a society, is hidden, and only through active participation in the culture can it be revealed and learned [39]. Therefore, refugees need time to understand and get used to the culture of their new country. Moreover, refugee children have to simultaneously handle their different cultural backgrounds with the new culture they learn to form their identities. In the case in which refugees' cultural background contradicts the features of the host country's culture, defensiveness, anger, judgments, feelings of superiority/inferiority, prejudices, and discriminatory

practices were created [32]. In Western civilizations, the features of culture appreciated in schools include cultural priority of education, work ethic philosophies, parental support level with homework, and ways of resolving conflicts [32].
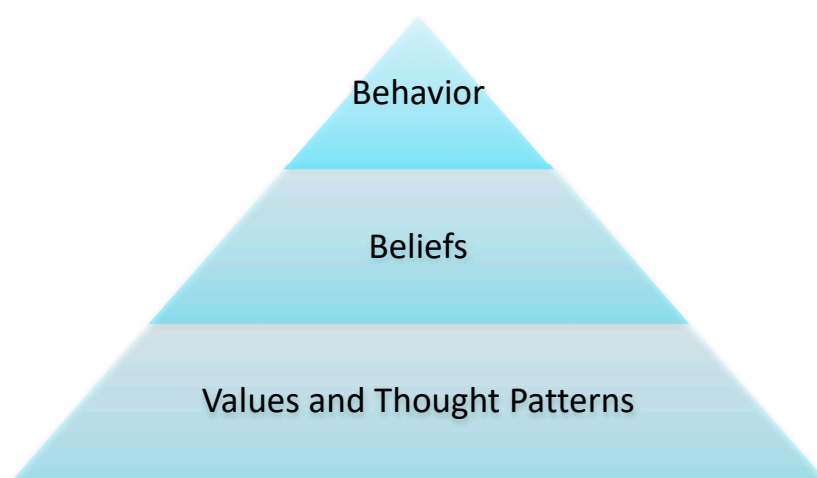

Figure 2. Cultural iceberg model [38].

The family environment of refugee students dramatically impacts their learning [40,41]. Parents' beliefs about education, socioeconomic class, parental education and work, and parental support in their child's learning appear to affect refugee students' learning process [34]. Remarkably, many refugee parents seemed to prioritize their children's education as a way to faster integrate into the local community [34,40]. On the other hand, in some groups of refugees, girls were dropping out or were denied access to education by their families because, in their cultural background, women are perceived to be the home caretakers [33,42]. Similarly, due to socio-financial factors, male students in secondary education dropped out of school to financially support their families [43].

3.1.5. The Educational System of the Host Country

Issues of lost documents and recognizing the refugees' prior learning and academic qualifications (awarded educational titles/degrees from the refugees' country of origin) remain problematic, hindering the refugees' studies' continuum and entry into the labor market [21]. The readiness of such educational systems aligned with the students' needs and characteristics is another significant point. An appropriate educational policy with a coherent educational program and qualified teachers is imperative [26]. High academic knowledge requirements (e.g., knowledge of some content areas and scientific terms) combined with the lack of adaptation of the study guides and the educational material given to refugees could stand as obstacles to their education [35]. The unspoken beliefs and values are considered the classroom's hidden curriculum that sets students up for success [44]. The hidden curriculum's ignorance might lead refugee students to unacceptable behavior and harmful practices giving their teachers and classmates wrong impressions. Examples of the hidden curriculum include punctuality in arriving at school, raising a hand to answer a question, and asking for permission to leave the classroom [30].

To sum up, refugees constitute a vulnerable social group with particular and complex needs. The recording, knowledge, and understanding of those needs are critical for designing and elaborating any refugee education action. The opposite way (i.e., the lack of taking into consideration the heterogeneity and the complex needs of refugees) could lead, according to Halkic and Arnold [21], to the (re)production of social inequalities and educational outcomes of doubtful effectiveness.

3.2. Use of Smart Mobile Devices by Refugees

Smart mobile devices differentiate based on their characteristics (connectivity, portability) from other electronic devices (such as computers and laptops) [23]. As a result, Mark and Chew [45] considered them the most widespread kind of electronic device in history, and their use seems to have an unprecedented role in people's daily lives [5,19,46,47]. According to United Nations Educational, Scientific and Cultural Organization (UNESCO) research, in 2017, 3.6 billion people worldwide used the Internet, which was thought to reach 4.7 billion users in 2020 [17]. A significant portion of these numbers was considered digital literate youths worldwide [48]. As far as refugee populations are concerned, they seem to use mobile devices daily to face everyday difficulties [4,5,49,50]. The research revealed that most refugees own a mobile device, and more than 50% of young refugees use the Internet daily [19,50]. Refugees seem to relate their mobile devices and Internet connectivity to the basic needs for their survival [51,52]. According to the UNHCR, mobile devices are used during the refugee journey and in host countries [51]. During the refugees' trip, mobile devices are used as orientation and service finding tools and protection tools to inform each other of dangers or call a person of trust if they are arrested [51]. Upon the refugees' arrival in a host country, mobile devices constitute essential means for various uses. The ways refugees use mobile devices can be categorized into 12 categories based on the reviewed literature: (1) orientation, (2) accessibility to information, (3) availability of aid services for refugees, (4) availability of education and linguistic resources, (5) word/phrase translation in their native language, (6) admissibility to labor markets and entrepreneurship opportunities, (7) communication with loved ones in the home country, (8) socializing with the local population and other refugees in their host country, (9) money transfer, (10) interactivity with the host government, (11) volunteer coordination, and (12) self-help aid services [4,51,52].

3.3. Mobile Learning

Due to the widespread use of mobile devices in everyday life and the benefits they offer, many researchers have begun to explore how to use them in other areas, such as the education sector [53–55]. Mobile learning, a new research field in education [56–58], began developing gradually in the late 20th century [59], although a significant increase in the use of mobile devices for educational purposes has been observed since 2008 [60] following the release of the first generation iPhone the same year [55].

3.3.1. Advantages of Mobile Learning

The effectiveness of mobile learning in the educational process has been examined thoroughly, presenting mostly positive results [61–65]. In particular, mobile learning positively affects students' performance, increasing their motivation and engagement with the subject matter [66]. A comparative literature survey showed that mobile devices have a more significant positive effect on the learning process than computers [59].

The advantages of mobile learning can be categorized into two groups: functional and learning. The functional advantages, which are based on the characteristics of mobile devices, include (1) the availability of mobile devices, (2) the ease of use due to their portability, (3) the Internet connectivity, (4) the ability to use multimedia, (5) the interaction with the learning material without place or time restrictions and (6) the ability of students to communicate with their teachers and classmates [23,62]. The above functional features of mobile learning formulate the learning advantages, which include: (1) the asynchronous nature of learning, (2) the spontaneity and the active involvement in learning, (3) the rise of students' autonomy, (4) the increase in students' engagement time and motivation for learning, (5) the instant feedback and progress indications, and (6) the flexible roles of students and instructors [23,47,66–72].

3.3.2. Disadvantages of Mobile Learning

Although most research papers conclude in favor of mobile learning, mobile learning's disadvantages need to be considered. A comparative literature review from 2007–2014 indicated students' cognitive overload as one of the main disadvantages of mobile learning [73]. Students often feel "lost" or "overwhelmed" by the abundance of information when they are not provided with some support [74,75].

A significant number of research over the past decade showed no difference between mobile devices and traditional teaching methods. A systematic research study from 2000–2008 showed no difference in the assessment test results of students who used mobile devices and those taught by the traditional method (paper and pencil) [76]. Another literature review study from 2001–2011 on educational games' cognitive impact concluded that there was insufficient data on whether educational games on mobile devices improve learning outcomes [77]. However, we must keep in mind that modern mobile devices now have more capabilities than those of the previous decade. In recent years, the following cases of adverse effects of mobile learning have been recorded: students found it challenging to use the proposed applications [78], were not able to perform multiple tasks simultaneously (multitasking), and were detached from their classmates since they used the mobile devices individually [63].

In conclusion, the use of mobile devices in education has been found to have both positive and negative effects on the learning process, as presented above. According to research studies [79,80], mobile devices in education should act as a tool to assist or enhance learning and not replace other teaching methods. Jeng et al. [79] state that the purpose of using mobile devices is not to complicate but to contribute to the learning process. After all, as Cheng, Yang, Chang, and Kuo [80] mention, mobile devices can bring positive learning outcomes only when teaching is designed to incorporate technology properly.

3.4. Mobile Learning for Refugees

Mobile learning could be used as leverage for educational purposes in periods of crisis and emergencies. Given the high rates of mobile devices' availability among refugees and the advantages of mobile learning, research seems to support the use of mobile learning in order to enable and enhance education for refugee populations [11,51,81]. According to Lamrani and Abdelwahed [61], mobile learning could contribute to refugee education in expanding refugee access to formal and informal education and improving the quality of the education they receive. According to UNESCO [15], mobile learning could act as a way of averting the rise of a lost generation [5,14,15].

Regarding access to education, it is easily understood that refugees on the move may not carry books or pencils, but it is possible to carry a mobile phone. Many authors agree that mobile learning could contribute to overcoming difficulties regarding access to education for refugees/asylum seekers who do not have the required documents, for refugees who were temporarily living in settlement camps waiting to be transferred, and for those who have settled a long distance away from educational institutions [9,21]. Refugees usually face electrical blackouts and unreliable or limited Internet connectivity [82]. These problems could be solved by accessing offline materials [50,83]. In addition to access to education, mobile learning can also improve the quality of education that refugee students receive [84]. According to a study about refugee students' learning performance at early school age in Tanzania, "access to educational opportunities means nothing if pupils are not learning" [34] (p.9). One of the assets of mobile learning is the provision of personalized learning. Learning based on students' needs and interests can be cultivated, since students' levels can be detected through mobile learning applications, and students can make progress at their own pace [20,85]. In refugee students, understanding their lack of specific skills and knowledge and providing help in scaffolding during their effort seems to have beneficial outcomes [29].

On the other hand, Weibert et al. [20] reported that mobile learning services have not often reached those intended. Navigating through mobile apps can be difficult for refugees [84]. Extended observations of three-year-long fieldwork with refugees in Canada revealed that refugees

were often challenged in using Information and Communication Technologies (ICT) since some lacked the required ICT literacy skills and struggled to maintain their security through their digital activities [86]. Mobile apps are not panaceas for refugees. The benefits of mobile learning could not have any influence if the applications' design "lacks coordination, is driven by profit and is decontextualized from the learning context" [87] (p.1). Issues that usually arise after creating mobile learning apps for refugees are the language barrier, the lack of relevance of the content to their everyday lives, and the lack of support. According to UNESCO [47], "the right content may exist; however, it might lack relevance to students" (p. 33).

4. Discussion: Juxtaposing Mobile Learning Applications Characteristics with Refugee Needs

Drawing on the factors presented in the previous sections that influence refugees' learning, there is a need for these factors to act to determine educational applications' characteristics for refugee students. Thus, it becomes crucial for mobile learning apps' characteristics to match complex refugee needs, towards a better educational experience. Various characteristics were proposed or applied in the reviewed literature about mobile learning applications for refugee students. For this study's purposes, we collected and attempted to juxtapose some mobile app characteristics with the four (out of five) groups of challenging factors to refugee education: the living conditions and the learning, emotional and socio-cultural needs (Table 2). The fifth group, i.e., the host country's educational system, is omitted because the creation of educational applications for mobile learning aims to provide solutions to the deficiencies of the existing educational system.

Table 2. Characteristics of mobile learning applications proposed in the literature.

Factors Influencing Refugee Learning	Apps' Characteristics
A. Living conditions	Free applications [14,36,88]. No need for Internet connectivity [50,83,89].
B. Learning needs	Scaffolding in the use of the application [3,90]. Scaffolding in the approach of new educational content (step by step) [3]. Explanation of the meaning of scientific terms [35]. Ability to develop metacognitive skills (e.g., auto-correction, self-evaluation of progress) [90].
C. Emotional needs	Possibility of social interactions [3,14,36,73,91].
D. Socio-cultural differences	Multilingual applications [34].

4.1. Living Conditions of Refugee Students

Access by refugee students to a fixed Internet network and paid applications, courses, or materials was considered difficult to achieve depending on their place of residence and their family's financial situation. That is why the creation of free applications [14,36,88] not subjected to Internet connection was recommended [50,83,89].

4.2. Learning the Needs of Refugee Students

Due to the challenges which refugees face in their education (see Section 2), more support (e.g., scaffolding) is suggested in teaching new learning content [3]. Moreover, refugee students may need more scaffolding to navigate or handle electronic learning resources, since some may lack digital literacy skills. According to Ahad and Benton [92], mobile learning offers tools for creating personalized learning environments with adequate support for refugee students. Scaffolding appears to reduce the risk of cognitive overload and helps to overcome barriers, such as the differences in refugees' socio-cultural backgrounds and the lack of necessary skills and knowledge [3]. This view seems consistent with Demmans Epp's research [90], which highlighted the need to create mobile learning applications that guide refugee or immigrant students to a cognitive and metacognitive level.

4.3. Emotional and Socio-Cultural Needs of Refugee Students

One of the solutions proposed for refugee students, in order for their education's cognitive outcomes to be raised, was the creation of multilingual applications in their native language [34]. Furthermore, research conducted on mobile-learning disadvantages showed adverse effects of mobile learning when one-on-one teaching methods (i.e., one student per mobile device) were applied, such as loneliness and marginalization [63]. Other research highlighted the importance of the need for socialization among refugee students—even more than among locals—in order to quickly achieve their integration into the new society [9,14,36]. The above mobile learning's disadvantages, combined with the need of refugee students to socialize with the locals, could be overcome by creating mobile learning applications that enhance the interaction between refugee students with their teacher, classmates, or the local population. Although in most mobile learning applications, refugee students were asked to work and acquire new knowledge individually. Two models have been proposed in the reviewed literature to address the growing need of refugee students for socialization in conjunction with mobile devices' extensive use: (i) the "mixed model" or "blended learning" model, in which the use of mobile learning is combined with the traditional form of teaching [3,46,71], and (ii) the collaborative learning model in which users have to collaborate within the app [73].

5. Limitations of the Review

The current rapid review paper is not a full systematic review of all the evidence since the number of the searched databases is small. Even though our view is that critical aspects of the subject are not omitted, publications that could enhance this review's heuristic value might have been missed.

6. Conclusions

Nowadays, many refugee children at school-age globally, and the need for quick responses, as far as their education is concerned, make research on refugee education more necessary than ever to improve the quality of provided education. In this review paper, we aimed to outline the field of mobile learning for refugee students. Mobile learning appears to contribute to refugee education in two ways: providing refugees access to education and improving the provided refugee education quality. However, the use of mobile devices in learning is not a panacea. Many researchers emphasized the need to consider learning needs and refugees' preferences when constructing educational applications. Thus, a juxtaposition of refugee needs with the characteristics of mobile learning apps was considered necessary. In this article, insight into the proposed literature characteristics of mobile learning apps was given, and their association with refugees' needs was attempted. In line with the view of Stead [70] and Lifanova et al. [91], the research on the field of mobile learning and refugee education could act as a proposal to upgrade the quality of education not only for other vulnerable social groups, based on their specific characteristics, but also of all students in general. Recently, the rapid shift to online learning due to the spread of the COVID-19 virus in many countries made the need for mobile learning more imminent. Indeed, our view is that the general outline of factors influencing refugee learning and the apps' characteristics can be applicable for distance educational needs in general.

Further research should be done in areas such as the existing mobile apps for refugees and their characteristics and the existing mobile learning apps' effectiveness [92]. Moreover, literature review research with expertise practice is proposed for up-to-date conceptual frameworks regarding refugee education to be constructed [93].

References

1. Cardarelli, R. Solving the Education Crisis of Displaced Children: A most important goal for education diplomacy. *Child. Educ.* **2018**, *94*, 61–66. [CrossRef]
2. United Nations High Commissioner for Refugees (UNHCR). Figures at a Glance. Available online: https://www.unhcr.org/figures-at-a-glance.html (accessed on 22 July 2019).
3. Castaño-Muñoz, J.; Colucci, E.; Smidt, H. Free Digital Learning for Inclusion of Migrants and Refugees in Europe: A Qualitative Analysis of Three Types of Learning Purposes. *Int. Rev. Res. Open Distrib. Learn.* **2018**, *19*, 1–21. [CrossRef]
4. Abujarour, S.; Wiesche, M.; Andrade, A.D.; Fedorowicz, J.; Krasnova, H.; Olbrich, S.; Tan, C.-W.; Urquhart, C.; Venkatesh, V. ICT-enabled Refugee Integration: A Research Agenda. *Commun. Assoc. Inf. Syst.* **2019**, *44*, 874–891. [CrossRef]
5. Fisher, K.E.; Yafi, E. Syrian Youth in Za'atari Refugee Camp as ICT Wayfarers: An Exploratory Study Using LEGO and Storytelling. In Proceedings of the 1st ACM SIGCAS Conference on Computing and Sustainable Societies, San Jose, CA, USA, 20–22 June 2018; Volume 32, pp. 1–12.
6. United Nations High Commissioner for Refugees (UNHCR). Global Trends: Forced Displacement in 2019. Available online: https://www.unhcr.org/en-us/statistics/unhcrstats/5ee200e37/unhcr-global-trends-2019.html (accessed on 27 November 2020).
7. OECD. *Immigrant Students at School: Easing the Journey towards Integration*; OECD Reviews of Migrant Education; OECD Publishing: Paris, France, 2015.
8. Schneeweis, N. Educational institutions and the integration of migrants. *J. Popul. Econ.* **2011**, *24*, 1281–1308. [CrossRef]
9. United Nations Educational, Scientific, and Cultural Organization (UNESCO). Digital Library. Protecting the Right to Education for Refugees. Available online: https://unesdoc.unesco.org/ark:/48223/pf0000251076 (accessed on 6 March 2020).
10. Laverack, G. The Challenge of Promoting the Health of Refugees and Migrants in Europe: A Review of the Literature and Urgent Policy Options. *Challenges* **2018**, *9*, 32. [CrossRef]
11. Dahya, N.; Dryden-Peterson, S. Tracing pathways to higher education for refugees: The role of virtual support networks and mobile phones for women in refugee camps. *Comp. Educ.* **2017**, *53*, 284–301. [CrossRef]
12. United Nations Educational, Scientific, and Cultural Organization (UNESCO). UNHCR Report. Missing Out: Refugee Education in Crisis. Available online: http://uis.unesco.org/sites/default/files/documents/missing-out-refugee-education-in-crisis_unhcr_2016-en.pdf (accessed on 6 March 2020).
13. United Nations Children's Fund (UNICEF). Education under Fire: How Conflict in the Middle East Is Depriving Children of Their Schooling. Available online: http://www.unicef.org/mena/media_10557.html (accessed on 6 March 2020).
14. Taftaf, R.; Williams, C. Supporting Refugee Distance Education: A Review of the Literature. *Am. J. Distance Educ.* **2019**, *34*, 5–18. [CrossRef]
15. United Nations Educational, Scientific, and Cultural Organization (UNESCO). Global Education Monitoring Report: Education for People and Planet: Creating Sustainable Futures for All. Available online: http://unesdoc.unesco.org/images/0024/002457/245752e.pdf (accessed on 6 March 2020).
16. United Nations High Commissioner for Refugees (UNHCR). Stepping Up: Refugee Education in Crisis. 2019. Available online: https://www.unhcr.org/steppingup/wp-content/uploads/sites/76/2019/09/Education-Report-2019-Final-web-9.pdf (accessed on 21 September 2020).
17. United Nations Educational, Scientific, and Cultural Organization (UNESCO). Working Group on Education: Digital Skills for Life and Work. Available online: http://unesdoc.unesco.org/images/0025/002590/259013e.pdf (accessed on 6 March 2020).
18. European Commission. Lives in Dignity: From Aid-Dependence to Self-Reliance (COM 2016, 234). Available online: https://ec.europa.eu/echo/files/policies/refugeesdp/Communication_Forced_Displacement_Development_2016.pdf (accessed on 6 March 2020).
19. Bradley, L.; Bartram, L.; Al-Sabbagh, K.W.; Algers, A. Designing mobile language learning with Arabic speaking migrants. *Interact. Learn. Environ.* **2020**, 1–13. [CrossRef]
20. Weibert, A.; Krüger, M.; Aal, K.; Salehee, S.S.; Khatib, R.; Randall, D.; Wulf, V. Finding Language Classes. *Proc. ACM Hum. Comput. Interact.* **2019**, *3*, 1–23. [CrossRef]

21. Halkic, B.; Arnold, P. Refugees and online education: Student perspectives on need and support in the context of (online) higher education. *Learn. Media Technol.* **2019**, *44*, 345–364. [CrossRef]

22. Mason, B.; Buchmann, D. *ICT4 Refugees—A Report on the Emerging Landscape of Digital Responses to the Refugee Crisis*; Deutsche Gesellschaf für Internationale Zusammenarbeit (GIZ) GmbH: Bonn, Germany, 2016.

23. Ahmad, K.S.; Armarego, J.; Sudweeks, F. Literature Review on the Feasibility of Mobile-Assisted Language Learning (MALL) in Developing Vocabulary Skills among Non-English Speaking Migrant and Refugee Women. In Proceedings of the 3rd International Conference on Research and Innovation in Information Systems, Kuala Lumpur, Malaysia, 27–28 November 2013; pp. 336–341.

24. Cerna, L. *Refugee Education: Integration Models and Practices in OECD Countries*; OECD Education Working Paper; OECD: Paris, France, 2019; p. 203.

25. Crea, T.M.; McFarland, M. Higher education for refugees: Lessons from a 4-year pilot project. *Int. Rev. Educ.* **2015**, *61*, 235–245. [CrossRef]

26. Karim, A.; Hussain, F. When Will You Start Teaching the REAL Curriculum? Information and Communication Technologies for Development. Strengthening Southern-Driven Cooperation as a Catalyst for ICT4D. In Proceedings of the International Conference on Social Implications of Computers in Developing Countries, Dar es Salaam, Tanzania, 1–3 May 2019; Volume 551, pp. 675–686.

27. AbuJarour, S. Social Inclusion of Refugees Through Digital Learning: Means, Needs, and Goals. In Proceedings of the Pacific Asia Conference on Information Systems (PACIS), Dubai, UAE, 20–24 June 2020; Volume 17.

28. Smith, W.; Crane, A. Worldreader: Leveraging Mobile Phones for Reading to Young Children in India and Jordan. *Child. Educ.* **2019**, *95*, 6–15. [CrossRef]

29. Smyser, H. Adaptation of Conventional Technologies with Refugee Language Learners: An Overview of Possibilities. In *Language, Teaching, and Pedagogy for Refugee Education: Innovations in Higher Education Teaching and Learning*; Sengupta, E., Blessinger, P., Eds.; Emerald Publishing Limited: Bingley, UK, 2019; Volume 15, pp. 125–139.

30. Branson, D. Student Trauma, the Hidden Curriculum, and Cultural Humility: This Trio Needs a Team Approach. In *Addressing Multicultural Needs in School Guidance and Counseling*; Taukeni, S.G., Ed.; IGI Global: Hershey, PA, USA, 2019; pp. 82–105.

31. Sirin, S.; Plass, J.L.; Homer, B.D.; Vatanartiran, S.; Tsai, T. Digital game-based education for Syrian refugee children: Project Hope. *Vulnerable Child. Youth Stud.* **2018**, *13*, 7–18. [CrossRef]

32. Van Alstine, J.; Cox, S.R.; Roden, D.M. Cultural Diversity in the United States and Its Impact on Human Development. *J. Indiana Acad. Soc. Sci.* **2015**, *18*, 125–143.

33. Hattar-Pollara, M. Barriers to Education of Syrian Refugee Girls in Jordan: Gender-Based Threats and Challenges. *J. Nurs. Sch.* **2019**, *51*, 241–251. [CrossRef] [PubMed]

34. Ndijuye, L.G.; Rawat, P.S. Early reading and mathematics attainments of children of self-settled recently naturalized refugees in Tanzania. *Int. J. Educ. Dev.* **2019**, *65*, 183–193. [CrossRef]

35. Miller, J. Teaching Refugee Learners with Interrupted Education in Science: Vocabulary, literacy and pedagogy. *Int. J. Sci. Educ.* **2009**, *31*, 571–592. [CrossRef]

36. Duran, C.S. "You not die yet": Karenni refugee children's language socialization in a video gaming community. *Linguist. Educ.* **2017**, *42*, 1–9. [CrossRef]

37. Eruyar, S.; Maltby, J.; Vostanis, P. Mental health problems of Syrian refugee children: The role of parental factors. *Eur. Child Adolesc. Psychiatry* **2018**, *27*, 401–409. [CrossRef]

38. Hall, E.T. *Beyond Culture*; Anchor: Garden City, NY, USA, 1976.

39. Alkhaldi, A.N.; Al-Sa'di, A. Guidelines Integrating Cultural Theories with Technology Acceptance Theories: A Review. *N. Z. J. Comput. Hum. Interact.* **2016**, *1*, 12.

40. Boit, R.J.; Barnes, A.C.; Conlin, D.; Hestenes, L.L. Voices of Refugee Mothers: Navigating the Complexities of Supporting their Preschool Children's Literacy Development. *J. Fam. Econ. Issues* **2020**, *48*, 683–691. [CrossRef]

41. Watkins, P.G.; Razee, H.; Richters, J. 'I'm Telling You . . . The Language Barrier is the Most, the Biggest Challenge': Barriers to Education among Karen Refugee Women in Australia. *Aust. J. Educ.* **2012**, *56*, 126–141. [CrossRef]

42. Sieverding, M.; Krafft, C.; Berri, N.; Keo, C.; Sharpless, M. Education Interrupted: Enrollment, Attainment, and Dropout of Syrian Refugees in Jordan. In *Economic Research Forum Working Paper Series*; Economic Research Forum: Cairo, Egypt, 2018; Volume 1261, pp. 1–54.

43. Schaefer, R.T. *Sociology: A Brief Introduction*, 13th ed.; McGraw-Hill Companies, Inc.: New York, NY, USA, 2018; ISBN 978-1260085419.

44. West, M.; Chew, H.E. *Reading in the Mobile Era: A Study of Mobile Reading in Developing Countries*; UNESCO Publishing: Paris, France, 2014; pp. 1–86.

45. Gough, H.A.; Gough, K.V. Disrupted becomings: The role of smartphones in Syrian refugees' physical and existential journeys. *Geoforum* **2019**, *105*, 89–98. [CrossRef]

46. West, M.; Vosloo, S. *Policy Guidelines for Mobile Learning*; Kraut, R., Ed.; UNESCO Publishing: Paris, France, 2013; pp. 1–41.

47. United Nations Children's Fund (UNICEF). The State of the World's Children 2017: Children in a Digital World. Available online: https://sites.unicef.org/sowc2017/ (accessed on 6 March 2020).

48. Gillespie, M.; Osseiran, S.; Cheesman, M. Syrian Refugees and the Digital Passage to Europe: Smartphone Infrastructures and Affordances. *Soc. Media Soc.* **2018**, *4*, 1–12. [CrossRef]

49. Maitland, C.; Xu, Y. A Social Informatics Analysis of Refugee Mobile Phone Use: A Case Study of Zaaatari Syrian Refugee Camp. *SSRN Electron. J.* **2015**. [CrossRef]

50. United Nations High Commissioner for Refugees (UNHCR). Connecting Refugees: How Internet and Mobile Connectivity Can Improve Refugee Well-Being and Transform Humanitarian Action. Available online: https://www.unhcr.org/5770d43c4 (accessed on 6 March 2020).

51. Baldi, V.; Ribeiro, A. Conceptualization of a Mobile Application Aimed at Refugees in Portugal. In Proceedings of the 13th Iberian Conference on Information Systems and Technologies (CISTI), Cáceres, Spain, 13–16 June 2018; pp. 1–6.

52. Kaufmann, K. Navigating a new life: Syrian refugees and their smartphones in Vienna. *Inf. Commun. Soc.* **2018**, *21*, 882–898. [CrossRef]

53. Dorouka, P.; Papadakis, S.; Kalogiannakis, M. Tablets and apps for promoting robotics, mathematics, STEM education and literacy in early childhood education. *Int. J. Mob. Learn. Organ.* **2020**, *14*, 255–274. [CrossRef]

54. Eppard, J.; Nasser, O.; Reddy, P. The Next Generation of Technology: Mobile Apps in the English Language Classroom. *Int. J. Emerg. Technol. Learn.* **2016**, *11*, 21–27. [CrossRef]

55. Keskin, N.O.; Metcalf, D. The current perspectives, theories and practices of mobile learning. *Turk. Online J. Educ. Technol.* **2011**, *10*, 202–208.

56. Ng, W.; Nicholas, H.; Loke, S.; Torabi, T. Designing Effective Pedagogical Systems for Teaching and Learning with Mobile and Ubiquitous Devices. In *Multiplatform E-Learning Systems and Technologies*; IGI Global: Hershey, PA, USA, 2010; pp. 42–56.

57. Pegrum, M.; Oakley, G.; Faulkner, R. Schools going mobile: A study of the adoption of mobile handheld technologies in Western Australian independent schools. *Australas. J. Educ. Technol.* **2013**, *29*, 66–81. [CrossRef]

58. Sung, Y.-T.; Chang, K.-E.; Liu, T.-C. The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. *Comput. Educ.* **2016**, *94*, 252–275. [CrossRef]

59. Hwang, G.-J.; Tsai, C.-C. Research trends in mobile and ubiquitous learning: A review of publications in selected journals from 2001 to 2010. *Br. J. Educ. Technol.* **2011**, *42*, E65–E70. [CrossRef]

60. Lamrani, R.; Abdelwahed, E.H. Game-based learning and gamification to improve skills in early years education. *Comput. Sci. Inf. Syst.* **2020**, *17*, 339–356. [CrossRef]

61. Kucirkova, N. Personalised Learning with Digital Technologies at Home and School: Where is Children's Agency? In *Mobile Technologies in Children's Language and Literacy: Innovative Pedagogy in Preschool and Primary Education*; Oakley, G., Ed.; Emerald Publishing Limited: Bingley, UK, 2018; pp. 133–153.

62. Heflin, H.; Shewmaker, J.; Nguyen, J. Impact of mobile technology on student attitudes, engagement, and learning. *Comput. Educ.* **2017**, *107*, 91–99. [CrossRef]

63. Hwang, G.J.; Wu, P.H. Applications, impacts and trends of mobile technology-enhanced learning: A review of 2008-2012 publications in selected SSCI journals. *Int. J. Mob. Learn. Organ.* **2014**, *8*, 83. [CrossRef]

64. Wu, W.-H.; Wu, Y.J.; Chen, C.-Y.; Kao, H.-Y.; Lin, C.-H.; Huang, S.-H. Review of trends from mobile learning studies: A meta-analysis. *Comput. Educ.* **2012**, *59*, 817–827. [CrossRef]
65. Rivera, S.; Banavar, M.K.; Barry, D. Mobile Apps for Incorporating Science and Engineering Practices in K-12 STEM Labs. In Proceedings of the 2018 IEEE Frontiers in Education Conference (FIE), San Jose, CA, USA, 3–6 October 2018; pp. 1–5.
66. Elsafi, A. Formal and Informal Learning Using Mobile Technology. In *Mobile and Ubiquitous Learning, Perspectives on Rethinking and Reforming Education*; Yu, S., Ally, M., Tsinakos, A., Eds.; Springer: Singapore, 2017; pp. 177–189.
67. Hamm, S.; Saltsman, G.; Jones, B.; Baldridge, S.; Perkins, S. A Mobile Pedagogy Approach for Transforming Learners and Faculty. In *Handbook of Mobile Learning*, 1st ed.; Berge, Z., Muilenburg, L., Eds.; Routledge: New York, NY, USA, 2013; pp. 176–186.
68. Traxler, J. Distance education and mobile learning: Catching up, taking stock. *Distance Educ.* **2010**, *31*, 129–138. [CrossRef]
69. Wang, Y.-S.; Wu, M.-C.; Wang, H.-Y. Investigating the determinants and age and gender differences in the acceptance of mobile learning. *Br. J. Educ. Technol.* **2009**, *40*, 92–118. [CrossRef]
70. Stead, G. Moving Mobile into the Mainstream. In Proceedings of the mLearn Conference, Cape Town, South Africa, 25–28 October 2005; pp. 43–51.
71. Lehner, F.; Nosekabel, H. The Role of Mobile Devices in e-Learning—First Experiences with a Wireless e-Learning Environment. In Proceedings of the IEEE International Workshop on Wireless and Mobile Technologies in Education (WMTE), Tokushima, Japan, 30 August 2002; pp. 103–106.
72. Zydney, J.M.; Warner, Z. Mobile apps for science learning: Review of research. *Comput. Educ.* **2016**, *94*, 1–17. [CrossRef]
73. Dunleavy, M.; DeDe, C.; Mitchell, R. Affordances and Limitations of Immersive Participatory Augmented Reality Simulations for Teaching and Learning. *J. Sci. Educ. Technol.* **2009**, *18*, 7–22. [CrossRef]
74. Rosenbaum, E.; Klopfer, E.; Perry, J. On Location Learning: Authentic Applied Science with Networked Augmented Realities. *J. Sci. Educ. Technol.* **2007**, *16*, 31–45. [CrossRef]
75. Cheung, W.S.; Hew, K.F. A review of research methodologies used in studies on mobile handheld devices in K-12 and higher education settings. *Australas. J. Educ. Technol.* **2009**, *25*, 153–183. [CrossRef]
76. Schmitz, B.; Klemke, R.; Specht, M. Effects of mobile gaming patterns on learning outcomes: A literature review. *Int. J. Technol. Enhanc. Learn.* **2012**, *4*, 345. [CrossRef]
77. Ting, Y.-L. The Pitfalls of Mobile Devices in Learning: A Different View and Implications for Pedagogical Design. *J. Educ. Comput. Res.* **2012**, *46*, 119–134. [CrossRef]
78. Ghiani, G.; Paternò, F.; Santoro, C.; Spano, L.D. UbiCicero: A location-aware, multi-device museum guide. *Interact. Comput.* **2009**, *21*, 288–303. [CrossRef]
79. Cheng, P.-H.; Yang, Y.-T.C.; Chang, S.-H.G.; Kuo, F.-R.R. 5E Mobile Inquiry Learning Approach for Enhancing Learning Motivation and Scientific Inquiry Ability of University Students. *IEEE Trans. Educ.* **2016**, *59*, 147–153. [CrossRef]
80. Colucci, E.; Smidt, H.; Devaux, A.; Vrasidas, C.; Safarjalani, M.; Castaño Muñoz, J. Free Digital Learning Opportunities for Migrants and Refugees. An Analysis of Current Initiatives and Recommendations for Their Further Use. In *JRC Science for Policy Report*; Castaño Muñoz, J., Carretero, S., Punie, Y., Eds.; Publications Office of the European Union: Luxembourg, 2017; pp. 1–42.
81. De Freitas, C.S.; DeBoer, J. A Mobile Educational Lab Kit for Fragile Contexts. In Proceedings of the Global Humanitarian Technology Conference (GHTC), Seattle, WA, USA, 17–20 October 2019; pp. 1–7.
82. Wall, M.; Campbell, M.O.; Janbek, D. Syrian refugees and information precarity. *New Media Soc.* **2016**, *19*, 240–254. [CrossRef]
83. Adil, M.N.; Sundararaman, V.; Bend, M. Leveraging Educational Technology. In *Expectations & Aspirations: A New Framework of Education in the Middle East and North Africa*; El-Kogali, S., Kraft, C., Eds.; World Bank Group: Washington, DC, USA, 2019; pp. 193–205.
84. Zhang, Y.; Cristol, D. *Handbook of Mobile Teaching and Learning*; Springer: Berlin/Heidelberg, Germany, 2015.
85. Sabie, D.; Ahmed, S.I. Moving into a technology land: Exploring the challenges for the refugees in Canada in accessing its computerized infrastructures. In Proceedings of the 2nd ACM SIGCAS Conference on Computing and Sustainable Societies, Accra, Ghana, 3–5 July 2019; pp. 218–233.

86. Menashy, F.; Zakharia, Z. Private engagement in refugee education and the promise of digital humanitarianism. *Oxf. Rev. Educ.* **2019**, *46*, 313–330. [CrossRef]

87. Lewis, K.; Thacker, S. ICT and the Education of Refugees: A Stocktaking of Innovative Approaches in the MENA Region. In *World Bank Education, Technology & Innovation*; SABER-ICT Technical Paper Series; The World Bank: Washington, DC, USA, 2016; Volume 17.

88. Papadakis, S.; Vaiopoulou, J.; Kalogiannakis, M.; Stamovlasis, D. Developing and Exploring an Evaluation Tool for Educational Apps (ETEA) Targeting Kindergarten Children. *Sustainability* **2020**, *12*, 4201. [CrossRef]

89. Epp, C.D. Migrants and Mobile Technology Use: Gaps in the Support Provided by Current Tools. *J. Interact. Media Educ.* **2017**, *2017*, 1. [CrossRef]

90. Lifanova, A.; Ngan, H.; Okunewitsch, A.; Rahman, S.; Guzmán, S.; Desai, N.; Özsari, M.; Rosemeyer, J.; Karayel, M. New locals: Overcoming integration barriers with mobile informal and gamified learning. In Proceedings of the International Conference on Information Communication Technologies in Education (ICICTE), Rhodes, Greece, 7–9 July 2016; pp. 132–141.

91. Ahad, A.; Benton, M. *Mainstreaming 2.0: How Europe Education Systems Can Boost Migrant Inclusion*; Migration Policy Institute Europe: Brussels, Belgium, 2018.

92. Papadakis, S.; Kalogiannakis, M. A research synthesis of the real value of self-proclaimed mobile educational applications for young children. In *Mobile Learning Applications in Early Childhood Education*; IGI Global: Hershey, PA, USA, 2019; pp. 1–19. [CrossRef]

93. Anfara, V.A., Jr. Theoretical Frameworks. In *The SAGE Encyclopedia of Qualitative Research Methods*; Given, L., Ed.; SAGE Publications: Thousand Oaks, CA, USA, 2008; Volume 2, pp. 869–873.

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