

NEW LOCALS: OVERCOMING INTEGRATION BARRIERS WITH MOBILE INFORMAL AND GAMIFIED LEARNING

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Abstract

The article describes a study focused on integration of refugee and migrant teenagers to a German society. The research was done in 2015-2016 by a group of students from the University of Bremen, Digital Media Department. The central issue in this research is the migration crisis in Europe that reveals many challenges one of which is the question of newcomers' adaptation to the local society and culture. The paper contains results of a literature analysis, state of the art projects and qualitative interviews. The research was used to complete the requirements for a gamified digital communication application.

Keywords: Informal learning, non-formal learning, gamification, gamification in education, integration, refugees, migrants

Introduction

During the Syria crisis, Germany overall, and each of the Federal States, such as Bremen, helped over 8,000 migrants by accommodating them for humanitarian reasons in 2015 (Schlee, 2015). These migrants came with different characteristics such as different age, gender and educational backgrounds as well as working experiences. Despite these differences, all of the migrants to whom we spoke over the course of our fieldwork discussed the same goal: living a "normal life" in the new country (Personal interviews, 2015). According to a study from the Office of the United Nations High Commissioner for Refugees (UNHCR), 86 percent of young refugees own a mobile handset, and more than 50 percent are using the Internet either once or multiple times per day (Maitland, 2015). This resource creates an opportunity to develop a mobile application that could help migrants to get into contact with locals and by that to adapt in Germany.

The research via personal interviews, literature analysis and exploring existing projects provides a basis for the development of a gamified mobile application. Social norms, behavioral rules, local traditions as well as unfamiliar language, stay in the way of integration of newcomers to a local society and create many inconveniences to both local citizens and migrants. The aim of the application is to support face-to-face communication and social contact to same age locals and thereby learn the new language indirectly in organized leisure time activities by a mobile gamified communication application. The term *gamification* describes the use of game mechanics and experience designed to digitally engage and motivate people to achieve their goals (Burke, 2014). Instead of underlining the difficult situation of migrants, the main aspect is to underline the benefit of learning new languages and making cultural exchange.

Literature Review

Local integration is the process of becoming an accepted part of society. It consists of three dimensions: social, cultural and political (Penninx, 2005). According to the German Nationality Act for naturalisation, a combined language and citizenship test for migrants is employed to prove that they possess an adequate knowledge of German and knowledge of the legal system, society and living conditions in Germany. Acquiring the local language enables the migrant to have the possibility to interact with locals, understand the culture, gain access to a position in the local society and establish a sense of belonging. Therefore, language learning can be seen as a key component to both legal and social integration.

From the interviews conducted for this research, two main problems for integration of migrants surfaced: language barriers and a lack of contacts to local people. From the perspectives of cross-cultural communication studies, communication helps individuals with developing relationships with people (Liu & Gallois, 2014). However, the main obstacle for integration arises in communication. It is not only related to language barriers, but also to cultural differences. To avoid misunderstanding related to various cultural differences, one of the solutions is to introduce cultural specifics to each cultural group. Matthews and Thakkar (2012) report that individuals who have experienced different cultures, are more cognizant of how to alter their communication style so that others understand the information they are trying to transfer. A vicious cycle begins when migrants have low understanding of local language. First, it is harder for them to establish communication with locals; then, the contact frequency for both parties declines respectively.

By considering language barriers, what are the potential tools to help migrants to integrate into a new culture? According to a study of the Office of the United Nations High Commissioner for Refugees (UNHCR), 86 percent of young people in their sample owned a mobile handset. More than a half used the Internet either once or multiple times per day. There is also a high level of interest in a wide variety of Internet based services, particularly social media and news (Maitland, 2015). This statistic shows that using mobile application is not unfamiliar to the migrants. It also provides a potential to develop a mobile application that could help migrants to get into contact with locals and, by so doing to adapt in Germany.

In a study from Clough, Jones, McAndrew and Scanlon (2009), it is shown that smartphone users use their devices to support a wide range of informal learning activities. Throughout all of the interviews from our research, people, especially those refugees who did not visit a school, learned German by themselves from books or mobile applications. Livingstone (1999) states that, *informal learning* is any activity involving the pursuit of understanding, knowledge or skill which occurs outside the curricula of educational institutions. Although migrants have the learning tools on their mobile phones, they still have to communicate with the locals in order to be socially integrated.

Social integration refers to the quantity of social relationships and the frequency of contact with those people (Schwarzer, Hahn, & Schröder, 1994). Siddiquee and Kagan (2006) suggest that *community* and *participation* are intrinsically linked and that frequent contact may be established by doing or sharing the same goal or interest.

Attending events, participating in hobby clubs or other things could be examples here. It might only be seen as the concern of the migrants; however, the interaction between both parties determines the direction and intermediate and final outcomes of the integration process (Penninx, 2005). Thus, this is also a challenge for local society to respond to migrants' needs.

A lot of applications that help migrants to adapt to a new living environment can be easily found on mobile devices (see: Review of existing projects for migrants). However, most of them only provide information in text, and none of them include gamified mechanics. What happens if a mobile application could engage and motivate migrants in order to have a better understanding of their new living place?

Gamification is a term that uses different elements of games in non-game aspects to improve user experience (Deterding, Sicart, Nacke, O'Hara, Dixon, 2011). It makes learners become more dedicated and concentrated on their learning progress (Dicheva, Dichev, Agre, & Angelova, 2015). Based on the idea that players of all types seek to satisfy psychological needs in the context of play, the *pull* effect motivates the player for further play (Ryan, Rigby, & Przybylski, 2006). Therefore, in the context of the use of gamification elements, it is not only enhancing the learning experience, but also immersing users into the learning environment. Specifically, we ask the question: Can gamified digital communication support local integration of refugees with language barriers? If so, how?

Gamification in education has a ubiquitous presence nowadays in different areas. Yet the research between gamification in education and integration is limited. There is no empirical research revealing its potential for informal learning regarding local integration of migrants. In the remainder of the paper, the research gap between gamification in education and integration will be closed by the following research project on a gamified mobile application – “MOIN.”

Review of Existing Projects for Migrants

Before starting work on the project, the research of existing projects fulfilling the needs of migrant teenagers and refugees as well as of miscellaneous target groups, is required. Therefore, main criteria for a revision were set. The system should use a widespread mobile platform to ensure high availability. The location for which the project is done must be relevant to Germany, especially to Bremen. Offered functions must provide relevant content or activities to migrants. In addition, the system should provide educational elements, as well as include game and communication elements. The focus should be on teenagers.

The projects done specifically for refugees and migrants are: Welcome App Germany, Refugermany, Refoodgee, helphelp2, Das WillkommensABC, „Zeig mal!“ – Neues Bildwörterbuch für Flüchtlinge, InfoCompass Berlin, Workeer, "Deutsch für Flüchtlinge," and Ankommen. These applications are analysed according to the use of the mobile platform, location and their functionality.

Mobile Platform, Location and Functionality - Refugees and Migrant Related Projects

Seven out of ten applications for refugees and migrants are done for iOS and Android platforms: Welcome App Germany, Refugermany, Refoodgee, helphelp2, Das WillkommensABC, Deutsch für Flüchtlinge, and Ankommen. One project is also available on Windows Phone: Welcome App Germany.

Eight applications are adjusted for migrants living in Germany: Welcome App Germany, Refugermany, Das WillkommensABC, „Zeig mal!“ – Neues Bildwörterbuch für Flüchtlinge, InfoCompass Berlin, Worker, Deutsch für Flüchtlinge, and Ankommen. Two applications are focused on the whole of Europe: Refoodgee, helphelp2. The applications Welcome App Germany, Refugermany, helphelp2, InfoCompass Berlin represent static information for newcomers. The language support is represented mostly as a pure language dictionary: Das WillkommensABC, „Zeig mal!“ – Neues Bildwörterbuch für Flüchtlinge, Deutsch für Flüchtlinge, and Ankommen. None of the ten analyzed applications contain game elements. Two of them (Refoodgee, Worker) contain communication elements which represent registration for refugee events, and a registration for a job search. There are no communication elements found explicitly for refugees and local populations. Three applications contain educational elements: Deutsch für Flüchtlinge, Ankommen, Das WillkommensABC. They provide functions of learning basic vocabulary via pictures, audio and video. None of the applications are focused on teenagers or young people.

To find more opportunities for the research target group the study on other related projects was done. Among them: phase 6 "Hallo Deutsch," Healthcare App Communication, ImageIt, Speakfree, Real-time translation apps, Babbel, and Duolingo. These applications were also analyzed according the use of mobile platform, location and their functionality.

Mobile Platform, Location and Functionality - Mobile Devices Applications in General

All applications are done for iOS and Android platforms. One project is available on Windows Phone: Duolingo. Two applications are adjusted for Germany: phase 6 "Hallo Deutsch," and Babbel. All other applications have an international focus e.g., Healthcare App Communication, ImageIt, Speakfree, Real-time translation apps, and Duolingo.

Seven applications provide language support: phase 6 "Hallo Deutsch," Healthcare App Communication, ImageIt, Speakfree, Real-time translation apps, Babbel, and Duolingo. Three applications contain game elements: phase 6 "Hallo Deutsch," Babbel, Duolingo. Gamification is represented by scoring systems with points, levels, progress bars, badges, vocabulary quests, avatars, levels and gamified tasks. Three applications contain communication elements via images or chat: Healthcare App Communication, ImageIt, and Speakfree.

Six programs contain educational elements for language learning: phase 6 "Hallo Deutsch," Babbel, Duolingo, Speakfree, and Real-time translation apps. In the case of Real-time translation applications, it is usually represented by audio pronunciation of words. Only one application - phase 6 "Hallo Deutsch" - has a young target group.

Research on existing projects and further summaries revealed several gaps in current mobile applications.

Lack of multilingual elements. There are applications done explicitly for migrants and refugees, but there are only several options with multilingual support. Many refugees are not able to speak English or German and translation into Arabic, Persian, Pashto, French and other languages is needed.

Static information and no interaction elements. Most of the applications providing first important information about Germany --local rules and registration procedures -- do not provide any elements for further integration to a local environment or assistance in communication with local people. They cover only limited amounts of topics and do not answer further questions. On the other side - most of the applications providing communicational elements are very specific (for instance, Healthcare apps) and not targeted for refugees. They also do not provide any help in getting in touch with local people in order to communicate.

Language support does not connect people with real life. Most of the applications providing language assistance or language lessons do not support real-time language practicing situations. And none of them provide real-life feedback.

No focus on young target group. Among the studied examples, there are no programs for young refugees and migrants.

No game elements. Applications done explicitly for refugees and migrants do not contain any game elements.

No learning elements about local culture, rules and society. All educational elements are focused on the language learning and there is no application focused on learning local environment, culture, traditions and behavioral norms.

No projects for Bremen region. There are many applications done specifically for migrants and refugees in Germany, but there are no applications specifically for Bremen.

Hypothesis

The hypothesis was formulated based on the research question: How can gamified digital communication support local integration of refugees considering language barriers?

Hypothesis: Gamified digital communication leads to more efficient integration into a local culture and environment.

Methods

A variety of methods were applied in order to accomplish this research and to deliver the requirements for the final product. For a deeper understanding of integration problems of young refugees and migrants in Bremen, 33 qualitative interviews with 9 target groups and field observations were conducted in refugee camps and the local school. Analysis of existing mobile projects targeted on migrants and language learning

problem showed several gaps in the area. Analysis of scientific literature was done on topics of cultural integration, migration, refugee crisis in Europe, indirect learning and gamification. The research showed various perspectives on the solving of integrational problems. Prototyping and usability testing methods were conducted to create the first version of the product and try it with a target audience to reveal further directions for research and development.

For further project development, information about needs of refugee, migrant teenagers and local teenagers was needed. Interview guidelines were designed, and semi-structured interviews with various related target groups were conducted.

Data Collection and Results

Data was collected from refugee and migrant teenagers:

- Going to school and living with families (5)
- Going to school and living without families (2)
- Not going to school and living with families (8)
- Not going to school and living without families (6)

Also interviewed were: German students (2), refugee camp social workers (2), refugee camp volunteers (3), teachers working with migrant teenagers (3), and communication experts (2).

Interview results provided the ground for elaboration of project requirements. Teenagers going to school and living with family are more involved with local life. They experience fewer problems with obtaining acquaintances, communicating with locals, on finding activities in leisure time. They also express better German language skills. The situation for teenagers going to school but having no family is almost equal in terms of communication – they are open to new contacts and motivated to meet local people and learn German. In the case of teenagers who do not visit a school but live with families, contacts with local people are more seldom. They state that they have too much free time and unstructured daily rhythm. Those teenagers mostly communicate with peers from refugee camps, and they have not many connections with local citizens and, as a result, they have a weaker level of German language or no German language skills. Teenagers who are not going to school and have no family expressed having even more difficulties with communication and integration to a local society due to the lack of family support and psychological circumstances. Most of the teenagers are open for new contacts with local people and would like to go to school and join various activities. Most of the refugee and migrant teenagers use smartphones. The most popular platform is Android. Reasons for using digital media are mostly related to assistance with German language, communication via various social media, entertainment and looking for information about Germany. German students also expressed the interest in communicating with migrant students, spending time in shared activities and providing some help.

Interviewed experts like volunteers and social workers from refugee camps showed that daily rhythms of teenagers depend on the presence of school and family. They also stated that the language barrier is the main problem that prevents refugee teenagers from integrating into local society despite the fact that most of the young people expressed the desire to communicate with Bremen citizens. Communication experts state little difference in communication styles of teenagers from various cultural

backgrounds. These differences mostly related to gestures, mimics or other expression but do not affect general needs and interests of young people from different cultures. Teachers supported ideas of communication experts by adding that overcoming language barriers is the most important step to adapt to a local society.

Product Prototype

Information collected from the interviews provided a basis for further development of the project concept. The objective of the final product is to offer help to refugee and migrant teenagers to adapt to local society and to local young people to enrich their leisure time and social life with events and activities in intercultural social groups based on shared interests.

The final product prototype (see Figure 1) represents an Android-based mobile application that provides the following functionality:

- There is the possibility to create or participate in local informal learning events in Bremen that are organized in categories: Sport, Cinema, Food, Music, Culture, Games, Education, Time Out, Excursion, Help and Language Practice.
- The application is designed in a way to bring young people to a face-to-face communication in order to create situations of indirect language practice.
- The application is offered multilingually in order to be used by people with poor German skills.
- The mobile application contains educational elements providing language support: visualised vocabulary with specifics of the Bremen region and language tests.
- The system has gamification elements (progress bars, leaderboards) that are used to increase the motivation of usage and the interest of young people to the product.
- The application is developed with technical requirements for offline data usage and less data volume in order to be used by people with limited high-speed Internet.

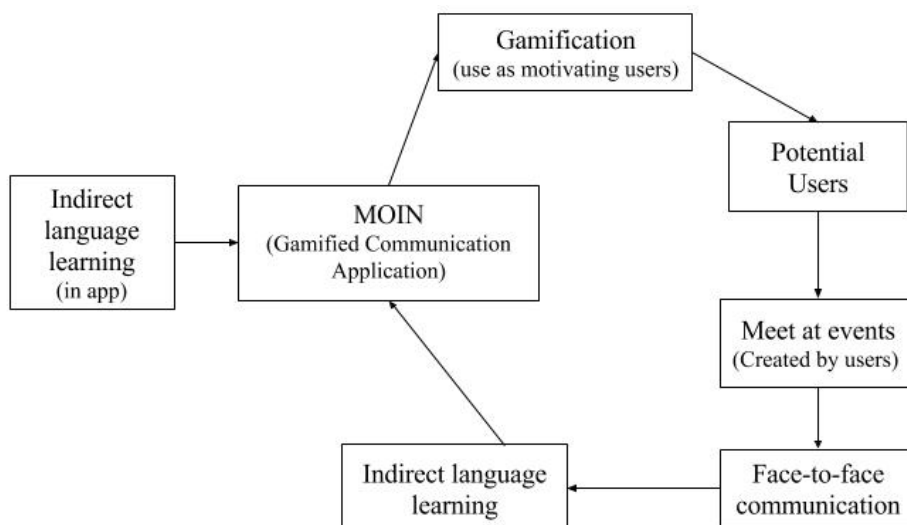


Figure 1. Overview of MOIN-application functions.

Usability Test

After the development of the first application prototype, the development group conducted a usability test using System Usability Scale (SUS) method (System Usability Scale (SUS) & Rauer, M. (2011)). The test was conducted in March 2016 with two user target groups: 5 German people aged from 19 to 23 and 5 migrants (3 from Afghanistan and 2 from Syria) of same age group. The test was held in English; all the participants were required to have at least an intermediate English language level. During the test, participants were asked to accomplish tasks using the application “MOIN” on Sony Xperia Z smartphone, Android version 5.1. The tasks were: to register in the application, to sign in, to create an event, to join an event and, in case of migrant group, to pass a German language task.

Table 1

Findings from the Usability Test

Task	Justification	Change	Severity
Register and log in	3 participants had problems with this task. Observers found out that users try logging in instead of registering.	Size and position of the “sign in” and “register” buttons	Moderate
Create an event	Participants do not understand clearly that they have to fill in all the data they are asked.	Add data validation	Moderate
Join an event	9 participants completed this task successfully. One participant could not find the joining event section. Observers state that the button “join” should be more visible.	Change “join an event” button	Low
Accomplish language task (migrant group)	Participants found it difficult to find the language learning part. The navigation inside the application is not clear.	Revise the navigation, add additional navigational elements	High

The usability test revealed some difficulties for further investigation and improvement. First, it seems that the navigation inside the app is intuitive for German users but less intuitive for users from the migrant group. This issue requires further research and improvement. Additionally, main buttons and their sizes inside of the application need to be revised, changed in size and replaced. Some of the participants suggested extending the age group from 23 to an older age. Nevertheless, quantitative analysis of the usability test also pointed out the acceptability of the product and a positive assessment from both target groups.

Further Research Directions

The conducted research revealed main problems existing in the field of integration of migrants into German society. As one of the steps for overcoming challenges arose due to the migration crisis it suggests a solution based on digital technology. It also opened

another point of view on the issue with the suggestion of looking at the difficulties not being problematic, but from a more sustainable perspective. What if we look at the things that enrich the quality of life of both migrants and local citizens? What if we use the potential of a multicultural young society to grow people able to improve cross-cultural communication skill, in order to stimulate their creativity by the diverse social environments, and let them exchange ideas? Here technology provides extra support and makes opportunities for such communication inside one city more affordable to various groups. First, it offers a choice of activities as a means for further communication. Then, it helps with overcoming language barriers by providing help with unfamiliar vocabulary and learning elements. And it increases chances for finding people with common interests by providing technology used anytime and anywhere. These points state new questions for further research. For instance, a deeper study in the area of informal face-to-face communication supported by digital devices is needed. It will open new ways and techniques for stimulating people for such a communication and test its outcomes. What is more, there are challenges from experienced designers to find out more ways for overcoming language and cultural barriers using technology. And, at the end, the longer study of informal learning results under new cultural condition can be conducted. As a result, such studies open new prospects on migration challenges in terms of cultural exchange and acculturation in combination with the help of technology. The research reveals new questions that form the basis for further research. For instance, a deeper testing of informal learning results must be done, which requires longer periods of time for checking the progress.

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