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## Mobile Technology for Social Inclusion of Migrants in the Age of Globalization

A Case Study of Newly Arrived Healthcare Professionals  
in Sweden

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# Mobile Technology for Social Inclusion of Migrants in the Age of Globalization: A Case Study of Newly Arrived Healthcare Professionals in Sweden

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*Abstract: In 2015–2016, an increased number of migrants entered the European Union. Supporting them in entering host societies and enhancing their social inclusion is a challenge. An essential inclusionary step is providing language and host culture training for the newcomers as well as supporting them in making contacts with locals. Mobile technology, due to its accessibility, can be a bridging tool between migrants and host societies. This study investigates the needs of a specific group of migrants—namely, newly arrived health care professionals (HCPs)—in terms of employability and integration into the labour market. Further, it reports on a user test conducted to explore how a specific mobile application “Welcome!” meets these needs and promotes HCPs’ integration into Swedish society. A qualitative methodology based on semi-structured focus group interviews and questionnaires with HCPs was used. The results show that the respondents express strong needs in language for specific purposes and intercultural communication training in relation to the healthcare context as well as in making contacts with professionals, which can be beneficial to obtaining employment. As the app provides opportunities for more general language training and contacts with locals, the participants showed little interest in using it. The study gives suggestions for developing mobile tools for supporting social inclusion of highly educated migrants, emphasizing the need to consider specific subpopulations in the design of mobile applications for migrant integration.*

*Keywords: Social Inclusion, Migrants, Health Care Professionals (HCPs), Mobile-Assisted Language Learning (MALL)*

## Introduction

In both 2015 and 2016, about 1.3 million first-time asylum seekers were registered in the member states of the European Union (EU), primarily from Syria, Afghanistan, and Iraq (Eurostat 2018). Sweden, a country with a long history of migration and a population of just ten million (Byström and Frohnert 2017), welcomed 165,000 asylum seekers in less than two years, more per capita than any other European country (Swedish Migration Agency 2017). Europe faces challenges in supporting migrants’ immediate and longer-term needs in entering the host societies (Metcalf-Hough 2015). A crucial task is enabling migrants’ participation in all aspects of life and preventing their social exclusion, which can be defined as “a multidimensional process of progressive social rupture” that “detach[es] groups and individuals from social relations and institutions and prevent[s] them from full participation” in normal society (Silver 2007, 15). Providing equal opportunities for all members, regardless of their background, and enabling everyone “to participate in civic, social, economic and political activities” is vital for successful and sustainable migrant integration in the host society (Taylor and Toner 2007, 3).

Full and active participation of migrants in the host society requires not only language but also cultural competence, which is correlated to employability and opportunities to engage in education (OECD 2017). Linguistic competence together with cultural competence is a central facilitator of social integration (Ager and Strang 2008), which refers to “the quantity and quality of social connections and interactions that people [migrants] have with others [locals]” (Rubin and Ramelli 2012, 498).

An essential inclusionary step, especially for countries like Sweden with a language that is hardly spoken outside the country’s borders, is to support migrants in language and cultural

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learning together with promoting social bridging and linking (Ager and Strang 2008). Though migrants have access to free language courses (Swedish for immigrants, SFI), little attention has been paid to the diversity of the newly arrived population in terms of educational and professional backgrounds (Lundgren and Rosén 2017). Targeted training courses for highly skilled professionals are few, though more “fast tracks” for professionals were initiated in 2017 (Swedish Public Employment Service 2017). Many migrant professionals get no access to them or have to wait for a long time, which results in frustration, concerns about loss of professional skills, and unemployment. One such group is healthcare professionals (HCPs) coming from outside the EU/European Economic Area. For many HCPs it takes four to six years to start working in Sweden (Jelmini 2014), primarily due to long waiting times for validating education, access to language courses, and passing language and medical knowledge tests necessary for getting an internship. Further, those who pass the medical and language tests report lack of language and cultural skills in relation to communication with patients and colleagues, which results in stress, discrimination, exclusion from decision making, etc. (Berbyuk Lindström 2008; Mulinari 2018; Wolanik Boström and Öhlander 2018). The relative dearth of information about migrants’ integration needs, particularly HCPs, motivates the study’s undertaking.

Furthermore, research indicates that many newly arrived migrants in Sweden have smartphones (Bradley, Berbyuk Lindström, and Sofkova Hashemi 2017), and that mobile technology can serve the purpose of a bridging tool in terms of learning the language and culture of the host society (Borkert, Cingolani, and Premazzi 2009; Burston 2013; Collin and Karsenti 2012). Newly arrived migrants use mobile phones for contact with family members back home and geographical navigation (Sofkova Hashemi et al. 2017). Though a number of mobile applications have been developed, existing mobile resources are not always adapted to the needs of the users (Berbyuk Lindström et al. 2017; Demmans Epp 2017). Better insight in the needs of newly arrived HCPs is needed to explore how mobile technologies can be used for enhancing social inclusion and integration.

## Previous Research

Integration is the acculturation strategy migrants have when they hold an interest in both maintaining their original culture and learning the culture of the host society (Berry 1997). Integration can only be “freely” chosen and successfully pursued by non-dominant groups when the dominant society “is open and inclusive in its orientation towards cultural diversity” (Berry 1997, 10). Gaining employment together with education, housing, and access to healthcare are essential means of integration. This can be facilitated by language proficiency and cultural knowledge as well as by having contacts with the members of the host society (Ager and Strang 2008). Developing social connections and promoting participation in the host society are crucial for employment opportunities and longer-term social and economic benefits to a community. As Ager and Strang (2008, 181) show, providing access to “...relevant services is a major task in supporting integration” requiring efforts from the community. Due to its accessibility, mobile technology can be a useful tool for migrants to learn the language and culture of the host society. The section below presents relevant research about mobile learning and second language acquisition in relation to social inclusion of migrants.

### *Mobile Learning and Second Language Acquisition*

Mobile-Assisted Language Learning (MALL) is a specialization within mobile learning that concerns language learning enhanced by the use of portable devices such as mobile phones. Mobile learning “can enhance, extend and enrich the concept and activity of learning itself, beyond earlier conceptions of learning” (Traxler, Bárcena, and Laborda 2015, 1236). Second and foreign language acquisition is supported by MALL in both formal and informal settings extending learning beyond the classroom (Kukulka-Hulme, Lee, and Norris 2017). MALL

enables users to engage in incidental and authentic learning in the form of creating one's own learning content, facilitating vocabulary acquisition, and development of speaking and listening skills (Traxler, Bárcena, and Laborda 2015). Collaborative affordances of technology support cross-cultural exchange and development of intercultural communicative competence (Chapelle 2017). Mobile technologies promote progressive, authentic, interactive, and social learning environments (Kukulska-Hulme, Lee, and Norris 2017), and afford more sophisticated use and new contexts of learning (Pachler, Bachmair, and Cook 2010; Viberg and Grönlund 2012). However, there is a predominance of drill exercises on vocabulary and grammar and behaviourist approaches of development in MALL, primarily due to the ease of programming and implementing such features (Burston 2014; Heil et al. 2016). This is in contrast to Second Language Acquisition (SLA) principles that emphasize collaborative and interactive language learning activities (Rosell-Aguilar 2017). Collin and Karsenti (2012) argue in their review of ICT tools that the existing technology principally supports autonomous linguistic learning whereas other aspects of linguistic integration such as human interaction are absent.

### *MALL and Social Inclusion*

Several MALL-related initiatives in Europe aim to meet the challenges of an increasing cultural and linguistic diversity and to ensure capacity building and social inclusion of migrants in the host society (Andersen, Elm Larsen, and Hornemann Møller 2009; Magis and Shinn 2009; McKenzie 2004). Most of these initiatives aim to utilize the potential of mobile technology for situated, in-time learning and social interaction. For instance, the EU-funded project MASELTOV<sup>2</sup> focused on developing support for geographical navigation and training of communication skills of migrants based on a framework for incidental learning (Kukulska-Hulme et al. 2015). The British Smart cities and language learning (SALSA) project aimed at connecting language learning solutions in smartphones to a city's network infrastructure (Demmans Epp 2017). In Germany, a prototype called MOIN aimed to facilitate communication through indirect learning in face-to-face encounters between migrants and natives (Lifanova et al. 2016). Another research project in France, "The Connected Migrant," developed a mentoring program for young job seekers from North Africa, investigating mobile support linked to a job search application (Diminescu 2008). The results from these research initiatives are promising, demonstrating possible solutions for applying mobile technology to support and connect language training to societal services. In particular, a platform where users can connect with mentors via mobile phone or a computer shows positive consequences for integration.

In the European countries that receive large numbers of migrants, different mobile resources have been developed. In Germany, the *Ankommen* (Arrived) application contains among others an overview and explanations of the asylum procedure, an introductory German language course, and information in relation to the labour market, housing, and child care. The application *Gherbetna* in Turkey presents job listings and other support information for newly arrived migrants. In Sweden, the *Welcome!* and *Ny i Sverige* (New in Sweden) applications provide informal support in terms of contacts with locals and official information about Sweden (work and education, care and health, children and youth, society, and a basic Swedish language course) respectively.

Though many mobile applications are available, few studies offer a systematic review of the resources aimed at immigrants. Sofkova Hashemi et al. (2017) show that there is a distinct discrepancy in relation to the mobile resources on the Swedish market, their use, and migrants' needs, which results in lack of motivation for using mobile technology for integration purposes. Existing apps promote passive language learning with limited pedagogical approaches (Kukulska-Hulme, Lee, and Norris 2017), and surprisingly little support exists for societal and

<sup>2</sup> For more information on the MASELTOV project—European Mobile Assistance for Social Inclusion and Empowerment of Immigrants with Persuasive Learning Technologies and Social Network Services—visit [www.maseltov.eu](http://www.maseltov.eu).

cultural information and training (Berbyuk Lindström et al. 2017; Sofkova Hashemi et al. 2017). While most of the mobile apps are language training apps, like *Duolingo*, *Lingio*, and *Hej svenska* (Hello Swedish), migrants often request resources that are related to their social and economic integration needs, i.e. managing employment, education, and accommodation (Berbyuk Lindström et al. 2017; Bradley, Berbyuk Lindström, and Sofkova Hashemi 2017). Furthermore, little attention has been paid to the targeted mobile-assisted language learning for highly skilled migrants, e.g. HCPs, teachers, engineers, as well as to cultural aspects in terms of both app content and design.

## Aim and Research Questions

This study has been conducted within the project “Integration with Mobiles: Support for Language and Intercultural Communication for Newly Arrived Migrants,” which aims to develop sustainable and pedagogical mobile support for language learning and intercultural communication in order to achieve more personalised and time efficient integration of newly arrived Arabic-speaking migrants in Sweden. A sample of existing apps that could be tested by newly arrived migrants was selected in the first phase of the project, mapping mobile resources available on the market with low disturbance, diverse functionalities, and learning activities (see *Motivation for Selection of App* below). The next phase of the project concerned conducting user tests with selected apps to explore how existing apps of different functionalities and learning activities (language and vocabulary training, translation, intercultural communication, social interaction, etc.) meet the migrants’ needs in the integration process.

The aim of this study is to explore how a social interaction app named *Welcome!* is used by a specific group of migrants—HCPs—for contact between locals and migrants with focus on the following research questions:

RQ1: What professional needs, in terms of employability and integration into the labour market, do the newly arrived HCPs have?

RQ2: How does the *Welcome!* app meet the needs of HCPs in terms of language and cultural learning as well as social bridging as facilitators for integration into the Swedish labour market?

## Theoretical Background

In order to explore the support and other needs of HCPs for integration in the use of mobile technology, the theoretical underpinnings in this research can be seen as engagement of the HCPs as professional members in the community of practice within the host society. In particular, Ager and Strang’s (2008) framework of core domains of integration were combined with sociocultural learning theories in the perspective of situated, participatory learning in which learning is fundamentally understood as a social process and embedded within activity, context, and culture (Lave and Wenger 1991; Wenger 1998). According to the Ager and Strang (2008) framework, language and cultural knowledge are key facilitators of successful integration that, together with establishment of social connections, meet the needs of immigrants in regards to employment, housing, education, and health. Fostering contacts between immigrants and locals is an effective tool to both increase empathy and mutual understanding and decrease negative stereotypes, prejudice, and discrimination, which adds to inclusivity of society. Further, it is important to foster direct contact early and institutional support is essential, as well as joint goals, cooperation, and equal status in the encounter to ensure social inclusion of immigrants and prevent segregation (Pettigrew and Tropp 2011).

The “Communities of Practice” notion outlined by Lave and Wenger (1991) groups and describes people who are engaging in situated learning processes. Becoming a competent

member of a community of practice means appropriating its artefacts and customary uses. In communities of practice, members depend on each other for learning, mutual help, constructive critiques, and collective thinking, engaging in a joint enterprise and inevitably developing a shared repertoire of skills, norms, and competencies. From such a perspective, social interaction, communication, and collaboration are seen to be essential components. Thus, learning is not considered to be “a process of socially shared cognition that results in the end in the internalization of knowledge by individuals, but as a process of becoming a member of a sustained community of practice” (Lave and Wenger 1991, 65).

## The Study

As stated above, this study was conducted within the research project “Integration with Mobiles: Support for Language and Intercultural Communication for Newly Arrived Migrants” with the purpose to explore functionalities and pedagogy of mobile resources to support integration of Arabic-speaking immigrants arriving in Sweden. After mapping available mobile resources on the market with low disturbance, diverse functionalities, and learning activities in the first phase of the project, the next phase of the project was to conduct user tests. The goal was to explore how existing apps of different functionalities and learning activities (language and vocabulary training, translation, intercultural communication, social interaction, etc.) meet the migrants’ needs in the integration process. The research design, participants, data collection, and analysis of the mobile use of a social interaction app named *Welcome!* and integration needs by a specific group of migrants, namely HCPs, are described below.

### Research Design

The study was conducted between August to October 2017 with two groups of newly arrived HCPs attending a preparatory Swedish language course for healthcare practitioners in Folkuniversitetet, a collaborating partner of the research project. Together with the course managers, the study was limited to a period of three weeks to avoid disturbing the HCPs study process. The research design is based on a combination of quantitative and qualitative tools for the production of data.

To answer RQ1, during week one, after a short introduction to the study and obtaining informed consent (see ethical considerations), focus-group interviews with HCPs were conducted in combination with questionnaires. This explanatory research design of a mixed approach of questionnaires was used as an effective data collection tool to obtain basic information about the participants, and focus group interviews, to provide more accuracy and greater depth and breadth to the study (Creswell and Plano Clark 2007; Denscombe 2008). Besides gathering information of the participating HCPs background and their mobile habits, they were also asked to make self-estimation of their Swedish language, cultural, and societal competences in the survey in order to map their experienced needs in that areas. In the focus group interviews, HCPs elaborated further on their experiences and perceptions of necessary information and needs to become included in the Swedish society, with special focus on employability.

To address RQ2, during week one, the researchers introduced and assisted with installation of the *Welcome!* app on HCPs’ mobile devices for testing during the following two weeks (group one in August to September and group two in October). Instead of just exploring the app on their own, the participants got a task each week to conduct in the app and were asked to comment on their experiences in using the app in the focus groups. The researchers also made an attempt to get them interested in the assigned tasks, emphasizing the importance of contacts with locals for integration, hoping that they would be motivated to explore the affordances of the app even more. For week two, the participants’ task was to ask at least five questions in the category “Career and society” and five from any other categories in *Welcome!*. They were asked to evaluate the obtained answers in terms of information received and contacts with those who

answered. For week three, the researchers encouraged the respondents to further develop contacts and conversations with the people who answered their questions. No specific instructions on how to do it were given at that occasion. After each week, the respondents were interviewed in focus groups of three to five people about their frequency of *Welcome!* use, its usefulness, experiences, questions asked, the answers received, and contact with those who answered.

## Participants and Data Collected

In total, twenty-one Arabic-speaking HCPs (twelve males, nine females), primarily doctors, pharmacists, and dentists enrolled in the preparatory course participated in the study. The majority of them were between twenty-six to forty-five years old (18), came from Syria (17), and have been in Sweden for one and one-half to three years. All had access to smartphones and reported using them regularly. In total, nine semi-structured focus-group interviews were conducted primarily in Swedish (English or Arabic were used to manage lack of understanding and to resolve any misunderstandings) and audio-recorded upon obtaining written consent. Total interview time is 6.7 hours. Each participant answered a questionnaire in week one (twenty-one questionnaires) concerning background information, mobile habits, and self-estimates of Swedish language, cultural, and societal competences.

### *Motivation for Selection of App*

The *Welcome!* app was chosen for testing based on the results of a previous study within the abovementioned research project, which investigated the mobile resources available on the Swedish market. For that, an evaluation framework was developed that takes into account technological, pedagogical, linguistic, and cultural aspects of mobile apps, the TPLC-framework (Sofkova Hashemi et al. 2017). To the authors' knowledge, evaluation rubrics that exist are developed to assist educators with the selection of apps (e.g. Schrock 2011; Walker 2011; Vincent 2012), and many of these frameworks are not fully developed, especially lacking criteria for cultural and pedagogical aspects (Lee and Cherner 2015). In this study's TPLC-framework, the technological criteria are concerned with accessibility (i.e. pricing, log-in requirements, platform, user interface language) and reliability (i.e. being technically sound). Pedagogical criteria focus on the format of the content and modes of learning (images, video, sound, text) and pace such as the proficiency level (e.g. beginner, intermediate, or advanced). Linguistic criteria include information about the language used in the learning activities provided (e.g. writing, vocabulary, pronunciation) and on what levels (e.g. word, phrase, text). Finally, cultural criteria concern analysis of the cultural sensitivity of content and information about Swedish society (e.g. images, songs, cultural values, norms and practices, national holidays, history, etc.).

The authors' previous review of available mobile resources conducted between November 2016 and April 2017 with the TPLC-framework yielded thirty-eight apps in total, indicating that language training (24) and translation and vocabulary apps (9) dominate the Swedish market, while the apps promoting societal information (3) and contact with locals (2) are limited (Sofkova Hashemi et al. 2017). Cultural content and information about Sweden were represented explicitly in only one app, *Welcome!*. This mobile resource provides support for migrants to contact locals by asking specific questions, in this way promoting authentic language and cross-cultural learning (Chapelle 2017). Since the study's purpose was centred on language learning and social inclusion, the *Welcome!* app facilitating contact development and training of language with native speakers of local population appeared to be the best fit for this study.

### *Welcome! App: An Overview*

*Welcome!* was created by Welcome movement (Welcome Movement 2018), a non-profit organisation, in 2015. Its primary purpose was to create a digital meeting place for contacts



between locals and migrants for learning about Sweden and the Swedish language. It is marketed as an integration tool aimed at bringing people closer and “making the world a more welcoming place.”

*Welcome!* is a cross-platform app, free of charge, available in English, Swedish, Norwegian, Arabic, and Farsi. Login requires a Facebook account. Users can choose the categories they are interested in, e.g. sport and health, language, IT, etc. The next step is for the user to ask a question within the selected category. It can be their own question, but users can also choose from among a number of suggested ones. In Figure 1, the icon “Swedish culture” is represented by a typical Swedish midsummer maypole (Official Site of Sweden 2018). When the question is sent, the user is matched with other users with similar interests and backgrounds who can, in turn, answer the question. There are no limits on how many people can answer the same question. The answers can be translated into the abovementioned languages, and the users can develop further contact via chat function. For answering the question, one gets a “digital handshake.” It is also possible to mention if any meetings in real life take place in the app.

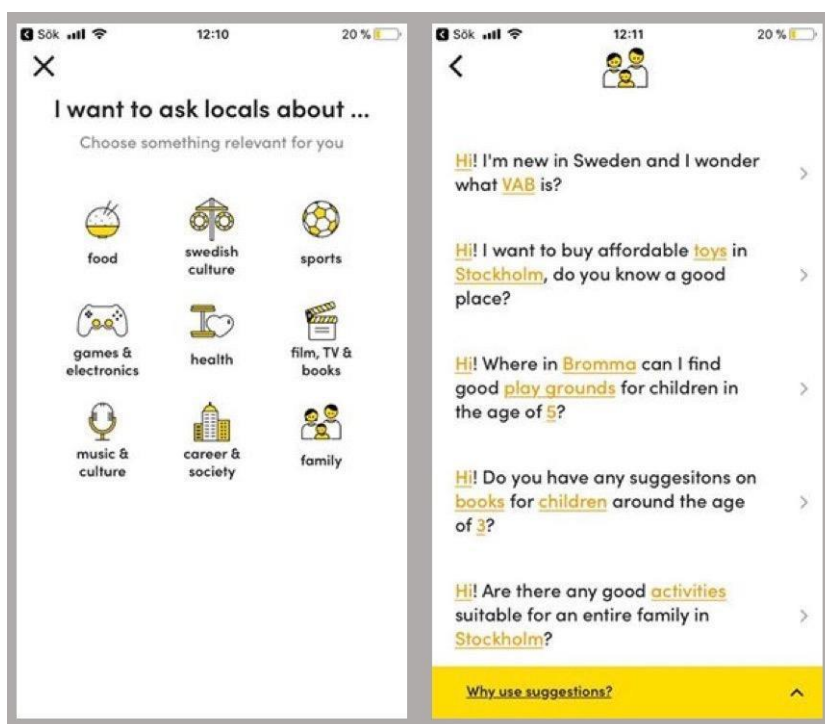


Figure 1: *Welcome!* Question Icons and Selection of Questions  
Source: *Welcome Movement 2018*

### ***Ethics***

The study was approved by the Central Ethical Review Board, Gothenburg, Sweden, in line with ethical guidelines for confidentiality, consent, information, and autonomy in research set by the Swedish Research Council (2018). Anonymity was emphasized in the consent form as well as the possibility for the participants to withdraw from the study at any point. The participants' names and other identifying features were altered to preserve their anonymity. As some participants were in the process of applying for residence, they were assured that their participation would not affect the application process in any way.

**Data Analysis**

Descriptive statistics were sought for the analysis of questionnaires concerning such background factors as participant self-estimation of language, cultural, and societal competence, which can influence their interest in and usage of *Welcome!* app. The focus-group interviews were transcribed verbatim (nine transcripts), and thematic content analysis was used for analysis of the content of the interviews and identifying central issues discussed by the participants (Braun and Clark 2006). This qualitative technique to analyze the collected data involved an iterative process of reading the transcriptions, assigning codes, and finally determining patterns in the material. The codes were identified independently by each researcher. The coding categories which had a high degree of agreement between the coders were then discussed and sorted in the themes. Representative quotes for each theme are presented in the results section below.

**Results**

**Professional Needs**

RQ1 asked what professional needs in terms of employability and integration into the labour market the newly arrived HCPs had. The self-estimates of the participants’ Swedish language competence and knowledge about Swedish culture and society gathered in the questionnaire served as the basis for RQ1, revealing the participants’ relatively high confidence in their Swedish language skills while the opposite is true about their knowledge of culture and society. As demonstrated in Figure 2, eleven of the participants (52%) estimated their Swedish language competence as average and six as good (29%) in writing, fifteen estimated their knowledge average in speaking (71%) and thirteen in listening (62%), and for different levels for reading—good (9, 43%), average (6, 29%), or very good (5, 24%).

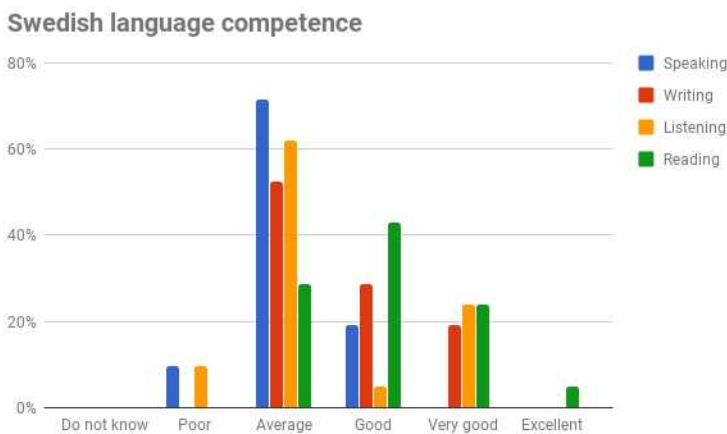


Figure 2: Self-Assessment of Swedish Language Competence  
 Source: Berbyuk Lindström and Sofkova Hashemi

Overall, the participants estimated their knowledge about culture and society mostly as quite poor or average—see Figure 3. Nine of them (43%) estimated it as especially poor in regard to history, seven to the labour market (33%), and four to housing (19%). Seven of the participants estimated their knowledge about education and housing as good (33%). There were also responses such as “do not know” or “no answer” (5–10%) which could indicate a lack of knowledge in regard to culture and society.

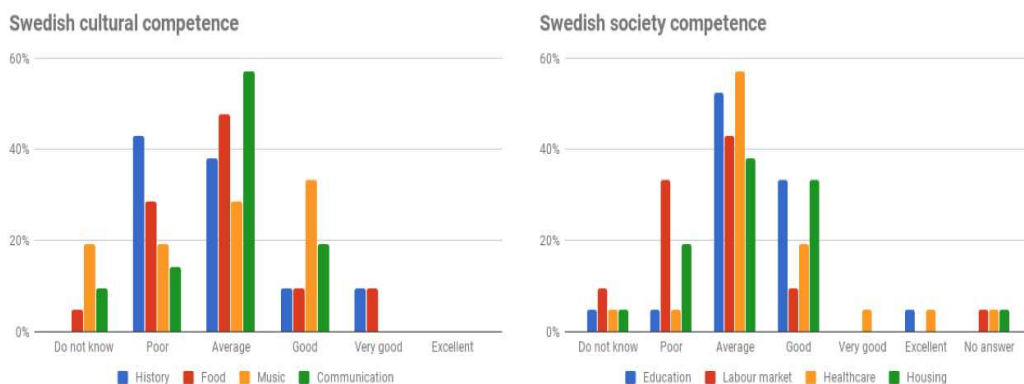


Figure 3: Self-Assessment of Cultural and Society Competences

Source: Berbyuk Lindström and Sofkova Hashemi

In the thematic analysis of focus-group interviews, three themes emerged in relation to RQ1 regarding HCPs’ professional needs.

### Theme 1.1: Getting a Clear Picture of Career Steps towards License to Practice

The process towards securing a Swedish license to practice in medical professions, such as doctors, pharmacists, and dentists, is rather complex. It was perceived as quite difficult and confusing to keep track of all the steps and choices of direction. The HCPs voiced uncertainty in relation to the chosen strategies and fear of losing time:

If you go in the wrong direction, struggle in the wrong way, struggling takes time, maybe you fight two years for the wrong thing, without results. (Respondent 1, male, week 2)

Further, some respondents reported being unsure what and how they needed to study for the examination necessary for validation of their education and professional skills:

In Syria, we have paper and we do not use books, it is the lecturer who decides what we are going to study. But in Sweden, we do not know if there are special books.... (Respondent 1, male, week 1)

Finding relevant information was also perceived as complicated. Though much information is available online in text form, many of the participants had trouble finding information about the validation of medical education, the structure of the Swedish healthcare system, or other information useful for passing the medical licensing examination and getting internships:

I also think we need to know about vacancies in our profession, where you can apply for an internship or work. (Respondent 3, female, week 1)

Some respondents also mentioned that they had problems explaining to the Swedish Public Employment Service officers what qualifications they had, which complicated finding suitable employment.

### Theme 1.2: Learning the Swedish Language and the Cultural Codes

The participants emphasized that, apart from learning the Swedish language in the classroom, additional training was needed in relation to Swedish cultural values and how Swedish society works:

I need to know how to communicate in good Swedish and it is my aim to learn it in order to get a job in Sweden. And to learn about the Swedish society and its rules, its culture. (Participant 7, male, week 2)

Further, a vast majority of respondents reported having no or little insight into the Swedish healthcare communication and expressed anxiety about managing cultural differences in the workplace when they start their internships. The participants were especially confused about the professional hierarchies between superiors and subordinates that they perceived as different in Sweden compared to their home countries:

[Back home in Syria] we heard the boss to say “do it and do that,” but in Sweden he says “do you want to do it?” So for the first time I do not know if he just asked or if it was an order. (Respondent 4, male, week 1)

Learning more about hierarchy, doctor and patient roles, decision making, trust, gender, family role, expression and recognition of emotions, and conflict management were also mentioned as needs by the HCPs, essential for succeeding with integration in general and in relation to employment in particular. Communication with patients in hospitals and customers in pharmacies was especially emphasized, e.g. greetings and establishing relationship.

### **Theme 1.3: Contact with Locals and Fellow HCPs**

The HCPs reported little or no contact with the Swedes in general, and with the Swedish HCPs in particular. The majority of them felt lonely and isolated:

I live alone, three years alone, I have no [emphasis on no] relative here in Sweden. It’s very sad for me, a lot, I do not feel good here, not happy. (Respondent 1, female, week 1)

The respondents experienced limited contact with Swedish society, often restricted only to their teachers in classrooms and books:

I have no contact with a Swedish person and I feel...I go to school, I start with SFI [Introductory Swedish for immigrants course]...then I continue with the next level...I learn Swedish but only from the books and teachers. (Respondent 7, male, week 2)

Contact with locals was considered to be one of the primary needs for successful learning of the Swedish language and cultural codes. The contacts within health care were especially important, as they could help to understand how to prepare for the exam. A pharmacist from Syria commented:

If I can meet students at the university studying the pharmacy or medical programs, so I can get to know the way they study, because we have to study almost twenty-three subjects [for the exam] and nobody knows how to study in the Swedish university. (Respondent 1, female, week 1)

Many respondents believed that contacts with local HCPs were good for finding an internship or a job. In particular, they found a reference from a person working in the Swedish health care system essential for entering the labour market:

Reference is important here in Sweden, you need a reference, it can help you to solve your problems, for instance to get an internship. (Respondent 7, male, week 1)

In the discussions, the respondents commented that if a Swedish person gives you a positive reference, it can help to increase opportunities to be accepted and get employment.

### *Welcome!* as Facilitator for Integration in the Labour Market

RQ2 asked how the *Welcome!* app met the needs of HCPs in terms of language and cultural learning as well as social bridging as facilitators for integration into the Swedish labour market. In the thematic analysis of focus-group interviews, five themes emerged in relation to RQ2. The participants perceived that the app hardly met their needs in general, and in relation to employment in particular (Theme 2.1). They further voiced several reasons for unwillingness to use *Welcome!* (Theme 2.2–2.4). The last theme (2.5) presents reasons for using the app. Each theme is presented in details below.

#### **Theme 2.1: Lack of Relevance to Immediate Needs**

A primary reason for little interest in the app mentioned by the HCPs was a perceived lack of clear relevance between the content of the app and what the participants perceived to be their immediate needs (Themes 1.1–1.3). In spite of the self-estimated limited knowledge about Swedish culture and society in general, the respondents showed little interest in learning about it using *Welcome!*. Instead of obtaining answers on general issues presented in *Welcome!*, they sought information specific for the medical professions. Unanimously, the respondents expressed interest in getting a mobile app targeted at their professional field:

There are many applications, *Let's talk*, *Språkplay* [mobile applications for language learning], many, many, many, to just have a conversation with anyone. But there's no application just for the let's say, no academic application, specific for answers in the medical domain something like that. It can be more unique, much better [for us] because there are many general applications. (Respondent 6, male, week 2)

Though the respondents repeatedly reported experiencing little contact with locals, having a general talk and chat with anyone on *Welcome!* was nonetheless perceived as an unserious activity and a waste of time, as this example demonstrates:

We are educated persons, we need more contact with people from the same professional background, not just to be satisfied by [talking about] "I'm cheering for Zlatan Ibrahimovic."<sup>3</sup> (Respondent 5, male, week 2)

Other topics discussed were sports, hobbies, and public transportation, which were considered "interesting" and "educational" but hardly useful.

#### **Theme 2.2: Unmet Expectations Concerning Communication**

Some HCPs mentioned uneasiness in developing conversations via written chat, which was perceived as "impersonal." The respondents requested more multimodal solutions for communication, e.g. sending audio and video messages, which they considered to be more beneficial for both developing professional contacts and relationships as well as to ensure understanding:

It would be good to [record sound] voice messages in *Welcome!* to be able both to write and to answer with voice message. (Participant 5, female, week 2)

<sup>3</sup> Zlatan Ibrahimovic is a famous Swedish football player.

Further, some respondents expressed lack of interest in discussing general topics with random people. Instead, the respondents suggested developing an open forum in which the topics relevant for HCPs could be discussed by both non-Swedish and Swedish HCPs. For instance, a medical case study for discussion could be presented with some questions for users to share in such a forum, as this quote suggests:

We can just make like case study for pharmacy...A patient comes to the pharmacy with a high blood pressure and the pharmacist, for example, tells him or her to take one kind of medicine. Do you think that is good or not? Something like that, we can share the thoughts. (Participant 4, male, week 3)

Based on the HCPs views and expectations reported above, not surprisingly, few of the participants reported keeping in contact with those who answered their questions in *Welcome!* app. One of the respondents mentioned being rejected by the interlocutor, and not one of them got a chance to meet the locals in real life during the testing period. A contributing reason was geographical distance. Many locals who used the app were from Stockholm, the capital of Sweden, which made it difficult for the users from other parts of Sweden to meet in real life.

### Theme 2.3: Time Pressure

The vast majority of the participants had a strong focus on pursuing their professional careers in Sweden and were busy with other practicalities, such as managing accommodations, for example. They reported a low range of usage of the *Welcome!* app (or other apps) due to this time pressure:

In fact, time is not so good to keep up with it [*Welcome!* app] because we have much to do every day. So, my Facebook is closed, my WhatsApp closed. *Welcome!* is good, but I have no time. Maybe, after the course we will [use it—laughing]. (Respondent 1, female, week 2)

Those who used the app mentioned using it to “kill time” while commuting to their courses on public transportation:

I only used it in the bus, open, check and answer, close. (Respondent 2, female, week 2)

### Theme 2.4: Technical Issues

Concerning technical issues, some respondents were negative about using Facebook as a prerequisite to login, as they did not feel safe sharing their personal information due to security reasons. Further, the frequency of answers and inability to stop the constant flow of incoming answers was perceived as a source of frustration and of pressure to respond. Instead, HCPs wished for a function allowing them to indicate no further need of answers. The participants also reported lack of notifications about received answers that caused them loss of information:

I ask several questions and I have answers, they try to explain very well, they are interested in writing long texts. But I do not know if they are answering the questions...Facebook provides notifications that there are answers. [In *Welcome!*] it does not exist. (Respondent 2, female, week 3)

### Theme 2.5: Complementary Informal Language Learning

With concern to language training, the *Welcome!* app was perceived as a good resource to get informal language training, as well as for learning slang and dialects:

Yes, slang, so that was yeah good for me how to know how they use this Swedish....In general the app is useful, you can try speaking a little Swedish, more than in school....Since there is little opportunity to speak Swedish in reality. (Respondent 4, female, week 3)

The *Welcome!* app was perceived as a complement to classroom teaching and to practice informal language. The respondents experienced learning everyday words and slang expressions after using the app, not provided by their teachers:

It is good to know what is called...street language we use academic language [in classroom] which can sound strange sometimes. (Respondent 6, female, week 2)

The HCPs appreciated this opportunity to encounter vernacular and academic language and a positive contribution to their language learning and integration.

## Discussion

Both learning the language and culture of a host society are prerequisites for successful integration and social inclusion of migrants (Ager and Strang 2008; Adamuti-Trache 2013). To enhance social inclusion of migrants, the host society needs to support them in language learning, providing information about the host society and access to relevant services, as well as developing contacts with local population. However, as this study demonstrates, taking into consideration the professional diversity of migrants is essential. The *Welcome!* app, which was tested by newly arrived HCPs in this study, is an example of mobile support aiming at communication and sharing of information with locals, often native speakers of Swedish. In theory, such a resource should serve as an excellent tool for social bridging purposes (Berry 1997; Burston 2013; Collin and Karsenti 2012), as well as collaborative and interactive language learning activities emphasized as successful for SLA (Rosell-Aguilar 2017). That means providing opportunity for social connection within the community and engagement in situated learning processes essential to becoming a competent member of the society (Lave and Wenger 1991; Ager and Strang 2008). From the results of the user tests and focus-group interviews, however, it became clear that the newly arrived HCPs demanded a different kind of support, which focused on gaining professional knowledge, contacts, and employment information.

The results of the user tests indicate that the respondents used *Welcome!* app solely as a general information source and for informal language learning without collaboration or any significant interaction with locals to develop further contacts. This is primarily due to the fact that the provided information was not related to what the respondents consider to be their immediate needs, in this case learning Swedish for specific purposes and getting information relevant for preparing for medical license tests, internships, and employment opportunities. Learning about Swedish cultural values in relation to health care context was also emphasized (Chapelle 2017). The respondents sought contacts within medical fields, while contact with “random” locals was perceived as less interesting to them. This may be because of an experienced pressure to obtain employment, perceiving chatting as losing time, and primarily valuing the contacts that can be useful for their careers. On the other hand, the respondents were overall positive about the general learning effects of using the app. Though the estimation of these experienced effects of learning is hard to value due to the relatively short period of three weeks of testing the app (see motivation for time limitation in the methods section), most of the respondents reported benefits of developing knowledge about informal language use and information about the host society.

The study shows that for the HCPs it is of value to become a competent member of the professional community in the host society, which implies that such networking technology as the *Welcome!* app has to be then related to career development to ensure usability. The HCPs

were limiting themselves to the knowledge and contacts relevant to the medical field although, according to them, their contacts are few and knowledge about Sweden is small. The study identifies that the primary and immediate needs of the newly arrived HCPs are to develop professional contacts and achieve employment goals (Ager and Strang 2008), which were not explicitly addressed in the current version of the *Welcome!* app. In consequence, the participants demonstrated their lack of motivation and interest in their low frequency of use of the app during the user tests period, which was exacerbated by the time pressure that many of the respondents also experienced.

Furthermore, the analysis of testing the *Welcome!* app with HCPs shows that though contacts can be established online, the contacts between newly arrived and locals are rarely developed further. To actually meet in real life was uncommon, partially due to the geographical distance. Relating these findings to the self-assessments of competences in language and understanding of culture and society indicates a preference for oral, face-to-face communication rather than written conversations in chat, which the *Welcome!* app provides. The respondents demonstrate further cultural expectations on communication and contact development that highlights the importance of cross-cultural aspects in the design of mobile support for social inclusion. It is possible that cultural factors such as the preferences of Arabic speakers for face-to-face communication over written communication that is common in Sweden are also issues that need to be considered when designing mobile support (Zaharna 1995; Hall 1981).

Finally, the technical aspects of mobile solutions need to be addressed in regards to user characteristics (Rosell-Aguillar 2017; Sofkova Hashemi et al. 2017). Though the *Welcome!* app demonstrates a reliable and highly accessible mobile tool, many newly arrived are asylum seekers and are thus unable or unwilling to create social media accounts for reasons of identification and possible surveillance. Migrants' concerns about possible surveillance are common and should be taken into account by app developers (Frouws et al. 2016).

## Limitations

The study's focus is on exploring the use of mobile technology promoting social interaction and authentic language learning as a potential bridging tool for integration of migrants and their development of local contacts in the host society. The delimitation to one particular mobile application and a specific population of migrants arriving in Sweden was intentional. The goal was to explore specific functionalities of mobile technology to support integration of highly educated, newly arrived, Arabic-speaking migrants. The findings of this study thus cannot be generalized to the whole population of migrants nor other mobile technology than the one tested. A possible limitation of the study could be the small number of participants involved. Long term, it would be beneficial to broaden the analysis with more respondents, involve other language groups, and get the perspectives of different stakeholders such as employment agents, teachers, coaches, etc.

## Conclusion

The results of the study demonstrate that successful integration clearly relates to the immediate needs of migrants to become competent members of the community (Lave and Wenger 1991), and thus confirm the importance of being responsive to the needs of learners. In particular, the achievement of employment, i.e. getting your professional skills acknowledged and earning a living, represents a central driving force and indicative key area of activity, as similarly stressed in the framework by Ager and Strang (2008). The study found that HCPs experience pressure to gain employment in a new country, and the lengthy and complex process of getting a medical license adds to the pressure considerably. As a result, the respondents strive to focus exclusively on the need to get knowledge, skills, and contacts relevant to the medical field, which in turn leads them to underestimate the importance of general knowledge about Sweden. These findings



are in turn projected in the use of mobile technology that, despite its open and interactive learning design for contact in the *Welcome!* app and its theoretical use as a potential bridging tool to the host society, is perceived as being too general (not surprising as it is aimed at a broader group of immigrants) and not meeting the needs of this professional group.

We conclude, based on the result indications from this study with HCPs, that there is a voiced need for offering targeted support for language and cultural training and social bridging of newly arrived migrants that aims at developing professional competence and contacts that lead to employment. Similar attention is articulated by The Douglas Fir Group (2016, 20), which for instance states that “SLA (Second language acquisition) must now be particularly responsive to the pressing needs of people who learn to live—and in fact do live—with more than one language at various points in their lives, with regard to their education, their multilingual and multiliterate development, social integration, and performance across diverse contexts.” Enhancing human interaction with a forum for discussing the issues relevant to the professional community would support linguistic integration and cross-cultural exchange in connection to professional needs (Collin and Karsenti 2012; Chapelle 2017). Further, implementing other functionalities in the *Welcome!* app, such as an advanced contact function promoting formal face-to-face interaction with professionals in the same field and potential employers as well as providing up-to-date information about vacancies, could be beneficial. Mobile solutions that promote transdisciplinary collaboration between medicine, language, and intercultural communication professionals are needed. At the same time, integration is multifaceted and migrants’ self-limitation of their language learning and networking to and within the employment field might in the long run result in lack of inclusion in other areas in a host society.

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