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Emmer, Martin; Kunst, Marlene; Richter, Carola

Preprint / Preprint

Empfohlene Zitierung / Suggested Citation:

Emmer, M., Kunst, M., & Richter, C. (2020). *Information seeking and communication during forced migration: An empirical analysis of refugees' digital media use and its effects on their perceptions of Germany as their target country.* (Weizenbaum Series, 3). Berlin: Weizenbaum Institute for the Networked Society - The German Internet Institute. <https://doi.org/10.34669/wi.ws/3>

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Weizenbaum Series #3

Preprint

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**An empirical analysis of refugees' digital media use
and its effects on their perceptions of Germany as their
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Martin Emmer, Marlene Kunst & Carola Richter

March 2020

Weizenbaum Series

Edited by

Weizenbaum Institute for the Networked Society -
The German Internet Institute

Project Coordination:
Wissenschaftszentrum Berlin für Sozialforschung
Reichpietschufer 50
10785 Berlin

Visiting Address:
Hardenbergstraße 32
10623 Berlin

Email: info@weizenbaum-institut.de
Web: www.weizenbaum-institut.de

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DOI [10.34669/wi.ws/3](https://doi.org/10.34669/wi.ws/3)

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To be published in *Global Media and Communication*, Vol. 16, 2020
(accepted May 12, 2019, publication scheduled for Issue 2, August 2020).
<https://journals.sagepub.com/home/gmc>

Abstract

The recent refugee movements to Europe occur in the digital age. While there is a common perception that ‘every refugee carries a smartphone’, research on this new phenomenon is limited. To fill this academic gap, we have conducted a representative survey of more than 400 refugees living in Berlin which provides insight into the use of digital media in preparation for and during forced migration. We also asked whether digital media shaped images of and expectations about the refugees’ target country Germany. The data confirm that digital media are important tools for refugees but also show that refugees are not a homogenous group and that usage patterns depend on regional origins. Moreover, we found that refugees who frequently accessed the Internet before they fled were better informed than others. Whereas Internet use also contributed to a positively-biased perception of Germany, the respective effect of traditional media use was stronger.

1 Introduction

In 2015, Europe has become the target destination for more than a million of refugees fleeing war-torn countries such as Syria and Iraq (Eurostat, 2017; UNHCR, 2017). Yet, in addition to the extraordinary high number of asylum applications (Connor, 2016), another peculiarity distinguishes the recent refugee movements from previous ones: the movements of our time – be they to Europe or other regions – are taking place in the midst of the digital age. Beyond a doubt, just as digital communication technology has transformed connective action and mobilisation through the technology's network capabilities (Bennett and Segerberg, 2012), it is likely to have an impact on large groups of people who simultaneously embark on a journey to a safe haven.

The mainstream media quickly picked up that most refugees carried smartphones with them (Haverkus and Schmitt, 2015; Locke, 2017; Rosenblum, 2016; Worley, 2016), which to some observers appeared to be a paradox: a modern device in the hands of individuals who apart from that had lost all of their belongings (O'Malley, 2015). Yet, in news articles, refugees explained how valuable smartphones have been during their journey as a compass in transit (Haverkus and Schmitt, 2015) or after they had arrived to their destination country as 'a link to an old life' (Worley, 2016). However, even though many journalists have shown interest in this rather new and multi-faceted phenomenon, only a few scholars have approached the issue from a scientific perspective. Against this backdrop, this study contributes to filling the academic gap by highlighting the role digital media played in the recent refugee movements to Europe.

In order to provide a solid foundation for the analysis, the *first* aim of this study is to provide reliable data on how digital technologies are applied by refugees for preparing for and conducting forced migration. Through a survey of a representative sample of refugees who had arrived to Germany in late 2015 and early 2016, this study provides answers to fundamental questions about (digital) media use during such exceptional circumstances: Which particular digital services do the refugees turn to? How important are mobile phones compared to other sources of information? Do refugees look for the experiences of other refugees in social media, and do they share their own? Furthermore, we assume that digital communication technologies also serve as vital information sources in advance of their departure. Hence, the *second* aim of this study is to analyse what influence digital media use might have on the knowledge refugees have acquired of their target destination Germany. In online environments, which provide an abundance of (unverified) information, the question is whether refugees who had

frequently used the Internet before their departure were better or worse informed about their target destination than others. Moreover, it is an established axiom of communication studies that beyond providing facts, media also contribute to creating ‘pictures in our heads’ (Lippman, 1998). Although images and expectations of other countries are certainly developed in complex processes across an individual’s life-span and involve a variety of factors, it is likely that media use plays a significant role (Wanta et al., 2004). In the specific case of refugees, the content to which individuals are exposed before they depart might have an even stronger impact on their perception of the target destination, as they are more likely to purposefully search for country-specific information and to pay particularly close attention. Against this backdrop, *thirdly* this paper seeks to answer the question whether digital media use contributes to a well-informed or biased perception of the target country.

This study is divided into four sections. It starts with a brief elaboration on the state of research, followed by theoretical considerations. Subsequently, we present our methodology whilst the third section provides descriptive results about media use before and during forced migration. The fourth section addresses the analytical question of effects of digital media use on knowledge and perception of the target country.

2 State of Research: Refugees’

Media Use

Till our survey in 2016, scant research had been conducted on refugees’ media use in the German context – but also in other European countries, the interest has so far been small. It is only during the course of the current refugee flows to Europe that interest on the continent increased (see Leurs and Smets, 2018). Typically, most studies focus on the post-migration phase and the refugees’ situation after their arrival at the target country. The general impression can be summarized with the words of Gillespie (2018: 1): “smartphones are lifelines, as important as water and food”. However, there is a growing tendency to focus on the ambivalences of digital media use among refugees. Studies that address the transit phase of refugees in camps in Lebanon and Jordan describe the ‘information precarity’ felt by refugees regarding technical access to information, the frequency of rumors and misinformation, the lack of control over their own image and surveillance by the state (Wall et al., 2015: 2, di Giovanni, 2013). The

refugees attempt to avoid such insecurity above all by retaining contact with existing networks of family and friends with the help of mobile phones. In contrast, traditional mass media, but also social media such as Facebook, are not granted much trust. Additionally, a study by BBC Media Action (2016) has tried to map out the information needs of refugees in Greek camps using a sample of 66 respondents and additional focus groups. They similarly describe that the refugees were looking above all for current and reliable information and were frustrated that they were not able to obtain it from local helpers and media, resulting in a pronounced loss of orientation. The study of Borkert et al. (2018) who interviewed 83 Arab refugees in Berlin shelters provides insights into the ways refugees try to get information en route to Europe. They observed that in particular instant text messaging was popular among refugees and highlight ‘that ‘Conversations with other travellers’ is an important information source and that the smaller portion of the refugees with continuous access to information via social media were information mediators’ (Borkert et al., 2018: 6).

Studies in Australia, France and Italy (Charmarkeh, 2013; Gifford and Wilding, 2013; Harney, 2013; Khorshed and Sophia, 2015; Leung, 2011) provide further indications about the ambivalence of media technologies in the daily lives of refugees in the post-migration phase. Noteworthy studies are those by Houssein Charmarkeh (2013), who employed ethnographic methods to investigate the precarious situation of Somali refugees in France and took their social media usage before, during and after flight into consideration, and by Nicholas Harney (2013), who looked at the mobile-phone usage of migrants and asylum seekers in Naples, Italy. In both studies, smartphones are highlighted as great support tools for coping with daily life. Charmarkeh (2013) explicitly stresses that ‘refugees know how to employ social media, contrary to prevailing clichés, because social media play a crucial role in their navigation of the migratory trajectories and also allow them to find a place where they feel accepted’ (50). Witteborn repeatedly visited people in shelters for asylum seekers in Germany over a span of three years and analysed the inhabitants’ media practices (Witteborn, 2011, 2012, 2015). Her interest was to see how these ‘forced migrants’ develop a specific identity through self-presentation in the digital media. She especially highlighted the field of tension between the situation in Germany which is experienced as unsatisfactory and existing contact through digital media (a kind of co-presence) with those left behind in their homeland, who mostly assumed a significant improvement in the refugees’ living conditions. This tension often leads to the asylum seekers transmitting rather overoptimistic reports to the country of origin (Witteborn, 2015). More recent qualitative studies which focus on people who had recently fled from Syria, Iraq

and Central Asia and presently live in Germany also emphasise the importance of the smartphone for the maintenance of contacts with the country of origin (Fiedler, 2016; Fiedler, 2018; Borkert et al., 2018) and also for the bridging function to the host country (Kutscher and Kreß, 2015), for example through language-learning apps. Fiedler (2016), who refers to 36 in-depth interviews with Syrian refugees, is one of the few scholars who also looks at media usage in the country of origin before flight. She finds that respondents informed themselves about the situation in the target country using diverse channels, hence demonstrating a broad repertoire of information. Nonetheless, this information-acquisition is primarily channelled through social media and personal contacts (Fiedler, 2016: 11-12). Another study by Dekker et al. (2018) interviewed in a similar manner 54 Syrian asylum seekers in the Netherlands. They also highlight the importance of verification of information through personal contacts, stressing that ‘[t]he importance of trust and personal contact is again stressed when respondents indicate that one-to-one communication with known others via social media is more trustworthy than public communication of unknown others’ (Dekker et al., 2018: 7). This brief overview of the literature highlights the importance of digital media in the specific life-circumstances of refugees. The majority of researchers focus on the period after arrival to the target county while a few recent ones have also integrated the period before and during flight. Almost all of the studies apply a qualitative methodology, which serves the purpose of understanding the subjective meaning individuals attribute to digital technologies and allows the researcher to explore in-depth users’ motives and behaviours. The downside of qualitative research is the usually non-representativeness of the samples and the unclear generalisability of the data. To our best knowledge, so far, no study has quantified the frequency and types of refugees’ digital media use and the thematic priorities of refugees’ communication.

3 Theoretical Background

3.1 Media Use

When aiming to develop hypotheses about explanations of refugees’ media use, the entering wedge is to identify probable motives refugees could have when turning to media. In this regard, research has yielded some theories which aim to answer the question of why individuals choose to use specific media out of many options. Promi-

nent approaches such as the uses and gratifications approach focus on motives adapted for a western lifestyle, with an emphasis on typical leisure-time motives, such as relaxation, escapism or self-affirmation (Katz et al., 1973; Rubin, 2002; LaRose and Eastin, 2004). However, in the kind of emergency situation refugees experience, it is not only unlikely that an individual uses media for relaxation or self-affirmation, but also media options are much rarer than for citizens living in western countries, where research on media use is mostly conducted. Overall, it seems more likely that individuals of refugee movements are driven by very practical considerations following a rational-choice-logic. The rational-choice model implies that individuals weigh up the utility and the costs of actions and choose the one which maximises the utility and minimises the costs (Harsanyi, 1980; Dohle et al., 2004; Emmer et al., 2008). Even though this approach is mostly applied in economic or political contexts (Aldrich, 1993; Blais, 2000), it is probably a more suitable approach to refugees' media use, because rational-choice theory initially describes the logic of the situation in which the individual finds him- or herself and subsequently derives the options of actions from this social context. Consequently, the respective costs and utility are dependent on the context and not on allegedly universal needs, as traditional media-use theories imply. Refugees might for instance engage in interpersonal communication via messenger services instead of searching for information on official governmental sites when the refugees need information about the asylum policies of a country, as they consider these services more time-efficient and even more trust-worthy in their specific social context. Yet, despite these theoretical considerations, we have too little knowledge about the situational context of refugees for developing detailed hypotheses which are based on previous research or a sound theoretical framework. The lack of empirical groundwork is what motivates our first research question to address basic usage patterns:

RQ1: How do refugees use digital media in preparation for and during forced migration?

With this question, we attempt to learn more about (a) refugees' media use in general, (b) about their patterns of digital media use and (c) what their communication before and during their flight was about.

3.2 Media influence

The question of how media use influences an individual's attitudes, knowledge and perceptions has been at the centre of communication studies for many decades. By now, studies in the tradition of theoretical approaches such as the cultivation hypothesis

(Gerbner, 1998), agenda-setting (McCombs and Shaw, 1993) and framing (Scheufele, 2000) have accumulated valuable knowledge on how media use can shape people's notions of reality. Moreover, in the context of digitalisation, a rapidly-growing body of research is addressing the effects of digital media use in western societies – such as the digital-divide hypothesis (Mossberger et al., 2003; van Dijk and Hacker, 2003) or fragmentation and polarisation of audiences (Dahlberg, 2007). Referring to refugees' presumed pragmatic use of media, especially effects of media use on knowledge – in particular, knowledge relevant for flight – seem to be of interest in this context. Empirical studies have produced evidence that, for example, digital media use can increase knowledge-gaps between different segments of the population (van Dijk and Hacker, 2003; Wei and Hindman, 2011).

However, whereas the vast amount of research provides insight into fundamental consequences of digitalisation for the west, it does not provide insight into the impact digital media use might have on populations in instable societies that see themselves forced to flee due to war, poverty or other threats. The motives and types of media use of these individuals differ from westerners not only due to different cultural backgrounds but also due to the extraordinary circumstances. Till now, the communication behaviour and effects of refugees in the digital era is an under-researched field, which we therefore attempt to approach with two hypotheses. In our second research questions, we ask whether Internet use can contribute to explaining factual knowledge about the target destination, compared to the use of traditional mass media. Moreover, we test whether Internet use (compared to traditional media use) might lead to a positively-biased perception of the target country, which we assume is the case due to the vital role of interpersonal communication and usage of social-media platforms. As a study by Witteborn (2015) shows, after arrival to their target destination, refugees tend to create a more positive image of their situation online than can be found in reality. Thus, our hypotheses for RQ2 are:

H1: A higher degree of refugees' digital media use is related to more factual knowledge about the target country (Germany).

H2: A higher degree of refugees' digital media use is related to a positively-biased perception of the target country (Germany).

4 Method

In order to answer the research questions, we have designed and conducted a representative standardised survey with refugees from different countries in the German federal state of Berlin. Data collection and analysis were funded by a research grant from the German Ministry for Foreign Affairs (German: Auswärtiges Amt, AA).

The sampling procedure was designed to produce a data basis as closely as possible to the structure of the population, which we defined as the persons arriving in Germany with the great refugee movements along the so called “Balkan Route” in late 2015. Germany distributed the arriving refugees to the 16 German states (who are responsible for housing and social care) according to the states’ size and capacity, regardless of any personal characteristics of the people. Due to this random distribution, refugees in the state of Berlin can be regarded as a subpopulation that represents the whole population. We approached four companies and organizations that run refugee shelters and selected twelve shelters of different size and hosting different kinds of refugees (families, single men etc.). Random sampling of respondents was not possible because we did not get access to lists of inhabitants (for reasons of data protection) and other methods of random approach (e.g. during dinner time) appeared to be impracticable in most homes, which is why we chose a quota sampling procedure to select respondents. Quota criteria were sex, age and country of origin, which were taken from the data about first-time asylum-seeker applications for January to February 2016 published by the Federal Office for Migration and Refugees (Bundesamt für Migration und Flüchtlinge (BAMF), 2016) (see Table 1).¹ The interviews were conducted in May 2016 by 14 trained interviewers who were native speakers of Arabic, Farsi and Urdu. The willingness to participate amongst the residents of the emergency shelters was very high. Larger biases through self-selection from presumably disproportionately willing participants are therefore not to be expected in the data.

The questionnaire consisted of 145 questions, although, due to the differentiated filtering, the actual number of questions posed was much smaller, depending on the individual response behaviour. The questionnaire covered basic demographics, media use, individual living situation in the country of origin and during forced migration, knowledge and expectations about Germany (questionnaire accessible on <https://www.xxx.de>). The questions predominantly involved standardised question types (for instance,

¹ A random sampling procedure, that was tested first, turned out to be inefficient due to strict privacy regulation and the often very difficult spatial settings in the shelters (several entrances, no common spaces etc.). As a consequence, quota sampling was the next-best approximation to a representative selection of cases.

questions with binary answers, multiple answers or Likert scales). Additionally, some open questions were asked. The questionnaire was developed in English and subsequently translated into Arabic, Farsi and Urdu.

A total of 404 completed interviews have been conducted, with an average duration of about 45 minutes. Only individuals older than 14 years were interviewed. The field-work began on 20 April 2016 and ended on 26 May 2016.

Slightly more than half of the sample was comprised of Syrians (53.5 per cent) and about one quarter came from Iraq (23.8 per cent). A further 15.9 per cent was from the Central Asian states of Afghanistan, Iran and Pakistan (Table 1). This distribution is based on the participants' self-disclosure.

Table 1. Comparison between the sample and the distribution of refugees according to the Federal Office for Migration and Refugees (BAMF).

		Sample	BAMF
	%	(n)	% ¹
Country of origin			
Syria	53.5	(216)	64.5
Iraq	23.8	(96)	17.7
Afghanistan	4.5	(18)	13.2
Iran	4.0	(16)	2.9
Pakistan	7.4	(30)	1.8
Others	6.8	(28)	-
Age			
14–17	3.2	(13)	3.7
18–24	34.9	(141)	36.0
25–29	20.8	(84)	21.0
30–34	14.9	(60)	14.3
35–39	10.1	(41)	9.4
40–44	6.7	(27)	6.0
45–49	3.7	(15)	4.2
50 and older	5.7	(23)	5.5
Gender			
Male	83.7	(338)	71.1
Female	15.6	(63)	28.9

Percentages based on valid cases; differences in cases are due to missing values.

¹ *For a better comparison, the data from BAMF are based only on the five most relevant countries of origin (e.g. excluding refugees from the Balkans). Thus, in the BAMF column, refugees from the five most relevant countries sum up to 100%.*

The sample mostly matches the data from BAMF, with some underrepresentation of Afghan refugees (which may be partly due to the very difficult language situation with many different local languages and dialects not covered by the interviewers) and women (which can be explained by the higher willingness of men to participate in the survey).

5 Descriptive Analysis

The first answer to RQ1 will be given by an analysis of the distribution of media-use variables amongst the refugees. However, we acknowledge that although the participants of our study share the fate of being refugees in a foreign country, they cannot be regarded as a homogenous group, but are likely to differ in terms of cultural aspects due to their country of origin. Therefore, the descriptive analysis in the following section is mostly carried out separately for each nationality. Because enough cases need to be available in order to be able to draw conclusions about the study population, countries with few cases were combined into groups. Syrian and Iraqi respondents are present in great numbers in the sample; thereby these two groups are considered individually. In the third group, respondents from Afghanistan, Pakistan and Iran are combined, who together comprise the category 'Central Asia'. The collective analysis of the respondents from these countries is meaningful to the extent that the respondents come from countries which, though often characterised by problematic political relations and bad living conditions, do not have a raging civil war but suffer more from extremism and oppression and the respondents thus show similar hopes, expectations and motivations for fleeing. The number of cases for the descriptive analysis is 377, as 27 of the participants came from diverse countries which could not be merged into groups (e.g. Egypt, Somalia and Eritrea). In the subsequent analytical section, all 404 cases are included.

In terms of sociodemographic variables, the country groups differ only marginally (in all of the categories, the values fail to reach the significance level of $p < .05$ in chi-square tests). Only in particular features do several stronger differences emerge. For example, amongst the Syrian respondents there were more women (19.7 per cent) than in the other refugee groups (Iraq 13.5 per cent, Central Asia 6.2 per cent). This is hardly surprising against the background of the dramatic situation in Syria, in which people independently of sex (and also age) see themselves being forced to flee.

5.1 Consumption of media content before forced migration

Although the focus of the present investigation was strongly on the use of digital mobile media and the Internet, the refugees were also surveyed about their use of traditional media such as television or newspapers during the period before their flight in order to answer RQ1a. The decisive factor about whether to ask about media usage in the country of origin or in the interim country of residence was the moment of decision about Germany as a destination. Those who had decided whilst in their country of origin to flee to Germany were asked about their media use in their country of origin. Those who had made the decision only after they had left their country of origin and subsequently initially spent three months or more in a third country were interviewed about their media use in this interim country. During this period, media use presumably influenced the refugees' decision to flee and the general image of Germany (as tested in the last section of this paper).

The questions about media use either in the country of origin or in the interim country showed that the most popular medium for the participants from all three regions was television. Radio played a far smaller role and print media the smallest role. The media affinity seems to be most strongly pronounced amongst Iraqis, although country differences can in the best case be carefully interpreted as a trend as the differences for the most part are not significant. We found, however, the use of foreign media content during the time period before forced migration amongst Iraqis in the sample to be higher than the use amongst other nationalities. Print media evidently played a stronger role only in Central Asia.

5.2 Internet use: devices, frequency and form of usage

As it can be assumed that during refugees' flight traditional media such as television and radio are less accessible and are largely replaced by mobile digital media, the participants were asked extensively about their Internet use during flight (RQ1b). Firstly, the refugees' access to Internet-enabled devices was recorded (Table 2). This access includes not only the possession of a device but also the possibility to use such devices for instance through family members, because other studies had shown that refugee groups had formed around digitally-savvy persons while en route to Europe (Gillespie et al., 2018: 7).

Table 2. Access to digital devices during flight.

	Syria (n=216)		Iraq (n=96)		Central Asia (n=65)	
	%	(n)	%	(n)	%	(n)
Medium						
Mobile Phone	13.4	(29)	12.5	(12)	44.6	(29)
Smartphone	78.2	(169)	86.5	(83)	33.8	(22)
Laptop or Tablet ¹	2.8	(6)	7.3	(7)	1.5	(1)

¹ Country differences not statistically significant

Table 3. Frequency of Internet use.

Frequency of Internet use	Syria		Iraq		Central Asia	
	%	(n)	%	(n)	%	(n)
In country of origin/ interim country	(n=197)¹		(n=88)¹		(n=51)¹	
Daily usage	65.0	(128)	75.0	(66)	43.1	(22)
At least rare usage	89.8	(177)	89.8	(79)	72.5	(37)
During flight²	(n=170)³		(n=84)³		(n=22)³	
Daily usage	42.9	(73)	44.0	(37)	22.7	(5)
At least rare usage	87.6	(149)	85.7	(72)	72.7	(16)

¹ Participants who left their country of origin before deciding to go to Germany and who did not stay in an interim country for at least three months were excluded from this analysis

² Country differences not statistically significant

³ Only participants who had access to an Internet-enabled device during flight

Table 3 illustrates that not only access to Internet-enabled devices but also the frequency of Internet use in the group of respondents from Central Asia (before and during their flight) are comparatively the least pronounced. Interestingly, even amongst the Central Asian refugees in the sample who had access to an Internet-enabled device during their flight, the affinity for using these devices seems to be somewhat lower. In contrast, with heavier usage, Syrians and Iraqis are very similar. Moreover, during flight noticeable all of the groups used the Internet less frequently, which can probably be explained by the difficult situation of the people on the route to Europe. The opportunities to connect to Wi-Fi or to buy data were probably scarce and the Internet accessed only in cases considered meaningful according to a rational-choice-logic. However, when focusing on only rare use, the rate for all of the nationality groups is at more than two thirds. This indicates that under the circumstances of forced migration the smartphone

was a central means of communication. Moreover, due to the assumed general absence of conventional media, it is likely that the Internet is the most important access point to information beyond face-to-face communication.

As Table 4 shows, at all of the stages and in whatever region the refugees were fleeing from, communication with others is the most frequent form of usage of the Internet. The search for information on the Internet plays a significantly smaller role, especially during the flight phase. Information here is seemingly more sought and disseminated through communication with acquaintances than through general Internet sources such as websites. The majority of such interpersonal communication is conducted through the services of popular social media platforms and messenger apps like WhatsApp and Facebook, with Telegram being popular amongst refugees from Iran, as this platform at that time was relatively little hindered by state censorship (Dehghan, 2016). The proportion of those who reported about their flight in public forums (not only in private conversations) from Germany is quite large: comprising about one quarter, these individuals contribute a relevant share to transnational communication during forced migration and thereby surely also to influencing refugee movements. Searching online for others' experiences before deciding to go to Germany might for many have been particularly influential for their perceptions and expectations of Germany.

Table 4. Internet use.

	Syria		Iraq		Central-Asia	
	%	(n)	%	(n)	%	(n)
Country of origin/interim country	(n=157)^{2,3}		(n=75)^{2,3}		(n=26)^{2,3}	
Functions of the Internet ^{1,4}						
Communication	90.4	(142)	89.3	(67)	84.6	(22)
Information	51.0	(80)	54.7	(41)	50.0	(13)
Entertainment	25.5	(40)	17.3	(13)	30.8	(8)
Practical purposes	0.6	(1)	1.3	(1)	3.8	(1)
Searched for information about Germany ⁴	43.9	(69)	56.0	(42)	38.5	(10)
Searched for experiences of other refugees online ⁴	43.9	(69)	50.7	(38)	26.9	(7)
During flight	(n=149)²		(n=72)²		(n=16)²	
Functions of the Internet ^{1,4}						
Communication	88.6	(132)	84.7	(61)	75.0	(12)
Information	36.2	(54)	34.7	(25)	43.8	(7)
Entertainment	1.3	(2)	5.6	(4)	0.0	(0)
Practical purposes	2.0	(3)	1.4	(1)	6.3	(1)
Usage of the Internet to plan flight ⁴	41.0	(57)	42.0	(29)	43.8	(7)
In Germany	(n=206)²		(n=89)²		(n=46)²	
Shared own experiences of flight in Internet forums ⁴	28.2	(58)	23.6	(21)	23.9	(11)

¹ For this battery of questions, the participants were asked to name two functions of the Internet which were most important to them. Due to multiple answers, the percentages do not sum up to 100

² In regard to the country of origin/interim country and Germany, only participants who used the Internet at least several times a month were queried. In regard to the period during flight, only participants who used the Internet at least rarely were queried.

³ Participants who left their country of origin before deciding to go to Germany and who did not stay in an interim country for at least three months were excluded from this analysis.

⁴ Country differences not statistically significant.

5.3 The refugees' communication content

Data on the topics of communication can serve to answer RQ1c. Yet, the respondents not only searched for information of unknown others before the respondents fled but also intensively utilised digital media for interpersonal communication. Intriguingly,

when asked for the information source most trusted during concrete crisis situations, respondents mentioned interpersonal communication most frequently. Against this background, it is of interest who were the contact persons and which topics played a strong role in their communication (Table 5).

Table 5. Before flight: Communication with others through digital media.

	Syria		Iraq		Central Asia	
	%	n	%	n	%	n
	<i>(n=197)¹</i>		<i>(n=88)¹</i>		<i>(n=51)¹</i>	
Contact to people living in Germany ³	38.1	(75)	38.6	(34)	37.3	(19)
	<i>(n=75)²</i>		<i>(n=34)²</i>		<i>(n=19)²</i>	
Topics ^{3,4}						
Practical flight-information	40.0	(30)	58.8	(20)	26.3	(5)
Personal situation	56.0	(42)	76.5	(26)	57.9	(11)
Political situation in Europe	42.7	(32)	52.9	(18)	68.4	(13)
Received pictures	24.0	(18)	23.5	(8)	21.1	(4)
Encouragement from others to flee ³						
Was encouraged	47.3	(35)	58.8	(20)	42.1	(8)
Was discouraged	29.7	(22)	26.5	(9)	10.5	(2)
Neither encouraged nor discouraged	23.0	(17)	14.7	(5)	47.4	(9)

Percents based on valid cases; small deviations are due to missing values.

¹ *Participants who left their country of origin before deciding to go to Germany and who did not stay in an interim country for at least three months were excluded from this analysis.*

² *Only participants who had contact with people living in Germany or other European countries were queried.*

³ *Differences between countries not statistically significant.*

⁴ *Since multiple answers were possible, the percentages do not sum up to 100.*

The results demonstrate that about one third of all of the groups in the country of their flight already had contact with people in Germany. Intriguingly, before the respondents fled, on average about 50 per cent of refugees were encouraged to flee by contacts who had already arrived to Germany or other European destinations. Thus, communication between refugees via digital media is likely to be an additional driver for refugee movements. The relevance of interpersonal communication is also confirmed in Table 6, which shows that during forced migration communication between people en route and those who had arrived intensified.

Table 6. During flight: Communication with others through digital media.

	Syria		Iraq		Central Asia	
	%	n	%	n	%	n
	(n=216)		(n=96)		(n=65)	
During flight, contact with people in Germany/Europe	64.3	(137)	66.7	(64)	33.8	(22)
	(n=137) ¹		(n=64) ¹		(n=22) ¹	
Topics ²						
Practical flight-information ³	49.6	(68)	51.6	(33)	54.5	(12)
Personal situation ³	42.3	(58)	57.8	(37)	40.9	(9)
Political situation in Germany	24.8	(34)	42.2	(27)	31.8	(7)
Sent pictures ³	13.1	(18)	15.6	(10)	4.5	(1)
Encouragement by others to flee ³						
Encouraged others	15.1	(19)	6.5	(4)	4.5	(1)
Discouraged others	35.7	(45)	35.5	(22)	27.3	(6)
Neither encouraged nor discouraged	49.2	(62)	58.1	(36)	68.2	(15)

Percents based on valid cases; small deviations are due to missing values.

¹ *Only participants who during flight had (at least occasional) contact with people who had already arrived in Germany or in their target country were queried.*

² *As multiple answers were possible, the percentages do not sum up to 100.*

³ *Differences between countries not statistically significant.*

Whilst amongst Syrians and Iraqis contacts in Germany and other European countries expand en route, for refugees from Central Asia contacts decline; Central Asians' contacts are evidently not as concretely flight-relevant as those of Syrians and Iraqis. However, for all of the respondents, in their communication with others who had arrived to Germany or Europe practical information about fleeing got increasingly important, whilst the personal and political situation faded into the background. This is not surprising: whilst the latter topics are meaningful during the period the respondents have to decide whether and where to flee, once the decision is made and the journey embarked upon, information which helps one to get ahead is the most valuable. During flight, most respondents neither encouraged nor discouraged others to flee, that is probably due to the uncertainties about how things would turn out.

6 Effects of Media Use on Perceptions of Germany

As questions about the importance of communication media for flight and their potential impact on cognitive dimensions are at the centre of this investigation (RQ2), we shall first examine how specific media-uses and communication-processes influence refugees' notions about Germany before they flee or before they arrive to Germany. In order to measure this influence, two constructs were generated as dependent variables. The first dependent variable 'knowledge' is composed additively out of items regarding refugees' knowledge of effectively applicable facts (such as refugees' right to social benefits in Germany) (H1). When interpreting the data, it must be taken into account that 'knowledge' is one of the most difficult concepts to operationalise because there are no independent indicators regarding what knowledge can objectively be expected. Which knowledge is relevant depends both on subjective (own life situation and life goals) as well as on contextual factors (current events etc.). In this examination, questions about the legal and living situation for refugees in Germany were included.

The second construct analysed below in order to give answers to H2 is a 'positively-biased image of Germany'. It is comprised of the (positive) facts about Germany included in the index 'knowledge' and also of positive but wrong items (for example, 'every refugee receives his/her own house in Germany'). The answers were summed up and transformed into a five-tier variable with the corresponding percentile values. Differently from the variable 'knowledge', the highest value of the variable 'positively-biased image of Germany' indicates an extremely positive but less realistic image of Germany. By developing these constructs we kept in mind how Dekker et al. had characterized the fine line between knowledge and expectations: 'In the context of migration, rumors are "hypotheses" about a future situation upon which migrants act.' (Dekker et al., 2018: 3).

For each of the two constructs, an explanatory model based on a multidimensional analysis procedure (ANOVAs) was developed. They are based on two theoretical core assumptions: firstly, knowledge is influenced by some general traits such as level of education, and secondly, that the higher (informational) media use is amongst respondents, the more knowledge they should have acquired. In the case of refugees, some particular media outlets like international media (CNN and Al-Jazeera) and media from the target country Germany (Deutsche Welle) were included on the questionnai-

re. Special cases were the widely-distributed ‘selfie’ pictures of Angela Merkel with refugees in late 2015. These photographs were partly seen as a factor further motivating refugees to come to Germany (and in this analysis to gain more information about the potential target country).

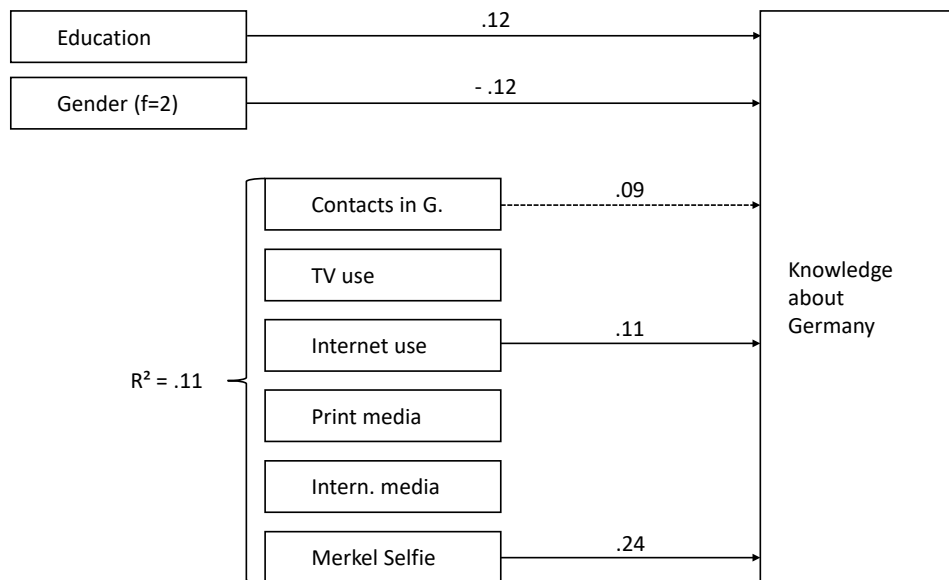


Figure 1. Explanations for knowledge about Germany.

In general, as depicted in Figure 1, knowledge about Germany can partly be explained by fundamental sociodemographic factors such as the level of education: the higher the educational level, the greater the knowledge related to Germany. Use of media in the country of origin increases the explanatory power of the model considerably in the second step: Internet usage is linked to greater knowledge. The famous ‘selfies’ of German Chancellor Angela Merkel apparently served as a motivator for more intensive exposure to content related to Germany. Beyond that, one can carefully presume

that personal contact with people in Germany positively affects refugees' knowledge – although this criterion slightly misses the strict significance level ($p=.09$) applied here.

Table 7. Model 1 - Explanations for knowledge about Germany through media use (ANOVA).

Variable	Step 1			Step 2		
	<i>B</i>	<i>Beta</i>	<i>p</i>	<i>B</i>	<i>Beta</i>	<i>p</i>
Education	.14	.20	.00	-.09	.12	.03
Gender (2=female)	-.38	-.12	.02	-.39	-.12	.02
Contact to people in Germany				.21	.09	.09
Use of media before the flight						
Television				.07	.04	.49
Internet				.18	.11	.05
Print media				.03	.02	.73
International media				.13	.08	.14
Selfie with Merkel				.62	.24	.00
<i>Corrected R²</i>		.06	.00		.14	.00

Noticeable and somewhat counterintuitive is that the use of other media such as television (also international programs) or print media is not linked to greater knowledge about Germany. A reason might be that the relevant share of information on Germany in media in the region is presumably small and possibly also somewhat biased. Print media moreover represent the least international content, which explains why they play no special role here. Television tends to be more strongly geared towards satisfying entertainment rather than information needs. The low trust in mass media in general might also explain this finding.

Instructive in the following analysis is the comparison with the second dependent variable, the positively-biased image of Germany (Figure 2 and Table 8). There are no substantial differences regarding education; more strongly- or weakly-pronounced positive images exist equally in groups with higher and lower education.

Practically all of the media used are related to Germany's image; a particularly great role here is played by television. Whilst the consumption of televised content, due to previously-expounded reasons, hardly increases factual knowledge about Germany, this consumption has the potential to spur a positively-biased image of Germany. Yet, respondents with more intensive use of international media offerings (both on television and on the radio), such as the BBC, Al-Jazeera or Deutsche Welle, have a

more positive picture of Germany – same as heavy Internet users. On the contrary, the relation with print media use is negative: the more often print media are used, the less positively skewed is Germany's image. This can probably be explained by the fact that print media consist mostly of local media offerings which rarely report on Germany, and that the origin countries queried here mostly provide protocol news, which in foreign coverage focus mostly on negatively-connoted content, such as disasters and conflicts.

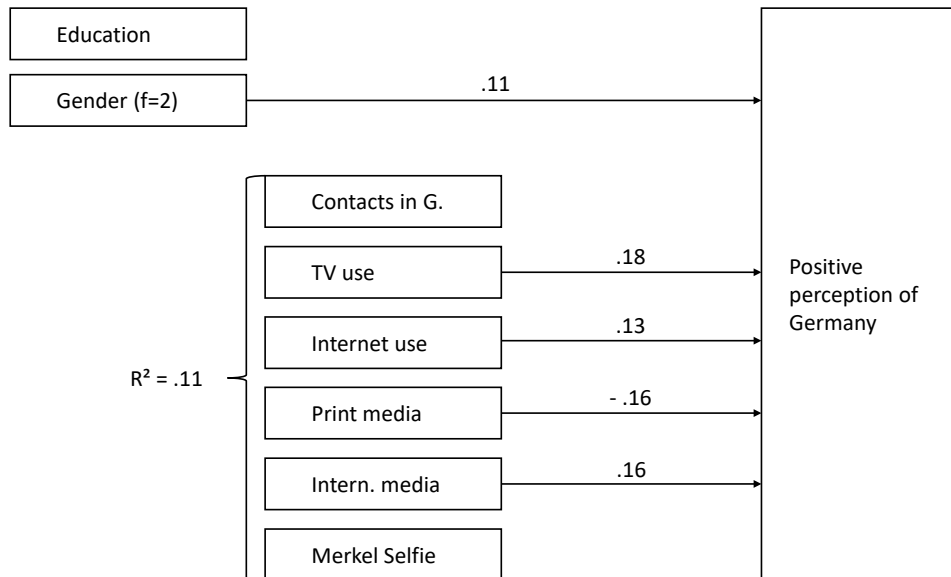


Figure 2. Explanations for a positively-biased perception of Germany.

The effects of selective perception, however, are not to be underestimated during the interpretation of media influence: even in minimally-positive news environments, recipients can systematically pick out positive aspects according to their own expectations. The connection between media consumption and positive perception therefore

cannot directly lead to the conclusion of a predominantly-positive presentation of Germany in the consumed media. A supplemental content analysis could provide more insights in this regard.

Table 8. Model 2 - Explanations for a positively-biased perception of Germany (ANOVA).

Variable	Step 1			Step 2		
	<i>B</i>	<i>Beta</i>	<i>p</i>	<i>B</i>	<i>Beta</i>	<i>p</i>
Education	-.06	-.06	.23	-.07	-.08	.14
Gender (2=female)	.40	.11	.05	.43	.11	.03
Contact with people in Germany				-.01	.00	.96
Use of media before flight						
Television				.38	.18	.00
Internet				.26	.13	.02
Print media				-.36	-.16	.00
International media				.29	.16	.01
Selfie with Merkel				-.04	-.01	.79
<i>Corrected R²</i>		.01	.00		.10	.00

7 Conclusion

Our research confirms that digital media play a crucial role for today's refugees. Through our representative sample of refugees from the big 2015/16 movements to Germany from the conflict zones in the Middle East, we gained insight into the basic communication patterns and communication content of those refugees (RQ1). Unsurprisingly, we found that refugees are not a homogenous group, but that communication behaviour is partly dependent on regional backgrounds. Most notably, in comparison to Syrians and Iraqis, Central Asian refugees are less likely to have access to digital devices and to use the Internet both before and during their flight. This indicates a digital divide amongst the refugee population. Also, the preferences for messenger services and social media platform differ between the regional groups. However, our data also allow for more universal observations. For the majority of respondents, the main purpose of the Internet is interpersonal communication followed by search for information. As already implied in our theoretical considerations, during the flight the Internet is particularly rarely used for entertainment, as this motive for media use gets

irrelevant in the context of emergency situations. Moreover, interpersonal communication is the source which enjoys most trust amongst refugees, probably due to negative experiences with traditional media in their countries of origin. In preparation for flight, almost half of the refugees searched for information about Germany and experiences of other refugees online. These findings indicate that interpersonal communication or the production of and exposure to user-generated content are more important than traditional media in the context of flight. On the bright side, this enables refugees to collaborate and benefit from each other's experiences, but on the dark side, it opens the door for misinformation and rumours.

This leads us to RQ2 which investigated about the media's role in knowledge acquisition and image formation. The findings show that Internet use is associated with a higher factual knowledge about Germany, thus confirming H1, whereas the use of traditional media is not. However, while Internet use is also related to a more positively-biased perception of Germany (confirming H2), we found stronger correlations between the perception of Germany and more traditional types of media use. Thus, even though it seems eligible to assume that Internet use could have led to a more positively-biased image of Germany, the respective effect of traditional media consumption is comparatively stronger.

Just as every other study, this one has several limitations. Firstly, as the theoretical ground in the field of migrant and refugee media use is rather weak, our options for developing strong hypotheses were limited. Therefore, we partly focused on descriptive findings. Secondly, we can certainly not provide any evidence for causality due to cross-sectional data. Thirdly, bigger samples would be necessary to increase the statistical power, as well as to analyse refugees from each country of origin individually instead of merging nationalities into groups. However, in spite of these limitations, this study provides findings that can be generalized for the group of refugees coming to Germany via the "Balkan route" in 2015. While this study provides some first insight into the dynamics of refugee movements in the digital age, we suggest communication scholars intensively engage in (forced) migration as one of the most important issues of our time with qualitative and quantitative methodology. We strongly believe that our discipline can contribute to a deeper understanding of the influence of communication technology on the dynamics of refugee movements in the years to come.

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