From 2,772 Segments to 5 Personas: Summarizing a Diverse Online Audience by Generating Culturally Adapted Personas

Joni Salminen
QCRI, HBKU
Doha, Qatar
joolsa@utu.fi

Sercan Şengün
CSAIL, MIT & QCRI, HBKU
Cambridge, MA 02139, USA
sengun@mit.edu

Haewoon Kwak
QCRI, HBKU
Doha, Qatar
hkwak@hbku.edu.qa

Bernard Jansen
QCRI, HBKU
Doha, Qatar
bjansen@hbku.edu.qa

Jisun An
QCRI, HBKU
Doha, Qatar
jan@hbku.edu.qa

Soon-Gyo Jung
QCRI, HBKU
Doha, Qatar
sjung@hbku.edu.qa

Sarah Vieweg
QCRI, HBKU
Doha, Qatar
sarahvieweg@gmail.com

D. Fox Harrell
CSAIL, MIT
Cambridge, MA 02139, USA
fox@csail.mit.edu

Abstract

Understanding users in the era of social media is challenging, requiring organizations to adopt novel computation-aided approaches. To exemplify such an approach, we first retrieve information on millions of content interactions with YouTube video content of a major Middle Eastern media outlet, to automatically generate personas that capture how different segments interact with the thousands of individual content pieces. Then, we use qualitative data to provide additional insights into the generated persona profiles. Our findings provide insights on the social media usage in the Middle East and demonstrate the application of a novel methodology that generate culturally adapted personas of social media audiences, summarizing complex social analytics data into human portrayals that are easy to understand by end-users in real organizations.

Keywords:

Introduction

Social media provides an interesting magnifying glass into sociological and behavioral patterns of online audiences. Researchers and organizations can access vast amounts of user data via social media platforms, such as Facebook, Twitter, and YouTube (Kwak et al., 2010; Abisheva et al., 2014). However, turning big data into easily understandable insights remains a persistent challenge for many organizations and individuals (Salminen, Milenković, et al., 2017), especially when dealing with culturally diverse audiences that vary in their topical interests. In addition, cultural differences in social media usage tend to be overlooked (Salminen, Sercan, et al., 2017), thus ignoring the fragmented interests and motivational drivers of the underlying audience. While extant works tend to focus on the Western context of social media users (Joye, 2009), there is a growing need for studying other cultural contexts and regions of the world, as social media usage has rapidly spread across the globe.

Prior research has established that the cultural and societal conditions in the Middle East are distinctively different from those in other parts of the world (Bakhtari, 1995; Karabenick and Moosa, 2005; Zualkernan et al., 2006), and these overarching conditions are likely to reflect in social media usage, such as photo sharing, use of pseudonyms, and privacy needs (Harrell et al., 2017; Ur and Wang, 2013; Millham and Atkin, 2018). The use of social media is therefore culturally embedded (Singh et al., 2012). Although the impact of culture on social media usage has been explored in prior research, it has not been done for all the

regions of the world, and there is a great need for regionally focused social media studies (Ngai et al., 2015).

While some studies have been conducted on the use of social media in the Middle East (Stanger et al., 2017; Wiest and Eltantawy, 2015), these studies tend to use small datasets instead of large-scale quantitative data. Additionally, none of the extant works use *personas* to represent Middle Eastern social media audiences, even though personas have the potential to describe social media audiences in an engaging way (Kwak et al., 2017). To address these shortcomings, this research examines the usage of social media in the Middle East using data-driven personas, namely in the context of YouTube audiences. This context is chosen for three reasons: 1) opportunity to access a large dataset from a major Middle Eastern media organization, 2) scarcity of research on social media behavior of the Middle Eastern users, and 3) the high degree of social media adoption in the Middle East. For example, in Qatar, social media penetration is among the highest in the world (Northwestern University in Qatar, 2017), making social media research regionally important and relevant.

Motivated by these considerations, we pose the following questions:

1. How can we automatically generate personas that represent the Middle Eastern social media users?

2. What are the benefits of mixed method approaches when developing culturally adapted personas?

To answer the above questions, we apply the automatic persona generation (APG) methodology (An et al., 2017; Jung et al., 2017) coupled with qualitative

data collection. Personas, i.e., fictitious but data-driven user representations (Matthews et al., 2012), are chosen as an analytical technique due to their ability to crystallize user statistics into a humanlike format for end-users of that information. We demonstrate the mixed-method approach by first analyzing millions of content interactions from the YouTube profile of AJ+ Arabic, a major Middle Eastern media outlet, and then by enriching the automatically generated personas with qualitative analysis that includes manually coding 255 public social media profiles from the Middle East and analysis of interview data. In the next sections, we review the related literature, present the methodology and findings, discuss them, and suggest future research avenues.

Literature review

Approach to literature review

In general, social media behaviour has been extensively studied. Some scholars have focused on the impact of social media on business practices (Pöyry et al., 2013), while others have focused on the impact of social media on cultural values and norms of the users (Stanger et al., 2017). Here, we focus on the cultural aspect of social media usage in the Middle East. We search two major academic databases (Science Direct and Google Scholar) with relevant keyphrases (e.g., "*middle east + social media*", "*culture* + "*social media*") to find prior work on culture's impact on social media behavior, particularly in the Middle Eastern context. Based on a manual evaluation, we include only the most relevant articles for a detailed reading, summarized in the following sections.

Use of social media in the Middle East

Impact of norms and the larger societal framework

The context of this study is the Middle East, a region of the world where cultural and religious norms are much valued. In fact, these cultural and religious norms are embedded in nearly all activities ranging from social to political. Although the use of social media has grown in the region, most people tend to consider the cultural and religious customs while using social networks. Thus, use of social media in the Middle East can be understood with the help of examining Islamic values and practices (Zualkernan et al., 2006), along with ethnic and cultural customs.

Stanger et al. (2017) studied how Saudi Arabian youth engage with social media daily. They found that although the use of social media is accepted, most of the users take the cultural aspects and norms into consideration. For instance, users pay attention to the photos they upload and the pseudonyms they use, as these reveal much about their attitude toward the cultural norms (Stanger et al., 2017). Abokhodair et al. (2016) and Abokhodair and Vieweg (2016) explore the privacy-oriented social media behaviour in the Gulf region, describing the regional vision of privacy as a combination of cultural, social, and religious values that operate on personal, social, and judicial levels.

Singh (2010) and Wiest and Eltantawy (2015) argue that the use of social media has increased the spread of the Western culture into the Arabic world. An example is the continued use of English in social media platforms among the youth in the Arab world despite the introduction of Arabic keyboards. Weist and

Eltantawy (2015) found that the most preferred language by the social media users, especially Facebook users, in some parts of the Middle East is Arabic; however, about 45 percent prefer to use English. Another study by Haggan (2007) pointed out that most of the text messages sent in Kuwait are typed either in English or English combined with Arabic.

Gender and age differences

Bolton et al. (2013) aim at understanding the social media usage of *Generation Y*, also referred to as digital natives, the first generation who have spent their social lives in a digital environment. They conduct a systematic review and point out intra-cohort variation from environmental aspects such as culture, technology, economy, and even politics. The analysis by Al-Jabri et al. (2015) on the use of the global social networking sites by Arabs is among the few studies looking to understand the use of social media by the Generation Y outside the Western nations, especially in Saudi Arabia. Their findings indicate that social media usage of youths, especially on Twitter, is influenced by freedom of expression, enjoyment, and social interactions (Al-Jabri et al., 2015).

Stanger et al. (2017) estimate that close to 135 million people in the Gulf region use social media, the largest participation coming from males under the age of 25 years. Thus, the study indicates that the social media usage in the region is male- and youth-oriented (Stanger et al., 2017). Women in the Arab world have often been perceived to be culturally submissive to men (Alsharkh, 2012). However, Arab women have begun to publicly present their opinions and views by posting them on social media platforms, such as Facebook, Twitter, and

YouTube (Alshark, 2012) and use emails and online blogs to express themselves (Aouragh, 2008).

Need for communication and self-expression

Stanger et al. (2017) found that the social media in the Middle Eastern region is primarily used for communication and interaction with others locally and internationally. For instance, Facebook can increase the social capital of an individual by shaping what they talk and share about themselves (Bolton, et al., 2013). Barry and Bouvier (2012) studied the United Arab Emirates (UAE) and Welsh students' use of Facebook, finding that the UAE students preferred to use Facebook in a collective communication, such as posting a message on Facebook rather than sending it privately to individual recipients, whereas students from Wales used Facebook more significantly in maintaining their private relations.

Prior studies also emphasize the use of social media for political engagement in the Middle East. These studies have a common conclusion, pointing out that the Cultural Revolution in the Arab world was catalyzed by the increasingly emerging social media usage (Wiest & Eltantawy, 2015). Mourtada and Salem (2011) highlight that social media plays a critical role in shaping opinions, mobilization, and empowerment of the Arabic people, especially the youth. Al-Saggaf (2006) explores the potential influence of online technologies in fostering the civic engagement in the Middle East. After studying the use of the Internet in Palestine, Aouragh (2008) proposes that the social and political agency and activists' tactics among the Palestinian citizens have been strengthened by the

emerging social media. Several researchers have proposed that social media can result in a cultural change in the Arab world (Wasserman, 2011).

A study by Sawyer and Chen (2011) investigates the impact of social media on intercultural adaptation. The study was conducted by directly interviewing some international students of different age groups in the United States colleges. The results indicate that people intend to use social media to become more incorporated into the host cultures as they adapt to that new culture while at the same time maintain strong connections to their home society's cultural beliefs and norms (Sawyer & Chen, 2012). Harrell et al. (2017) found five themes of social media use in the region using a mixed-methods (computational and qualitative) approach: 1) issues of self-expression, 2) existence or non-existence of Khaleeji features, 3) negotiating social monitoring, 4) forming various levels of social connections, and 5) contrasting physical and virtual identities.

Summary of earlier work

A common conclusion from the prior studies is that social media is an agent of change in the way individuals shape their culture and society. These changes can be seen taking place at 1) gender and 2) generation levels. First, women in most of the Gulf nations are gaining the opportunity to publicly express their opinions on cultural and religious norms. Social media has also given women and men more freedom to interact with the opposite sex. Moreover, through social media, the youth in the Middle Eastern countries are being influenced by other cultures, gaining self-confidence for participating in political and social

movements such as the Arab Spring, and seeking ways to participate in societal change.

Moreover, there appears to be a certain perceived conflict between maintaining traditional cultural values and utilizing new forms of self-expression and communication enabled by social media. As the flexibility of social media platforms enables various forms of usage, the Middle Eastern audiences seem to have devised their own styles of using social media within the cultural boundaries. The literature seems to suggest that individuals can maintain their cultural identity by adopting different usage practices, even when participating in global platforms. However, both culture and social media usage are continuously in flux, requiring that earlier studies and their findings be frequently revisited.

[insert Table 1 here]

Personas as culturally adapted data representations

In the second section of the literature review, we provide a brief overview of persona literature. A persona is an artificial representation of a larger underlying user group (Nielsen and Storgaard Hansen, 2014). Introduced by Cooper (2004), personas are used by software developers, designers, and others to enhance user-driven decision making. In addition, buyer personas are commonly considered in marketing to better understand the drivers of consumer behaviour (Scott, 2007), corresponding to Jenkinson's (1994) idea of going beyond segmentation in that personas communicate about groups using individual-level attributes. Personas can be leveraged to efficiently communicate aggregated user statistics (Jansen et al., 2017). Furthermore, closely related to personas is

the concept of virtual identities, defined as computational surrogates for users in online environments, ranging from social media profiles to avatars (Harrell and Lim, 2017).

The most prominent advantages of personas relate to summarizing multi-dimensional user and customer information into an easily understandable format (Cooper, 2004; Nielsen, 2004). It is customary to use computational techniques to deal with large online datasets (e.g. Beaudouin and Pasquier, 2017). However, compared to traditional data analytics, personas present customer information in a more humane format, therefore enhancing the creation of solutions that are useful in real life (Pruitt and Grudin, 2003).

Traditionally, personas are created via ethnography and/or interviews (Nielsen, 2004). Because these efforts are manual and time-consuming, persona creation tends to take several months and is expensive. Moreover, manual methods cannot be applied to millions of content interactions. Thus, persona generation via computational methods seems feasible and has been explored by several authors in the past (An et al., 2017; Chapman et al., 2008; McGinn and Kotamraju, 2008; Zhang et al., 2016). Here, we focus on one of the more advanced approaches, called *automatic persona generation* (APG), introduced in An et al. (2017), Jung et al. (2017), and Kwak et al. (2017), which aims at generating rounded personas from online analytics data. Generally, rounded or complete personas are considered as desirable, because they capture more key attributes of the user base or audience (Pruitt and Adlin, 2006).

Methodology

Automatic persona generation

Research context and data collection

We collect data from a large Middle Eastern news and media company, Al Jazeera. We particularly focus on one of their media channels, AJ+, which is an online news and media channel owned by the Al Jazeera Media Network. The channel delivers content via YouTube, Facebook, Instagram, and other social media platforms. AJ+ Arabic (AJ+ عربي) is the Arabic-language version of the service, that aims at presenting contemporary events and topics from an Arabic perspective. Its goal is to "stimulate dialogue and constructive interaction in the society" (YouTube page of AJ+ Arabic, 2017). Figure 1 shows the channel page.

[insert Figure 1 here]

The generated personas are based on 13,595,605 views on 2,638 videos published between November 26, 2015 and March 31, 2017. The durations of the videos range from 15 seconds to 10 minutes. The content in question is short and particularly adapted to social media (i.e., being easy to digest by the viewers), focusing on diverse topics, including news, culture, technology, and lifestyle.

Persona generation process

To automatically generate personas from social media data (in this case aggregated video views), our methodology automates the following five steps:

1. Data collection from social media platforms

2. Detection of distinct content interaction patterns by matching demographic groups and content

3. Detection of dominant demographic groups from the set of distinct content interaction patterns

4. Creation of persona prototypes by selecting demographic attributes

5. Enrichment of the prototypes with user attributes (e.g., name, photo).

Due to the recommendation of using only a small number of personas for decision making (Cooper, 2004), we limit the number of personas shown to the end users to 5–15. An example of the resulting personas is shown in Figure 2.

[insert Figure 2 here]

The **Persona Profile** section includes the name, gender, age, and country of residence. The name and picture are mapping typical names and pictures to combinations of age/gender/location, obtained from stock photo services and Census statistics. The **About Persona** section contains a summary describing the persona in plain words, obtained by filling in dynamic fields in a static text template. The **Topics of Interest** section shows the topics the persona has shown the most interest in, based on matrix decomposition explained below. The **Most Viewed Videos** section lists the videos most descriptive to this persona, obtained from the YouTube data. Viewing behavior is central to the personas, as automatically generated personas are based on a combination of behavioral viewing patterns and demographic information (Jansen et al., 2017).

Computational techniques

As mentioned previously, we obtain data on user groups of AJ+ Arabic and their behavior from YouTube. By using this data, we first construct a large matrix capturing user interaction with the video content and then decompose it to detect latent behavioral patterns. The matrix decomposition is depicted in Figure 3.

[insert Figure 3 here]

V is a *g* × *c* matrix, where *g* is the number of user groups and *c* is the number of videos. The elements of this matrix are the number of views (the *ViewCount* metric in the YouTube API[1]) of each video by each user group. The user groups are defined by gender, age group, and country so that the maximum number of user groups can be calculated by multiplication (gender × age group × country). Given the available combinations of YouTube, there are 2,772 possible groups. An example is "Male, 25-34, Saudi Arabia".

Given the matrix *V* that contains all user groups' view counts for each video, this matrix is then decomposed into two other matrices: *H* and *W*. Both include the parameter *p,* which is the number of content interaction patterns (i.e., personas) that we want to infer. In other words, *p* represents latent patterns found by the analysis algorithm from the data. This step applies the well-known non-negative matrix factorization (NMF) (Lee and Seung, 1999) whereby we calculate a linear combination of *W* as the basis and *H* as the encoding, *ε* being the error term. Compared to clustering used in prior works to generate data-driven personas (Aoyama, 2005), NMF can produce multiple behavioral patterns even from a single

---

[1] https://developers.google.com/youtube/

user group. This is appropriate because different social media behaviors can exist within the same demographic group. In other words, people of the same age and gender may be interested in different content, and these differences are captured by NMF. The use of NMF to generate personas is described in more detail by related work (An et al., 2017).

After calculating the persona prototypes, they are enriched with additional information, including name, photo, and other information visible in Figure 2 and rendered to end users via the online user interface. We note that by using aggregated data in compliance with the social media platforms' terms of service, the APG preserves the privacy of individual users. This is an important property given the increasing interest in data privacy. Additionally, since we identify latent content interaction patterns, the resulting personas are based on behavioral data, not only on demographic differences. Finally, APG is generalizable to any social media channel that provides a programmatic access to aggregated user statistics.

Qualitative analysis

Overview. To further understand the behaviors of automatically generated personas, we revisited two types of qualitative data from previous research about understanding virtual identity uses in the region (Harrell et al., 2017): 1) manual coding and analysis of public profiles of Instagram users who had checked into a location in the Middle East in a specific time frame. Eliminating the tourists and expatriates, we are left with 255 public profiles that are confidently believed to represent Middle Eastern social media users. In addition, 2) we recoded five qualitative interviews with social media users from the Middle East to uncover

themes and issues that surfaced while they use various social media services. Overall, the criticism posed toward data-driven personas is that they often remain shallow, not involving in-depth information about the life story of the created persona portrayal (Salminen et al., 2017a). However, to realize the full benefits of rounded personas associated with more immersion by the end users into the circumstances of the portrayed personas (Nielsen, 2004), we turn to additional contextual information to enrich our data-driven persona profiles.

Specifically, there were two reasons for turning to Instagram profiles for the enriching qualitative data: 1) YouTube profiles are less personal and self-expressive than the ones in other popular social networks like Instagram and Facebook, with only behavioral insights coming from the user demographics and video viewing history. Analyzing public Instagram profiles in terms of photo-content, captions, and tags can provide richer data about life-stories and online behaviors of the users (Hu et al., 2014) as well as help capture cultural nuances (Araújo et al., 2014). Moreover, 2) Instagram is the fastest growing photo sharing app in the Middle Eastern region with 33% increase in penetration in 2017 (Northwestern University in Qatar, 2017), thereby making it a rich and relevant source of information about the local social media users.

Manual profile analysis. We thereby augment the previously collected profile data with a manual profile coding. The main aim of our manual profile analysis is to uncover the nuances of the social media usage in the Middle East, specifically how individuals from the region construct different strategies to negotiate their needs and values within these systems. For this purpose, Instagram is an

appropriate source, as it is a popular platform in the region (Northwestern University in Qatar, 2017) and, through the use of public profiles, it offers rich observations inside user behaviors. Eliminating tourists and expats left us with 255 public profiles confidently believed to be individuals from the region. We analysed the following sections of the chosen user profiles: profile image, text (translated from Arabic), name, and recent posts, coding each into categories.

Interviews. The interviews were conducted with Middle Eastern individuals (five Qatari nationals) over tele-conferencing software, lasting between 45 to 90 minutes. Three interviewees were male and two were female with ages ranging between 20 and 30. The interviewee demographics are skewed towards males since the regional values of privacy may occasionally refrain females from pursuing personal interactions with strangers. The interviews were conducted in English, a language the participants and the interviewer were comfortable with. The interviews were semi-structured and included open ended questions to uncover attitudes on social media usage considering local cultural norms, sensitivities, and values. The interview questions are shown in Appendix 1.

Results

Descriptive personas

We first present the automatically generated personas in Table 2, followed by presenting and connecting the qualitative insights with the automatically generated personas.

[insert Table 2 here]

As can be seen from Table 2, the audience is dominantly young males, from the age group of 25-34. The potential reach expresses the size of each respective persona group on Facebook, as retrieved from Facebook Marketing API[2] by using the targeting criteria shown in Table 2. Figure 4 shows the share of personas from the total video views on the YouTube channel.

[insert Figure 4 here]

As automatically generated personas are created by assigning an impactful demographic group with each latent content interaction pattern revealed by the NMF computation, each persona covers a degree of other demographic groups as well. We illustrate the demographic composition of the five personas in Table 3.

[insert Table 3 here]

Insights from qualitative data analysis

Manual analysis of the 255 Instagram profiles revealed 69 (27%) female, 111 (44%) male, and 75 (29%) unspecified gendered users. Coding usage patterns of the social media it was possible to come up with various recurring patterns (see Table 4). Two researchers separately re-coded all the previous interview data (Harrell et al., 2017) from the perspectives of personas and social media usage patterns, constructing a *theme map* relevant to our purpose of enriching the data-driven persona profiles. We coded both Instagram profiles and interviews separately using the grounded theory principles. Then, we matched the categories to generate a unified understanding of the social media behavior of Middle Eastern

---

[2] https://developers.facebook.com/docs/marketing-apis

users. Having generated this understanding, it then became possible to enrich the quantitatively generated personas.

We used the *Action-Implicative Discourse Analysis* (AIDA) (Tracy, 1995) for coding the interviews along with the techniques of grounded theory (Glaser and Strauss, 1967). Since AIDA is an analysis method based on grounded theory where participants reflect on how "*they respond to interactional problems and challenges they experience [...] with the aim of working toward what they think would create the best situation*" (Agne, 2012), it was especially useful to our purposes of specifically focusing on local and regional nuances of social media use and further query the underlying reasons for these cultural and value-based differences. Results are shown in Tables 4 and 5.

[Insert Table 4 here]

[Insert Table 5 here]

By integrating the AGPs with the findings from qualitative manual coding along with recurring themes from interviews, it becomes possible to elaborate deeply on the personas and their approach to social media usage, as illustrated in Table 6.

[Insert Table 6 here]

The integration of qualitative insights to data-driven personas was done by the researcher that coded the interviews and Instagram profiles, and verified by another researcher familiar with the YouTube audience of the organization. The qualitative researcher first familiarized himself with the qualitative material, then with the data-driven personas, and based on this joint understanding, wrote the narrative persona profiles shown in Table 6. These were discussed together with

a quantitative persona researcher to reach a common agreement on the narratives.

Conclusion and discussion

Our research answers two calls in earlier literature. First, we address the need for generating personas from large-scale data, often ignored in persona studies due to small sample sizes (Pruitt & Adlin, 2006; Chapman and Milham, 2006). In our approach, the large-scale persona generation is done quantitatively prior to enriching the captured core personas with qualitative insights. Our qualitative analysis builds upon previous results of Harrell et al. (2017) and expands them into the realm of Middle Eastern persona context, describing the audience in a data-driven but humane way.

APG can utilize millions of content interactions to produce data-driven personas that are broad in their coverage of the audience. In this research, APG was applied to large-scale data from YouTube. Because the quantitatively generated personas have been enriched with qualitative data from Instagram and additional interviews, they are more comprehensive than purely quantitative personas that tend to be limited in their ability to describe the in-depth motivations of the persona. In general, we postulate that such *culturally adapted personas* combine the speed and accuracy of computational techniques for processing millions of data points, and the strengths of traditional qualitative analysis in providing deep insights and understanding of the motives driving the quantitatively observed behaviors. Moreover, even though the resulting personas are data-driven (i.e., based on numbers and qualitative data), they can be empathized by end users without

analytical sophistication due to narrative form of writing (cf. Nielsen, 2004). The approach is also more cost-effective than pure manual persona generation, implying it could be used in many different industries to increase understanding of online audiences.

We add to the knowledge about Middle Eastern social media users, a segment not widely understood, by associating the following behaviors to data-driven personas: 1) formality, 2) monitoring, 3) modesty, and 4) non-permanence. We also find an interesting regional divergence between Gulf Cooperation Council (GCC) member countries, so that only Saudi Arabia is represented in the main personas, but Qatar, United Arab Emirates (UAE), Kuwait, Bahrain, and Oman are not. The difference likely originates from varying content preferences and population sizes. Regarding prior research, personas confirm findings of Stanger et al. (2017) that women in the region are using less social media than men, as four out of five of our data-driven personas represent male audiences. Although prior literature mentions the potential of empowerment of Middle Eastern women in social media, the generated personas suggest that this is still an on-going process, as women are under-represented in the dominating personas.

Additionally, our personas concentrate on young audiences (average age of the personas = 27.6 years), consistent with the estimation of Stanger et al. (2017) about young male users as the dominant segment among Middle Eastern social media users. Although the sample is limited to one organization, the active YouTube audience of that organization consists of in total 226 countries and includes millions of views, lending support to the robustness of our findings.

The generation of culturally adapted personas opens avenues for cross-cultural comparisons of online audiences. Although we do not provide such comparison in this study, our approach can be seen as a step toward that direction, given the flexibility of the APG method. However, while combining automated and manual procedures in persona generation provides several tangible benefits, it is also crucial to evaluate how useful the personas for the end users, and to which extent they improve practical decision making. Therefore, evaluating the impact of mixed-method personas requires further research.

Finally, more formalized measures of combining qualitative and quantitative analyses are needed. As explained above, in our research, this was a collaborative effort between quantitative and qualitative researchers, led by the qualitative researcher. However, more advanced forms of validation are needed, possibly including the use of inter-coder agreement tests to formally measure the alignment of persona perceptions (Krippendorff, 1980). As populations in different social networks may differ by structure (Ruths & Pfeffer, 2014), in future research we also need to verify the samples from the various platforms, such as YouTube and Instagram used in this research, are formally commensurable.

Acknowledgments

References

Abisheva A, Garimella VRK, Garcia D, et al. (2014) Who watches (and shares) what on youtube? and when?: using twitter to understand youtube viewership. In: *Proceedings of the 7th ACM international conference on Web search and data mining*, 2014, pp. 593–602. ACM.

Abokhodair N and Vieweg S (2016) Privacy & Social Media in the Context of the Arab Gulf. In: *Proceedings of the 2016 ACM Conference on Designing Interactive Systems*, New York, NY, USA, 2016, pp. 672–683. DIS '16. ACM.

Abokhodair N, Abbar S, Vieweg S, et al. (2016) Privacy and Twitter in Qatar: Traditional Values in the Digital World. In: *Proceedings of the 8th ACM Conference on Web Science*, New York, NY, USA, 2016, pp. 66–77. WebSci '16. ACM.

Agne RR (2012) Action-Implicative Discourse Analysis. *The International Encyclopedia of Communication.* Wiley Online Library. DOI: 10.1002/9781405186407.wbieca009.pub2

Al-Jabri IM, Sohail MS and Ndubisi NO (2015) Understanding the usage of global social networking sites by Arabs through the lens of uses and gratifications theory. *Journal of Service Management* 26(4): 662–680.

Al-Saggaf Y (2006) The Online Public Sphere in the Arab World: The War in Iraq on the Al Arabiya Website. *Journal of Computer-Mediated Communication* 12(1): 311–334. DOI: 10.1111/j.1083-6101.2006.00327.x.

Alsharkh YN (2012) *The Social Media Effect on the Families of the Saudi Society from the Perspective of the Youth*. Master Thesis. Arizona State University. Available at: http://hdl.handle.net/2286/R.I.14718 (accessed 14 January 2018).

An J, Haewoon K and Jansen BJ (2017) Personas for Content Creators via Decomposed Aggregate Audience Statistics. In: *Proceedings of Advances in Social Network Analysis and Mining (ASONAM 2017)*, 2017.

Aouragh M (2008) Everyday resistance on the internet: the Palestinian context. *Journal of Arab & Muslim Media Research* 1(2): 109–130.

Aoyama M (2005) Persona-and-scenario based requirements engineering for software embedded in digital consumer products. In: *Requirements Engineering, 2005. Proceedings. 13th IEEE International Conference on*, 2005, pp. 85–94. IEEE.

Araújo CS, Corrêa LPD, Silva APC, et al. (2014) It is not just a Picture: Revealing Some User Practices in Instagram. In: *Proceedings of 9th Latin American Web Congress (LA-WEB) 2014,* IEEE, pp. 19-23.

Bakhtari H (1995) Cultural Effects on Management Style. *International Studies of Management & Organization* 25(3): 97–118. DOI: 10.1080/00208825.1995.11656662.

Barry W and Bouvier G (2012) Cross-cultural Communication: Arab and Welsh students' use of Facebook. *Journal of Arab & Muslim Media Research* 4(2): 165–184. DOI: 10.1386/jammr.4.2-3.165_1.

Beaudouin V and Pasquier D (2017) Forms of contribution and contributors'

profiles: An automated textual analysis of amateur on line film critics. *New

Media & Society* 19(11): 1810–1828. DOI: 10.1177/1461444816643504.

Berkelaar BL (2017) How implicit theories help differentiate approaches to online

impression management: A preliminary typology. *New Media & Society*

19(12): 2039–2058. DOI: 10.1177/1461444816654136.

Bolton RN, Parasuraman A, Hoefnagels A, et al. (2013) Understanding

Generation Y and their use of social media: a review and research

agenda. *Journal of Service Management* 24(3): 245–267.

Chapman CN and Milham RP (2006) The Personas' New Clothes:

Methodological and Practical Arguments against a Popular Method.

*Proceedings of the Human Factors and Ergonomics Society Annual

Meeting* 50(5): 634–636. DOI: 10.1177/154193120605000503.

Chapman CN, Love E, Milham RP, et al. (2008) Quantitative Evaluation of

Personas as Information. *Proceedings of the Human Factors and

Ergonomics Society Annual Meeting* 52(16): 1107–1111. DOI:

10.1177/154193120805201602.

Cooper A (2004) *The Inmates Are Running the Asylum: Why High Tech Products

Drive Us Crazy and How to Restore the Sanity*. 1 edition. Indianapolis, IN:

Sams - Pearson Education.

Glaser BG and Strauss AL (1967) *The Discovery of Grounded Theory: Strategies

for Qualitative Research*. Transaction Publishers.

Haggan M (2007) Text messaging in Kuwait. Is the medium the message? *Multilingua - Journal of Cross-Cultural and Interlanguage Communication* 26(4): 427–449. DOI: 10.1515/MULTI.2007.020.

Harrell DF and Lim C-U (2017) Reimagining the Avatar Dream: Modeling Social Identity in Digital Media. *Communications of the ACM* 60(7): 50–61.

Harrell DF, Vieweg S, Kwak H, et al. (2017) Culturally-Grounded Analysis of Everyday Creativity in Social Media: A Case Study in Qatari Context. In: *Proceedings of the 2017 ACM SIGCHI Conference on Creativity and Cognition*, New York, NY, USA, 2017, pp. 209–221. C&C '17. ACM.

Hu Y, Manikonda L and Kambhampati S (2014) What We Instagram: A First Analysis of Instagram Photo Content and User Types. In: *Proceedings of the Eighth International AAAI Conference on Weblogs and Social Media,* Ann Arbor MI, USA, 1 June 2014, pp. 595-598.

Jansen BJ, An J, Kwak H, et al. (2017) Viewed by Too Many or Viewed Too Little: Using Information Dissemination for Audience Segmentation. In: *Association for Information Science and Technology Annual Meeting 2017 (ASIST2017)*, Washington DC, USA, 27 November 2017, pp. 189–196.

Jenkinson A (1994) Beyond segmentation. *Journal of targeting, measurement and analysis for marketing* 3(1): 60–72.

Joye S (2009) The hierarchy of global suffering: A critical discourse analysis of television news reporting on foreign natural disasters. *Journal of International Communication* 15(2): 45–61.

Jung S-G, An J, Kwak H, et al. (2017) Persona Generation from Aggregated Social Media Data. In: *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, New York, NY, USA, 2017, pp. 1748–1755. CHI EA '17. ACM.

Karabenick SA and Moosa S (2005) Culture and Personal Epistemology: U.S. and Middle Eastern Students' beliefs about Scientific Knowledge and Knowing. *Social Psychology of Education* 8(4): 375–393. DOI: 10.1007/s11218-005-1826-3.

Krippendorff K (1980) Content Analysis: *An Introduction to Its Methodology*. Sage.

Kwak H, Lee C, Park H, et al. (2010) What is Twitter, a Social Network or a News Media? In: *Proceedings of the 19th International Conference on World Wide Web*, New York, NY, USA, 2010, pp. 591–600. WWW '10. ACM.

Kwak H, An J and Jansen BJ (2017) Automatic Generation of Personas Using YouTube Social Media Data. In: *Hawaii International Conference on System Sciences (HICSS-50). 4-7 January*, Waikoloa, Hawaii, 4 January 2017, pp. 833–842.

Lee DD and Seung HS (1999) Learning the parts of objects by non-negative matrix factorization. *Nature* 401(6755): 788–791. DOI: 10.1038/44565.

Matthews T, Judge T and Whittaker S (2012) How Do Designers and User Experience Professionals Actually Perceive and Use Personas? In: *Proceedings of the SIGCHI Conference on Human Factors in Computing*

Systems, New York, NY, USA, 2012, pp. 1219–1228. CHI '12. ACM. DOI: 10.1145/2207676.2208573.

McGinn JJ and Kotamraju N (2008) Data-driven persona development. In: *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 2008, pp. 1521–1524. ACM.

Millham MH and Atkin D (2018) Managing the virtual boundaries: Online social networks, disclosure, and privacy behaviors. *New Media & Society* 20(1): 50–67. DOI: 10.1177/1461444816654465.

Mourtada R and Salem F (2011) Civil movements: The impact of Facebook and Twitter. *Arab Social Media Report* 1(2): 1–30.

Ngai EW, Tao SS and Moon KK (2015) Social media research: Theories, constructs, and conceptual frameworks. *International Journal of Information Management* 35(1): 33–44.

Nielsen L (2004) *Engaging personas and narrative scenarios*. PhD Series. Samfundslitteratur. Available at: http://personas.dk/wp-content/samlet-udgave-til-load.pdf.

Nielsen L and Storgaard Hansen K (2014) Personas is applicable: a study on the use of personas in Denmark. In: *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 2014, pp. 1665–1674. ACM.

Northwestern University in Qatar (2017) *Media Use in the Middle East*. Available at: http://www.qatar.northwestern.edu/docs/publications/research-media-use/2016-middle-east-media-use-report.pdf (accessed 27 November 2017).

Pöyry E, Parvinen P and Malmivaara T (2013) Can we get from liking to buying? Behavioral differences in hedonic and utilitarian Facebook usage. *Electronic Commerce Research and Applications* 12(4). Social Commerce- Part 2: 224–235. DOI: 10.1016/j.elerap.2013.01.003.

Pruitt J and Adlin T (2006) *The Persona Lifecycle: Keeping People in Mind Throughout Product Design*. 1 edition. Amsterdam ; Boston: Morgan Kaufmann.

Pruitt J and Grudin J (2003) Personas: Practice and Theory. In: *Proceedings of the 2003 Conference on Designing for User Experiences*, New York, NY, USA, 2003, pp. 1–15. DUX '03. ACM. DOI: 10.1145/997078.997089.

Ruths D and Pfeffer J (2014) Social media for large studies of behavior. *Science*, 346(6213): 1063–1064. https://doi.org/10.1126/science.346.6213.1063

Salminen J, Şengün S, Haewoon K, et al. (2017) Generating Cultural Personas from Social Data: A Perspective of Middle Eastern Users. In: *Proceedings of The Fourth International Symposium on Social Networks Analysis, Management and Security (SNAMS-2017)*, Prague, Czech Republic, 2017.

Salminen J, Milenković M and Jansen BJ (2017) Problems of Data Science in Organizations: An Explorative Qualitative Analysis of Business Professionals' Concerns. In: *Proceedings of International Conference on Electronic Business (ICEB 2017)*, Dubai, 4 December 2017.

Sawyer R and Chen G-M (2011) The impact of social media on intercultural adaptation. Paper 242. Senior Honors Projects. Available at:

http://digitalcommons.uri.edu/srhonorsprog/242http://digitalcommons.uri.edu/srhonorsprog/242.

Scott DM (2007) *The New Rules of Marketing*. Hoboken, New Jersey: John Wiley and Sons.

Singh CL (2010) New media and cultural identity. *China Media Research* 6(1): 86–91.

Singh N, Lehnert K and Bostick K (2012) Global social media usage: Insights into reaching consumers worldwide. *Thunderbird International Business Review* 54(5): 683–700.

Stanger N, Alnaghaimshi N and Pearson E (2017) How do Saudi youth engage with social media? *First Monday* 22(5).

Tracy K (1995) Action-implicative discourse analysis. *Journal of Language and Social Psychology* 14(1–2): 195–215.

Ur B and Wang Y (2013) A cross-cultural framework for protecting user privacy in online social media. In: *Proceedings of the 22nd International Conference on World Wide Web*, 2013, pp. 755–762. ACM.

Wasserman H (2011) Mobile phones, popular media, and everyday African democracy: Transmissions and transgressions. *Popular Communication* 9(2): 146–158.

Wiest JB and Eltantawy N (2015) Mediatization in the Arab World: A Cross-Cultural Comparison of New Media Use. *Online Journal of Communication and Media Technologies* 5(2): 120.

YouTube page of AJ+ Arabic (2017) AJ+ كبريت. Available at:

https://www.youtube.com/channel/UC-4KnPMmZzwAzW7SbVATUZQ.

Zhang X, Brown H-F and Shankar A (2016) Data-driven Personas: Constructing

Archetypal Users with Clickstreams and User Telemetry. In: *Proceedings

of the 2016 CHI Conference on Human Factors in Computing Systems*,

New York, NY, USA, 2016, pp. 5350–5359. CHI '16. ACM.

Zualkernan IA, Allert J and Qadah GZ (2006) Learning Styles of Computer

Programming Students: A Middle Eastern and American Comparison.

IEEE Transactions on Education 49(4): 443–450. DOI:

10.1109/TE.2006.882366.

Table 1. Findings of the literature review.

Theme	Main findings	Example authors
Motives for use	- Freedom of expression, entertainment - Cultural specificities transfer into digital world, including profile images, privacy needs, and use of pseudonyms	Bolton et al. (2013); Ur & Wang (2014); Al-Jabri et al. (2015)
Gender and age differences	- Middle Eastern youth participate in global culture through social media - Western influences, such as language and communicative habits, spread to the region - Gender roles and communication between men and women is shifting	Haggan (2007); Singh (2010); Bouveir and Barry (2011); Wiest and Eltantawy (2015); Stanger et al. (2017)
Social media as change agent	- Empowerment of women is enhanced by social media participation - Political changes, such as Arab Spring, are partly enabled by social media platforms	Al-Saggaf (2006); Mourtada and Salem (2011); Wasserman (2011); Alshark (2012)

Table 2. Output from the AGP system. The user can choose between 5 and 15 personas; here, the five most representative personas are chosen.

Persona 1: Omar

	Name: Omar **Gender**: Male **Age**: 29 **Country**: Saudi Arabia
About Omar: Omar is a 29-year-old male living in Saudi Arabia and works in the Management field. He likes to read about US-affairs, South America, and Human-Story on his Mobile. He usually watches about 1.9 minutes of video.	**People like Omar:** 450,020 people Gender (Male), age (25~34), country (Saudi Arabia), interests (Society, South America, Human Interest Story), and language (Arabic) based potential reach.

Persona 2: Youssef

	Name: Youssef **Gender**: Male **Age**: 26 **Country**: Morocco
About Youssef: Youssef is a 26-year-old male living in Morocco and works in the Food Preparation and Services field. He likes to read about Israel-Palestine, South America, and Human-Story on his Mobile. He usually watches about 1.3 minutes of video.	**People like Youssef:** *144,620 people* Gender (Male), age (25~34), country (Morocco), interests (Israeli-Palestinian Peace Process, South America, Human Interest Story), and language (Arabic) based potential reach.

Persona 3: Bakkar

	Name: Bakkar **Gender**: Male **Age**: 23

	Country: Jordan
About Bakkar: Bakkar is a 23-year-old male living in Jordan and works in the IT and Technical field. He likes to read about Refugees, South America, and Human-Story on his Mobile. He usually watches about 1.0 minutes of video.	People like Bakkar: *16,040 people* Gender (Male), age (18~24), country (Jordan), interests (Refugees International, South America, Human Interest Story), and language (Arabic) based potential reach.

Persona 4: Nalkah	
	Name: Nalkah Gender: Female Age: 31 Country: Saudi Arabia
About Nalkah: Nalkah is a 31-year-old female living in Saudi Arabia and works in the Food Preparation and Services field. She likes to read about Technology & Science, South America, and Human-Story on her Mobile. She usually watches about 1.1 minutes of video.	People like Nalkah: *3,250 people* Gender (Female), age (25~34), country (Saudi Arabia), interests (Science Technology, South America, Human Interest Story), and language (Arabic) based potential reach.

Persona 5: Jahmir	
	Name: Jahmir Gender: Male Age: 28 Country: Iraq
About Jahmir:	People like Jahmir: *1,247,020 people*

Jahmir is a 28-year-old male living in Iraq and works in the IT and Technical field. He likes to read about Religion, South America, and Human-Story on his Mobile. He usually watches about 1.2 minutes of video.	Gender (Male), age (25~34), country (Iraq), interests (Religion, South America, Human Interest Story), and language (Arabic) based potential reach.

Table 3. Five most important demographic subgroups for the personas. Weights represent the importance of the corresponding group. The higher the weight of a certain group, the more important that group is for the corresponding persona.

	Country	Age	Gender	Weight
	SA	25	Male	267.45
	SA	25	Female	132.05
Omar	SA	18	Male	128.58
	IQ	25	Male	87.52
	SA	18	Female	85.50
	MA	25	male	44.07
	MA	18	male	35.54
Youssef	MA	35	male	19.90
	MA	18	female	12.24
	MA	45	male	9.91
	JO	18	male	29.45
	PS	18	male	22.83
Bakkar	JO	25	male	21.62
	JO	18	female	21.41
	IL	18	female	19.30
	SA	25	female	35.09
	SA	18	female	18.78
Nalkah	IQ	25	female	8.25
	IQ	18	female	7.14
	SA	35	female	6.45
Yahmir	IQ	25	male	38.96

IQ	18	male	29.91
IQ	18	female	21.61
IQ	35	male	17.26
IQ	25	female	16.29

Table 4. Recurring patterns in the manual analysis of social media profiles.

Usage pattern	General behaviors	Regional nuances
Commercial usage	Although we eliminated the social media accounts of businesses, there was a good number of personal entrepreneurs (e.g. hairdressers, makeup artists, photographers, etc.) merging their commercial activities with personal ones.	In these accounts, there was an emphasis on regional styles, identities, and diversities for local interests, instead of context that can be deemed as Western. Almost all of the entrepreneurs chose to depict themselves in traditional and regional clothing—a choice also replicated in the formal usage.
Family usage	A recurring theme was the accounts that dominantly focused on family photos and content, rather than personal representations like selfies or daily snapshots.	Especially for female users who did not want to reveal their own faces, or who did not want to appear in photos, these accounts seemed to focus on an archival usage of children growing up. Apart from children and family depictions, these accounts had very few personal posts.
Formal usage (dominantly male)	The selection of a profile image in traditional or "Westernized" garment is a prominent choice for many male users. This theme appeared frequently in interviews. For male accounts with dominantly formal	These accounts had very few number of candid selfies, photos in "Westernized" garments (e.g. jeans, suit & tie, etc.), or overall playful content. Instead, there were photos of regional activities like camping in desert, falconry, and posing with cars, especially

connections (e.g., colleagues, business owners, elderly family members), appearing with traditional clothing of thobes and ghutras was deemed a necessity.

SUVs—all of which can be cited as activities of social status for men in the region. Formal usage was especially common among middle-aged and older users.

Informal usage (male and female)

We compare informal use to what could be deemed as more "globally standard" use. The users appear in a variety of clothing, utilize more selfies, and express experiences of daily life like food, sports, fun activities, etc.

Although these accounts were mainly informal, they almost always had the optimal amount of content with regional clues, like occasional photos with traditional clothing, locales, or activities (cited above at formal usage). Informal usage was dominantly common among younger users, and very rare among middle-aged and older users.

Thematic usage (dominantly female)

These were accounts that dominantly had thematic photos instead of self-depictions. Although they could occasionally belong to male users as well, we observed them to be mainly female.

Due to privacy concerns, some female users did not want to show their faces. As a result, they were mostly sharing thematic photos like landscapes, motivational or religious quotes, flowers, scenery, close-up staged photos of daily activities without individuals (e.g. food, clothes, etc.), and occasionally close-up details of their faces (mostly eyes, lips, etc.).

Table 5. Themes emerging from the interviews.

Theme	Codes	Explanation
Formality; Dominantly Male	• Traditional clothing • Khaleeji features • Family connections • Formal connections • Online racism	The issue of formal vs. informal content was voiced in the interviews. The individuals preferred a more formal look (clothing, facial hair, etc.) and content when interacting with elder family members and colleagues. While interacting with close friends, however, they preferred to have more informal representations and posts. For example, an interviewee referring to his thobe; "*I don't think [...] in here [outside of formal account] I'm not gonna wear this.*" Additionally, they were aware that displaying their ethnic identity with regional clothing might provoke racism online; a male interviewee comments: "*I feel there would be more racism involved if there were more options to display certain things.*"
Monitoring; Male & Female	• Multiple account use • Relationship seeking • Connections with strangers • Privacy • Representation • Self-monitoring	In parallel to the theme of formality, some interviewees expressed the need to maintain multiple accounts on social media platforms: one for formal interactions, one for more informal and less monitored interactions. In contrast to other regions where this behavior might be perceived to be less common, it seems more acceptable and normal for the region. Since privacy is a concern, interviewees felt safer in exchanging content with strangers through more anonymized accounts and social

• Social monitoring		networks that allow for more obscure representations and intricate privacy settings. One female interviewee notes that: "*I feel like my account is my privacy, I only add my friends. I wouldn't want a random stranger knowing what I'm watching right now, what I'm playing right now, or what my status is.*"
Modesty; Dominantly Female	• Participation • Representation • Online dialogue • Connection with strangers	Although the concept of modesty is relevant to both males and females of the region, it especially governs the interactions of females online. In the physical world, modesty focuses more on clothing and cultural modes of interaction. In the online world, modesty manifests with the participation in online discussions. To indicate the extents of modesty a female interviewee points out that "*usually, a guy should never say his sister's name, in front of his friends." While commenting about females talking to strangers online another male interviewee agrees that "it's not, ah, modest.*"
Non-permanence; Male & Female	• Anonymity • Escapism • Physical and Online Identity Divide	Despite anonymity being an important concept for users around the globe, it seems to have a special significance in the region where cultural and social expectations and norms orient daily life more intensively. This results in individuals seeking anonymous and escapist interactions online, as voiced by one of the male interviewees: "*I feel that the majority of people, if they know they're*

anonymous then they probably do things they wouldn't

do if they weren't."

Table 6. Mixed personas. Combining qualitative analysis results with AGPs enables us to construct likely behavioral pattern narratives for our personas.

AGP	Elaboration with qualitative analysis
Omar	Omar's social media usage focuses on the formal category. Due to his job he has many colleagues and professional connections in social media. As a result, his representation, posts, and vocalized opinions would be more in-line with social and cultural norms and expectations. He might employ more anonymized accounts where he connects informally with close friends or strangers. Being a GCC citizen he is affected by modesty requirements online and his physical and online self is permeated into each other.
Youssef	Youssef's social media usage focuses on a combination of family and informal categories as a possible young father. He is interested in social issues and local happenings, and he is vocal about them. He is less affected by the themes of monitoring and modesty. Although he might employ more anonymized accounts, he is more likely to be a member of closed communication groups, where politics and social issues precede family and daily matters.
Bakkar	Bakkar's social media usage focuses on the informal category. As a young user, although he has some formal connections, many of his other connections are informal like close friends and even

strangers. He is less affected by modesty and monitoring, as a result, he is more vocal, his visual representation is more candid and "Westernized." Being savvy in IT he is expected to have an intensive social media presence across many platforms. Some of his accounts may be more anonymized and more disassociated from his physical identity.

Nalkah

Nalkah's social media usage focuses on the thematic category. Although she shows her face in social media, the majority of her posts stay thematic and modest. She utilizes privacy settings of social media systems to her advantage. Although she is a frequent social media user, she does not vocalize her thoughts so often as in comments and remains an observer. She has a few numbers of public posts if ever. Instead of utilizing multiple identities she prefers closed communication systems (e.g. WhatsApp, Snapchat, etc.) to stay in touch with her friends and family.

Jahmir

Jahmir's social media usage focuses on a combination of family and formal categories. He is not affected by the concerns of modesty and privacy; however, he still maintains a self-imposed modest and private social media presence. His posts often employ religious and motivational quotes. Although he is interested in global issues, his posts mainly consist of family photos and business content. His physical and online identity are overlapping. He does not maintain multiple accounts; however, he is a member of many closed groups in platforms like Facebook and WhatsApp.
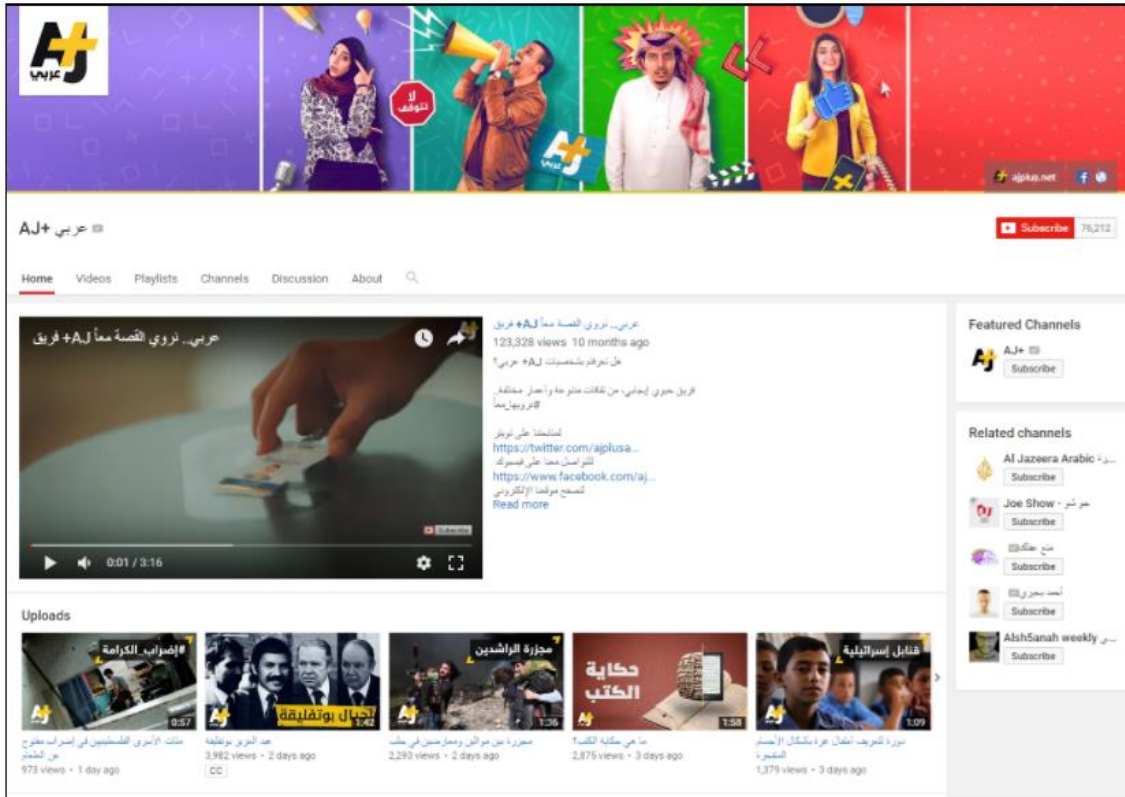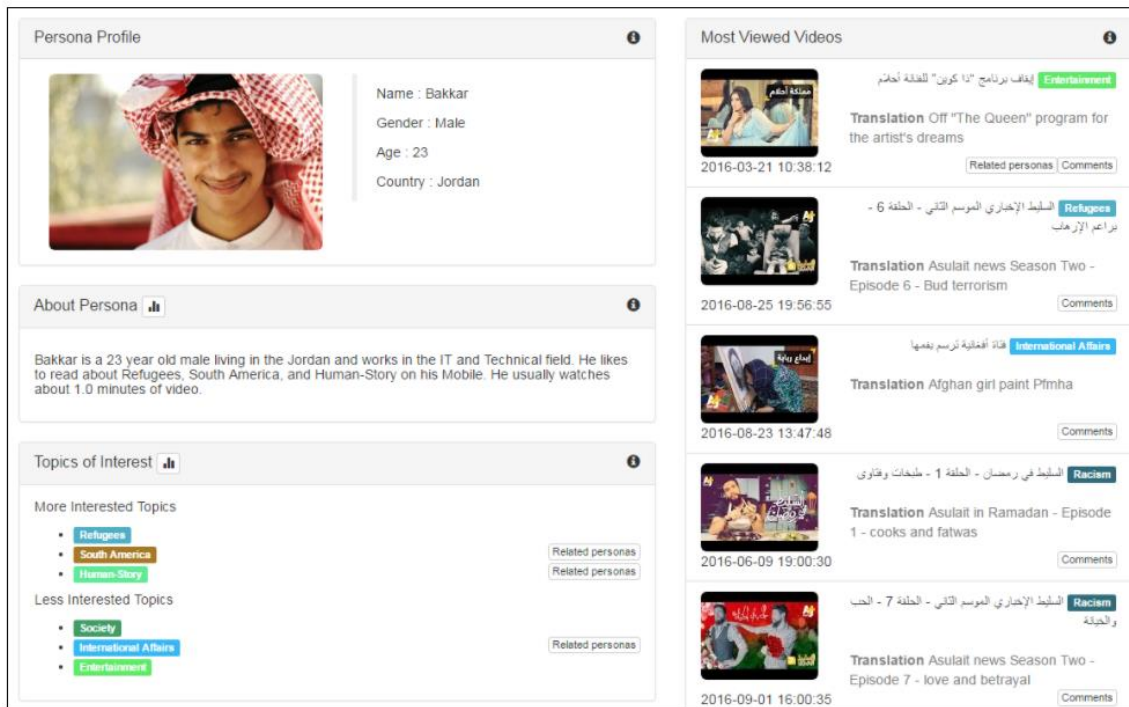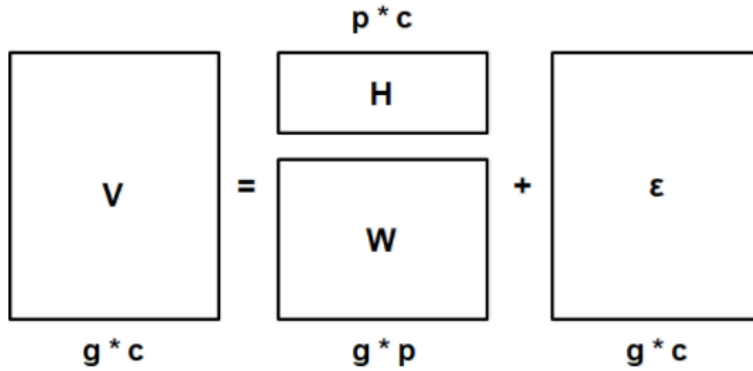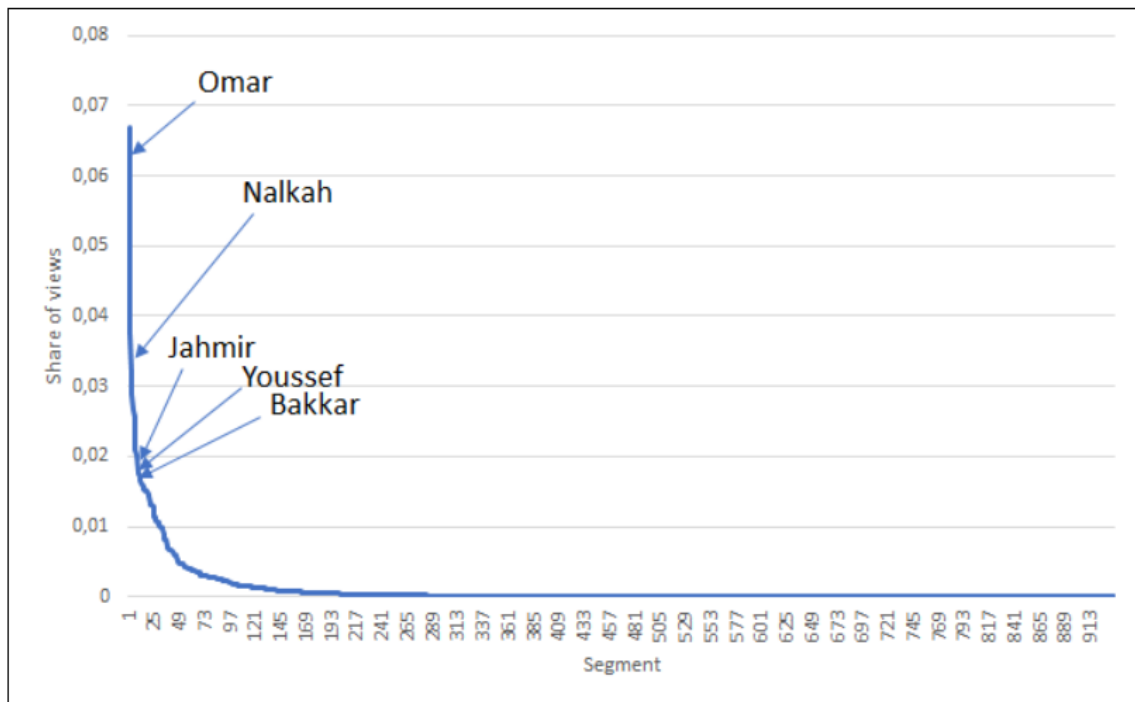
Figure 1. YouTube channel of AJ+ Arabic.

Figure 2. An example of resulting persona from the APG system[3]. The website is rendered by using Flask[4], an open-source Python web framework.

Figure 3. Matrix decomposition for automatic persona generation.

Figure 4. Personas' share of total content views. The videos have views from 937 user groups in 80 countries. The five personas capture a large share of the total views.

Appendix 1: Interview questions

1) Which social media or digital communication platforms do you use, how often, and for what kind of connections? (*We ask for elaborations on: Facebook, Twitter, Instagram, Snapchat, and WhatsApp, which are all popular in different degrees in the region.*)

2) In deciding whether to use a social media or digital communication platform which factors are important to you? What are the deal-breaker issues why you would NOT use one? (*We ask for elaborations on themes like disclosure, privacy, interactions with strangers, gender, anonymity, monitoring, community, cultural values, and language.*)

3) In any social media or digital communication platform, did you experience any difficulties in building a profile according to your identity? (*We ask for elaborations on race, ethnicity, gender, local values, and norms, etc.*)

4) In any social media or digital communication platform, did you experience any conflict with your cultural values? How about conflicts with other users from diverse cultures? (*We ask for elaborations on themes like disclosure, privacy, interactions with strangers, gender, anonymity, monitoring, community, cultural values, and language.*)

5) In your opinion, what kind of features would make a social media or digital communication platform more regionally and locally usable?