Uses of digital technologies by migrants in South Africa

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ABSTRACT

This working paper forms part of the output of Work Package 9 on technology, inequality and migration within the MIDEQ Hub, a multi-disciplinary research project in 12 countries of Latin America, Africa and Asia, including the Ethiopia-South Africa migration corridor. It presents the results of an online survey of 297 respondents mostly currently living in South Africa (92.2%), and mainly from Ethiopia (59.8%); 92.7% of them identified themselves as migrants, with the remainder being family members of migrants (6.2%) or returned migrants (1.1%). Following a summary of the methodology, which explains the impact of COVID-19 on this research and why an online survey was used to replace our originally planned interviews and focus groups, the paper provides an overview of the most important results and an exploratory data analysis, focusing on the potential influence of age, gender, countries of origin, migration status, and occupational status on the ways in which respondents use digital technologies and for what purposes. Three important conclusions for the subsequent stages of our research on the inequalities associated with migration and how digital tech may be used to reduce these are: first, the migrants responding to this survey are from very different backgrounds, and these have some strong influences on their use of digital tech; second, very few migrants make any use at all of apps made specifically for them; and third, many migrants still appear to need basic training in the safe and secure use of digital technologies.

KEY FINDINGS

1. Migrants in South Africa are very diverse, making subtly different usage of digital tech – while smart phones and the Internet are the dominant technologies in use, context nevertheless matters in how they are used.

2. Very few migrants make any use at all of apps that have been developed specifically for migrants – and even those 3.7% that claim to do so may not have actually used apps that were deliberately designed for them.

3. Many migrants have limited knowledge in how to use the full potential of their mobile phones – basic training in digital skills and safety might thereforebe a valuable intervention for them.

MIDEQ Migration for Development & Equality
UK Research and Innovation
GCRF

Introduction[1]

This is the third in a series of working papers presenting the initial findings from research conducted by Work Package 9 (WP9) of the UKRI GCRF funded MIDEQ Hub[2] into how migrants use digital technologies. WP9 is one of three "intervention" packages within MIDEQ,[3] and has the overarching objective of facilitating the crafting of a digital intervention (or interventions) that will contribute to reducing inequalities associated with migration between and among a selection of the 12 countries chosen for study by the MIDEQ leadership in Africa, Asia and Latin America. This third working paper summarises the results from our collaborative and multidisciplinary research with migrants in South Africa.

A three-phase approach

Our work package has adopted a very specific three-phase approach to deliver its overall objective of facilitating the development of digital interventions by migrants and local tech developers that may improve the lives of migrants and their families. It is designed explicitly to learn from and work with migrants and local tech developers to craft an intervention of their choosing. The *first phase* of the research (2019-21) aimed to understand better how migrants currently use digital technologies. Originally, this was intended primarily to be undertaken through interviews, focus groups and other qualitative methods in four of the MIDEQ migration corridors (China-Ghana, Ethiopia-South Africa, Haiti-Brazil, and Nepal-Malaysia). However, the onset of the COVID-19 pandemic prevented us from undertaking this field research, and we consequently responded flexibly by developing the online surveys that have provided the evidence for this working paper during 2020 and 2021 (see next sub-section). We are now also undertaking online interviews and discussions with the support of country lead teams in Brazil, Ghana, Malaysia, Nepal and South Africa to try to gain additional perspectives through qualitative research methods.[4] The *second phase* (2021-22) aims to explore further how migrants understand the notion of inequalities associated with migration, what they might like to change, and how digital technologies might be able to effect such change. This phase seeks to use interviews and focus groups (both online and in person) to combine migrants' understandings of migration inequalities with the digital experiences of colleagues within the work package, and thereby to identify where digital tech might be able to be used to reduce inequalities. The *third phase* is to facilitate interactions between local tech developers and migrants, with the intention of crafting one or more digital interventions that might help reduce the identified inequalities.

The impact of COVID-19 on Phase One of our research and practice

The qualitative empirical field research required for the first phase was intended to take place mainly in 2020 and early 2021, and was to be undertaken collaboratively in-country with the MIDEQ lead teams therein. However, this proved to be impossible as a result of the global COVID-19 pandemic, which not only had serious implications for migrants across the world, but also prevented travel between countries for any research visits. Furthermore, the UK

[1] Much of this introductory section and methodology is shared with the introductions to our other working papers based on the online surveys, because we used the same approach and methodology in all of them. It is repeated here, though, so that this paper can also be read on a stand-alone basis, and it also includes material specific to our work in South Africa.

[2] MIDEQ is funded by the UK Research and Innovation (UKRI) Global Challenges Research Fund (GCRF) and is a five year project (2019-2024) with an ambitions aim to transform understanding of the relationship between migration and inequality in the context of the "Global South" by decentring the production of knowledge about migration and its consequences away from the "Global North" towards those countries where most migration takes place. Work Package 9 is led by staff within the UNESCO Chair in ICT4D at Royal Holloway, University of London. These Working Papers present the findings of online surveys conducted in 2020 and 2021, and material on the context and methodology is broadly similar in all of the papers, although the results and analysis vary.

[3] The other work packages focus explicitly of sectoral themes such as gender, childhood, intermediaries, and access to justice. The other two intervention packages are on political mobilisation and access to justice.

[4] The results of this qualitative research will be reported separately.

government dramatically cut funding to the UKRI GCRF in an effort to use these savings to support its own response to COVID-19. This led to the formal suspension of WP9 within MIDEQ. However, Royal Holloway, University of London generously stepped in to provide one year's funding to cover the costs of employing a post-doctoral researcher following the cessation of MIDEQ funding to the work package.

The WP9 leadership responded by adopting a creative and flexible approach to these challenges, and developed an online survey instead of conducting the previously planned qualitative work (see methodology below). This produced a very different kind of data to that originally anticipated, but it did also have a range of unanticipated advantages.

The Ethiopia-South Africa migrant corridor

Figure 1: Home for many migrants near Cape Town

One of the six corridors in which the MIDEQ Hub is conducting research is that from Ethiopia to South Africa (Feyissa and Garba, 2020). South Africa has the largest single concentration of refugees and asylum-seekers in southern Africa, excluding those in refugee camps, totalling some 67,000 refugees and 230,000 recognised asylum-seekers in 2020. Recently South Africa has taken over from Kenya as being the most important destination for Ethiopian migrants within Africa, although the major overall destinations for Ethiopian migrants still remain in North America, Europe and the Gulf. This migration pattern is heavily gendered, with young female Ethiopian migrants going to the Gulf, and most of the migrants choosing South Africa being male. Most Ethiopian migrants in South Africa also come from the south of the country (in the Hadiya-Kembata zones), are driven primarily by economic needs and interests, and draw on the extensive Ethiopian social network already established in South Africa. Remittances also play a significant role in these migrations, and Ethiopia earns an estimated US$ 4 billion a year from them, which is worth more than all of its other exports combined. Institutional and linguistic barriers make it very difficult for Ethiopian migrants to enter the formal labour market in South Africa, but they are able to thrive in the informal retail sector that remains much less regulated. Ethiopian migrants therefore often find themselves working in micro-retail activities such as street vending, hawking and petty trading. Many work in the Jeppe, or Ethiopian Quarter of Johannesburg, and they have become the dominant group in the retail sector of South African townships, providing affordable groceries and other everyday goods for the working class and poor who live there (for further details see also Kanko, Bailey and Teller, 2013; Le Roux, 2014; Zack and Estefanos, 2016; Zack and Govender, 2019; Zack and Landay, 2021).

Methodology

The main means to gain some basic data for Phase One of our research in the face of COVID-19 was to use online methods and to ask our MIDEQ partners and others within our networks to help disseminate the links for the surveys to migrants.[5] We therefore created a short online survey to explore aspects of how migrants used digital technologies across all the corridors in which we are working. The advantages and disadvantages of such an approach to the use of digital technologies are summarised briefly in Table 1 below.[6]

Table 1: Advantages and disadvantages of an online survey approach

Advantages of an online approach	Disadvantages of an online approach
• Feasible in a context where travel and on the ground field research are impossible • The research focus is on the use of digital tech by migrants, and so migrants who were using digital tech should be able to respond • Enables many more people to respond than would have been possible through originally planned qualitative methods • Anyone with access to the digital link could complete the survey, and so survey could include respondents not just from the MIDEQ corridor countries • Reduces the impact of variable researcher influence on respondents' answers to the questions	• Some people may have reservations about completing online surveys for many reasons such as security, uncertainty about the use of such technologies, or lack of confidence. • Does not enable the richness of in-depth discourse available through qualitative research • Focuses mainly (but not exclusively) on closed questions, which can constrain respondents' answers • Little control over exactly who answered the questions – reliant on partners' decisions about sampling • Costs of air-time may act as a disincentive for some to complete the survey.

Design approach

We were driven by seven overarching principles in developing the online survey to be used in all the MIDEQ corridors where we are undertaking research:

- It should be as short as possible, so that migrants would not need to spend much time in its completion;
- It should be in relevant languages, so that it can be readily understood by migrants;
- The questions should be framed together with our partners;
- It should be easy to use and as accessible as possible for mobile devices;
- It should focus very clearly only on the basic theme of how migrants and their families are currently using digital technologies;
- Each survey should have its own appealing identity, using the logos of the partners involved in disseminating the links together with a colour scheme relevant to the context; and

[5] This has subsequently been supplemented in by the use of online interviews and focus groups in the latter part of 2021. These provide a valuable alternative mainly qualitative approach to the predominantly quantitative data analysis presented in this working paper. Ultimately both of these types of data will be combined with the responses to questions posed in the overarching MIDEQ survey undertaken on the ground in all corridor countries.

[6] The focus of our research was explicitly on exploring the views of those who use of digital technologies, and the use of an online survey was therefore particularly appropriate, since it provided an indication of respondents' familiarity with the technology. However, the survey also included questions for those who did not use such technology, with the option to have someone help them complete it.

- It should be uniform in structure and content across all the countries where we are researching.

The main survey design for South Africa is shown in Figure 2, and as with most of the surveys, the colours chosen were based mainly around those used in the national flag.

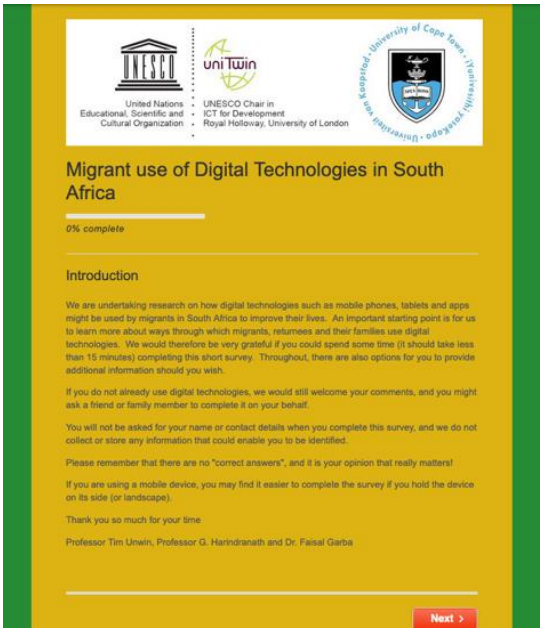


Figure 1: Main survey design for use in South Africa

Partner involvement and survey design in South Africa

The lead MIDEQ partner involved in our work in South Africa is the group of researchers investigating migration at the University of Cape Town under the leadership of the sociologist Faisal Garba.[7] Colleagues in partner countries throughout MIDEQ were invited to contribute to the overall design of the surveys, but once the basic structure and questions had been agreed it was essential that these remained the same across all of the surveys so that responses could be compared between countries and across the entire MIDEQ portfolio. Originally, the intention had also been to develop a survey in local Ethiopian languages from areas in southern Ethiopia from which migrants to South Africa had come, but this has not yet been done. Our South African (and subsequently Zimbabwean) partners confirmed that most migrants would have sufficient knowledge of English to be able to respond to the basic questions in the survey.

Structure and questions

The survey has five basic sections, following an introduction that briefly summarises its purpose, and emphasises that all the responses are treated strictly anonymously. We deliberately wanted to ensure that there was no way on which we could trace the identities of any of the migrants who responded.

- The first section asks whether or not the respondent uses digital technologies, and depending on the response (yes/no) directs them through two different routes.
- For those who answer no, there then follows a section about why they do not use digital technologies.
- For those who answer yes (the vast majority in our South African case study), the subsequent questions are grouped into two sections: the first asks about how and why

[7] See http://www.sociology.uct.ac.za/dr-faisal-mgarba.

they use different types of digital technologies, and the second asks about the apps (applications) that they use.
- Both groups of respondents are then invited to provide some basic socio0-economic information about themselves for the purpose of analysing their previous responses. This section comes last because we do not wish to put migrants off in any way by appearing to ask personal questions before answering the substantive questions in which we are really interested.

Most of the 19 questions asked were in the form of two-dimensional matrices in which respondents were asked to check a box indicating, for example, the frequency with which they used a particular type of technology (annually, monthly, weekly or never). However, where relevant, the questions also provide respondents with the opportunity to tick a box for "other" and provide further qualitative responses.

The personal information that they are invited to contribute consists of:
- Whether they were a migrant living overseas, a returned migrant living in the home country, or a family member of a migrant.
- The country in which they were born (drop-down menu).
- The country in which they are now living (drop-down menu).
- Length of time living in the country where they now are (drop-down menu).
- The country where they consider their home to be.
- Their age.
- Their gender.
- Their current employment status (part- or full-time, in formal or informal sector, or not working).

These categories provided the basis for the subsequent exploratory data analysis of the responses in this report.

The choice of options as possible responses to specific questions in part drew on existing literatures on technology use by migrants, and also on the suggestions made by our partners in the early stages of the research design across all of the countries where we were working. Nevertheless, for the sake of simplicity and time, we sought to limit the total number of options in any one question to around ten, although the question on what uses were made of specific devices (mobiles, tablets, laptops and desktops) stretched to 14 optional responses.

It was particularly difficult to agree on a set of generic apps that migrants might use that would be relevant across all countries. Ultimately 11 options were agreed, based on data (all for 2019) about the worldwide usage of different apps. Interestingly, different sources, using varying measures are not consistent in their rankings, and so difficult judgements had to be made about what to include.[8] We were also keen to use apps developed in both China and the USA (in Chinese and in English), given the strong influence of Chinese technologies in some of our countries of interest. The final list of apps chosen is shown in Table 2, and respondents were also able to list any other apps that they used more frequently than those mentioned in this table.

[8] Sources used were: https://www.messengerpeople.com/global-messenger-usage-statistics/, https://www.similarweb.com/corp/blog/worldwide-messaging-apps/ , https://techjury.net/stats-about/app-usage/#gref, https://sensortower.com/blog/top-apps-worldwide-q1-2019-downloads , https://www.netsolutions.com/insights/top-10-most-popular-apps-2018/, https://blog.sagipl.com/most-used-apps/, https://www.appinchina.co/market/apps/, https://ltl-school.com/chinese-apps/, https://www.scmp.com/magazines/style/news-trends/article/2172512/life-china-made-easier-these-top-8-must-download-apps and https://www.24hchina.com/chinese-app-store-list/.

Table 2: Apps selected for respondents to choose from in answering question 10 about usage

	Never	Annually	Monthly	Weekly	Daily
Alipay	o	o	o	o	o
Baidu	o	o	o	o	o
Facebook	o	o	o	o	o
Instagram	o	o	o	o	o
Messenger	o	o	o	o	o
Netflix	o	o	o	o	o
QQ	o	o	o	o	o
Twitter	o	o	o	o	o
WeChat	o	o	o	o	o
WhatsApp	o	o	o	o	o
YouTube	o	o	o	o	o

Choice of platform

The platform used for the survey was the UK academic JISC Online Surveys (formerly Bristol Online Surveys),[9] primarily because of our existing familiarity with its design and functionality, but also because it is GDPR compliant, secure, certified to ISO 27001 standard, relatively easy to use, built specifically for research and education, and has sophisticated analytical tools embedded within it, while also enabling easy export of the results for further statistical analysis.

Survey distribution and sampling

Throughout all of our research, we have relied heavily on our in-country MIDEQ lead research partners to facilitate our empirical research, and encourage migrants with whom they are working to complete the online survey. Our South African survey was launched on 6 May 2020 and closed on 17 December 2021 once we had received the 250 responses for which we had aimed.[10] The main focus of the research was on migrants to South Africa from Ethiopia, but given the difficulties of identifying Ethiopian migrants willing to complete the survey during 2020 and early 2021, we also worked through a range of our other contacts in South Africa and beyond to encourage migrants to participate (see acknowledgements at end for details). We are very grateful to them for contributing in this way, since it had two particularly beneficial results: first, it led to a greater diversity of countries of origin for the participants compared with our work in some other corridors; and second, it meant that a much wider range of migrants in terms of experiences and occupation was sampled. In essence, this has meant that we can gain insights into whether or not Ethiopian migrants to South Africa used digital tech differently from those with other origins. The support of the Domestic Workers Association of Zimbabwe has also enabled us to do a specific small case study of female domestic workers from Zimbabwe in South Africa, which is presented below as a boxed example.

Overall, just under 60% of the migrants who responded were from Ethiopia, and the majority of these were encouraged to participate by colleagues at the University of Cape Town, the lead MIDEQ partner for South Africa. Two specific approaches to survey completion were adopted: *remote*, sharing a link to the online survey, mainly by WhatsApp, for migrants to complete; and *in-person*, obtained during the ethnographic field research. In the latter, the link to the survey was forwarded to respondents to be filled in on the spot. Researchers were available to

[9] https://www.onlinesurveys.ac.uk/.

[10] Our research aimed to gain at least 250 responses from migrants and their families in each of the countries where we are working. This was deemed to be a realistic response rate in consultation with our partners given the challenges of working with migrants in 2020 and 2021 during the COVID-19 pandemic.

answer questions and help with language/translation. Verbal responses were also elicited by researchers asking the questions in the survey and filling them out on behalf of the respondents. This was often the case with respondents who were more comfortable with Amharic than English. Importantly, the in-person survey eased respondents into the qualitative aspect of our research and created a continuity between the questions asked by the survey and in the open-ended qualitative questions of the South African country team. The online survey also had the effect of keeping respondents at ease while practically clarifying the research. Interestingly, those who were hesitant to participate in the qualitative part of the work often became more open after responding to the online survey. This may have been due to the non-invasive and interventionist thrust of the survey.

While most respondents were Ethiopian, some of them were from other national groups, who were approached through contact persons in their national associations and on individual basis. Research fatigue and suspicion of anything to do with "formality" means that it often takes some time for people to warm up to the idea of research, but utilising our existing networks had the beneficial effect of making respondents more at ease with our work. We have subsequently maintained contact with many of these respondents, and this likely to be useful in the further qualitative aspect of WP9, thereby creating the opportunity of having a cohort of respondents whose experiences with the use of digital technologies can be followed through.

One of the many noteworthy experiences of this research process was that respondents saw the possible development of a migrant-friendly App as an important contribution to their livelihoods, businesses, and general experience in South Africa. In a context where migrants are often singled out only for the wrong reasons, the possibility of an App that speaks directly to their reality is something that many respondents found useful. That having been noted, though, the vast majority of migrants responding to all of our surveys within the MIDEQ portfolio of countries report that they have never used such a migrant app, although many such apps already exist. It might be that more effort should therefore be expended in informing migrants of what exists already rather than developing a new app. However, our experiences in South Africa also suggest that if, as is central to our approach, migrants themselves are involved integrally in crafting such an app, then it might be more relevant to their needs, and they would therefore indeed use it.

A further important issue that arose during our work in South Africa was the perceived cost of airtime (also known as credit, data, and talktime) in completing the survey online. Although the survey was designed to be completed within 15 minutes, this could have been an important factor that may have put off some people from completing the survey. As in most countries, the pricing and bundling of services and apps on mobile phones in South Africa is complex. MTN thus offers all prepaid customers who recharge with ZAR10 or more: free 250 WhatsApp bundle valid for 7 days, free night voice bundle for 7 days, and free Ayoba social app bundle for 30 days. The out of bundle price for data is ZAR 0.49 per MB (MTN, 2021). Vodacom (2021) likewise has a wide range of different bundles with its hourly data bundle being ZAR 5 for 50 MB (= ZAR 0.1 per MB), and its weekly bundle starting at ZAR 17 for 120 MB (= ZAR 0.14 per MB) (ZAR 10 = £ 0.47 = US$ 0.63 = € 0.55). South Africa has the 11th highest data charges in Africa (Benhaddou, 2021), and these are for example approximately twice the level in Ethiopia or Ghana. This could mean that migrants from these countries might identify costs of digital connectivity as being particularly high compared with what they are used to at home. In order to try to minimise the impact of concerns over cost for survey completion, we offered through our collaborators to pay for airtime costs for users who would not otherwise complete the survey, but in practice this proved not actually to be necessary. This might, though, mean that our respondents were

among the richer migrants, and for a range of other reasons as well it is likely that we have not included the economically poorest in our sample. The bundling of apps is also important in influencing which ones are used by migrants, and it may well be one of the main reasons for the popularity of WhatsApp in South Africa.

Finally in this section, we had much discussion on the languages to use for the survey, especially given the multiplicity of native languages spoken across Africa. Ethiopia alone has between 45 and 86 languages, depending on how these are defined (Bender *et al*., 1976). In other countries where we are working, we have indeed translated the survey into relevant local languages such as Haitian Creole and Nepali, but although we had hoped to translate it into the languages spoken in the main parts of Ethiopia from which the migrants to South Africa have come we in the end decided to provide the survey only in English, since the majority of migrants there use English to some extent in their day to day activities.

Results

This summary of results for the surveys conducted in the context of South Africa is divided into three main sub-sections on the sample, on how respondents used digital devices, and on the applications that they used. Analysis of these results in terms of the socio-economic characteristics of migrants is then undertaken in the next main section.

The sample

Sample size

A total of 297 respondents completed the South Africa surveys.[11]

Age and gender

The biggest age group represented in the sample were the 53.2% aged between 31 and 40, with 23.1% being aged between 41 and 50. This is a decidedly older sample than those from our surveys associated with Nepali migrants in Malaysia. Women represented 24.2% of the sample (Table 3), and more of them were generally younger than was the case with the men. Thus 23.5% of the women were between 21 and 30, whereas only 17.5% of the men were in this group. Interestingly one of the respondents reported being non-binary (other) whereas none did so in our previously reported surveys in Malaysia and Nepal.

Table 3: Age and gender distribution of respondents

How old are you (n=297; 16 no answer)	What gender do you consider yourself to be?			Totals (including no answer
	Female	Male	Other	
< 10 years old	0	0	0	0
10-20 years old	1	0	0	1
21-30 years old	16	37	1	55
31-40 years old	36	113	0	149
41-50 years old	12	53	0	65
51-60 years old	1	9	0	10
>60 years old	0	0	0	0
No answer	2	0	15	17
Totals	68	212	1	297

[11] Not all respondents answered every question and so N is often below 297. Some questions also offered respondents the opportunity to provide multiple answers, and so N can also be higher than 297.

Country of origin, residence and home

In accordance with the MIDEQ research emphasis on the specific migration corridor between Ethiopia and South Africa, 59.8% of respondents were indeed born in Ethiopia. However, three other countries also featured quite prominently among the participants: Zimbabwe, 14.2%; Cameroon, 10.0%; and Ghana, 4.3%. A total of 18 countries of birth were represented in the sample.

Almost all (92.2%) of the sample were currently living in South Africa, but the answers to the question of where migrants considered their homes to be were very striking. Thus 31.1% named Canada, only 24.8% said Ethiopia, 8.9% said South Africa, 6.3% said Zimbabwe, and 5.6% said the United States. The high figure for Canada is surprising, and requires further investigation, but it may suggest that for many migrants their time in South Africa is seen as being transitionary, as a step on the journey to a new home elsewhere, especially in North America.[12]

The balances between the percentages of female and male migrants born in each country also varied, with 93.4% of those from Ethiopia being men, in contrast to 90% of those from Zimbabwe being women; 75.0% of those from both Cameroon and Ghana were men.

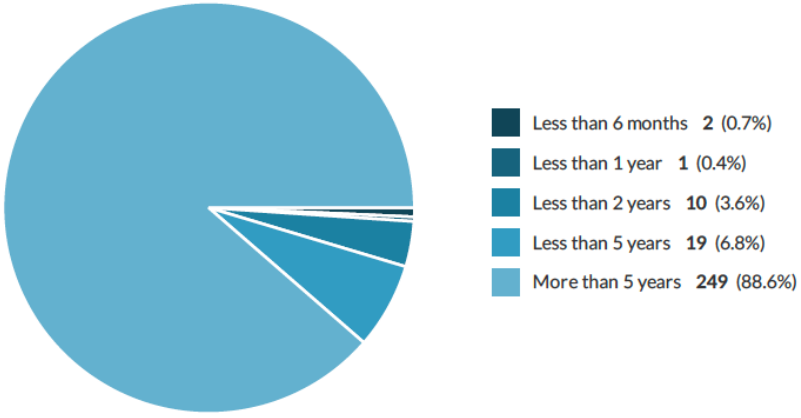
Migration status

In contrast to our survey in Nepal that attracted considerable numbers of family members and returned migrants, the overwhelming majority of respondents in this survey (92.7%) saw themselves as being migrants living overseas in South Africa, with 6.2% being family members of migrants, and only 1.1% being returned migrants.

Duration of migration overseas

Another interesting feature of the migrant respondents in South Africa is that a large majority (88.6%) of them had been living in South Africa for more than 5 years. (Figure 3). This differs from, for example, our sample in Malaysia where only 12.6% had been living there for more than five years. It is also interesting to reflect that although most of the migrants living in South Africa had been there for more than five years, only 8.9% (see above) saw it as their home country. Furthermore the distribution between male and female respondents and their duration of stay in South Africa is also significantly different: 92.5% of men had stayed there for more than 5 years, in contrast to only 77.9% of the women.[13]

Figure 3: Length of time spent in the country where respondents are now living



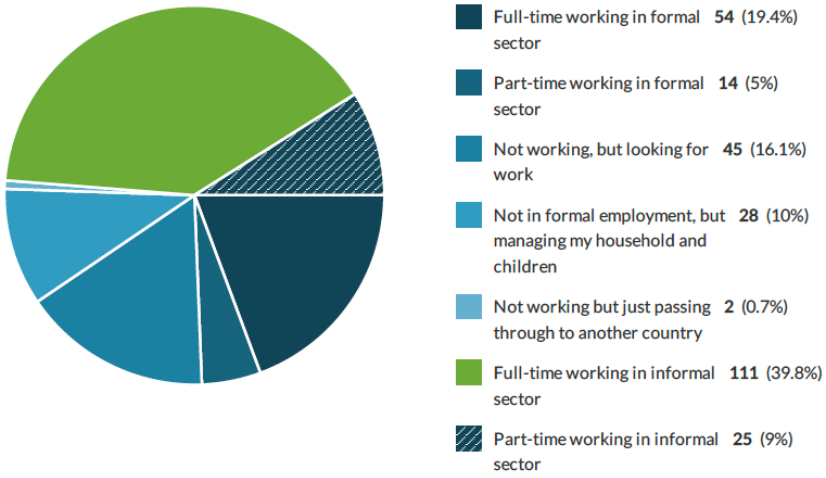
[12] Only 1.5% mentioned the UK as being their "home".

[13] $\chi^2 = 14.6$, with critical level at p=0.05 and 2 df being 5.99.

Occupation

Figure 4 indicates the diversity in different categories of work within the sample.

Figure 4: Current main employment status of respondents



The largest category of respondents was those in full-time work in the informal sector (39.8%), followed by full-time work in the formal sector (19.4%). In the light of the previous comments about the transitory aspiration of migrants in South Africa, it is perhaps surprising that only two respondents said that they were not working but just passing through the country. It is also interesting to note that 16.1% said that they were looking for work, with 30.9% of women responding in this way compared to only 10.9% of men. There was also a notable gender difference among those working full time in the informal sector, with 44.8% of men being in this category, compared with only 23.5% of women. These gender differences between the occupational status of men and women are statistically significant,[14] although there is not a significant difference when considering people of different ages and the broad category of work that they are undertaking.

Usage of digital technologies by respondents

The above summary indicates that the sample was quite diverse, with both women and men, of different ages, and with different migration experiences and destinations. The implications of the impact of these variables on uses of digital technologies is explored further in the analytical section of this working paper, but before then this section provides an overview of the main findings concerning how the respondents in general used digital tech.

Usage and non-usage of digital technologies

Given that this survey was specifically about migrants' uses of digital tech, it is unsurprising that 99% of respondents did indeed use such technologies.[15] However, the survey specifically asked those who did not use them to respond to eight possible reasons why, and all of the respondents said that it was because they are too expensive.

Frequency of use of digital technologies

Table 4 illustrates the frequency of use of particular technologies (column percentages; shading in green indicates agreement by ≥90% of sample). This emphasises that smart phones were the

[14] This is also significant, with $\chi^2 = 21.37$, with critical level at p=0.05 and 5 df being 11.07.
[15] This figure is, though, much higher than for example in our survey in Nepal, where 6% of respondents did not use these technologies.

most frequently used digital technology, with 98.9% of respondents who had them saying that they used them daily; 94% of those who accessed the Internet also did so daily. More than 70% said they never used desktop computers, digital radio, or tablets.

Table 4: Frequency of use by respondents of different types of digital technology and the Internet[16]

(Column percentages of respondents)	Desktop computer	Digital radio	Digital TV	Basic mobile/ Feature phone	Mobile smart phone	Laptop	Tablet	Internet
Daily	14.1%	11.9%	76.8%	67.6%	98.9%	28.2%	11.6%	94.0%
Weekly	3.6%	5.1%	9.2%	0.8%	0.4%	8.3%	4.3%	1.9%
Monthly	7.6%	6.4%	1.2%	2.4%	0.4%	6.3%	5.6%	0.7%
Never	74.7%	76.7%	12.8%	29.2%	0.4%	57.1%	78.4%	3.4%

Why do migrants in South Africa use digital technologies

Our survey concentrated on the uses of four types of digital device (mobile phones, tablets, laptops and desktop computers) in order to gain a deeper understanding of why migrants used them.[17] Table 5 summarises these results (with green shading again indicating ≥ 90% agreement); the percentages indicate the frequencies with which people who answered each question chose that option. Some people used several different types of device for the same purpose, and the percentages therefore indicate the share of the sample who said they used a given device for a specific purpose. Thus 98.9% who responded used a mobile phone for audio calls, but 2.5% also used a tablet to make audio calls, 7.1% used a laptop, and 2.1% a desktop computer (note that these percentages do not therefore add up to 100%)

Table 5: Usage of different types of digital device for a selection of purposes

	Mobile phones	Tablets	Laptops	Desktop computers
Audio calls	98.9%	2.5%	7.1%	2.1%
Text messages	99.3%	1.8%	7.6%	1.4%
Video calls	99.6%	4.0%	11.4%	0.7%
Playing games	93.6%	6.4%	8.9%	1.0%
Watching videos for entertainment	92.2%	6.3%	23.0%	3.5%
Work	89.1%	3.2%	25.1%	7.7%
Learning and education	90.6%	5.3%	27.9%	7.5%
Accessing government services	92.6%	3.8%	19.7%	6.0%
Social networking	98.9%	5.4%	15.9%	3.6%
Cultural activities	97.4%	3.5%	12.2%	3.1%
Political activities	97.2%	2.4%	13.2%	2.8%
Health activities	97.2%	3.6%	16.4%	2.4%
News updates	98.1%	4.1%	16.4%	4.5%
Other	90.7%	2.3%	23.3%	7%

[16] Percentages indicate the percentage of respondents who selected each answer (100% would indicate that all a question's respondents chose that option)

[17] The specific question asked was "Focusing on just four of these devices (mobile phones, tablets, laptops, desktop computers), please indicate which types of technology you use for what purpose (click all of the relevant boxes). If you do not use a specific technology, please just leave the relevant boxes blank."

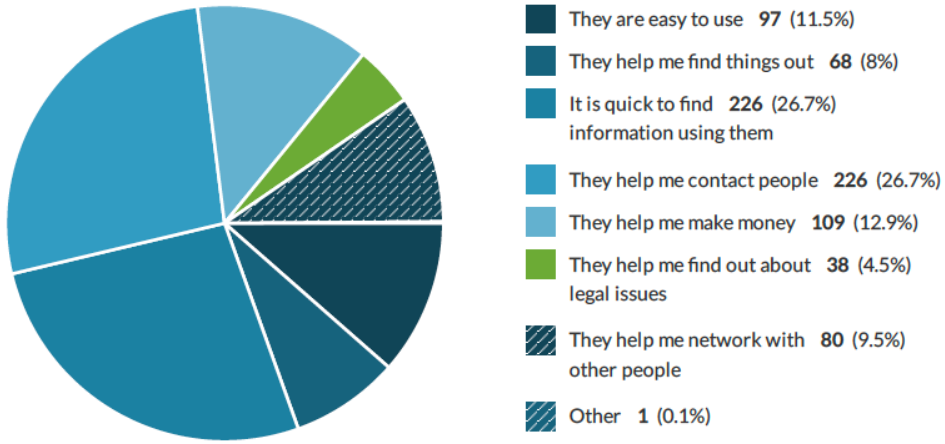
This emphasising the striking dominance of mobile phones for all types of use. Laptops are a distant second, being used mainly for learning and education, work, and watching videos. Tablets are rarely used for anything, but a few people use them for playing games and watching videos, and desktops are again used mainly for work and learning/education.

Forty-eight respondents also provided qualitative information about other uses that they made of these devices, although several of these were in effect aspects of the thirteen main categories in Table 5. More than half of these essentially repeated these categories, but eleven additional reasons were helpfully mentioned by one or more people (in descending order of frequency): as a camera; for marketing/selling; for banking; for transport/navigation; for webinars and meetings; for note taking or recording; for playing music and videos; for online gambling; for online shopping; for life organisation; and for meditation and spiritual upliftment. This provides yet more evidence of the diverse ways through which digital tech has permeated all aspects of the life of migrants.

Likes and dislikes of using digital technologies

The survey also explored what the migrant respondents liked and disliked about using devices and apps, by asking them which of a list of options were their top three reasons for liking and top three for disliking them.[18] The two main reasons why digital devices are liked are because they help users contact people (26.7%), and it's quick to find information using them (26.7%) (Figure 5). The next two reasons are for helping to make money (12.9%) and because they are easy to us (11.5%). The seven suggested reasons seem to have captured overall opinion, because only one person added a further item which was to help communicate with people

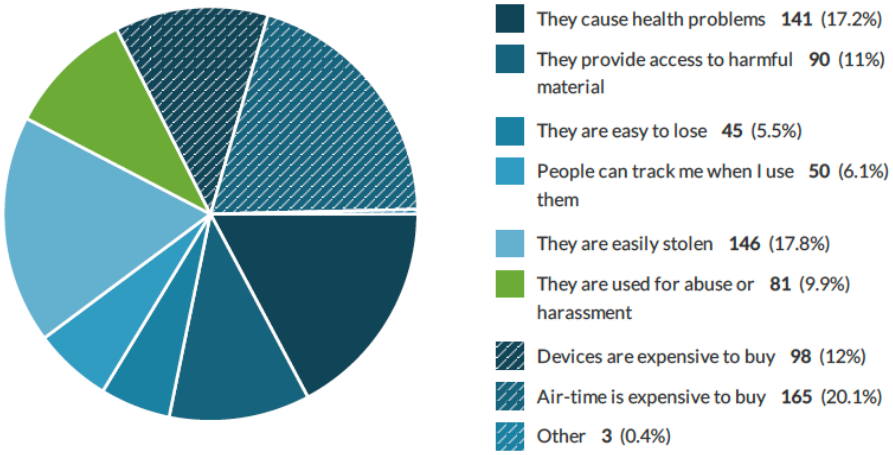
Figure 5: Reasons for liking digital technologies



In contrast, the main reason that respondents disliked them were because air-time is expensive (20.1%). There were then also concerns that they can be easily stolen (17.8%) and that they can cause health problems (17.2%) (Figure 6). As with the reasons for liking digital tech, there were few responses to other reasons with those that did respond expressing some concerns about their addictive character and that they mean users lose touch with reality and physical interpersonal relationships.

[18] Two separate questions were asked, one for likes (What do you like about using digital technologies (devices and apps). Please click button on the most important factors (up to THREE) that apply, or add suggestions by clicking on "Other"), and one for dislikes (What don't you like about using digital technologies (devices and apps)? Please click button on the most important factors (up to THREE) that apply, or add suggestions by clicking on "Other").

Figure 6: Reasons for disliking digital technologies



Additional potential uses of digital technologies

Seventy responses (23.6% of the sample) were received in answer to the question about what migrants would like to use digital technologies for, but are not already doing so. Around 40% of these simply said words to the effect of "nothing much" or "nothing else", but the remainder provide a good indication of what migrants would indeed like to do with the technology, almost all of which are already possible. Twelve people specifically made reference to wanting to use digital tech for education and research, with a further eight commenting on their desire to use them more for work and business. Other suggested uses were concerned with finance, communicating with family members, skills and employment, music, transport and visa checking. All of these are readily feasible now, which suggests that a key improvement in the digital lives of migrants might just be simply to help them better understand how to use their existing mobile devices. However, other suggestions provide novel potential uses for digital tech, such as "*To do my house chores, e.g. cooking, cleaning, ironing etc*." and "*to detect liars*" or "*evaluate what is true and false*". One interestingly said that "*I would like to use it track other users. Knowing their communication angles and companion at the point of communication*".

Use of digital technologies during the migration journey

Those respondents who considered themselves to be migrants (n=254[19]) were asked a further set of questions about how often they used digital technologies at different stages within the migration process (Table 6)[20].

[19] 254 respondents stated that they were migrants in the question concerning whether they were migrants, returned migrants, or family members, but varying numbers of respondents (ranging from 249 to 235) answered the questions about using digital technologies during different parts of the migration journey (and only 186 answered the question about returning home). This reflects some fluidity in defining such categories. A family member of a migrant, for example, could also have migrated at some point in time. Moreover, not everyone answered all of the questions.

[20] We recognise that different people will interpret the options "very often", "sometimes" and "rarely" in varying ways, but this choice of words was deliberate because our interest was in how migrants perceived these things themselves, and not just a purely quantitative measure of frequency.

Table 6: Frequency of digital technology use at different stages in the migration

	Very often	Sometimes	Rarely	Never
Deciding to migrate (n=249)	33.7%	47.4%	8.0%	10.8%
Before departure (n=235)	34.5%	45.1%	9.4%	11.1%
During the migration journey (n=236)	27.5%	25.0%	16.5%	30.9%
Upon arrival in destination country (n=249)	82.7%	12.4%	0.8%	4%
While in new location (n=239)	89.1%	9.2%	0	1.7%
Deciding to return home (n=204	77.9%	11.3%	5.9%	4.9%
When/if you have returned home (n=186)	80.1%	11.3%	3.8%	4.8%

This reinforces the pattern observed in some of our previous research that shows the frequency of use of digital technologies increasing at every stage from considering to migrate through to while in the new location. Thus 89.1% of respondents use them very frequently while in their destination country in contrast to only 33.7% while deciding to migrate; conversely 10.8% never used them while deciding to migrate in contrast to only 1.7% who never use them while in their new location. However, it is very interesting to note the considerable drop-off in frequency of use during the migration journey, with 30.9% reporting they never used digital tech during the journey. This might reflect several scenarios, not least the difficult in obtaining and paying for connectivity on the journey and the danger of theft, but is something to be explored further in interviews and discussion groups with migrants.

It is also interesting to note the apparent decline in usage in deciding to return home and when at home. This may well be because many migrants do not actually wish to return to their countries of origin, as noted above, which also explains why about a third of the respondents did not provide answers to these final two options.

Respondents' usage of apps

Respondents were also asked about their usage of different apps, with a further opportunity being provided for them to share additional qualitative information about the other apps that they used more frequently than these.

Table 7 indicates three things very clearly: the overwhelmingly dominant apps used by migrants in South Africa are WhatsApp and Facebook (followed by YouTube and Messenger); second, that Chinese apps such as Alipay, Baidu and WeChat are extremely rarely used; and third that there is a strong split between apps that are used daily or never.

Table 7: Frequency of usage of different apps

	Number of responses	Never	Annually	Monthly	Weekly	Daily
Alipay	234	97.9%	1.7%	0	0	0.4%
Baidu	229	97.4%	1.3%	0	0.4%	0.9%
Facebook	283	5.3%	3.2%	4.6%	5.7%	81.3%
Instagram	252	56.0%	4.0%	8.7%	11.5%	19.8%
Messenger	261	4.2%	3.8%	5.7%	13.0%	73.2%
Netflix	241	81.7%	2.1%	5.8%	3.3%	7.1%
QQ	226	96.9%	0.9%	0.9%	0	1.3%
Twitter	247	69.6%	2.4%	8.1%	9.3%	10.5%
WeChat	230	90.9%	1.3%	3.0%	0.9%	3.9%
WhatsApp	285	3.2%	2.5%	1.8%	0.7%	91.9%
YouTube	271	4.4%	3.3%	3.7%	9/2%	79.3%
Other						

Note: figures highlighted in green are those ≥90%

This Table only focuses on the globally dominant apps, and the 79 additional responses noted by respondent help to fill out our understanding of the distinctive locally important and alternative apps used by migrants. Again, some 35% of these responses wrote "nothing" (or equivalent), mentioned things other than apps, reiterated apps already listed in Table 7, or used a generic term such as webinar, and these were excluded from the subsequent analysis. This nevertheless left a useful list of around 30 different apps (depending a little on how an app is defined), including ones as diverse as Tinder, Grindr and the YouVersion Bible App.[21] The most frequently mentioned apps were: Imo (a free audio/video calling and instant messaging software service) n=19; Telegram (a freeware, cross-platform, cloud-based instant messaging service) n=17; TikTok (spelled in many different ways; a video-focused social networking service owned by Chinese company ByteDance) n=11; Viber (a cross-platform voice over IP and instant messaging software application owned by Japanese multinational company Rakuten) n=10; Zoom (a proprietary video teleconferencing software program) n=5; and Moya (an instant messaging and calling app) n=4.[22]

Finally, respondents were also asked whether they had ever used an app specifically designed for migrants. The response was striking and clear. Only 3.7% of them replied "yes", with 8.8% also commenting that they were unsure, leaving a resounding 87.4% saying no. Interestingly, the only apps that were mentioned as being specifically designed for migrants were Facebook and WhatsApp; neither of these were in reality designed explicitly for migrants.

[21] Tinder https://tinder.com, Grindr https://www.grindr.com, YouVersion https://www.youversion.com/the-bible-app/.
[22] Imo http://imo.im/; Telegram https://telegram.org; TikTok https://www.tiktok.com;Viber https://viber.com; Zoom https://zoom.us; and Moya https://moya.app/.

The use of digital tech by domestic workers from Zimbabwe in South Africa

Our collaboration with the Domestic Workers Association of Zimbabwe (DWAZ) enabled us to have a small case study with 12 women in their network (7 were migrants living in South Africa and 5 were family members; all were born in Zimbabwe, but living in South Africa; 7 were aged between 31 and 40, with the remainder between 41 and 50; eight were working full time, three of whom were in the formal sector and five in the informal, and the other four were working part-time, half in the informal and half in the formal sector). Their experiences of using digital tech were all very similar and offer a slightly different perspective to those of the predominantly male migrants to the country from Ethiopia.

All of the women used a smart phone and the Internet on a daily basis, although they also made quite frequent use of other devices. Of those who responded, 71.4% also used a basic/feature phone and digital TV daily, 60% used digital radio daily, and 50% used a tablet daily. Smart phones were not unsurprisingly used the most for all types of activity, with other devices only really being at all used for watching videos for entertainment, and for learning and education. The dominant concern about their use was that they are easily stolen (mentioned by 29.2%). They were most liked because they help users contact other people (mentioned by 27.3%) and they are easy to use (mentioned by 21.2%). The domestic workers did not have many suggestions for additional things for which they would like to use digital tech, but they did mention learning, gaining more information and a mechanism whereby the phones would stop working when they were stolen. Their usage of digital tech was already quite high (42.9% very often) when they were deciding to migrate, but this increased to 60% very high during the migration journey, and 83.3% while in South Africa. Interestingly, the frequency of use was lower than 50% (very high) when they were deciding to migrate, before departure, and deciding to return home as well as when they returned home. There was considerable uniformity in their use of apps: 100% used Facebook daily, 91.7% used WhatsApp daily, and 87.5% used Messenger daily; Chinese apps such as Alipay, Baidu, and WeChat were never used at all. Only one claimed to have used an app specifically designed for migrants, and named this as WhatsApp.

Exploratory data analysis

This working paper is primarily intended to present the early results of our online survey of migrants and their families in South Africa, focusing mainly on those from Ethiopia. Future working papers will present the findings for the other countries within the MIDEQ Hub in which we are working, and we will then present the main analyses on a corridor-by-corridor, and then global, basis. These data for South Africa will be analysed together with information gathered from Ethiopia to gain a more comprehensive understanding of the use of digital technologies along the Ethiopia-South Africa corridor. Our initial analysis here is based exclusively on the material relating to South Africa as a host country for migrants, and focuses on the possible influences that the socio-economic characteristics (age, gender, migration status, occupational status, and country of origin) had on the use of digital tech. A final brief section draws some wider observations around reasons why people used digital technologies in specific ways. Where relevant, χ^2 tests were used to test relationships statistically (undertaken at p=0.05 level). In general, the considerable degree of uniformity in the data, with most people using

smart phones and the Internet in similar ways makes it difficult to differentiate between the impact of any particular socio-economic variable on this overall pattern.[23]

Age and usage of digital technologies

With the above caveats in mind, it is interesting to note that age does not appear to be a significant determinant of the use of digital tech by our migrant respondents in South Africa. Amongst the socio-economic variables, the age distribution does not show a significant relationship with country of origin, although Ethiopia did have a slightly higher percentage of respondents aged between 21 and 30 than was the case for migrants from Cameroon, Ghana and Zimbabwe which were the countries of origin of most of the other migrants in the survey. Likewise, there was no overall significant difference between the balance between men and women within the different age categories, or the employment categories within which people in different age groups were working.

Turning to the actual use of digital technologies, there do not appear to be significant relationships between age and the use of different types of device, or indeed the frequency of use of particular devices and the Internet by people in different age groups. Likewise, age does not seem to influence the reasons that migrants gave for liking or disliking digital tech, nor does there appear to be a significant difference between age and the frequency of use of digital tech at different stages in the migration journey.[24]

Gender and usage of digital technologies

Just under one-quarter of the total sample were women and as noted above they tended to be slightly younger than the men who responded to the survey. The employment categories were significantly different between men and women,[25] with this mainly attributable to there being more women looking for work than men, and more women also being full-time in the informal sector. The length of time men and women had been in South Africa was also significantly different, especially because relatively more women than men had been there for between 2 and 5 years than would have been expected if there was no significant gender differentiation.[26] Only three people in the sample did not use any types of digital tech, and so it has not been possible to assess whether men or women used it more or less frequently than each other. Again, the key message is that almost everyone, both men and women, used smart phones on a daily basis for most of their needs.

There were some slight differences in the frequency of usage of different types of digital tech by male and female respondents. Most of these were not significant (at the p=0.05 level), apart from the use of digital TV where relatively more women than men never used it,[27] and in the use of laptops where more women than men used them daily.[28] The overwhelming dominance in the use of mobile phones for all types of activity also meant that there was little observed significant difference between the frequencies of technologies used by men or women. The only

[23] Not least, this issue is exacerbated because it means that there are low frequencies in many of the cells of the contingency tables, which requires their amalgamation (if any expected frequency is < 5, although there are those who suggest that this figure is overly conservative; Fisher's Exact Test could be an alternative in these circumstances).

[24] In all these cases the figure for χ^2 is less than the relevant critical values at p=0.05.

[25] χ^2 = 21.37 with 5 df, which is more than the critical value of the Chi-squared distribution at the level of p= 0.05 (11.07)

[26] χ^2 = 14.90 with 2 df, which is more than the critical value of the Chi-squared distribution at the level of p= 0.05 (5.99)

[27] χ^2 = 11.24 with 2 df, which is more than the critical value of the Chi-squared distribution at the level of p= 0.05 (5.99)

[28] χ^2 = 8.79 with 3 df, which is more than the critical value of the Chi-squared distribution at the level of p= 0.05 (7.81)

slightly significant instances were with watching videos, when significantly more women than men used tablets,[29] and for work where relatively more women than men used laptops.[30]

There were, though, significant differences between men's and women's choices of what they liked and disliked about digital tech.[31] Women relatively more than men particularly liked the way that digital tech helps with networking with other people and finding things out, whereas men placed relatively greater emphasis on making money from using digital tech. With dislikes, women more than men particularly emphasised their potential to cause health problems and access to harmful materials.

In terms of the migration journey, there were few significant differences between men's and women's uses of digital tech at different stages, except during the migration journey itself when fewer women used them very often than men, and likewise more women never used them.[32]

The overwhelming daily use of Facebook, Messenger, WhatsApp and YouTube by both men and women made it difficult to identify many significant differences in their behaviour in terms of the apps used.[33] However, women seemed to have used Facebook significantly less than men,[34] women tended to use Instagram significantly more than men,[35] women used Messenger on an occasional basis or not at all more than men,[36] and women used YouTube significantly less than men.[37]

The key conclusion to be drawn from this analysis is that gender does appear to have some significant differences in terms of how frequently men and women use different apps, their usage of different technologies, and in their likes and dislikes of these technologies. However, this needs to be set against the overwhelming dominance of the use of smart phones for most kinds of activity by both men and women.

Occupational status and usage of digital technologies

It is not easy to calculate reliable levels of statistical significance for the South African data relating to the seven types of occupational status used, because the overwhelmingly consistent responses mean that many cells in the contingency tables have very low frequencies, and it is not easy to combine categories that that would be meaningful if aggregated. For example, in examining whether use of desktop computers (four levels of frequency) might be influenced by employment status (seven categories), 19 of the 28 cells in the contingency table had frequencies of <5, which precludes effective use of Chi-squared. A similar problem is also encountered with the purposes for which different hardware (four categories) are used by

[29] $\chi^2 = 9.60$ with 3 df, which is more than the critical value of the Chi-squared distribution at the level of p = 0.05 (7.81)
[30] $\chi^2 = 8.32$ with 3 df, which is more than the critical value of the Chi-squared distribution at the level of p = 0.05 (7.81)
[31] For dislikes, $\chi^2 = 26.61$ with 7 df, which is more than the critical value of the Chi-squared distribution at the level of p= 0.05 (14.07); for likes, $\chi^2 = 53.04$ with 6 df, which is more than the critical value of the Chi-squared distribution at the level of p= 0.05 (12.59).
[32] $\chi^2 = 12.71$ with 3 df, which is more than the critical value of the Chi-squared distribution at the level of p = 0.05 (7.81)
[33] This is largely because there were so many zeros in the cells for other frequencies of use.
[34] $\chi^2 = 33.51$ with 3 df, which is more than the critical value of the Chi-squared distribution at the level of p = 0.05 (7.81)
[35] $\chi^2 = 15.62$ with 4 df, which is more than the critical value of the Chi-squared distribution at the level of p = 0.05 (9.49)
[36] $\chi^2 = 28.32$ with 3 df, which is more than the critical value of the Chi-squared distribution at the level of p = 0.05 (7.81)
[37] $\chi^2 = 20.91$ with 4 df, which is more than the critical value of the Chi-squared distribution at the level of p = 0.05 (9.49)

migrants, since mobile phones are by far the most dominant category. For playing games, for example, 20 of the 28 cells have frequencies of <5.

Nevertheless, if the occupational category "Not working, but just passing through to another country" is excluded because of the low frequencies relating to this category, it is possible to examine whether migrants in different occupational categories had varying views as to their likes and dislikes of digital tech. Occupational category does indeed seem to be highly significantly related to dislikes of technology,[38] with those in full time work being more concerned about being tracked, those not working being less concerned about health problems and access to harmful material, and all those not in full time work being more concerned about the cost of devices. Similarly, for likes there are significant differences in the data.[39] This appears to be caused in particular by those working full time in the informal sector not prioritising their ease of use (contributing 21% of the total value of χ^2), and those not working or working full-time in the informal sector likewise not prioritising their value for helping migrants make money; those not in formal employment but managing their household and children in contrast prioritised the ease of use of digital tech more.

These nuances in the data provide interesting additional insights into the different priorities held by migrants in various occupational categories. Although most of the differences are logical given the circumstances of different groups of migrants, this does stress once again that there can be considerable diversity within the general category of migrants in their use of technologies, even if there are also commonalities such as the very widespread use of mobile devices.

Migrant countries of origin and usage of digital technologies

This brief section focuses on trying to identify whether migrants from the four main countries of origin (Ethiopia, Zimbabwe, Cameroon and Ghana) used digital technologies in different ways. As with the occupational categories noted above, it is difficult to do this effectively for those questions where there is a single dominant response as with the use of smart phones, but the questions about likes and dislikes of digital tech do reveal once again some interesting responses.

Thus the country of birth does seem to be a significantly differentiating factor for the priority given by migrants to likes and dislikes of digital tech.[40] The biggest contributing factor for the χ^2 figure for likes was that migrants from Zimbabwe valued the role of digital tech for networking with other people relatively more than did those born in the other three countries. There were also important differences relating to the priority given to the use of digital tech for finding things out: those from Cameroon and Zimbabwe prioritised this more than those from other countries, with migrants from Ethiopia not valuing it as much.[41] Interestingly, migrants from Zimbabwe did not prioritise their value for making money as much as did those from other countries.

[38] $\chi^2 = 118.51$ with 35 df, which is more than the critical value of the Chi-squared distribution at the level of p = 0.05 (49.76)

[39] $\chi^2 = 87.36$ with 30 df, which is more than the critical value of the Chi-squared distribution at the level of p = 0.05 (43.77)

[40] For likes, $\chi^2 = 91.36$ with 18 df, which is more than the critical value of the Chi-squared distribution at the level of p = 0.05 (28.87); for dislikes, $\chi^2 = 65.23$ with 21 df, which is more than the critical value of the Chi-squared distribution at the level of p = 0.05 (32.66)

[41] The main dislikes of digital tech reported by migrants from Ethiopia were that they cause health problems (22.09%) and that air-time is expensive to buy (19.68%); interestingly, very few (3.21%) were concerned about how easy they were to lose, and only 3.8% expressed concerns about tracking as being within their top three concerns. Their overwhelming positive likes about digital tech are that it helps contacting people (30.32%), it is quick to find information using them (27.9%) and that they help them make money (18.88%).

Similar difference can be seen with respect to the things that migrants did not like about digital tech. Migrants from Cameroon were thus much more concerned about being tracked than were those from other countries, and those from Zimbabwe were much less concerned about health problems. Those from Zimbabwe were also less concerned about digital tech providing access to harmful materials, but more concerned about how easy they were to lose than were the others.

Conclusions

This working paper has presented the results of an online survey of 297 respondents in South Africa, 92.7% of whom described themselves as migrants. More than half were aged between 31 and 40, and women were generally younger than the men. Just under 60% were from Ethiopia, with other prominent countries of origin being Zimbabwe, Cameroon, and Ghana. Most Ethiopian migrants were men, whilst most from Zimbabwe were women. Nearly 90% of the sample had been living in South Africa for more than five years, and there was a wide range of employment characteristics in the sample. About a quarter of the respondents were working in the formal sector, and around half in the informal sector.

All but three of the respondents said that they used digital tech, and those who did not use it mainly said that this was because of its cost. Smart phones (used by nearly 99% of all respondents on a daily basis) and use of the Internet (94% daily) were the overwhelmingly dominant types of technology used, although two-thirds also claimed to use basic feature phones on a daily basis. Mobile phones were by far the dominant type of device used for all purposes, with the highest usages (all over 98%) being for video calls, text messages, audio calls, social networking and news updates (in descending order of frequency). Respondents also provided many additional comments about the other purposes for which they used digital tech (beyond the 13 categories in the closed questions), especially as a camera and for economic purposes such as buying/selling and banking, as well as transport. One even commented that they used them for meditation and spiritual upliftment.

A particularly interesting feature of this survey were the additional comments that respondents made about what they would like to use digital tech for, but could not do so at the moment. This question was originally intended to shed some light on what we might focus on in developing an innovative intervention to reduce the inequalities associated with migration. However, instead it revealed that many migrants wanted to use digital tech for things that are already possible to do at present if people have the skills to use the technologies appropriately and safely. These included a desire to use them for education and learning, for work, for financial purposes, and for communicating with family members.

Digital tech was mainly liked most because of its use in helping to contact people and to find out information, but they were disliked because of the cost or air-time, and concerns over them being stolen or causing health problems. These concerns over cost of air-time may well be for the reasons noted earlier in this paper about costs of connectivity in countries of origin such as Ethiopia and Ghana for example being considerably lower than in South Africa.

As with our other surveys, there appears to be a clear increase in frequency of use of digital tech from the stage of deciding to migrate to working in their new locations. However, a distinctive feature with these respondents from South Africa is that there was a noticeable dip in the frequency of their use actually during the migration journey, possibly for security reasons and the difficulty of purchasing connectivity actually during the journey through other countries.

Most migrants used apps developed by major US corporations, with very few at all using those from China. As with our other surveys, only a very few had ever used apps specifically designed

for migrants, and those who did claim to do so most often mentioned apps that were actually generic and were not explicitly designed for migrants. The most common app by far was WhatsApp, used by more than 90% of respondents daily, followed by Facebook (81.3% daily) and YouTube (79.3% daily). The dominant position of Meta (parent company of both Facebook and WhatsApp) is particularly striking, and emphasises the potentially powerful role that it can play in the life of migrants. As with other opportunities for free-text format additional information, respondents to this survey also noted a further 30 apps that they used frequently, with the most important of these being Imo, Telegram and TikTok.

The overwhelming dominance of mobile phones in the lives of all migrant respondents makes it difficult to detect subtleties in the influence of particular socio-economic factors on the uses of digital tech, but our exploratory data analysis nevertheless suggests five further main conclusions about significant relationships that are apparent within them:

- Some significant differences were evident in the frequency of use by women and men of different technologies: more women than men used laptops daily but more women than men never used digital TV.
- Gender differences were also evident in terms of like and dislikes of digital tech, with women relatively more than men particularly liking the way that digital tech helps with networking with other people and finding things out, whereas men placed relatively greater emphasis on making money from using digital tech; with dislikes, women particularly emphasised their potential to cause health problems and access to harmful materials more than men.
- The migrants' occupational categories do also appear to be significantly related to their likes and dislikes of digital tech. Those in full time work seem to be more concerned about being tracked, those not working are less concerned about health problems and access to harmful material, and all those not in full time work are more concerned about the cost of devices.
- Likes and dislikes of digital tech are furthermore significantly differentiated in terms of the countries of origin of migrants. For example, migrants from Zimbabwe valued digital tech for networking more, and for making money less than did migrants from other countries.
- Although there are some differences related to the age profile of migrants, especially from different countries, age does not seem to be a significant factor in influencing the use of digital tech.

These findings now need to be combined with our ongoing online and face-to-face interviews and focus groups with migrants in South Africa, as well as insights from the MIDEQ wide survey conducted by other colleagues within the research Hub to gain a more comprehensive understanding of migrant experiences with digital technologies, and what interventions they might like to see that could reduce inequalities associated with migration. Nevertheless, these findings alone already suggest three particularly valuable conclusions. First, *context matters*. Migrants within South Africa come from diverse backgrounds and although smart phones and the internet are the dominant mode of digital interaction, there are subtle differences in the ways in which people from different origins use digital tech. Any interventions must therefore be context specific. Second, the evidence strongly strengthens the conclusions from our previous research that simply *designing another new app will not be particularly valuable*. There are many migrant apps already in existence, and more currently under development with considerably more resources behind them than we could provide. Unfortunately, it seems likely that few migrants will ever use them. Finally, there is some evidence from the survey that migrants also want to use digital tech for things that are already easily available now and quite simple to use, but of which they are unaware or unable to use. Hence, there could be real value in *developing some training resources (both face to face and also online) to improve the basic*

digital skills of migrants (both before their departure and also in-country), focusing especially on their safe and secure use thereof.

We welcome comment from readers on these provisional findings and also on ways of working together in the future on these issues to help migrants engage in the development of digital interventions that can indeed improve their lives.

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