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MAXIMISING GRADUATE DIGITAL CAPACITIES: ADDRESSING THE GENDER DIVIDE AND IMPROVING ACCESS

This brief summarises findings from the first three years of *The Imprint of Education*, a five-year longitudinal cohort study of Mastercard Foundation Scholar Alumni of African descent (from selected countries and cohorts) conducted by the Human Sciences Research Council. The findings presented here should be interpreted as indicative of what has been found so far and are a work in progress. It is important to interpret these findings not as representative of the whole Mastercard Foundation Scholar population but rather of the study population. The study population and methodology are described at the end of this brief.

The Mastercard Foundation Scholars Program is a global initiative designed to develop the next generation of transformative leaders by enabling highly talented, service-oriented young people, primarily young Africans, to pursue their higher education and cultivate their leadership potential. The Program works with educational institutions, ecosystem actors, and Mastercard Foundation Scholars to create the conditions that will enable young people to attain inclusive and relevant education, transition smoothly into dignified and fulfilling work, and lead transformative lives. The Program places a particular emphasis on reaching young women, forcibly displaced youth, and young people living with disabilities who face the highest social and economic barriers to opportunity.

This Spotlight brief presents an overview of the experiences of secondary school and tertiary Mastercard Foundation Scholar Alumni of the Mastercard Foundation Scholars Program who were interviewed between 2020 and 2022 to produce a better understanding of the digital challenges faced by African graduates, as well as the opportunities available to them, so that their digital capacities may be maximised. The findings are based on qualitative interviews with tertiary Mastercard Foundation Scholar Alumni and key informants from implementing partners; as well as a quantitative survey of secondary school Mastercard Foundation Scholar Alumni and tertiary Alumni, called the Alumni Tracer Study (ATS).

During the COVID-19 outbreak, global reliance on internet-based technology accelerated. Subsequently, there were significant developments in artificial intelligence, further speeding the deployment of new

technologies with potential to boost productivity. However, there are profound concerns that the rapid evolution and adoption of new digital technologies will exacerbate current structural inequalities.

KEY STATISTICS

In 2022, **50 percent of tertiary Mastercard Foundation Scholar Alumni** said that the global COVID-19 pandemic had produced positive impacts in terms of the adoption of new technologies.

Tertiary Alumni who studied in Africa were more likely to describe themselves as obsessed with technology (**12 percent**) than their fellow Mastercard Foundation Scholar Alumni living in "the Diaspora" (**7 percent**).

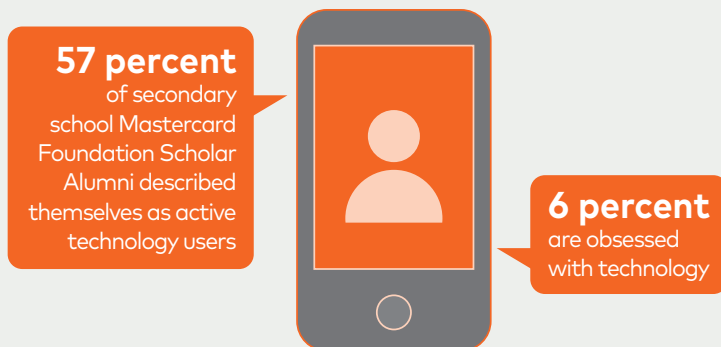
74 percent of secondary school Mastercard Foundation Scholar Alumni reported lacking access to computers in 2022 compared with 12 percent of tertiary Alumni who lacked such access.

Between 2020 and 2022, **85 percent of the secondary school Alumni** who could not access the internet, were female.

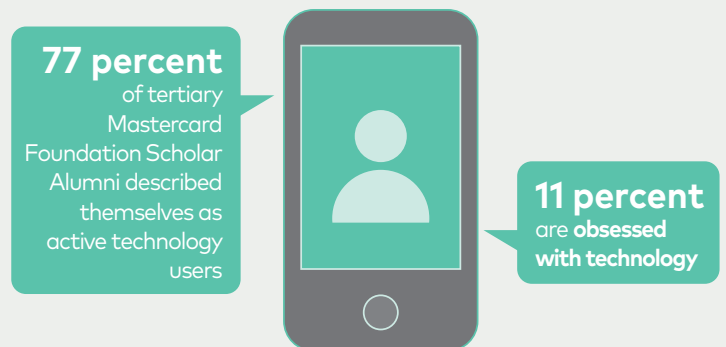
Between 2020 and 2022, the proportion of **tertiary Alumni using LinkedIn rose from 60 percent to 83 percent.**

In 2022, **35 percent of tertiary Alumni and 32 percent of secondary school Alumni** who had started a business, used an app to sell their products or services.

Secondary School Alumni



Tertiary Alumni



Source: 2022 data from the Alumni Tracer Study (ATS)

DIGITAL INCLUSION

During the COVID-19 pandemic, digital devices, networks and platforms became increasingly used as tools for learning; entering the job market; work; and innovation. In 2021 and 2022, an increasing number

of tertiary Mastercard Foundation Scholar Alumni interviewed for the study were positive about the adoption of new technologies for learning as a result of the pandemic (Figure 1).

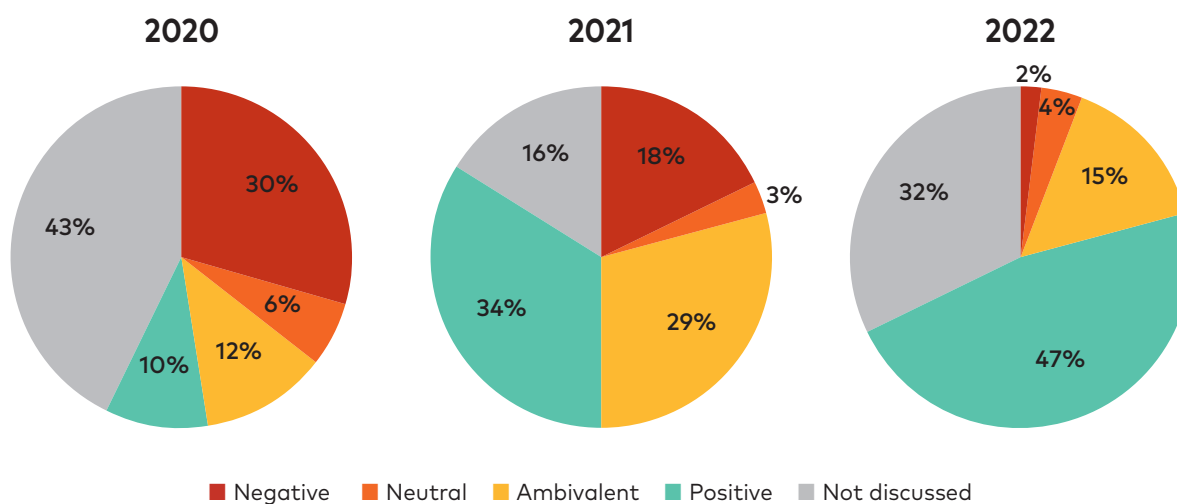


Figure 1: Sentiment analysis: Influence of COVID-19 on technology adoption from 2020 to 2022 (percent Alumni) (2020, n = 122; 2021, n = 118; 2022, n = 106)

Source: Individual In-depth Interviews (2020, 2021, 2022)

In 2022, almost half the tertiary Mastercard Foundation Scholar Alumni interviewed reported that their experience of accessing new technologies had been positive (Figure 2). However, digital infrastructure barriers in Ghana and Uganda appeared

to prevent these respondents to foster their digital skills. Such was not the case in Ethiopia, despite its infrastructural limitations and frequent internet shutdowns. In this respect, a lack of electricity impeded the deployment of new technologies in many parts of the Continent. Meanwhile, Mastercard Foundation Scholar Alumni located off-Continent did not have to contend with the digital infrastructure barriers obstructing the efforts of those on-Continent.

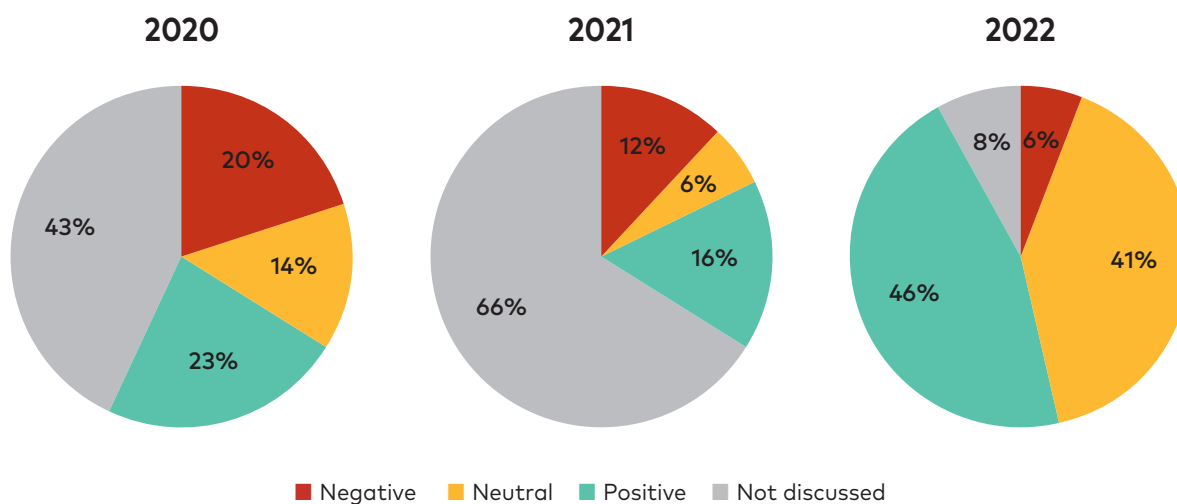


Figure 2: Sentiment analysis: References to accessing various technologies from 2020 to 2022 (percent Alumni) (2020, n = 122; 2021, n = 118; 2022, n = 106) Source: Individual In-depth Interviews (2020, 2021, 2022)

In general, secondary school Mastercard Foundation Scholar Alumni had less digital access than their tertiary Mastercard Foundation Scholar Alumni counterparts (Table 1), potentially indicating the value of the Mastercard Foundation Scholars Program in distributing digital devices to tertiary Alumni (although it was reported that some of these had since malfunctioned). A total of 74 percent of secondary

school Alumni reported lacking access to computers in 2022, compared with just 12 percent of tertiary Alumni. At the same time, most had access to a cell phone; and the proportion of secondary school Alumni accessing the internet rose from 47 percent in 2020 to 76 percent in 2022, perhaps indicating how reliance on new Information and Communication Technologies (ICTs) accelerated under COVID-19.

Table 1: Household digital access among secondary school and tertiary Mastercard Foundation Alumni (percent Alumni)

Digital access	Secondary School Alumni N= 8650		Tertiary Alumni N=839	
	2020	2022	2020	2022
Electricity	67	70	94	96
Computer or laptop	18	26	85	88
Working cell phone	98	97	98	98
Internet access/wi-fi data	46	76	78	85
Bank account	66	76	95	98
Mobile money account	Not asked	93	Not asked	87

Source: 2020 and 2022 data from the Alumni Tracer Study (ATS)

Digital access was gendered. In 2022, 85 percent of the secondary school Mastercard Foundation Scholar Alumni who could not access the internet were female. The main reason cited by them for this was their lack of access to a device.

In response to the COVID-19 pandemic, the Mastercard Foundation Scholars Program initiated an eLearning initiative for its partners through their COVID-19 Recovery and Resilience Fund. Part of the program was to enable online learning; assist scholarship recipients in accessing digital platforms; and address digital connectivity challenges. Nevertheless, key informants noted unclear policy norms regarding data bundle provision and the broader inadequacy

of university policy in light of the actual digital barriers experienced by students when they returned to their home spaces under lockdown. As one noted:

“Data bundles do not equal access because of electricity (challenges) in the rural areas where [the students] have no connectivity, and I feel universities are not thinking about that.”

In addition, in 2020 and 2021, tertiary Mastercard Foundation Scholar Alumni on-Continent who had continued their studies reported difficulties accessing online learning platforms and a lack of the digital skills required for online collaboration and communication.

ONLINE LEARNING

A large proportion of the tertiary Mastercard Foundation Scholar Alumni interviewed in 2020, who were studying further, described the move to online learning in negative terms, indicating a lack of guidelines for navigating the shift that took place and the chaos that ensued on-Continent and elsewhere as a result. Theodora who lived in “the Diaspora” at the time noted:

“The online learning transition was poorly managed and very rushed; the communication with students was poor; and there was no in-person learning despite what was communicated.”

Several key informants questioned the quality of teaching practices during 2020. It was found that the institutions off-Continent were able to focus on addressing concerns around pedagogical quality rather than digital access, which was relatively good. By contrast, the focus among their peers

on-Continent was on ensuring a basic level of digital provision.

In 2022, academic staff talked of the need to integrate new technologies into the learning program in order to foster creative thinking and solution-oriented education. In support of this, the possibility of partnerships and sharing resources among partner institutions was raised.

Outside of the challenges and opportunities presented by the COVID-19 pandemic, tertiary Mastercard Foundation Scholar Alumni spoke about the value of expanding their skills through online platforms such as Coursera, LinkedIn Learning and YouTube as a way of boosting their career prospects. However, some who were undertaking online courses were unable to pay for the certificates acknowledging their acquisition of skills which were offered by the course providers.

ONLINE NETWORKING FOR CAREER AND PERSONAL DEVELOPMENT

In 2021, tertiary Mastercard Foundation Scholar Alumni and academic staff reported that online platforms had become an increasingly important gateway to the world of work. Between 2020 and 2022, the proportion of tertiary Alumni using LinkedIn rose from 60 percent to 83 percent (Figure 3). The platforms that were used could also present technical challenges. For example, the Baobab network was described as useful but busy, making it difficult for tertiary Alumni to find and track opportunities.

Meanwhile, secondary school Mastercard Foundation Scholar Alumni were increasingly using the Mastercard

Foundation's Baobab platform even as their interest in Facebook declined.

However, in addition to encountering problems of access, one tertiary Mastercard Foundation Scholar Alumnus said they were concerned about bias (where some users may be favoured) on career platforms and that they were not necessarily user-friendly. In this regard, a number of Mastercard Foundation Scholar Alumni emphasised the value of, and need for, transparent, unbiased platforms which distribute opportunities among subscribers on an equitable basis.

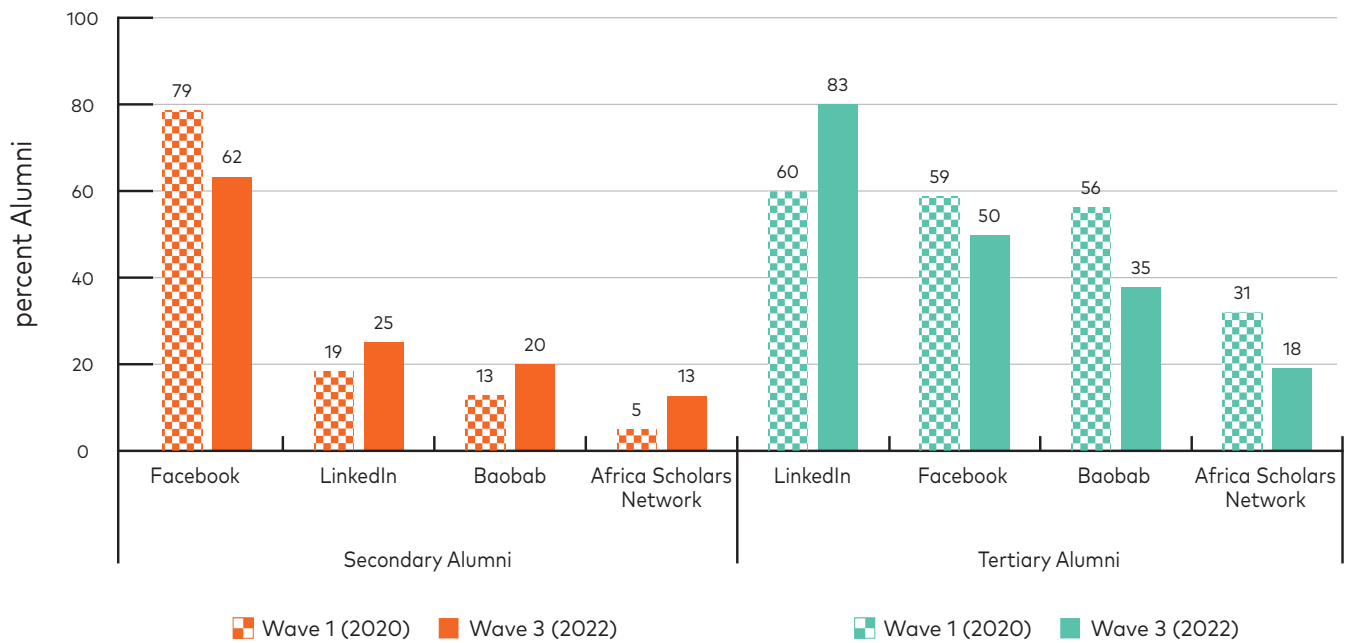


Figure 3: Online network usage by secondary and tertiary Mastercard Foundation Scholar Alumni in 2020 and 2022 (Secondary school Alumni N= 8650; Tertiary Alumni N=839)
Source: 2020 and 2022 data from the ATS

Tertiary Mastercard Foundation Scholar Alumni described establishing groups on platforms such

as WhatsApp in order to share information, resources and opportunities, including in relation to potential employers; and to offer solidarity, guidance and mentorship to each other in relation to the world of work and their personal lives.

TECHNOLOGY FOR LIVELIHOODS

Despite location-specific structural barriers mentioned by the interviewed Alumni, tertiary Mastercard Foundation Scholar Alumni both on- and off-Continent reported a strong appetite for enhancing their technological skills to advance their careers. These skills include the fields of machine learning; blockchain development; data science; and programming in a number of computer languages. They also referred to developing their skills in knowledge management; data privacy; database management; and market research.

At least three interviewed tertiary Mastercard Foundation Scholar Alumni described having developed their own mobile apps; and 35 percent of tertiary Alumni and 32 percent of secondary school Mastercard Foundation Scholar Alumni in the ATS

reported starting a business using an app to sell their products or services in 2022.

However, given the rapid pace of technological advancement, some tertiary Mastercard Foundation Scholar Alumni questioned the relevance of their university training with regard to technology use. In addition, a number of key informants noted that the technology sector was evolving faster than the career guidance counselling on offer, which was described as inappropriate and/or ineffective. Accordingly, a partner from one institution noted:

“[We need] to build and strengthen career advisory services [and] bring in career guidance, for, I may say, job readiness ... to bring out students who are ... fully trained on what is waiting for them in the market.”

KEY TAKEAWAYS

There is a great appetite for consuming advanced digital technologies on the Continent, particularly among tertiary Mastercard Foundation Scholar Alumni. However, in education, at work and as they transitioned from one to the other, these Mastercard Foundation Scholar Alumni reported experiencing a range of vulnerabilities in relation to their capacity to access digital resources. These vulnerabilities were compounded for many of those on the Continent by location-specific, structural digital inequalities. In this regard and notwithstanding their own best efforts to maximise their productive use of digital resources, persistent inequitable digital access and technology usage indicates that greater attention should be paid to the social justice aspects of technological advancements. Accordingly, respondents to the study noted that the establishment of partnerships between and among institutions on the Continent and elsewhere would go some way to addressing the need to share and deploy digital resources, networks, opportunities and platforms in ways that can produce greater equity.

DIGGING DEEPER FOR FUTURE RESEARCH

Further research is needed to:

1. Explore how digital resources are shared among partner institutions in order to foster inter-institutional collaboration, facilitate stakeholder connections; and create new opportunities for graduates in their efforts to access digital resources.
2. Interrogate how new technologies that can identify the shape of things to come in the digital world and what this may mean in terms of employment opportunities may be deployed in support of career-guidance for graduates.
3. Examine the intersection between social justice and technological advancements, including in relation to the impacts of the inequitable distribution of digital access and the need for responsible technology usage. The research should identify strategies to address the systemic barriers perpetuating digital inequality.

NOTES ON THE STUDY

The Imprint of Education longitudinal cohort study has a number of goals – one of which is to understand how Mastercard Foundation Scholar Alumni transition from secondary school and tertiary educational institutions to develop fulfilling lives and livelihoods using data gathered from three sources. The first data source is a quantitative survey of Mastercard Foundation Scholar Alumni of both the secondary school and tertiary institution program who had completed their program in 2017, 2018 or 2019 (called the Alumni Tracer Survey, ATS). For secondary school Mastercard Foundation Scholar Alumni, a cohort was recruited from Ethiopia, Ghana, Kenya, Rwanda and

Uganda based on *where participants had studied*. The tertiary Mastercard Foundation Scholar Alumni cohort was recruited from Ethiopia, Ghana, Rwanda, South Africa, Uganda and what we call “the Diaspora” (African Mastercard Foundation Scholar Alumni that had studied in institutions outside Africa) based on countries in *which they had studied*. Data from the survey conducted in 2020 and 2022 (with administrative data collected in 2021) was weighted to the secondary school Alumni population (8,650) and the tertiary Alumni population (839). The second source of data comprises qualitative in-depth interviews conducted in 2020, 2021, 2022 with

tertiary Scholars (122, 117 and 106, participants respectively) who had graduated between 2014 and 2020 with undergraduate or graduate degrees and who were part of the Mastercard Foundation Scholars Program. Based on where they were *residing* in 2019, these participants were drawn from Ethiopia, Ghana, Rwanda, South Africa,

Uganda and Kenya, and “the Diaspora”). The third source of data was obtained through qualitative interviews conducted in 2020 and 2022 with partners from institutions and organisations that implement the Mastercard Foundation Scholars Program. All names of research participants referred to in this brief are pseudonyms.

THIS SPOTLIGHT PUBLICATION IS BASED ON THE FOLLOWING REPORT:

Swartz, S., Juan, A., Mahali, A., and The Imprint of Education Research Team. (2023). *The Imprint of Education Study: A longitudinal cohort study of African Alumni of the Mastercard Foundation Scholars Program - Year 3 Research Report*. Cape Town, South Africa: Human Sciences Research Council.



This brief was produced in the context of *The Imprint of Education* study that is conducted by the Human Sciences Research Council, South Africa, in partnership with the Mastercard Foundation. The views expressed do not necessarily represent those of the Foundation, its staff, or its Board of Directors.