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RESEARCH ARTICLE

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Digital microwork as a livelihood strategy in a Namibian informal settlement

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Abstract

Unemployment is a serious issue in many areas of Global South. Over the last years, microwork platforms have started to emerge offering opportunities for earnings and promising improved livelihoods. Although the gig economy facilitated by these platforms has been criticized in the literature, we argue that in the context of informal economy, participation on these platforms does not always worsen the livelihood and thus should be examined. This paper investigates the requirements for using such platforms and assesses their applicability in an informal settlement in Namibia. The Sustainable Livelihoods Approach provides the conceptual framework for the research. We devised a simulation by using design science research methods, where the community members were able to complete digital micro-tasks for monetary compensation. The experiment evoked excitement among participants. This paper argues that the digital micro-tasks have promise for the individuals, and elaborates on human, financial, physical, and social capitals required to use these platforms. Finally, we propose a new way, trained peers called “tech mediators,” that can act as facilitators to make these platforms more available for the communities in Global South in the future.

KEYWORDS

design science, Global South, microwork, sustainable livelihoods approach

1 | INTRODUCTION

The lack of secure, productive employment is a serious challenge in informal urban areas in Sub-Saharan Africa (ILO, 2016). Unemployment leads to poverty, which further exacerbates the problems vulnerable populations in the Global South are experiencing (ILO, 2016). Namibia, the country in which this research is situated, is no exception. Namibia is experiencing a continuous growth of informal urban settlements with inappropriate infrastructure, which has led to increased health hazards and socio-economical inequalities (Weber & Mendelsohn, 2017). Furthermore, overall youth unemployment in Namibia stands at an alarming rate of 41.17% (Statista, 2020).

Over the last decade, an increase in online gig economy platforms where people can complete tasks created by other users and earn money has been observed (Parente et al., 2018). These tasks vary greatly from taxi services, such as Uber, to digital micro-jobs, such as Amazon Mechanical Turk (AMT). Some of these jobs are location specific, but some can be (at least in theory) completed from anywhere in the world

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(Heeks, 2017). One has to wonder if these non-location-specific platform jobs could help alleviate unemployment in the Global South (Keskinen & Winschiers-Theophilus, 2020).

Digital platform-based micro-jobs have been criticized in the literature (Martin, 2016; Tan et al., 2020). A common criticism is that workers are turned into independent contractors instead of employees (Malin & Chandler, 2017; Srnicek, 2017). In practice, this means that the workers are moved outside of the many protections and benefits that they would be enjoying as employees. However, they also do not enjoy the freedoms of entrepreneurs, as they are unable to truly refuse jobs or to price their services (Ahmed et al., 2016; Anwar & Graham, 2021).

However, in the Global South, many workers are already outside of these benefits. For example, in Namibia, 57.7% of the workforce is part of the informal economy (Namibia Statistics Agency, 2018). The International Labor Organization's (ILO) definition of an informal economy refers "to all economic activities by workers and economic units that are— in law or in practice— not covered or insufficiently covered by formal arrangements" (ILO, 2015, p. 4). Workers in informal economies already suffer from similar limitations as independent contractors working on these newer platforms. Gig economy platforms could actually offer some improvements, such as more reliable documentation on the parties of the transaction and the pre-agreed price, increased safety, and better working conditions compared to other opportunistic odd jobs with which workers in an informal economy might have to engage (Keskinen & Winschiers-Theophilus, 2020). Thus, we find the possibilities of using digital platform work in the Global South worth exploring.

In this paper, we present the results from a digital worker simulation in the informal settlement of Havana on the outskirts of Windhoek, Namibia. Individuals in the Havana community do not normally use digital platform work to earn livelihoods. We used a design science research methodology, deploying microwork tasks similar to the ones on AMT that the Havana community members could try. The aim of this study was to examine whether microwork could be a sustainable part of livelihoods in the Havana community. We used the *sustainable livelihoods approach* (SLA) to conceptualize our research. This paper contributes to the knowledge base related to digital platform work in the Global South. We artificially created this opportunity for the members of the Havana community to evaluate the possibility of microwork in the long term, which is reflected in more detail as research questions in Section 3.3.

2 | MICROWORK AS A LIVELIHOOD PROVIDER IN THE GLOBAL SOUTH

Multi-sided platforms enable service transactions between different types of users (Hagiu, 2014), supporting what is called the gig economy. Heeks (2017) distinguishes between the physical gig economy, where physical tasks are performed, such as taxi services (Ahmed et al., 2016; Wentrup et al., 2019) or hosting tourists (Keskinen et al., 2020; Lampinen & Cheshire, 2016), and the digital gig economy, where the work is actually done on the platform. This paper is focused on a subset of the digital gig economy—microwork. The area of microwork has been criticized for its unfair treatment of workers (see Anwar & Graham, 2021; Bergvall-Kåreborn & Howcroft, 2014), but it has also been seen as presenting new opportunities for workers in the Global South (Mtsweni & Burge, 2014). According to Drahokoupil and Piasna (2017), the existence of microwork platforms has lowered the bar for entering new labor markets.

Microwork is defined as work in which small piecemeal tasks are not given to any specific individual but are available to be completed by any platform user (Heeks, 2017). Typical microwork includes tasks like organizing playlists, tagging images, moderating content, and transcribing short texts (Casilli, 2017; Martin et al., 2016). In a microwork environment, an employer publishes a task on a platform for a worker to execute (Martin et al., 2014). Completing a single task typically takes seconds to minutes, and the worker usually gets paid a few cents per task (Martin et al., 2016).

AMT is a widely known microwork platform that was established in 2006 (Prassl, 2018). It has been examined in various studies. AMT workers are mainly from the USA and India (Difallah et al., 2018; Hara et al., 2019; Ross et al., 2010). They tend to be highly educated young men and women (Difallah et al., 2018; Hara et al., 2019; Ross et al., 2010). Their average hourly wage is \$2.64 (Hara et al., 2018). Although the salary is low, workers use the platform to earn their livelihood (Kaufmann et al., 2011; Martin et al., 2014). AMT workers are not completely satisfied with the platform, but they feel that they do not need outside help from the media or the government (Martin et al., 2014). They believe that the best way to influence and control the activity on the market is through their own actions (Martin et al., 2014).

2.1 | Critical views of microwork

Gig economy platforms have been criticized for treating their users as independent contractors rather than employees (Drahokoupil & Piasna, 2017; Kenney & Zysman, 2016; Srnicek, 2017). They typically fall under the category of "lean platforms" in a typology presented by Srnicek (2017), as a platform owner's aim is focused purely on facilitating interactions and transactions between the users and not on accumulating other assets. Because platform workers are not in an employment relationship with those paying them, they do not have the security or benefits that a traditional employment association can provide (Srnicek, 2017). Nevertheless, the platforms often have a great deal of power over these users (Srnicek, 2017). Platforms can, among other things, regulate encounters between workers and employers, as well as establish policies

about permitted trade, prevent certain individuals from entering the market and regulate prices (Goldfarb et al., 2015). Digital gig economy platforms are designed to mostly benefit customers (i.e., gig employers) who use the service to outsource work (Irani & Silberman, 2013).

Anwar and Graham (2021) have claimed that freedom and flexibility, which are the central arguments in favor of microwork, are not realized for workers in the Global South. Vulnerable workers have to dedicate much of their daily work time to the microwork platforms in order to make a living. When there is little other work, microworkers often do not have viable alternatives to working with the platforms (Bergvall-Kåreborn & Howcroft, 2014). The outside factors that force workers to use these platforms for their livelihoods are more powerful motivators than the characteristics of other microwork platforms that could otherwise attract workers (Malik et al., 2018). Indeed, the tasks offered on these platforms are typically monotonous (Williams et al., 2019), and the profits are uncertain (Anwar & Graham, 2021). The availability of vulnerable job seekers allows the platforms to continue to act in their own interests rather than building policies that would support workers (Anwar & Graham, 2020).

As platforms threaten workers' rights, interest in securing them and building worker power in the digital labor market has grown (Harmon & Silberman, 2018). There are a variety of websites and tools where workers can share information and experiences about platforms and their employers (Harmon & Silberman, 2018), or can informally organize themselves virtually (Martin et al., 2014). By using these tools, workers can make informed decisions while working on platforms (Harmon & Silberman, 2018). An example of a tool like this is a website called faircrowdwork.org, through which workers can assess working conditions on different platforms from different perspectives (Harmon & Silberman, 2018). *Turker Nation* is a popular forum among AMT workers, where they can share their experiences of working on the platform and with its employers (Martin et al., 2014). *Turkopticon* is a plug-in tool for AMT that allows workers to share and view each others' experiences of AMT employers (Irani & Silberman, 2013).

2.2 | Microwork in the Global South

The role of the gig economy in the Global South has been debated in the literature. While there have been concerns that the platforms could exacerbate the inequalities between the Global North and South (Koskinen et al., 2019), it remains to be seen whether actors in the Global South can produce their own platforms in the future or whether they will continue as only users of platforms from the Global North (Nielsen, 2017).

There have been some encouraging examples of platforms being used to enhance livelihoods (Keskinen et al., 2020). Crowdsourcing platforms have brought economic opportunities to resource-stricken areas in Pakistan, and workers have also formed informal unions and other networks to support each other (Malik et al., 2021; Wood et al., 2019). In China, there has been an emergence of crowdfarming companies that hire individuals on salary to complete tasks for the microwork platforms (Wang et al., 2020). However, crowdfarm workers suffer from more stress than traditional crowdsourcing workers, who can at least enjoy some of the freedoms of independent contractors (Wang et al., 2020).

There have been initiatives by governments in several countries in the Global South, including Nigeria (Graham et al., 2017), Pakistan (Malik et al., 2021), and the Philippines (Soriano, 2021), to adopt microwork and other forms of the digital gig economy as a part of citizen livelihood initiatives. The driving thought has been the promise of microwork platforms to separate labor from location (Graham et al., 2017). In theory, microwork platforms could provide access to global job markets in all locations.

However, many of the concerns presented in Section 2.1 still remain relevant for government initiatives with microwork. These workers still face a power imbalance that is not in their favor (Malik et al., 2021; Soriano, 2021). Although different aspects of these initiatives might appear to be there to support the workers, they actually reinforce the current state (Soriano, 2021). Much of the workforce still fails to earn livelihoods with microwork despite these initiatives (Malik et al., 2018).

3 | RESEARCH FRAMING

3.1 | Research rationale

Recent literature has presented several worthy critiques of the usage of microwork in the Global South, which are presented in Section 2.1. For example, Anwar and Graham (2021) has reported that microworkers from the Global South face being defrauded, low wages, and uncertainty when working for microwork platforms.

However, much of the literature critiquing microwork in the Global South fails to suggest an alternative. Global inequality is a problem so large and complex that it cannot be solved within a single academic research project. The informal workforce in the Global South already faces defrauding, low wages, and uncertainty as they search for ways to earn livelihoods without much social security or regulated employment. Microwork could be a part of their livelihood portfolios, without much of a decrease in their actual working conditions.

In this study, we wished to examine whether microwork could be a beneficial part of the livelihoods of informal settlement residents. There is some promise in microwork as a solution for unemployment in the Global South (Malik et al., 2018). Thus, we strive to explore opportunities for beneficial microwork in practice while acknowledging the concerns addressed in the literature.

3.2 | Sustainable livelihoods approach

The SLA considers vulnerabilities of low-income populations (Duncombe, 2007), such as those residing in informal settlements. Thus, the SLA is a suitable framework for analyzing a potential new way of earning a livelihood in informal settlements. It has been widely used to explore how information and communications technology (ICT) can enable livelihoods in the Global South (Lwoga & Sangeda, 2019). The SLA has been recommended to provide a more solid theoretical backbone for ICT for Development (ICT4D) research (Walsham, 2017). Malik et al. (2018) has used the SLA to describe the impact of microwork in Pakistan and deems it suitable for that purpose. In this study, we used the framework presented by UK Department for International Development (1999), as depicted in Figure 1.

The SLA consists of five elements: vulnerability context, transforming structures and processes, livelihood assets, livelihood strategies, and livelihood outcomes. The vulnerability context describes the threats to livelihoods that are outside of an individual's control. Transforming structures and processes are the outside forces that affect individuals as well as wider contexts. These include institutions but also more abstract entities such as culture. Livelihood assets are the resources that one has, and they have been further divided into five types: human, natural, financial, physical, and social. Livelihood strategies are the concrete ways in which individuals turn livelihood assets into their own context to obtain desired results, such as more income, increased well-being, reduced vulnerability, improved food security, and a more sustainable use of natural resources. These results are represented in livelihood outcomes.

3.3 | Research questions

The aim of this study was to investigate whether microwork could be a beneficial part of the overall livelihood strategies of the Havana community members in Windhoek, Namibia. In order to evaluate this, answers were needed to the following: Do the community members have the means for using microwork platforms to complete tasks and is that endeavor beneficial for them overall?

The SLA offers us tools to evaluate these questions. The skills and resources the community members have are described as livelihood assets. In order to assess the viability of microwork as a part of a livelihood strategy, the required assets needed to be determined. Thus, we present the following research question:

Research Question 1—What livelihood assets are needed to use microwork as a livelihood strategy?

Livelihood assets are turned into desired livelihood outcomes by using livelihood strategies. A livelihood strategy is useless if it does not enable the gain of livelihood outcomes. Thus, to assess whether the potential inclusion of microwork in the livelihood strategies would be beneficial for the informal settlement community members, we present the second research question:

Research Question 2—Does microwork as a livelihood strategy enable the gain of livelihood outcomes?

In our research, we have artificially injected the microwork as a livelihood strategy for the community. The aim of our research project was to create a sustainable model for how the community could support its own projects. We provided training for some community members so that they could support their peers in using digital services (a process described further in Section 3.4). In this research, we examined what sort of transforming structures were required for the community in order for them to be able to use digital services as a livelihood strategy. Thus, our last research question is:

Research Question 3—What transforming structures are needed to support digital microwork as a livelihood strategy?

3.4 | Research context and background

Our empirical study was situated in the informal settlement on the northern side of Windhoek, Namibia. A long-term collaboration was established between Namibia University of Science and Technology (NUST) and the Havana community in 2014. This collaboration aims to improve the quality of

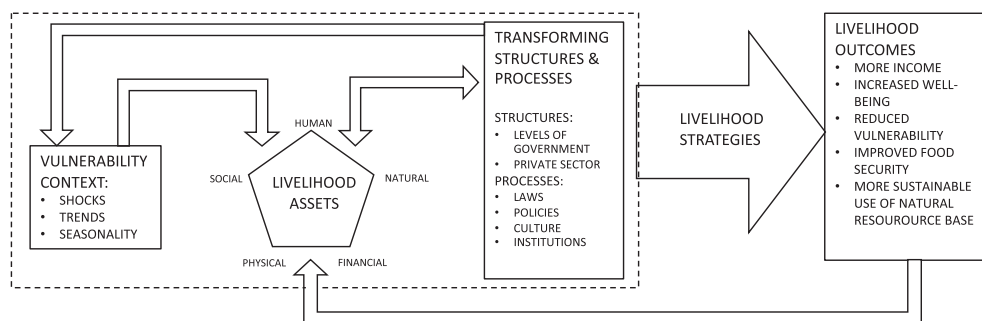


FIGURE 1 Sustainable livelihoods approach by UK Department for International Development (1999)

living in Havana for community members via digital means, especially in consideration of its high unemployment rate and other socio-economic problems. National and institutional ethical approvals were granted for the project as well as its sub-activities, such as the research study presented in this paper.

Over the years, 5–10 community members, who were committed to participating in various service design sessions, were identified as technology ambassadors. They participated in co-design sessions and promoted technology among their fellow community members. Considering the significance of social relations for the adoption of technologies (Kambunga et al., 2018), the concept was taken further with individuals given the title of “tech mediator.” They received training on using global digital platforms and established formal structures that formalized their role in the community. The role and the training are further described in Keskinen et al. (2021). Among other responsibilities, the tech mediators supported their community members in adopting new beneficial digital services that focused on supporting livelihoods. The tech mediators themselves had committed to support the entrepreneurial activities of community members by other means, such as by providing training and offering initial funding with money that had been collected via online crowdfunding initiatives (Arvila et al., 2020).

4 | METHODS

4.1 | Research team

The university research team for the empirical study consisted of a professor from a NUST, who has overseen research activities in the Havana community since the beginning of the collaboration, her local doctoral student specializing in the self-actualization of unemployed youth through co-designing digital services, and a foreign doctoral student who has been involved with the project since 2015.

Besides the university researchers, a group of six tech mediators were co-organizing the microwork simulation in Havana. Three of them were female, and three were male. Their ages varied from 20s to 50s, and were local to Havana. All had participated the trainings described in Section 3.4.

4.2 | Methodological approach

We utilized the full six activities of the design science research methodology process model described by Peffers et al. (2007). In order to study the potential of a livelihood strategy that was not yet present in the community, we needed to artificially insert the strategy into it. As described in Section 4.3, using a real microwork platform in the community was not possible. Thus, we created artificial tasks that simulated what the users could potentially encounter on a real platform. The simulation with the tasks is the *artifact*, which is critical in design science research (Hevner et al., 2004; Peffers et al., 2007).

The overview of the activities is presented in Table 1.

4.3 | Digital microwork simulation

The research activity took place at a community center located within the informal settlement. Prior to the digital microwork simulation in Havana, we met on three occasions with the tech mediator group and explained the concept of microwork platforms. A real platform could not be used in our simulation. Creating an account in one requires an email, a bank account, street address, and so forth, and the participants did not possess many of these requirements. Thus, it was decided that the platform experiment had to be simulated. We created microwork tasks that represented those found on real platforms. We provided devices (laptops, tablets, and smart phones), as well as a cash payment upon completion of a task.

TABLE 1 The summary of the design science research method steps

Activity	Implementation
Problem identification and motivation	High level of unemployment in the Havana community
Define the objectives for a solution	Offer a solution for earning money that is feasible for the users and helps them to increase their earnings. These objectives are encompassed in Research Questions 1 and 2, presented in Section 3.3.
Design and development	The artifact we are using is the simulation of the digital microwork. The design of the artifact is described in this section.
Demonstration	The demonstration of the artifact—our experience in Havana—is described in this section.
Evaluation	The evaluation of the artifact is done through the data described in Section 4.4. The evaluation is presented in Sections 5 and 6. The evaluation of the artifact is reflected in Research Question 3, presented in Section 3.3.
Communication	Publishing this paper

The tech mediator group was responsible for using word of mouth to invite participants from their community to complete the tasks. The respondents were helped by the tech mediators on a first come, first served basis. The mediator group also took very active roles in directing the research activities. They organized the participants into a queue and helped them use the devices according to their needs. Some participants needed minimal direction, while others required the tech mediators to use the digital devices on their behalf while they provided oral responses.

4.4 | Data collection and analysis

The simulation in Havana generated three types of primary data:

1. Results from the microwork.
2. Observations and notes from the simulation site.
3. A concluding group discussion with the organizers.

4.4.1 | Results from the tasks

Preparation of the Tasks: Five tasks were created using Google Forms to replicate the different types that are typically available in microwork platforms. Examples of tasks are shown in Figures 2 and 3. After the completion of the tasks, the participants received a payment of 50 Namibian

Havana form 1

In this task, you are asked to fill a survey, that asks about your thoughts on digital services. All the data gathered here will be handled anonymously.

* Required

Gender *

Male

Female

Prefers not to say

Age *

12-18

18-24

25-34

35-44

45-54

54+

What is the highest grade completed *

Grade 8

Grade 9

Grade 10

Grade 11

Grade 12

Other: _____

What of the following describes best your employment status? *

Employed, working full-time

Employed, working part time

Not employed, looking for work

Not employed, and not looking for work

In school/training/university

Retired

FIGURE 2 Part of Task 1

dollars (NAD) (approx. 3 euros). The payment was part of the simulation to create a more authentic experience of microwork and its corresponding payment. Additionally, a compensation of the participant's time and transport cost was considered appropriate, especially in the context of working with a low-income population (Peters et al., 2014).

It was estimated that a person with basic computer skills could complete these tasks in 20 min. This means that the profits from the tasks were well in line with an above average profit of AMT workers (Martin et al., 2014), as well as a minimum wage of nine NAD per hour in Namibia.

We had two laptop computers, two smart phones and two tablet computers for the participants to use for the completion of the tasks. The URLs to the forms were also given to participants who had brought their own smart phones.

Task 1: The first form consisted of questions that mapped the socio-demographic characteristics of the participants, as well as their experiences in using digital services. The participants were asked about their level of education and their employment status. This task was similar to survey-filling tasks that are common in microwork platforms. The start of the survey is displayed in Figure 2.

Task 2: The second form consisted of 20 bush camera trap photos that portrayed Namibian wild animals. Three photos included several species. The respondents were asked to select the animals in each photo from a list of 10 possible species by using check boxes. There was also an option for a write-in selection, which was intended to be used in two photos. Those photos had rhinoceros and ostriches, respectively, in them, and those animals were not included in the list of animals selectable with the check boxes. Photo recognition is a typical task in microwork, and this task simulated it. The layout is shown in Figure 3

Task 3: In the third task, the respondents were asked to write short descriptions of what was depicted in seven photos, which showed people engaged in various activities. This task was designed to measure the respondents' ability to produce text with a digital device and to also simulate different types of photo recognition tasks

Task 4: In the fourth task, the respondents were shown screen captures from digital services and asked what they would click in order to use different features of the service. On the first day of the field work, the service used was a mobile application designed by a local operator to allow users to better operate their pre-paid mobile subscriptions. On the second day, the service was a web page that offered counseling for the community members, which was created earlier in our research collaboration. This service was changed as we wished to have user input on different services. The alternate task represented a simple usability test that would be possible to realize through a microwork platform


Task 5: The fifth and final task was a survey that recorded the simulation experiences of the participants. For example, the participants were asked to name their favorite and least favorite tasks. The participants were also asked their opinion on the amount of pay they received and whether they would be interested in using this type of service in the future

Havana task 2

In this task, you will recognise animals in these photos. If there are several animals in photo, select all that match. If there is an animal in the photo that is not on the list, select other, and write what animal you see.

* Required

What animal is in picture?



Kudu
 Eland
 Oryx
 Springbok
 Lion
 Zebra
 Hyena
 Leopard
 Wildebeest
 Giraffe
 Other: _____

FIGURE 3 Example of animal selection in Task 2

4.4.2 | Notes and observations from the site

The first author of this paper made observations and audio notes at the site during the activities. These notes included six 10-min mini-interviews with randomly selected respondents, as well as short discussions with other organizers and tech mediators prior to and during the simulation. The audio notes were recorded and transcribed post-situ.

4.4.3 | Group conversation with the tech mediators

On the day after the fieldwork ended, we held a half-hour roundtable discussion with the tech mediators, who helped us in organizing the event. Five group members were present with four university researchers. The discussion was recorded and transcribed post-situ.

The topics discussed in this meeting included the tech mediators' experiences from organizing the simulation. Additionally, future support that the tech mediators could provide for the community members and possible business models to support these activities were also discussed.

5 | RESULTS

We had allocated a budget to pay 100 participants and to maintain a presence at the research site for 4 days. However, due to overwhelming interest from the community in the activities, the simulation was completed within 2 days. We reached 90 participants during that time. In this section, the results from the tasks are presented, as well as the experiences from the simulation from the viewpoint of the tech mediators.

The amount of help required by the participants varied. Some participants were able to do the tasks independently with their own devices after having the URL to the tasks sent to them. Most participants required help in starting the tasks but managed mostly on their own. There were some that needed the tech mediators to use the devices for them, although they could perform the non-technical aspects of the task. How much the individual participants required assistance was not formally recorded. However, for most of the participants, the tasks appeared manageable.

5.1 | Task 1

In the first task, we asked the participants to complete a survey asking for their socio-demographic profile, as well as their experiences in using digital services. We collected 84 correctly recorded unique responses from the 90 participants. Of these respondents, 62% were female and 56% of them were under 35 years old. With regard to their work status, 57% were unemployed, 11% were business owners, 7% were in school or training and the rest, 25%, were employed either part-time or full-time.

Of the total, 54% owned a smart phone, 33% owned a feature phone, and 13% did not own a phone. A large percentage (79%) had access to the Internet through their own device, a borrowed device or a public Internet access point. The biggest challenges in using Internet services were a lack of access to the Internet (mentioned by 33% of respondents) and a lack of access to smart devices (27%). In addition, 15% said that they found computers challenging to use in general, and 12% said that they had difficulties in using digital services due to not understanding the language.

5.2 | Task 2

In this task, the respondents were asked to identify Namibian animals in the pictures by using check boxes that allowed multiple selections and also write-in options. This survey had 88 correctly recorded unique answers from the 90 participants.

The easily recognizable animals, such as giraffes, zebras, springboks, and lions, were generally well recognized. Antelopes, such as kudus and elands, were recognized correctly less often, as they were easily confused by the community members. If the respondents did not recognize the animals, they guessed rather than left the selection blank.

In questions where different animals were in the same picture, there were variations in how the participants responded. In one image, there was both an oryx and zebra, with an oryx in the foreground and a zebra in the background. The zebra appeared to be mixed with the oryx if one looked quickly. Only four respondents correctly selected both oryx and zebra, and one respondent selected oryx and springbok. Other respondents selected only one animal, with most of them selecting oryx.

In another image with more equal positioning between a pair of zebras and a springbok, 49 respondents were able to correctly select both of the animals, and another 11 selected two options with one wrong animal. Another 26 respondents incorrectly selected one animal for this picture.

In the questions in which a write-in answer was needed for a correct response (for the images with ostriches and rhinos), the respondents were generally able to write the answer in a recognizable form. A total of 62 respondents had written the word “ostrich” correctly, with the rest also producing understandable answers such as “Ottrig,” “Ostrich” (using a zero instead of the letter “O”) and “ostritch.” Rhino generated similar results, with 52 correct answers, and several understandable attempts such as “Rihno” and “Rrhino.”

5.3 | Task 3

In this task, the respondents were asked to write a description of what they saw in an image depicting different types of tourist activities. There were 81 recorded responses in total. The quality of responses varied greatly. Some respondents left only very vague, short descriptions. For example, one respondent just wrote “Tourist” on four of eight pictures. However, there were also respondents who were able to write more detailed descriptions, such as “A photographer taking pictures of the elephant.” Misspellings were prevalent, but all the respondents were able to create understandable answers.

5.4 | Task 4

In this task, the respondents were shown screen captures of digital services and asked what button they would push to use different functions. There were different services used on each of the 2 days.

On the first day, screen captures from an application of a local mobile operator were examined by the participants. When they were asked which navigation buttons they would press for specific situations, the respondents were able to identify the right button efficiently. For example, when asked which button to push to learn their credit balance, 39 out of 43 respondents correctly identified the “Balance Overview” button. However, when the goal was less clear, fewer people selected the right button. When asked to identify the function that would allow them to send a message to the mobile operator, only 17 were able to select the “Contact & Feedback” button.

On the second day of the simulation, we introduced a new task in which the respondents were asked to perform a usability test and enter their responses to questions based on screen captures of a digital service that had been co-designed with some community members in previous research interactions. The usability test had 17 questions that were a combination of open-ended and closed-ended questions.

A total of 32 participants completed this task. The respondents were asked what they thought the digital service was. There were 13 responses that identified it correctly as an online counseling service, while 10 identified it as being used for job searching, which was one of the components offered on the platform. In addition, two respondents identified the service as the Internet, one as a service to instruct on the use of the Internet, and one identified it as a service to offer training seminars, which is one of the components listed. Other write-in responses for this question included one each for education, information sharing, play store, advertising, and platform. The respondents were also given scenarios to carry out on the service (e.g., locate a training center) and then asked to rate their experience in completing the task. Afterwards, 13% said it was very easy, 31% said it was easy, 22% said it was fair, 31% said it was difficult, and 3% said it was very difficult. When asked whether they would use the digital service, 81% said yes, 13% said no, and 6% said maybe.

5.5 | Task 5

In the final task, the respondents were asked to complete a survey to gather additional feedback on the tasks. There were 81 recorded responses.

The respondents' favorite task was animal recognition. This was named as a favorite by 63% of the respondents. It was followed by the socio-demographic information survey with 19% and the description of tourists with 13%. The usability testing was the least mentioned task as a favorite, with only 5%.

Of all the respondents, 54% thought that the payment was suitable, 37% believed it was too small, and 9% found it too high. An overwhelming 96% answered that they would be interested in earning money with microwork such as this in the future.

5.6 | Notes and observations

The participants that were interviewed said that they were mostly happy with the amount of payment—50 NAD, approx. 3 euros— they received from the tasks. The participants considered the tasks as an easy way of earning money and something that could be done with few skills. For example, two comments from the interview were “*It is a good amount. This is something that doesn't require most of your time, neither your energy*” and “*It is good because it is beginning for me.*” Two out of six interviewees said that the pay should have been higher. One participant suggested

that they should have been paid at least 60 NAD. Another did not state an exact amount that would have been satisfactory but said that she owned a business and thus needed more than 50 NAD for completing the tasks. All the participants who were asked about the payment said that they would be interested in earning money with tasks like these in the future.

Completing the task seemed to take about 40 min for a minimally skilled user, although this was not formally measured. Due to the limited number of digital devices at the site, the participants had to wait to use them. For the last ones in line, the queue lasted several hours. The participants were informed about the long wait, but practically all of them decided to wait in line to be able to participate.

Most of the participants did not find the tasks too difficult, although one of them explicitly stated that the reason was because they had received good help from the mediators. For some participants, the mediators physically used the devices to enter responses, while the participants actually completed the tasks and provided the answers. One of the tech mediators said, *“Because for them, for typing, we have to literally take over for them... just to tell us what they see and then we type for them because they cannot type at all.”* One of the participants said that she had had computer classes that had helped her to use computers. The task involving text entry in describing images instead of selecting an answer from the list seemed to be the most difficult one for the participants. The participants also struggled with the usability testing task because it required them to enter their answers as text. The participant who stated having had prior computer classes said that she preferred computers to smart phones for text entry tasks.

The tech mediators said that the participants especially had problems when they were using computers as devices. Touchscreens on tablets and smart phones were easier for them to use; for example, a comment was made by a tech mediator, that *“if it's a computer like that one then it's difficult for them to control a mouse and if it's a tablet... still just to press”*. The easiest device for the participants to use was a smart phone. All the participants interviewed either possessed their own smart phone or at least had sufficient experience in using one.

It is worth noting that the short interviews were conducted after the interviewees had been paid for completing the tasks. The interviews (among other points) did intend to assess participants' feelings about the adequacy of the payment for the given tasks, and, therefore, we assumed that the payment per se did not directly influence the unrelated questions in the interview.

5.7 | Group conversation with the tech mediator group

After the simulations with all the participants were concluded, a debriefing session that included the researchers and the tech mediators was held. Overall, the tech mediators were satisfied with how well the simulation as a whole had transpired. For example, one of them said, *“Yes, it was a very good spirit among the community really. What I observed, it was a really fantastic move.”* There were enough respondents, and the group was able to manage the simulation with minimal help from the university researchers. The respondents also seemed pleased. One of the tech mediators said, *“But the outcome was good, and they enjoyed it, and most of them were saying what we want to do in our proposal interests them.”*

Finding participants for the simulation was not difficult for the tech mediators. They sent SMS messages to the people they knew, which generated additional word-of-mouth invitations in the community: *“First, we were sending a message that we are going to have it... that's going on here and later on we brought our people from... well like for me, I brought this... I brought the one lady before and then they found already other people here.”*

The tech mediators mentioned that the respondents seemed to have challenges in using computers: *“And they also need skills to be like, you know, how do they just know about this smart phone but they don't know how to use a computer? It was very difficult even to spell.”* Generating text seemed to be difficult for the respondents. The tasks, such as animal recognition, seemed more suitable for the respondents. However, the tech mediators noted that the smart phones seemed to be more popular among the respondents: *“So most of them prefer the smart phones to do the task.”* There were discussions on whether the tasks could be done purely on smart devices in the future.

Another challenge that was mentioned several times was the language. Some respondents did not have sufficient English skills to use the services, as one of the tech mediators said, *“Some people, they don't understand the language because you have to explain to them... because most of them, they were Owambo and some are Hereros, so we have to explain to them and explain for them to understand, and then they tell you, and then we help them to do the task.”*. This challenge seemed to affect both understanding the instructions and the respondents' ability to produce answers through text.

It was suggested by the university researchers that in the future, the tech mediators could try to find local companies that need respondents for their surveys and then connect these companies with the community members. In that case, the surveys could be in local languages. This

TABLE 2 Summary of required capital

Type of capital	Matching requirements
Human capital	Computer and language skills
Financial capital	Money for initial investments such as a device
Physical capital	Devices, electricity and connectivity, and email address and bank account
Social capital	Social connections to tech mediators and access to word of mouth

activity could provide revenue for both the tech mediators and the respondents. Another suggestion was to try to find a volunteer who would act as a translator.

The final topic covered in the discussion was the role the tech mediators should take in the future. As mentioned in Section 3.4, the tech mediators had received prior training on how to use digital services and how they could support their peers in using different services. The tech mediators demonstrated during this simulation that they could act in that role. One of them explained, “So, because we already know how to do the task, because we were taught last time in NUST, then it was just familiar to us then,” and another stated, “Yes, the mediators, we explained to them and we helped them as well.” One of the researchers said, “Me and [another university team member] did not have too much of a role to play in this experiment. I set up the Internet and [another university team member] stayed in the back office and handed out money, but otherwise we did not have much of a role to play. So yes, you did it.” It appeared that the tech mediators could conduct similar activities in the future independently or with minimal help, as one of them said, “Maybe in the future, I don’t think it will be a problem if people are having somebody like what we are doing now,”

6 | DISCUSSION

In this section, the research questions presented in Section 3.3 are answered.

6.1 | Required livelihood assets

Research Question 1 in this paper was “What livelihood assets are needed to use microwork as a livelihood strategy?” This question is answered in this section. There are five types of capital listed in livelihood assets in the SLA: *human, natural, financial, physical, and social*. We did not observe any *natural capital* requirements in our research. The other types of capital will be presented in this section. A summary of the different types of requirements is presented in Table 2.

Although our research was situated in an informal settlement in Southern Africa, we postulate that the results are applicable to similar settings in the Global South where there are potential users who possess the required livelihood assets. As explained in Section 6.3, the tech mediators were a critical component of our simulation. In our model, the tech mediators facilitated access to the required livelihood assets for other community members. However, microwork can be used as a livelihood strategy without tech mediators if access is accomplished by other means.

6.1.1 | Human capital

Human capital consists of “the skills, knowledge, ability to labor and good health” that are used in earning livelihoods (UK Department for International Development, 1999, p. 18). Our simulation in Havana highlighted that digital literacy skills are required to perform digital microwork and digital services in general.

In performing the tasks, some respondents had difficulty differentiating between radio buttons that allowed only one selection, and check boxes that allowed multiple selections. Some also had difficulty in entering text, and problems using a computer mouse were mentioned by the tech mediators who had helped the participants. Defining and measuring the exact capabilities that microwork requires would require further research. Our study shows that a potential microworker needs some basic computer abilities, such as interacting with a mouse and keyboard and understanding the typical interface elements.

Another area that was cited repeatedly in our data was language skills, namely, adequate English abilities. The respondents had difficulty in understanding the questions and producing responses in English. That the tasks should be offered in local languages was suggested by the mediators in discussions and in the participants’ responses to Task 1. This might be possible in the future if there are more local businesses that would be interested in collecting local data or if automatic translation technologies are developed and introduced to the platforms by their owners, but currently the usage of these platforms requires the ability to operate in English.

6.1.2 | Financial capital

Financial capital refers to the monetary resources that are needed to adopt different livelihood strategies (UK Department for International Development, 1999). While digital microwork does not require a large investment, the users do need access to a device and Internet connection. In our study, 54% of respondents owned a smart phone, but some tasks might be difficult to accomplish with a small screen and without physical input devices. Additionally, access to the Internet requires paying for service.

How much financial capital is needed and whether it is needed prior to receiving money from the platform depends on the practical arrangements that surround the use of a specific platform. In a traditional model in which an individual adopts digital microwork as a livelihood strategy, the user needs the device and connection prior to fulfilling the first tasks, and the payment is received after the completion of the tasks (Amazon Mechanical Turk, 2021). However, there are arrangements, such as crowdfarming companies (Wang et al., 2020), which could help in providing the necessary equipment to workers before they get paid by the platform. The tech mediators expressed a willingness to take a more active role in the organization to help their peers utilize digital platforms, for both microwork and other types, in the future. It is possible that arrangements to lower the amount of the initial investment needed from the individual could be made. These arrangements could include facilities that provide communal Internet access and computers.

6.1.3 | Physical capital

“Physical capital comprises the basic infrastructure and producer goods needed to support livelihoods” (UK Department for International Development, 1999, p. 24). The previous section described that in order to use microwork as a livelihood strategy, an individual needs a device, connection and electricity (Pankomera & van Greunen, 2019). While devices can be brought anywhere by an individual, electricity and connectivity also need to be available, and this is provided to areas by others. While the lack of broadband is a serious issue in many areas of the Global South (Roberts & Hernandez, 2019), mobile connectivity does improve access to the Internet.

In urban areas such as the Havana community, the presence of electricity and Internet connectivity were not issues. However, individuals might have difficulty accessing them. In the study, 33% of the respondents said that they had problems accessing Internet connections. Also, 27% had problems accessing devices. Airtime for mobile devices was readily available from vendors in Havana if the individuals had the financial capital to acquire it.

Our research setting also revealed another, less traditional, form of physical capital that was needed to utilize the Internet microwork services. We had to resort to a simulation of microwork, as the utilization of real platforms would have required the users to have email addresses and bank accounts suitable for global money transfers. Email addresses can be acquired freely with relative ease, but suitable bank accounts might prove more difficult to obtain. We did not examine whether our respondents would have had the required assets to actually be paid by a global digital platform. However, access to banking infrastructure is a known problem for informal sector workers in the Global South (Deen-Swarray et al., 2013), and it could be assumed that not all the respondents in the Havana community would have had the ability to obtain this access. Acquiring an account from a local bank might require assets such as an identification card, a street address, and so forth, that would then be de facto assets required for using the microwork platforms as a livelihood strategy. However, this was not investigated further in our research.

6.1.4 | Social capital

Social capital refers to the social resources, such as networks, memberships, and relationships that are used in the pursuit of livelihood outcomes (UK Department for International Development, 1999). As Osei-Assibey (2015) and Boateng et al. (2014) note, word of mouth is an important way of obtaining information about new digital services in the Global South. Word of mouth was mentioned as the most important way of learning about new digital services in Task 1. A lack of social capital might leave an individual outside of important information channels, and thus mean that they do not have knowledge about existing digital tools their peers might be using.

In our research, this was reflected in particular by the way the information about our experience was distributed within the Havana community. The tech mediators were asked to invite participants, which they very effectively did. We had more interest in participation than we had resources for providing services, and those that arrived early were able to take advantage of them. Thus, it can be assumed that the Havana community members who had prior relationships with the mediators had an advantage in learning about and participating in the simulation; thus, they were able to earn the 50 NAD. Prior work by Kambunga et al. (2018) in the same informal settlement emphasized the specific importance of social influences in adopting technology.

Social capital in the Havana community might have also helped with access to the needed infrastructure. Device borrowing is a well-documented practice in the Global South (Duncombe, 2011). Borrowing a device was mentioned as a way to access the Internet by 12% of the respondents. Good social capital is needed to build trustful relationships that allow device borrowing.

6.2 | Microwork's effect on livelihood outcomes

Research Question 2 in this study was “Does microwork as a livelihood strategy enable the gain of livelihood outcomes?” UK Department for International Development (1999) defines livelihood outcomes as “the achievements or output of livelihood strategies”. In our simulation, we

inserted digital microwork as a livelihood strategy into the Havana community. In this section, we elaborate how this affected the respondents' livelihood outcomes, and thus answer Research Question 2.

There are five possible livelihood outcomes listed in SLA: *more income, increased well-being, reduced vulnerability, improved food security, and a more sustainable use of a natural resource base* (UK Department for International Development, 1999). Another key concept in analyzing livelihood outcomes is the trade-offs among them (UK Department for International Development, 1999). In our case, the key livelihood outcome to focus on is *more income*. More disposable income would allow a community member to *reduce vulnerabilities* and to *increase food security* through creating a financial buffer. However, the negative effects that the platform work might have on the workers have been well documented in the literature (Drahokoupil & Piasna, 2017; Goldfarb et al., 2015; Srnicek, 2017; Wood et al., 2019). Thus, the central assessment when examining the long-term effects of the platforms is whether the increase in income is worth the trade-off with possible *decreases in well-being*. While our research setting did not allow for long-term monitoring of the respondents with regard to microwork, our observations from the Havana community can be used to reflect on the issues that have been raised in the literature.

Our simulation clearly indicates that digital microwork can generate income for the workers in Havana. The best indicator is the ample interest that the simulation generated in the community. We had as many respondents coming in 2 days that we had anticipated to have in a 4-day period. The monetary reimbursement was the only tangible reward that the respondents received for participation, and thus there was no other clear reason for the respondents to participate in the simulation. The respondents received 50 NAD from about 40 min of work, which appeared to be suitable pay in the local context. The payment was in line with the typical global earnings from microwork. However, many respondents had to wait in line for hours to access the devices, which severely lowered the "hourly" pay in terms of the actual time they spent because they were unable to perform other activities. In a real setting, the waiting time could be minimized, which would mean a better payment rate for the workers. Only 27% of respondents were either working full-time or entrepreneurs. It can be assumed that the remaining 73% had some free time that they were willing to trade for compensation through platform work if it were a possibility.

Threats of individual contractor relationships replacing regular employment have been suggested in the literature (Schwellnus et al., 2019). This downgrade would clearly lead to a decrease in well-being, as it would likely increase stress and lower payments (Berger et al., 2019). However, it appears that many in the Havana community that participated in the study were not experiencing the benefits of regular employment. Strictly from their viewpoint, it is difficult to see what sort of decrease to well-being the adoption of digital microwork as a livelihood strategy would be, as there are few plausible alternatives for them currently.

From a larger societal viewpoint, the widespread adoption of platform jobs might nonetheless be problematic. Entrepreneurship is sometimes seen as a silver bullet that magically fixes living conditions in the Global South and liberates governments from the responsibility for improving them (Jeffrey & Dyson, 2013). The platforms are already built primarily to serve and benefit their owners and their paying customers, who are the work requesters (Drahokoupil & Piasna, 2017). This could lead to a situation in which citizens in the Global South are increasingly expected to participate in platform work, which could create an opportunity for platform owners to take advantage of their circumstances to keep payouts for work low. This scenario would be harmful for societies, which would in turn affect already marginalized communities, such as Havana, in the Global South.

In summary, the answer to Research Question 2 is that microwork would currently have a positive overall impact on the livelihood outcomes in the Havana community if it is adopted as a livelihood strategy. However, there are threats in platform work that might negatively affect the well-being of workers in the long term, and these threats need to be monitored.

6.3 | Mediators as transforming structure

Transforming structures and processes in SLA are the outside forces that shape livelihoods, including tangible organizations and governments (structures), but also more abstract factors, such as culture and laws (processes) (UK Department for International Development, 1999). Research Question 3 for this study was "What transforming structures are needed to support digital microwork as a livelihood strategy?" In this section, this research question is answered.

As mentioned in Section 3.4, there has been prior work done as a collaboration between the Havana community and NUST. The goal of the collaboration has always been to help community members improve the quality of their lives with digital services. In terms of the SLA, this collaboration has become a supporting structure for the Havana community. However, the collaboration aims at making this structure self-sustainable and eventually governed by the Havana community itself. Thus, in this section, we focus on the tech mediators that had been trained to help their peers with using digital services, as they were staying in the community and formed a more sustainable transforming structure for the community members than a university collaboration, which is volatile to outside turbulence, such as cuts in funding. We examined the tech mediators' status as a transforming structure and considered the potential role they could take in the future.

Transforming structures affect the pursuit of livelihood outcomes and the livelihood strategies employed by affecting the livelihood assets as well as the overall vulnerability context of the community or individual (UK Department for International Development, 1999). It is not realistic to

expect the tech mediators to have a large impact on society at a scale at which they could really influence the vulnerability context; therefore, we focus our examination on livelihood assets. We have outlined the needed livelihood assets in Section 6.1.

It was determined that the *human capital* needed to use microwork as a livelihood strategy was related to digital literacy skills and language skills. The mediators had been trained to support their peers in using digital services. In our simulation, they also helped the respondents who lacked sufficient English skills. Increasing human capital through the training of peers was part of the core of the mediators' role.

The *financial capital* needed for the microwork is tied to an initial investment in the devices that are required. This simulation was mostly conducted with devices that we brought to the Havana community. In the future, it would be viable to equip the tech mediators with devices that they could then share with interested peers. This device rental could provide mediators with funds that they need to continue their operations. The possibility to borrow or rent communal devices decreases the amount of financial capital that would be needed by individuals in the community to start doing microwork.

Infrastructure for *physical capital* in the form of electricity and connectivity were largely in place in the Havana community. However, the community members might lack access to this infrastructure due to its cost. In the simplest form, the devices the mediators could be sharing with the community members could come fully charged and equipped with airtime. The mediators could buy these assets from other small actors in Havana with the capital they receive from the rentals. As part of the last university collaboration, an Internet cafe was built, which is now run by the tech mediators. Basic computer equipment as well as an Internet connection have been sponsored by a local telecommunications company. Thus, the tech mediators still need to ensure that the cafe becomes self-sustainable in operation.

The *social capital* that is required for the microwork comes in the form of connections with other community members, who can provide assistance and information that is needed. A community member's connection to tech mediators is itself the social capital required, as the tech mediator's role includes providing information and assistance to their peers. To maximize the number of community members who are able to connect with the tech mediators, the tech mediators could be more active in reaching other community members. In the future, if the operations are financially sustainable, the mediators could also organize outreach campaigns by using flyers or other methods of advertising their services.

6.4 | Realization of digital work in Havana

Having outlined the different capital required in general, we briefly revisit the setting in the Havana community and the planned actions by the tech mediators as discussed in the post-simulation meeting. The Havana youth cafe serves as a physical space that provides connection to the Internet and access to digital devices for the Havana youth. Thus, the tech mediators will be working in shifts with the support of university interns to allow for maximum time access. They are equipped with skills to support fellow community members and can contact the NUST for additional skill training.

The biggest challenge is to ensure the future self-sustainability of the cafe operation. At the time of the study, one of the telecommunication service providers was supporting activities, which is continuing; more industry partners that may be able to provide services, such as local surveys or other digital work, will be identified by the tech mediators. The existing collaboration with the NUST also needs to be expanded university-wide, which was discussed among the associate deans. Thereby, the cafe can become a learning, research and development space that can benefit from more third-party funding. The exploration of multiple sources of income and revenue-generating activity appears to be a key characteristic of the tech mediators' activity.

Our findings suggest that the introduction and continued offering of microwork in vulnerable communities offers opportunities but at the same time faces several challenges. An important aspect of income generation and continuing employment is motivation towards the content and the experienced value of the work for the worker. A future study could focus on individually and culturally valuable work activities. Such an analysis could elaborate more on the motivational aspects about work offered by the digital microwork platforms.

In this article, we have not delved into motivations beyond increasing the financial situations of community members. Recent reports on microwork do not yet report on the success of such initiatives at a detailed level. Challenges appeared in providing continuing support for the workers after setting up the microwork facilities. With the tech mediator concept, we wished to address some barriers presented by Malik et al. (2018), namely access to infrastructure and cultural issues. Tech mediators can help community members gain access to devices and can increase the trust and acceptance of the technology in their communities (Kambunga et al., 2018).

The concept of the youth cafe could build on the success story of the Reconstructed Living Labs (RLabs), an award-winning South African non-profit company, established in 2009 in Bridgetown, Cape Town (Parker et al., 2013). Its mission has been to reconstruct communities through creating environments and systems where people are impacted, empowered and transformed through hope, innovation, technology, training and economic opportunities. The model has expanded to 23 countries across five continents, impacting more than 15 million people. RLabs Namibia was established in 2012 under the auspices of the Namibia Business Innovation Institute and has since trained nearly 1000 youth, among them youth from the Havana community. Concerning the support of microwork in the youth cafe, M4Jam from South Africa could also serve as an example or even beneficial partner organization. M4Jam is a microwork platform that has specifically focused on working with marginalized communities. Thus, the actual realization of establishing digital work as a livelihood strategy in Havana is possible and will be pursued. Since the completion of the study, the tech mediators have been engaged in the development of a website as part of an e-commerce platform to advertise their services.

7 | CONCLUSIONS

Despite their issues, microwork platforms are promising in providing and creating livelihoods in the Global South. There is often a lack of regulated employment in emerging economies, which forces a number of workers to engage in informal economic activities without much protection. A lack of resources in nearby neighborhoods hampers opportunities to earn money locally. Digital microwork platforms allow workers to access global job markets.

In this research, we have examined the possibilities of introducing digital microwork into the informal settlement of Havana. We organized a simulation of microwork, where the respondents were able to complete small digital tasks and earn some money. Our simulation generated much enthusiasm, which suggests that there is potential interest in using real platforms for earning money in the future. By using the SLA as a conceptual framework, we defined the resources needed for using the platforms. We also assessed the long-term effects of the microwork and conceptualized the support that was needed from outside forces in order for the Havana community members to use microwork in the future.

Our research shows that in order for individuals to utilize microwork as a livelihood strategy, they need basic digital literacy and English language skills, access to devices, the Internet, email and bank accounts and knowledge of these possibilities. Although there have been appropriate concerns raised in the literature on the effects that platform work could have on societies both in the Global South and North, it appears that at the present time, digital microwork could be a promising addition to the means that Havana community members have in informal job markets for earning daily livelihoods.

However, before the microwork can be fully utilized, access to required resources needs to be established. We had to use a simulation instead of real existing platforms, because we could not expect that all the interested respondents would have access to the required infrastructure, such as bank accounts suitable for use on the platform. We have suggested a model—tech mediators that are trained individuals who could act as a human interface towards digital services. These trained individuals played a crucial role in operating our simulation.

This research was limited by it being a simulation conducted in only one community. In addition, we had prior collaboration with the community, which had affected the skills and resources some individuals in the community might have already had. However, in general, we believe that Havana is comparable to other informal settlements in the Global South, and there is no particular reason why these results could not be replicated in other similar communities. The training that was given to the mediators has been documented; thus, our activities can be repeated.

In the future, more research is needed on the real long-term effects that microwork has on communities. Our initial assessments suggest that the possibility of earning from platforms is a positive change for Havana community members. However, increasing reliance on global labor platforms might prove problematic for both individual communities and societies at large, as it shifts more power from local governments and to the private companies that own those platforms.

Digital microwork platforms can be a positive tool for addressing serious problems in the Global South, and the progress of various infrastructures makes them available for an increasing number of people in the Global South. Ensuring that they are fairly used is a worthwhile challenge for both academics and practitioners.

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CONFLICT OF INTEREST

No conflicts of interests to declare.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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