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# Crowdwork as an Elevator of Human Capital

## A sustainable human development perspective

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**Abstract.** Work is a key element in the UN Sustainable Development Goals (SDGs). Crowdwork is a new way of working defined as a paid, digital platform-enabled form of work based on crowdsourcing model. Previous research on crowdwork narrowly considered its direct and immediate economic impact on individual workers overlooking its broader sustainable impact. This study goes a step further and adopts a wider sustainable development approach to examine the relationship between crowdwork and the sustainable development of the workers involved. It questions whether crowdwork contributes to the sustainable development of workers, and if so, how? An inductive research approach is adopted, and rich qualitative data was collected benefiting from a unique access to crowdworkers. The study reveals that crowdworkers develop three types of skills in the process of crowdwork namely; domain, platform and business skills. It highlights that these developed knowledge and skills are transferred from crowdworkers to other workers and other work settings. Furthermore, it traces and identifies the process through which crowdworkers develop and transfer these skills and knowledge and categorises it into three stages of Reactive Exploitation, Proactive Expansion, and Transfer. The study concludes that this process contributes to a more sustainable human resource development not only for the crowdworkers involved but for others as well contributing to the sustainable social and economic development.

**Key words:** crowdwork, digital labour, Platform employment, crowdsourcing, New Ways of Working, gig work, Sustainable Development Goals, Nigeria

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## 1 Introduction

The Sustainable Development Goals (SDGs) are developed by the UN to highlight “the global challenges we face” and provide a “blueprint to achieve a better and more sustainable future for all” (UN.org). They are a global concern and a responsibility shared by all countries regardless of their level of economic development. Work and employment are key areas of concern in the Sustainable Development Goals (SDGs). Indeed, target five (5) of SDG 8 (Decent Work and Economic Growth) states the goal of achieving “full and productive employment” and increasing the employment opportunities particularly for young people (UNGA015). Crowdfwork is a new way of working that adopts the crowdsourcing model and describes paid work that is carried out digitally and delivered entirely online mediated by digital platforms (Dahlander and Piezunka 2017; De Stefano 2015). Crowdfwork platforms like MTurks, Upwork, Freelancer.com, CrowdFlower and Fiverr facilitate access to work through connecting employers and workers from geographically dispersed locations. They offer Micro-tasks like image tagging/labelling, questionnaire completion, or Macro-tasks like web design, software and mobile application development. The use of these digital platforms for work is growing exponentially for various reasons enabled by the widespread connectivity to the Internet (Howcroft and Bergvall-Kåreborn 2018).

Prior IS research has “mainly taken an organisational perspective of crowdwork” (Durward et al. 2020 , p.67) to examine strategies, value creation and risks including the aggregation and decomposition of tasks, coordination, control and leveraging workers’ motivations to achieve high retention. While the majority of IS research has focused on functional and economic goals (Sarker et al. 2019), the calls for focusing research and industry on SDGs invite a wider perspective that includes understanding of workers, communities and societal strategies, value creation and impact (Henriksen et al. 2020).

There are currently two opposing arguments regarding crowdwork and development. *The first argument* considers it an opportunity for people to find work from global pool of employers and hence a possible way to reduce unemployment problems. This view is adopted by governments and international organisations who have recently acknowledged the potentials of crowdwork as a source of employment that could open opportunities to people from developing countries to join the global labour market, while they continue to live in their own countries and contribute to their own local economy (European Parliament 2017; ILO 2018; Kuek et al. 2015; Zakariah et al. 2016). Indeed, the International Labour Organization, World Bank, and international donors promote it as an opportunity to reduce the threatening unemployment problem particularly in developing countries. This view is also adopted by business that find

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crowdwork mutually beneficial for employers and workers. On one hand, workers get opportunities to work, access to international employers and earn income (Bhandari et al. 2018; Kohler 2018; Wazny 2017). On the other hand, employers get access to a pool of global talent beyond geographical borders, faster recruitment and turnaround of required tasks in addition to light employment commitments, which together can contribute to reducing employers' operating costs.

*The second argument* adopts a Marxist political economy conception of capitalism and the exploitation of workers by owners of the capital and means of production. This argument highlights the power of digital platforms and the algorithmic management of workers and emphasises the possibility of subjecting workers to a race to the bottom in payment as they desperately seek work (Graham et al. 2017a; Moore and Joyce 2019). Both arguments, while conflicting, are providing a narrow perspective focusing on the immediate economic benefit of work in terms of pay. They overlook the sustainable impact of this new model of work on the development of workers' and their social context. This is despite the key role human capital play in development and the consequent importance of human resource development in this regard (Lucas 1990; Nafukho et al. 2004). Indeed, opportunities to develop knowledge and skills in addition to acquiring relevant experience are important aspects of work that impact individual's employability, opportunities for accessing work and future employment prospects (Barnes et al. 2013; Barnes et al. 2015). Importantly, they are key resources and human investments that enhance the labour force and increase productivity for individuals and organizations and promote growth and development at the societal and international levels (Lucas 1990; Nafukho et al. 2004; Unger et al. 2011). Indeed, understanding the impact of crowdwork on human capital and in particular the process of human resource development is key to the examination of its contribution to the sustainable development of employees and communities.

Human Resource Development (HRD) is "a major component of and contributor to national development and competitiveness" (Paprock 2006, p.18). It is "essential in the role it plays to increase the overall performance and the growth" of individuals and society (Sydhagen and Cunningham 2007). HRD is defined as "any process or activity that, either initially or over the long term, has the potential to develop ... work based knowledge, expertise, productivity and satisfaction, whether on personal or group, team gain, or for the benefit of an organization, community, nation or, ultimately, the whole humanity" (McLean and McLean 2001, p.322). It includes activities such as training and knowledge development to improve individuals, groups, communities and nation's technical and productive skills which in turn contributes to their full participation in the process of national development. The United Nations Development Program's

Human Development Index emphasises that “people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone”. Therefore, it includes knowledge, education and training as key human development aspects (UNDP 2019).

Against this backdrop, it is important to move the discussion forward from only considering direct and immediate economic impact such as pay, to include a broader view that takes HRD seriously as a key aspect of work related to capacity building, skills and human development. Hence, this study aims to answer the questions of whether crowdwork contributes to the sustainable development of workers and if so, how? To answer the research questions, we adopt an inductive approach of inquiry to understand the lived experience of workers in developing countries where skills and human development is key to their sustainable development and is one of the major challenges they face. Previous research shows that human development, despite poor economic growth and conditions, could lead to a virtuous development cycle while bad human development, despite good economic growth, lapse into a vicious development cycle and that “human development” should be given sequencing priority” (Ranis et al. 2000, p.197). This led the Human Development Index to shift focus of development from national income to “people-centred policies” (UNDP 2020). Rich qualitative data comprising interviews, observations, website and labour platforms reviews, observation of social media groups and closed WhatsApp groups was collected. Data was collected in Nigeria. Nigeria is a particularly interesting example since it is the most populous country and with a significant influence in Africa. It is ranked 158<sup>th</sup> among 189 countries, according to the Human Development Index in 2020, with high economic inequality where 20% of population possess 65% of national assets; hence economic growth does not contribute to reducing poverty or improving access to services such as education (Lompo and Trani 2013). The data analysis follows an inductive research process focusing on the phenomenological understanding of crowdworkers’ lived experience (Sanders 1982; Wilson 2002).

The research identifies three types of skills being developed in crowdwork: domain skills, digital platform skills and business skills. It also reveals three stages through which these skills and knowledge are developed namely: reactive exploitation, proactive expansion and transfer. The study contributes to the literature on crowdwork and development by bringing to the forefront the question of sustainable development and in particular human resource development, and shedding new light on the potential of crowdwork on human resource development. It also contributes to IS research on crowdwork by expanding it and moving beyond the current platform perspective and assessment of economic value to examine its human development value. In doing so,

the study opens up an opportunity for IS researchers to engage with sustainable development thinking.

The paper consists of six sections. Following the introduction, section two reviews the literature on crowdwork and discusses the human capital and HRD basis of the study, section 3 the research methods. Section four presents the findings and section five provides a discussion of the findings. Section 6 concludes and elaborates further on the theoretical and practical contribution of the research.

## 2 Related research

### 2.1 Crowdwork and online work platforms

Crowdwork is a new way of working that is based on the crowdsourcing model and presents one of the aspects of the so-called digital economy. While crowdsourcing is a broad phenomenon that includes paid and non-paid work from an unidentified large number of individuals, crowdwork is one specific type of crowdsourcing (for further classification see, Taylor and Joshi 2019; Durward et al. 2016). Crowdwork is paid work where potential workers subscribe to digital platforms, respond to employers open calls for conducting tasks and where all tasks are digital tasks that are conducted and solely exchanged via digital platforms for direct monetary payment. Crowdwork includes micro and macro tasks. Micro tasks are small, marginal and largely repetitive tasks that typically takes short time to accomplish and could be conducted by the mass with little need for specialised skills. In contrast, macro tasks are associated with larger tasks that require higher levels of specialised skills and expertise to complete and take a longer time to accomplish. As crowdwork is conducted fully on digital platforms, it differs from other platform-based work, such as Uber, Deliveroo and others, which are App-based work where the work itself is conducted off-line. Examples of digital platforms for macro-tasks crowdwork includes Freelancer.com, Upwork and Fiverr while Mechanical Turks is an example of a micro-tasks digital platform. In macro-tasks crowdwork, digital platforms provide the opportunity for individuals with the requisite skills and expertise to work on a wide range of tasks related to information technology (IT) and business services for employers in different geographical locations worldwide (Kittur et al. 2013). Some of the services commonly provided on these digital platforms include image creation, graphic design, web design, app development, software testing, branding, product design, data entry, content creation, and market research (Bhandari et al. 2018). However Kassi and Lehdonvirta (2018, ) analysis of four major crowdwork

platforms show that technology and software development account for 53% of all the crowdwork jobs posted and completed (Kässi and Lehdonvirta 2018). To sum up, in its macro-tasks form, crowdwork provides task-based employment for skilled knowledge workers where they obtain and deliver their work online through digital platforms.

Crowdworkers are not part of any single organisation and could participate on more than one digital platform. The role of the digital platform could vary from one platform to another. However, in general for knowledge macro-tasks, digital platforms mediate the relationship, interactions and economic transaction between employers and workers (Kenney and Zysman 2016). They also play a managerial role in recording and aggregating the performance of workers in terms of number of tasks conducted, employers' satisfaction score, time takes to conduct tasks, and other measures and metrics. A key determinant of a workers' proficiency in this context is their reputation score which is assigned by the digital platform and is typically calculated from the aggregation of employers' feedbacks and platform reputation algorithms (Vakharia and Lease 2015; Whiting et al. 2017). On some digital platforms, workers with the highest score are given a label that identifies them as proven experts, which makes it easier for employers to evaluate the capability of a worker before awarding a project. The more positive reviews a worker garners and the higher the reputation score, the greater their chance of winning future bids. Beside employers' feedback, few crowdwork platforms require workers to undergo general tests such as language competency tests or subject-specific tests such as software testing and content creation tests (Vakharia and Lease 2015).

While crowdsourcing has received considerable attention, research on this specific type of crowdwork is in its infancy (Howcroft and Bergvall-Kåreborn 2018). Current research has focused on defining the phenomenon, identifying the demographics and nature of work offered. IS research has largely adopted the employers' perspective, exploring aspects of designing and management of digital platforms, motivation and retention of workers, control and coordination (Gupta et al. 2013; Gol et al. 2018; Gerber and Krzywdzinski 2019), while employees perspective has little consideration (Idowu and Elbanna 2020b) due to practical difficulties regarding accessing them. Even when workers are considered, research mostly examine micro tasks particularly on Mechanical Turks (Durward et al. 2020; Ross et al. 2010). Most research also adopts statistical and positivist approaches to examine the demographics of crowdworkers, classification of available jobs, work conditions and possible policies, and worker resistance. This stream of research finds that whereas some crowdworkers may be uneducated and low-skilled, the majority are educated and highly skilled (Mo et al. 2018). According to Schweissguth (2014, ), over 50% of crowdworkers held bachelor degree qualifications, and 20% had a master degree. Most importantly, crowdworkers tend

to be young knowledge workers, highly specialised and knowledgeable in their area of expertise (Berg 2015; Kazai et al. 2012). Research also showed the change in workers population shifting from moderate-income developed countries to developing countries (Ross et al. 2010). Research on work conditions and policy has focused on income security, job satisfaction, motivation and turnover (Berg 2016; Deng and Joshi 2016; Schörpf et al. 2017). However, valuable in defining the boundaries and characteristics of the phenomenon, there remains a gap in understanding the impact of crowdwork on human capital and human resource development.

The development aspect of crowdwork has received very little attention. The very few studies that examined the context of developing countries have adopted a classic Marxism view on the struggle of the working class and the exploitation of capitalism (Graham et al. 2017b; Graham et al. 2018; Graham et al. 2017c). These studies raised concerns regarding fair payment and driving a race to the bottom. While these are important issues for SDGs, they maintain a narrow focus on pay as a form of direct economic development overlooking other aspects of development including HRD. While pay is linked to economic development, other aspects of development have been overlooked including human development. Understanding the impact of crowdwork on the development of workers is an area worth research attention considering the key role human capital plays in development. Closely examining workers experience and understanding the details of their work practices is much needed to complement and inform the debate on its developmental value.

## 2.2 Human capital theory and the concept of human resources development

The human capital aspect of the workforce refers to skills and knowledge acquired from investments in education, training and other types of experiences (Becker 1964; Unger et al. 2011). It involves learning in general term and specific training for a job including on-the-job training, experience and practice. Human capital theory is a well-established economic theory that maintains that people's skills and knowledge are a form of capital that are of comparable value to other resources involved in the production of goods and services into which additional investments yield additional outputs (Becker 1964). It highlights and measures the positive relationship between investments in human capital and economic value and outcomes and emphasise both skills acquisition and transfer as facets of human capital (Unger et al. 2011). It considers human capital as a key economic growth factor and highlight the large skill deficit in developing countries (Hanushek and Woessmann 2008). Hence, human capital investments including

education, experience, knowledge and skills are important investments that enhance the labour force and increase productivity of individuals and organisations, as well as encouraging growth and development at the societal and international level (Nafukho et al. 2004).

The human capital theory provides the economic rationale for research and practice on human resource development. Based on this theory, human resource development has received considerable attention on organisational, societal and international levels (Aliaga 2001; Unger et al. 2011) and is recognised as a key differentiating factor of development (Lucas 1990). Human Resource Development is the process of increasing the skills, knowledge and capacities of people in organisations and society to prepare individuals and populations for increased productivity at work as well as in society at large (Horwitz et al. 1996; Jackson 1999). It plays a key role on increasing performance, productivity and growth of individuals and society (Sydhagen and Cunningham 2007). Studies of National Human Resource Development (NHRD) emphasise that “the people skills of a nation are ... hidden assets and capital critical not only to the economic goals of modern societies but also essential to attaining their social, political, and economic goals” (Paprock 2006, p. 16) which are sustainable. Hence, HRD is considered an effective investment in the development of the economy as the investment in knowledge, learning and skills brings economic returns to individuals and nations and the accumulation of knowledge and skills enables individuals to increase their productivity and their earning and, in doing so, to increase the productivity and wealth of the societies they live in (Harbison and Myers 1964). Moreover, Harbison and Myers (1964, p.13) assert that HRD “is a necessary condition” for modern societies to achieve their political, cultural, social as well as economics goals. HRD take place through formal education, on the job training and self-development that increase the working capacities and capabilities.

However, in the context of development, there are two types of challenges associated with HRD that developing nations suffer from and need to tackle. The first is related to the underdevelopment of skills, knowledge and talent of people, and the second is related to the underutilization of their energies and capabilities (Paprock 2006). Although much has been written about the HRD needs and challenges in different societies and in particular in developing nations, very little has been understood about how the new model of crowdwork contributes to HRD in societies.

### 3 Research methods

This research adopts an inductive qualitative approach to inquiry, focusing on the phenomenological understanding of crowdworkers' lived experience. This approach aims to “study human phenomenon without considering questions of their causes [and] their objective reality” as it aims to study human phenomenon as experienced, valued and appreciated by participants within their context (Sanders 1982; Wilson 2002, p. 1).

#### 3.1 Research context: Nigeria

This study was carried out in Nigeria. Nigeria is the most populous country in Africa with a population of over 190 million. Nigeria suffers from significantly high and fast rising unemployment; latest statistics show overall unemployment and underemployment at 43.3 percent while unemployment among young people has risen to around 55.4 percent (National Bureau of Statistics 2020).

Migration to high-speed networks and the use of smartphones is gradually increasing in Nigeria, with internet penetration of around 46.6 percent (96.05 million internet users) in 2020 and is projected to reach 65.2 percent by 2025 (152.28 million internet user) (Statista 2020). It is estimated that 64.42 percent of the Nigerian population own smartphones (Gillward et al. 2017), and there will be an estimated 140 million smartphone users in Nigeria by 2025 (O'Dea 2020). Figure 1 shows the trajectory of

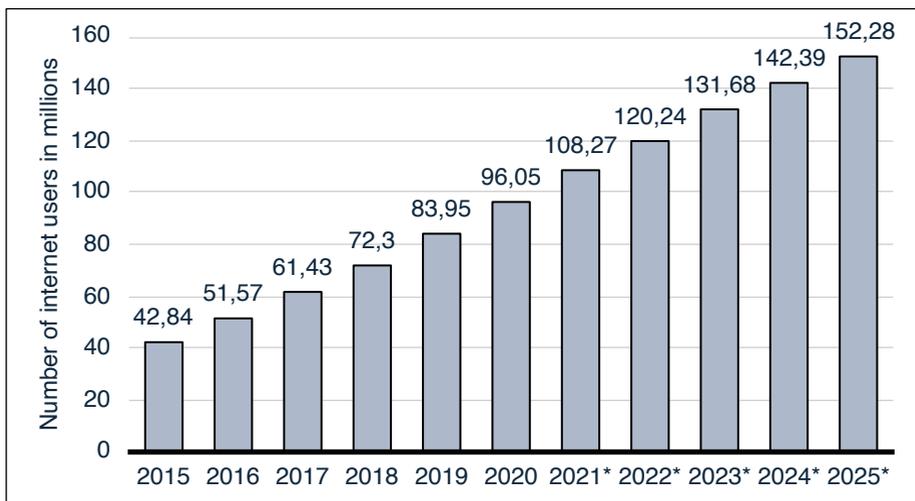


Figure 1. Internet user penetration in Nigeria from 2015 to 2025 (adapted from Strata 2020)

Internet user penetration in Nigeria since 2015 and an estimate of its growth over the coming few years.

There have been many government initiatives promoting ICTs such as the SMART Digital Nigeria Initiative and an ICT Sector Roadmap which focus on improving internet infrastructure, enhancing broadband penetration in the country, and supporting digital commerce (Vijaya et al. 2019). With growing adoption and investment in ICTs in the country, Government and international development agencies promote crowdworking in Nigeria as a way of reducing unemployment and contributing to the socio-economic development of the country (Olsen 2018; Aginam 2013).

### 3.2 Research methodology and data collection methods

This study is part of a larger research project examining the lived experience of crowdworkers. Data collection focused on understanding how crowdworkers experience this new model of work. It follows a descriptive phenomenology methodology (Giorgi 1997; Sanders 1982). Phenomenology is an interpretive methodology that explicates the essence of human experience. It brackets or suspends the researcher's own assumptions allowing for participants' experience to be freely expressed and assigned meaning that is particularly relevant in understanding human resource development (Gibson and Hanes 2003). While there are many phenomenological approaches, we adopted a 'Lifeworld' approach, which is a blended approach, combined with research orientation and commitment to explore daily experience in the lifeworld of individuals "through consideration of selfhood, sociality, embodiment, temporality and spatiality" (Neubauer et al. 2019, p. 91).

<i>Data Sources</i>	<i>Details</i>
Interviews	44 interviews with 41 participants
Onsite observation of workers	7 days
Digital platform reviews	7 platforms
WhatsApp Groups	2
Social media posts and online threads	70 profiles and 600 posts
Online blogs	40

Table 1. Summary of data sources

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The data was collected from different sources as summarised in Table 1. It focused on a purposive sampling of crowdwork in IT services. Forty-one (41) crowdworkers, 29 male and 12 female, participated in 44 interviews for this study. In-depth interviews in four phases of data collection were carried out. Interviews ranged between unstructured and semi-structured encouraging participants to freely express views and discuss what matters for them (Myers 2019; Myers and Newman 2007). Interviews were recorded and lasted between 50-120 minutes with an average of 75 minutes. Participation in the interview was completely voluntary and none of the participants was paid or given any remuneration.

The pilot phase of unstructured interviews with six participants, selected through personal contacts and snowballing strategy, was carried out between December 2017 and January 2018. This helped to gain preliminary insight into the nature of crowdwork in the Nigerian context, challenges, crowdworkers' experience and work practices. This was followed by three interview phases between June-August 2018 and October-November 2018 with 18 and 12 in-depth semi-structured interviews. Eight (8) interviews were conducted in June 2019. Questions at this stage were more directed towards understanding crowdworkers' feeling and aspiration for their job, their experiences, career plan, motivation, and social and work practices. The nature of the interviews allowed for divergence and spontaneity which gave the researchers an opportunity to gather quality and reliable data. Data collection, including interviewing, continued till saturation was achieved and no new information was discovered (Fusch and Ness 2015; Guest et al. 2006; Saunders et al. 2018).

To avoid the bias and possible limitation of snowballing (employed in the pilot study) (Naderifar et. al. 2017), the rest of participants in the three phases of interviews were recruited through different circles including a WhatsApp group and from digital platforms. Purposeful sampling was used as a method to select participants based on particular characteristics and the objective of the study and is widely used in qualitative research (Guetterman 2015). The inclusion criteria for participants in the study was: 1) being involved in full-time crowdwork for more than two years and 2) specialised in IT services. This is to ensure that participants have sufficient experience and knowledge in both crowdwork and knowledge domain to be able to provide reliable and valuable insights into the HRD aspect of their work (Hodkinson 2008).

Other sources of data include digital platform reviews, observation of crowdworkers and informal conversations in addition to observation of online blogs, social media posts and online discussion threads on WhatsApp groups. Besides providing background knowledge of different labour platforms, these sources of data supported the triangulation of interviews. For example, when an interviewee mentioned his/her pro-

file on a labour platform and related details regarding the nature of the profile, skills, interaction, number of clients among other, we examined the mentioned profile on the labour platform confirming these details and observing and documented associated other details. They also gave us a general understanding of context and rising issues crowdworkers faced in addition to details of collaborations and networks which helped us in the generation of different open questions during interviews. Table 1 provides a summary of data sources.

### 3.3 Data analysis

All interviews have been recorded and transcribed verbatim. Directly after each interview, the interview was assigned a number and a pseudonym name assigned to the interviewee to protect their name and information. Visual data such as pictures, screenshots and copy of documents were also anonymised. Observations and notes were taken during each interview and were attached to the transcript of the related interview.

The analysis followed an inductive approach aiming to develop an understanding of the relationship between crowdwork and the sustainable development of workers through moving from the expressed experience and empirical observations, to abstracting meaning and finding relationships. Following recommendations of Sanders' (1982) and Giorgi's (1997), data analysis proceeded as follows. *First*, we conducted open and inductive coding bracketing and suspending our own assumptions. This allowed us to code the different skills and knowledge crowdworkers acquire. *Second*, we abstracted meaning by clustering these skills and knowledge around three main types. *Third*, we aimed to find relationships between these three types of developed skills and knowledge. This led us to frame crowdworkers' skills development around three stages and analyse the skills and knowledge acquisition over these stages. This helped us to discover the transfer of skills and knowledge, acquired during crowdwork, to other workers and organisational setting. *Fourth*, tracing skills and knowledge acquisition and their transfer allowed us to achieve abstraction stemmed from human capital theory and HDR. These four stages allowed us to move from the experience as expressed freely by participants and triangulated by the research teams to abstractions (Giorgi 1997; Sanders 1982).

The analysis was explicitly guided by participants' quotes from the interview and triangulated with other sources of data to enhance theoretical validity (Braun and Clarke 2019; Braun et al. 2014; Venkatesh et al. 2013). For example, when a participant mentioned developing different profiles on different platforms, we examine these profiles and verify this account. Also, when a participant mentioned sub-contracting

other workers, we asked for and examined supporting documents such as time sheets, payments and financial statements. Figure 4 shows an example of triangulated data. Themes and relationships were discussed among the research team and agreed upon in order to improve internal validity (Feagin et al. 1991). The analysis allowed us to trace and unravel the different skills and knowledge involved in crowdwork including the type of entry skills and knowledge, the new acquired skills and how they were developed, and how skills and knowledge are being used.

## 4 Research findings

Following the inductive data analysis, we broadly identify three types of knowledge and skills that workers develop during their crowdwork experience in the context of Nigeria. These include *domain skills*, *platforms skills*, *business skills* as presented in Figure 2. *Domain skills* are the knowledge and skills associated with the area of expertise which in our study is IT and IT services such as web page development, system development, graphic design, web-related developments. *Platform skills* are the skills associated with the crowdwork digital platform including operating it, creating profiles and dealing with digital platform ranking and recommendation systems. *Business skills* are managerial skills associated with crowdwork such as bidding, time management, client relationship management and team development. Furthermore, we trace the development of these skills and categorise the stages through which crowdworkers acquire and transfer

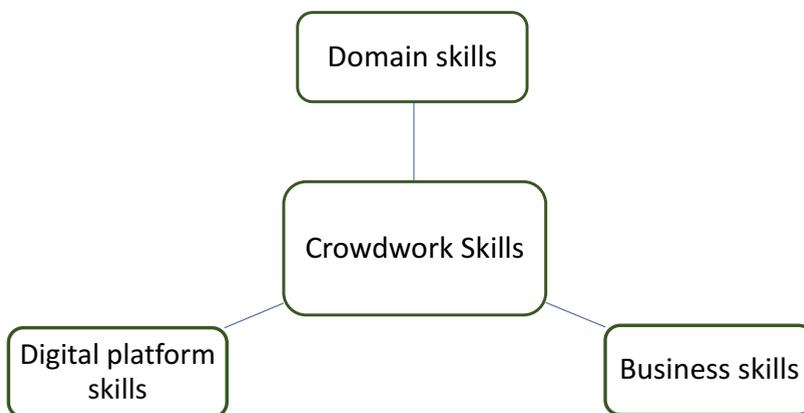


Figure 2. The different skills and knowledge involved in crowdwork

them into three stages namely: Reactive exploitation, Proactive expansion and Transfer. The following sub-sections details and provide empirical evidence to this analysis.

#### 4.1 Reactive exploitation of skills

Workers start crowdwork following introduction to it by colleagues, university or the government scheme. In the reactive stage, crowdworkers start crowdwork exploiting their existing domain knowledge. Domain knowledge is typically obtained from formal education and/or previous experience in traditional work environments. However, at this stage, crowdworkers have little knowledge of digital platform work including profile creation and dealing with the platform ranking and recommendation systems. Therefore, they construct their profile on digital platforms based on their existing set of skills and expertise. They intend to utilise their existing domain skills that they acquired from formal education and previous employment to attract employers on digital platforms. The following is a quote from one of the crowdworkers who was introduced to it and started it while at university and went on to exploit their knowledge from education to conduct crowdwork tasks.

When I was studying computer programming at university, one of my friends told me about the online freelancing [crowdwork] he was doing and [that's] I got into it. (Wale)

Another crowdworker has been introduced to crowdwork by a colleague while in full-time employment:

I discovered that my employer runs projects on crowdwork, he showed me and told me that I can do it as well...it was similar to what I was doing so I felt I can do it. (Lolade)

Other workers try crowdwork during a period of unemployment and/or are introduced to it through government and funders schemes or through friends and colleagues.

I got into crowdsourcing because of the issue of unemployment in the country, and one has to look for ways to make ends meet. I had to try crowdsourcing online, and do jobs for myself and make money, so no matter how difficult it is, it's more like the [only] option I have. (Blessing)

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At this stage, as crowdworkers start bidding for tasks that fit their existing domain skills, they discover that their lack of platform ranking and history of successfully conducted work on the platform mean that they are not in the highly recommended categories of workers on the digital platform. This low ranking on the platform negatively impacts their chances of getting work as they are not being prioritised by the platform's recommendation system. To compensate for this lack of algorithmic competitiveness, they find pricing and bidding for lower fees to be an alternative competitive mechanism. So, at this stage, they tend to reactively bid for tasks offering lower fees than others to attract the attention of employers who are price-conscious and willing to employ crowdworkers with little ranking score and history of work conducted on the digital platform. The following quote by one of the crowdworkers summarises this point.

...to get people who want to work with me I had to do offer low price, you know, employers, as much as they like working with people who have higher ratings, they also like cheap things. If I tell them that yes, I can give you this thing at this low rate they will think yes, let's give this guy a trial, and they would say yes. (Odion)

To summarise, as Figure 3 shows, the exploitation stage of crowdwork adoption is characterised by low digital platform knowledge and skills, utilisation of existing domain

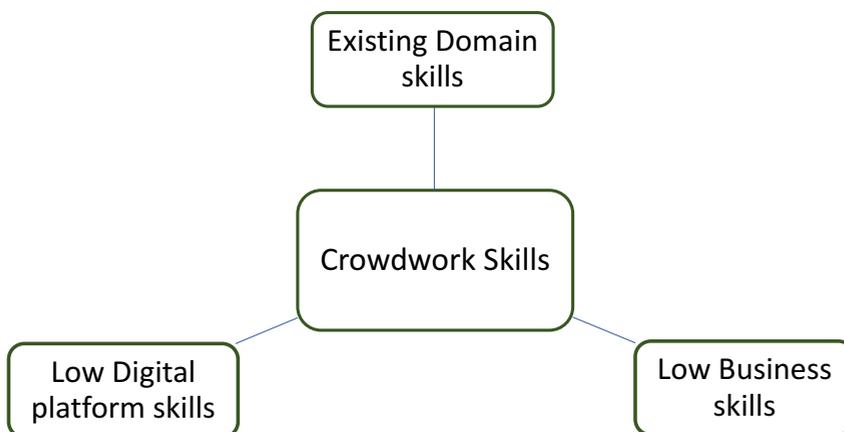


Figure 3. Crowdworker's skills in the reactive exploitation stage

knowledge and the existence of low business skills in terms of managing and leading independent work. Considering the lack of historical data on previous jobs, the limited jobs conducted and consequently the algorithmic low ranking, crowdworkers focus on getting jobs, improving their ranking and climbing the perceived career ladder of digital platform (Idowu and Elbanna 2020a). Reactively, they bid for low fees in order to get jobs and improve their algorithmic ranking. This behaviour resonates with the literature that raises fears around crowdwork and its potentials for labour exploitation in particular in developing countries where workers bid low pushing a race to the bottom (Beerepoot and Lambregts 2015; Scholz 2017).

## 4.2 Proactive expansion of knowledge and skills

As crowdworkers learn the importance of algorithmic ranking and the recommendation system in attracting employers and establish success in bidding with higher fees, they proactively invest in building their brand and ranking on the platform. Thus, they acquire new skills and knowledge as they learn to manage projects, consistently deliver them on-time and manage business relationships with employers ensuring they are satisfied by the quality of the delivered work and offered services. They find that the development of these new business skills rewarding as they increase their ability to bid for higher fees and improve their chances to succeed in bidding. One of crowdworkers summarised this view saying:

I used to finish in one week projects that should take two to three weeks to complete, what I did was work 12-13 hours a day just so that I can have an edge by delivering projects early in record time and guarantee a five-star feedback. If you look at my early reviews, comments are mainly on time and quality, I used to refer new clients to my reviews then so that they can know my brand at that time, it was an exciting time. (Tunde)

As they gain confidence in using their first digital platform, crowdworkers tend to observe the different types of job posts that are in high demand, available and highly paid. This gives them better understanding of the digital platform job market: the jobs in high demand and regularly available and the niche jobs of low demand but high pay. This understanding of the platform's job market indicates to them the skills they need to develop to succeed in getting more jobs on a regular basis and how to position themselves and their skills on the platform. Consequently, they venture into learning new skills within their domain of knowledge and area of expertise. This expansion of

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their existing domain of knowledge is exemplified by the following quote by one of the crowdworkers.

...as a crowdsourcer, when I see some job post online, it spurs me to go and learn those skills...I download books, watch YouTube tutorials... most of the things that I do currently as a crowdworker, I had to learn on my own by seeing that they are skills employers need. (Kingsley)

Crowdworkers also expand by learning new unique domain skills that attract higher fees and could make them stand out and hence improve their competitive position and chances of succeeding in bidding. Therefore, they also expand their horizon by learning new domains. For example, the following quote shows a software engineer who developed knowledge on two new domains related to business analysis and project management and users' training.

As a software engineer, I saw many projects where employers need people to write proposals for software development projects, I learnt it and now almost 40% of what I do is related to writing proposals. I also write instruction guides for clients. (Ify)

In addition to expanding their domain and business knowledge, crowdworkers also exploit and expand their developed digital platform knowledge by increasing their digital presence through creating different profiles on the same platform and increasing the number of digital platforms they subscribe to. They create different profiles with dif-

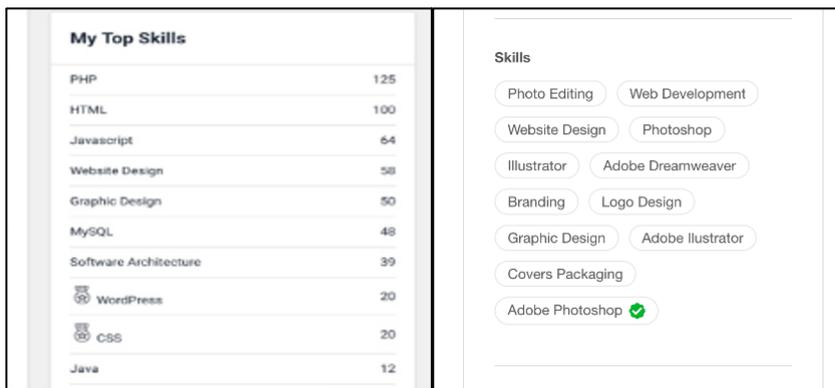


Figure 4. Two profiles for the same worker on two different platforms

ferent skill sets on the same digital platform, subscribing to different digital platforms with the same profile and creating different profiles in different digital platforms. They do so in order to increase their bidding opportunities and to take advantage of their observations that some digital platforms attracts different types of employers. Figure 4 shows two different profiles for the same worker on two different digital platforms.

Crowdwork in this context provides a catalyst for professional development, skills development and continuous learning for the workers. However, as they lack affiliation to organisations, they self-learn, form learning communities with other crowdworkers in social media including WhatsApp groups and Facebook and develop relationships with their clients. In this regard, they combine autonomy, apprenticeship, communities of practice and collective learning in their HRD (Manuti et al. 2015; Van Noy et al. 2016). One of the crowdworkers eloquently expressed this view as:

It's a learning curve, there's always something to learn...if not about the platforms, it's from clients [employer], or other crowdworkers. It's important to know these things because you won't succeed in this business without knowledge of a lot of things...and they take time. (Ola)

To conclude, as Figure 5 shows, the proactive stage of skills development is characterised by the expansion of crowdworkers skills and knowledge. Hence they develop a higher level of digital platform knowledge and skills, new domain knowledge and

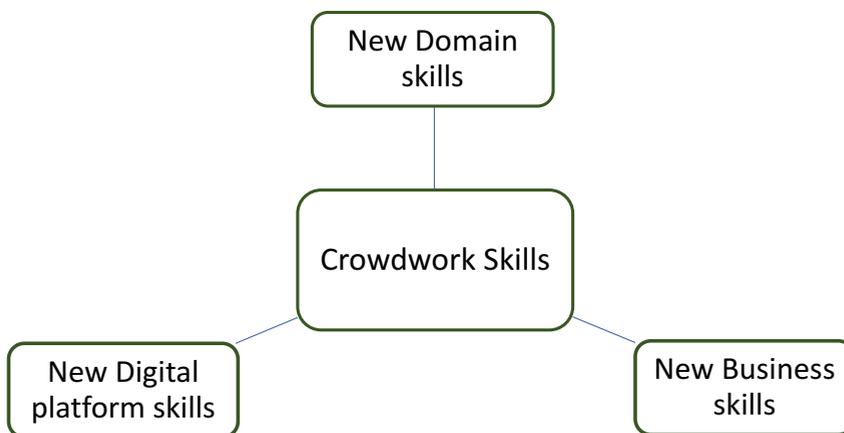


Figure 5. Crowdworkers' skills in the proactive expansion stage

venture into other related domains. They also develop new and higher level business skills in terms of managing and leading independent work and being responsible for generating their own work and income which is consistent with a freelancer status (Kitching and Smallbone 2012).

### 4.3 Transfer of skills and knowledge

At this stage, crowdworkers gain confidence in their work and improve their skills to a level that allowed them having a stable employment. They also continue to utilise the different sources of knowledge and learning, embarking on continuous development to increase their competitiveness on platforms. Importantly, they become a pipeline for transferring the new knowledge and skills they developed to other workers and work settings. Figure 6 depicts some of the routes where crowdworkers knowledge is being transferred.

The transfer of skills and knowledge takes place through different channels including sub-contracting, providing training, writing books, blogs, participating in different forums, and moving to a traditional work environment. This is summarised in Figure 6 and detailed as follows. The expansion of crowdworkers' domain knowledge combined with high skills in digital platform operations and the development of business

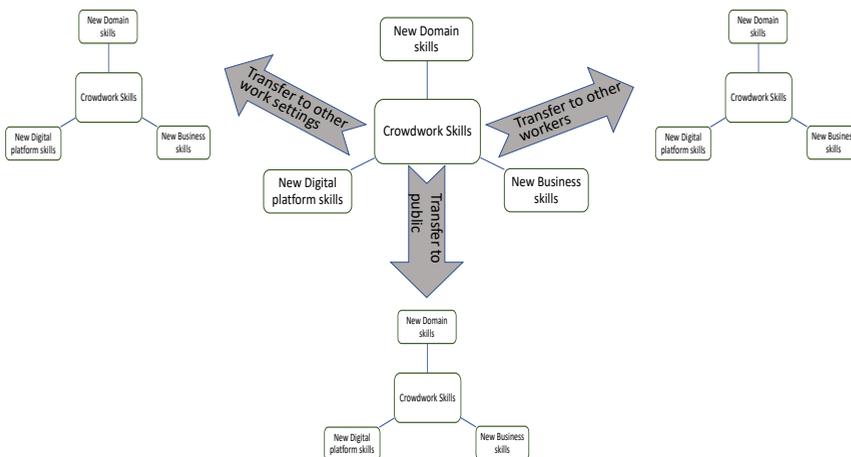


Figure 6. Transfer of crowdworkers' acquired knowledge

skills allow crowdworkers to enjoy more success in bidding for different tasks. So, they start sub-contracting work to others to become contractors or employers themselves. In doing so, crowdworkers develop into entrepreneurs responsible for running their own business and employing others. One of the crowdworkers detail their experience as follows.

What I do is get work on different sites and Clients [employers], negotiate payment and send the work to some of my guys [offline workers and fellow crowdworker], most times I get someone to take the Job... however if by any chance I cannot find anyone from my [offline]contact, then I'll post it online. (Hamza)

As they shift from a one-man business or freelancer to entrepreneurs employing others, crowdworkers upskill their own business and managerial skills in order to satisfy their new role as managers and entrepreneurs. In this regard, they develop documentation systems and management tools to keep track of sub-contractors, sub-contracted tasks and their deadlines, payments records, calculate profits and evaluation of each sub-contractors along with records of the skills set of each one. Figure 7 shows part of a financial spreadsheet an entrepreneur crowdworker has established to manage sub-contractors' payments.

To be able to include more workers in their growing crowdwork business, they provide training and teach the workers they hire different domain skills. They also engage in blog writing, providing training courses to others and proactively participate in on-line forums providing advice and tips to others.

Other crowdworkers use the new skills they have acquired in developing offline business in parallel to crowdwork. They invest the money they earn and the business

Task Code	Client	Project Brief	Skills	Client delivery	Delivery time	Submission time	Programmers	Bid	Paid	Profit
Swr 4890		project relating to weighing bridges	Java, C++	07/10/2018	12:00:00 PM	05/10/2018		\$500.00	\$330.00	\$170.00
Swr 4901		Design, develop, install premium Latest Magento eCommerce online store with mobile app	Magento, Mobile App Development, Webs	07/10/2018	2:00:00 PM	02/10/2018		\$900.00	\$470.00	\$430.00
Swr 4882		Accounting software developed in C#; Accounts Payable	C#	07/10/2018	2:00:00 PM	04/10/2018		\$200.00	\$150.00	\$50.00
Swr 4891		Accounts Receivable had developed, now i would like to turn it into a phone app.	Android, C#, iPhone, Windows Mobile	07/10/2018	7:00:00 PM	05/10/2018		\$400.00	\$340.00	\$60.00
Swr 4892		Lead Management software build + Lead Management & Nurturing	Python, Desktop Architecture	07/10/2018	8:00:00 PM	05/10/2018		\$335.00	\$235.00	\$100.00
Swr 4895		Excel Software Compatibility Matrix	Excel	07/10/2018	11:00:00 PM	07/10/2018		\$60.00	\$40.00	\$20.00

Figure 7. A crowdworker's spreadsheet to manage task to sub-contractors

skills they acquired from crowdwork to develop these other business ventures. The following quote provides an example of a crowdworker who invests his earning from crowdwork in opening and financing electronic shops.

The money I'm making now, I'm using it to fund my electronic shops where I sell phones, computer, and everything electronic ... (Toju)

Other crowdworkers find the knowledge and skills they gained in crowdwork valuable for the offline job market and they venture into offline freelancing in addition to their crowdwork. In doing so, they utilise the new domain knowledge and skills they developed with the work experience they gained from crowdwork, to bid for consultancy and freelance work (offline) in different companies and businesses. The following quote provides an example of a crowdworker who expanded into offline freelancing.

I started submitting proposals for software contracts in companies and got two (2) projects last year now, the experience and portfolio I have from the work online helped a lot. (Ahmed)

## 5 Discussion

IS research has “mainly taken an organisational perspective of crowdwork” (Durward et al. 2020, p. 67) examining organisational strategies, design, control and coordination, risk and value creation (Gol et al. 2019; Alam and Campbell 2016). When workers are examined, most research relies on surveys and social media analysis due to the difficulty of getting access to crowdworkers. This study closes this gap in literature by adopting workers' perspective and contributing to the debate on the value of crowdwork to workers in developing countries. The debate on crowdwork in developing countries has so far focused on direct economic benefits to workers and concern over the exploitation of platform capitalism. Our study extends the discussion to examine the more sustainable aspects of human resource development, which goes well beyond the direct economic benefits of individuals, to the human resource development of the workforce. It questioned whether crowdwork contributes to the sustainable development of workers and, if so, how? To answer the questions, we examined macro-tasks crowdworkers and collected qualitative data on workers' lived experience from multiple sources including interviews, participant observation, and social media observations.

The findings highlight the role of crowdwork in the upskilling of workers. They also show that the knowledge and skills acquired in crowdwork are transferred from crowdworkers to other workers and work settings. This acquisition and transfer of new skills and knowledge contributes to human resource development of individuals and communities and the elevation of production capabilities as explicated in the human capital theory (Aliaga 2001; Becker 1964; Lucas 1990; Unger et al. 2011). From this perspective, macro-task crowdwork could be seen as a human capital investment that does indeed contribute to the sustainable development of workers and work as discussed below.

## 5.1 Upskilling

This study found that crowdworkers pass through reactive and proactive stages of skills and knowledge acquisition. While in the initial reactive stage, they exploit and tap onto their existing skills and complement them with basic knowledge about the operation of platforms, in the proactive stage, they expand their skills. In the proactive stage, they learn new skills and attain new capabilities in order to take advantage of emerging opportunities for work in new areas and to increase earnings. These findings negates the views of Van Belle and Mydavanhu (2018) and Mann and Graham (2016) about crowdworking depleting and exploiting workers' existing skills with no prospects for growth and development (Mann and Graham 2016; Van Belle and Mudavanhu 2018). On the contrary, this research confirms the research results of Green et al. (2014) that this new form of work can promote and encourage the learning of new skills and the expansion of knowledge. It does so indirectly as crowdworkers learn about platform markets and find the need to advance and diversify their skills to ensure progression and stability in their crowdworking endeavour.

This study shows that crowdwork provides a window for workers in developing countries to understand the demands of the job market and also serves as a source of motivation to upskill and improve their knowledge and prospects of employability. It provides them with a first-hand engaging experience of the job market requirements and possible rewards that could be gained from learning other skills. This motivates them to upskill their knowledge through self-learning. The upskilling/deskilling debate in capitalism and future of work is well documented and goes back to studies of the industrial revolution (Scholz 2017). The upskilling advocates have observed the rise of skills level in populations of industrialized countries and, as a result, growing proportions of the population have become integrated into employment (Heisig 2009). While our study has not been done on a national level and we cannot claim general-

sation to a population, we did also observed that the crowdworkers we studied were in constant professional development. They were encouraged by the work opportunity of crowdwork and the clear possibility of increasing earnings as they upskill. Hence, they were motivated to expand their skills and knowledge, learn new domain knowledge, improve their digital platforms skills, and learn business skills. The upgrading of workforce skills is a necessary condition for the economic development of countries and is associated with employability, social mobility and welfare (Kang and Hong 2002), with some policy makers regarding upskilling as ‘the pipeline to prosperity’ (Davies and Fynon 2018). Therefore, crowdwork could be a pipeline to sustainable development.

## 5.2 Knowledge transfer

The study shows that the upskilling of workers overflows to other areas of society as they transfer their acquired skills and knowledge to other workers and economic activities. For example, as they advance their skills, crowdworkers become integrated in offline work either by becoming freelancers, entrepreneurs or business owners. The knowledge they gain overflows to the population as they educate others through blogs, books, training courses and informal introductions to crowdwork. Upskilling of the population is a sustainable goal and asset to nations particularly in developing countries where it is difficult to improve HRD through traditional channels (Kuruvilla and Chua 2000).

Existing research has pointed to workers from developed countries who outsource tasks on various platforms to those in the developing countries because of their lack of opportunity and discrimination (Graham et al. 2017a). We, however, reveal that crowdworkers in Nigeria also engage in this practice, not just by outsourcing tasks to workers online, but also to professionals working offline. Significantly, this reveals two new classes of crowdworkers in the crowdwork value chain. First, the entrepreneurs who are project managers and do not engage in completing tasks but accept tasks on the platforms just to outsource them to workers both offline and online. Second, workers who are not registered on the platforms but complete crowdwork tasks for task entrepreneurs. This finding significantly adds to the understanding of crowdwork. The move from freelancers to entrepreneurs is recognised in studies of freelance and entrepreneurship literature as a possible development in successful freelance work (Kitching and Smallbone 2012; McKeown 2015) but has received little attention in crowdwork. It is an important finding because it highlights a potential cascading effect and impact on employment and skills development beyond those directly registered on the platforms.

Our findings show that crowdworkers' experience becomes transferable to other people and their work settings which sustain its value to society and multiply its economic value beyond the economic gains of individuals. This is manifested in the form of writing books and blogs, organising workshops and seminars in addition to utilising the new knowledge in joining offline work, employing others and being involved in further economic activities. Hence, new and emerging economies are built from crowdwork outside the platforms. In addition, crowdworkers become employers themselves where they build a work team and run a business (Idowu and Elbanna 2021). This empirically confirms the theoretical proposition that crowdworkers have the potential of employing others (Kittur et al. 2013). The study shows that as they build their skills, crowdworkers become freelancers; defined as "those genuinely in business on their own account, working alone ... responsible for generating their own work and income, but who do not employ others" (Kitching and Smallbone 2012, p.76). It is recognised that freelancers can progress and move on to sub-contract and become employers and hence entrepreneurs running their own small business (Coetzer et al. 2017). This study shows that crowdworkers follows a similar progression path.

The transfer of knowledge by crowdworkers is particularly of value as they are in a better position to communicate their knowledge and skills to others since they emerge from their own lived experience (Szulanski 1996). It is evident, hence, that knowledge transfer in crowdwork occurs through employing other workers, communication with other crowdworkers, training, interaction with employer and from them moving out of crowdwork to other industries and businesses; this constitutes a significant knowledge spill over and transfer (see Argote et al. 2000).

## 6 Contribution and conclusion

This study reveals the potential of crowdwork to serve as a source of employment that offers an alternative learning model for human capital development outside the conventional education and organisational learning systems (Cobo et al. 2018). It contributes to IS research by going beyond a narrow focus on financial gains and turning the attention to sustainable development goals where more wider dimensions are considered.

This research responds to scholars observations that current IS research maintains an unbalanced focus on functional and direct economical goals and their calls to expand the research agenda to include humanistic goals (Sarker et al. 2019). It goes beyond examining direct economic benefits to workers to examinework and its linkage to human resource development. A thin strand of research in IS has examined human development from a capabilities building perspective based on Sen's capabilities approach

and conceptualisations of development which considers wellbeing, choice and empowerment (Sen 1988; Thapa 2012). Our research extends this strand of research through direct consideration of human resource development stemming from human capital theory (Becker 1964). Based on this theory, the development of human resources is acknowledged as a key differentiating factor of development (Aliaga 2001; Lucas 1990; Unger et al. 2011). Our research findings reveal the type and range of skills crowdworkers develop during their involvement in crowdwork. They empirically confirm previous propositions regarding the possibility of crowdworkers to develop specialist skills and extend them by identifying the different types of skills development involved (Deng and Joshi 2013; Green et al. 2014; Kittur et al. 2013). While unravelling crowdworkers' skills and knowledge acquisition, this research also shows how these acquired skills are being transferred to other individuals and organisations, creating a chain of human resource development which is key to the creation of human capital and ensuring the sustainability of human development. This could add a new dimension to crowdwork that contributes to SDGs, particularly when also combined with its possible positive environmental impact in terms of workers' access to digital employment without the need to physically migrate to other geographic locations, overcoming the socio-economic constraints of their context, the socio-political barriers and instability that many developing countries witness, in addition to avoiding the environmental and social impact of migration.

The study contributes to crowdwork research. While previous research focuses on examining direct monetary payment, workers' motivations and algorithmic management, mostly applying distant research methods based on surveys and social media observation, this study provides an in-depth examination of the Lifeworld of crowdworkers stemmed from phenomenology (Neubauer et al. 2019). This blended phenomenological approach allowed the collection of rich data from different sources and importantly focuses on workers' experience of crowdwork. It facilitated the in-depth examination of crowdworkers' life and hence the unravelling of a new aspect of crowdwork related to skills acquisition, development and transfer. The study shows the gravity with which crowdworkers engage in upskilling and knowledge transfer in crowdwork despite the absence of formal organisational elements, formal structure and a policy for human resource development. It reveals that while skill development is a self-motivated and self-directed practice in crowdwork, the process brings about a ripple effect of upskilling that is more sustainable than only considering the direct economic benefits to individuals. We hope that this research opens the door for further research on crowdwork and development.

While our study has not been done on a national level, nevertheless, the findings of upskilling of crowdworkers and the over-spilling and transfer of gained knowledge to other parts of the economy draws the attention to a new aspect of crowdwork. While our research considered the impact of crowdwork on human resource development, future research can combine this with more in-depth examination of its environmental impact in terms of travel, migration and displacement. We hope that our study and findings in this regard motivates further large-scale examinations of aspects of crowdwork and HRD.

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