Mobile Microwork in South Africa: Attitudes, Experiences and Barriers

Completed Research

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Abstract

The rapid increase in the adoption of mobile devices in developing countries positions mobile microwork as a potential solution to the persistent unemployment challenge. Mobile microwork enables job seekers to participate in the online job market regardless of their geographic location. This paper examines mobile microworker attitudes, experiences as well as barriers in South Africa. It aims to explore and understand how these factors influence the potential and actual participation in microwork. The study adapted Self-Determination Theory model to include barriers that are experienced by individuals in the workforce to explore the relationship between their attitudes and motivations to participate in microwork. It focussed on the perceptions of individuals in the workforce and the potential application of mobile microwork as a form or a means to supplement their income. The findings show a strong relationship between the attitudes of workers and factors such as age, education level and employment status.

Introduction

High unemployment is a persistent socio-economic challenge across many developing countries (Mtsweni & Burge III, 2014). For example, in the fourth quarter of 2017, the official unemployment rate in South Africa was 26.7% and the broad unemployment rate, which includes those who stopped looking for work, was 36.3% (Statistics SA, 2018). Many of the people who do find employment are most likely to find a job in the informal sector where the income earned is low and where the job does not include any employee benefits or job security (Page & Shimeles, 2015). Despite the unemployment rates in South Africa people have adopted and now make use of mobile technologies (Mtsweni & Burge III, 2014). These mobile technologies are offering new working possibilities for many in the developing world and can even help to harness the power of information and communication technologies (ICTs) for socio-economic development (O’Neill & Martin , 2013). More mobile services and innovations are emerging. Using these services and innovations can be seen as potential solutions to the unemployment problem in these countries (Mtsweni & Burge III, 2014). Digital labour can now be a way help reduce unemployment, especially amongst the youth of these African countries.

As the global online job market is starting to grow, crowdsourcing and microwork are seen by many people as a way to potentially earn an income (Jiang et al., 2015). The digital labour market is opening a path for people who have previously been economically excluded due to geographical constraints. Workers will not only be able to participate in the local job market, but they are now able to participate in the global online job market as they can compete for jobs regardless of their geographic locations (Graham et al., 2017). The various crowdsourcing platforms that are available have the potential to improve the lives of many people in developing countries as it offers employment opportunities to workers that are currently earning a low
income (Gupta et al., 2012). With the help of various technologies, crowdsourcing can bring about many innovative possibilities across multiple fields as well as help to harvest specific skills, labour and information (Chuene & Mtsweni, 2015).

The primary objective of the research is to investigate the attitudes, experiences and barriers that relate to mobile microwork in South Africa. The research will focus specifically on the perspectives of the people in the workforce and how they can potentially use mobile microwork as a form of income or as a means to supplement their income. While there are several studies on crowdsourcing and microwork in developed countries, it is unclear how crowdsourcing and microwork can benefit developing countries such as South Africa. As the research will be looking at various factors that affect South Africans’ perceptions about microwork, the research can be classified as explanatory, exploratory and descriptive.

**Literature Review**

The following section focuses on extant literature relating to microwork in developed and developing countries. This section begins by defining microwork and goes on to explain how microwork platforms work. An overview of specific microwork platforms is provided. The potential benefits and barriers to mobile microwork as well as the motivational influence are discussed. Lastly, the conditions for successful mobile microwork are discussed.

**The Potential Benefits of Mobile Microwork**

Microwork is defined as “a form of paid crowdsourcing, that promotes the completion of small, and yet tedious tasks by microworkers located across different geographical areas for a reasonable wage” (Mtsweni & Burge III, 2014, p. 3). Microtasks are generated from larger tasks such as translating a book and mostly requires very few skills or training (Mtsweni & Burge III, 2014). Tasks that are considered to be microtasks differ regarding the task itself, the targeted workers and the compensation that workers receive for the microwork (Paolacci & Chandler, 2014). Several factors drive workers to participate in microwork. These include the payment or reward that is received as well as the intrinsic and extrinsic motivations of workers when participating in microwork (Paolacci & Chandler, 2014). Three of the common microwork platforms are 1) Amazon Mechanical Turk, which advertises microtasks to be completed by microworkers (Ford, Richard, & Ciuchta, 2015), 2) Samasource, which sources contracts from large organizations and then divides and assigns these tasks to microworkers (Mtsweni & Burge III, 2014) and 3) Jana, which enables microworkers to earn instant airtime when completing tasks via SMS on their mobile devices (Narula & Kulkarni, 2011). There are various potential benefits to both the microworker and the micro employer that make use of microwork service platforms. Table 1 provides a list of the potential benefits of mobile microwork to the microworker and the micro employer.

<table>
<thead>
<tr>
<th>Microworker</th>
<th>Micro-employer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to various job opportunities</td>
<td>Access to special skills (such as translation from Zulu to Afrikaans)</td>
</tr>
<tr>
<td>Work experience</td>
<td>Value co-creation</td>
</tr>
<tr>
<td>Financial gains</td>
<td>Work-force identification</td>
</tr>
<tr>
<td>Recognition</td>
<td>Costs savings</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Diverse solutions</td>
</tr>
<tr>
<td>Channel agnostic access</td>
<td>Scalability</td>
</tr>
<tr>
<td>Improved productivity</td>
<td>Diverse channels</td>
</tr>
<tr>
<td></td>
<td>Increased productivity</td>
</tr>
</tbody>
</table>

Table 1. Potential benefits of mobile microwork (Mtsweni & Burge III, 2014)
Barriers to Mobile Microwork

Despite the many potential benefits that can be derived from crowdsourcing and mobile microwork, there are several barriers that many developing countries face when it comes to digital work. The majority of the microwork platforms that are available are hosted and only accessible through the internet. This creates an access challenge for many of the developing countries where internet penetration is low (Samdaria et al., 2012). Digital labour platforms such as crowdsourcing and microwork depend on existing ICT infrastructure. In many developing countries, poor ICT infrastructure is a barrier that still needs to be overcome (Touray et al., 2013). The lack of ICT education and skills in many developing countries bars potential workers from fully participating in mobile microwork (Mtsweni & Burge III, 2014).

Microwork platforms are not visible in many of the developing countries. This results in people in these countries being unaware of the work possibilities that are available to them (Samdaria et al., 2012). The lack of adequate payment mechanisms such as accessible banking facilities for crowd workers in developing countries is a significant problem that is affecting the growth of microwork services (Samdaria et al., 2012). Finally, in many of the areas in developing countries, there is no access to electricity (Chuene & Mtsweni, 2015). This poses a challenge as even though a considerable number of people own a mobile device, they do not have access to an affordable way of charging their mobile devices. This, therefore, prevents them from taking part in any form of crowdsourcing (Chuene & Mtsweni, 2015).

Motivations and Influences of Mobile Microwork

Theories that have been used in research studies related to work motivation include the job characteristics theory and the Self-Determination Theory (SDT) model (Gagné & Deci, 2005; Kaufmann, Schulze, & Veit, 2011). The job characteristics theory focuses on internal work motivation and examines three psychological states of motivation to work, namely experienced meaningfulness of the work, experienced responsibility for outcomes of the work and knowledge of the actual results of the work (Kaufmann et al., 2011). The job characteristics theory identifies certain stimulating job characteristics but does not include any extrinsic factors that could affect an individual's motivation to work (Kaufmann et al., 2011). The SDT model, however, examines both the intrinsic and extrinsic motivations to work and has been adapted and used in the research by Kaufmann et al. (2011) and Pilz and Gewald (2013).

The SDT model looks at human motivation, personalities, psychological needs and the intrinsic motivation to work (Gagné & Deci, 2005). Intrinsic work motivation is when people voluntarily partake in an activity because they find the activity interesting and this is classified as autonomous motivation. Successful crowdsourcing depends on whether an organization can attract and motivate the correct crowd. Figure 1 illustrates how a worker’s motivation can be classified.

![Figure 1: A model for Worker's motivation in Crowdsourcing (Kaufmann et al., 2011)]
Following the self-determination theory, a person’s motivation is split into two types, namely intrinsic and extrinsic motivation (Kaufmann et al., 2011). Intrinsic motivation can further be divided into enjoyment based and community-based motivation (Kaufmann et al., 2011). Enjoyment based motivation contain factors that might be perceived as “fun” by workers and community based motivation covers actions guided by the platform community (Kaufmann et al., 2011). Extrinsic motivations are divided into immediate payoffs, delayed payoffs and social motivations (Kaufmann et al., 2011).

**Success factors for mobile microwork**

Although mobile microwork has many potential benefits, there are many critical factors that need to be considered and addressed if microwork platforms are to be successful in developing countries. Quality control is still a big challenge that many of the microwork platforms face (Ipeirotis et al., 2010). Quality control is not just related to the quality of work produced by the microworkers but how the tasks are designed as well (Allahbakhsh et al., 2013). The exploitation of workers is also a factor that needs to be considered. The chance to earn a living motivates many workers while organizations are motivated by the opportunities to save costs (Mtsweni & Burge III, 2014). The power imbalance between the two parties tends to drive prices down, leading to so-called electronic sweatshops. Task assignment is also a factor that needs to be considered (Mtsweni & Burge III, 2014). Microworkers usually bid for microtasks or tasks that are directly assigned by micro-employers. However, bidding for tasks is seen as complex and competitive and this might not be accepted by many people or they might not understand the nature of bidding for tasks (Mtsweni & Burge III, 2014). Finally, security is also a factor that needs to be looked into as it is one of the most neglected challenges that is faced by microwork platforms.

**Research Methodology**

This research made use of an online survey that was aimed at deductively testing a theory on workers motivations as well as their experiences and the barriers that they have encountered as microworkers or potential micro workers in order to draw conclusions on a worker’s participation in mobile microwork (Bhattacherjee, 2012).

![Figure 2: Adapted model for this research. Adapted from Kaufmann et al. (2011)](image-url)

The theoretical framework that was used in this study is the adapted Self-Determination Theory (SDT). Figure 2 represents the proposed model for this research based on the Self-Determination Theory (SDT).
Mobile Microwork in South Africa

model. As the experiences and barriers that relate to mobile microwork do not fall within the SDT model, this model was being used mainly to explore and understand the perceptions and attitudes of South Africans towards using mobile microwork as a form of income or a means to supplement income. A survey based on the revised Self-Determination Theory model as well as questions without model backing were used to test the following hypotheses:

\[ H_1: \] The motivation to participate in mobile microwork is positively influenced by the financial reward or remuneration of participating and is a key factor.

\[ H_2: \] The intrinsic motivators of the Self-Determination Theory model play a role in motivating workers to participate in mobile microwork and the influence of the various constructs will be positive.

\[ H_3: \] There is a lack of well-paying jobs in South Africa and a lot of people are therefore unemployed. The influence of employment and work experience will be positive.

\[ H_4: \] Many people are unaware of the microwork opportunities that are available to them.

The strategy that this research followed to collect data was an online survey developed using Qualtrics. A page was created on Facebook and a post with the link to the survey was posted. The post was targeted to Facebook users based on age and geographic location. The survey took the form of multiple choice questions as well as open-ended questions. Where questions were not open-ended participants had to select the answer that was most relevant to them by selecting an answer from a list of options given or using the Likert scale. There were a total of 148 responses of which 125 were valid responses.

Research Findings and Analysis

This section presents the findings that are related to the research objective of investigating the attitudes, experiences and barriers that relate to mobile microwork in South Africa.

Descriptive Statistics

The sample consisted of 125 valid responses of which 70% (n=87) of respondents were female and 30% (n=38) were male. The age distribution was positively skewed with the largest response from the 20-29 years age group representing 45% (n=17) of the male respondents but a full 71% (n=62) of the female respondents. This was followed by the 30-39 years age group which consisted of 34% (n=13) of the male responses and 14% (n=12) of female respondents, then the 18-19 years age group which consisted of 16% (n=6) of the male respondents and 13% (n=11) of the female. The remainder of responses came from the 40-49 years age group with 5% (n=2) of male respondents and 1% (n=1) female, 50-59 years age group with 1 female response. No responses came from the 60+ age group.

In respect of the education level of the respondents, 62% (n=78) of the respondents either have a Diploma or Bachelor degree or above, 37% (n=46) of the respondents have completed secondary school while only 1% (n=1) of the respondents have only completed primary school. From the sample, 74% (n=92) of respondents have not participated in any form of microwork while 26% (n=33) of the total respondents have participated in some form of microwork.

Participation in Microwork

Figure 3 illustrates the types of microwork that respondents indicated that they would most likely partake in (multiple responses were allowed). The figure also identifies the specific responses of those who have previously participated in mobile microwork. The majority of respondents (20%, n=59) indicated that would most likely complete surveys if they were to participate in microwork. The second most popular task amongst the respondents was rating services (14%, n=31) followed by mystery shopping (11%, n=33). Picture
annotations (3%, n=8) and promotion audits (3%, n=8) were among the tasks that respondents indicated they would be least likely to complete if they were to participate in microwork.

**Figure 3: Tasks Respondents are “most likely to complete”**

**Potential Contribution of Microwork**

From the sample, 36 respondents indicated that microwork has the potential to alleviate poverty, 69 of respondents think that microwork has the potential to decrease unemployment while 35 indicated that microwork has the potential to help a country develop (Figure 4). Interestingly, 11 of respondents feel that participation in microwork is a new form of exploiting cheap labour.

**Figure 4: Potential Contribution of Microwork**
What Motives Potential Microworkers?

Figure 5 summarizes the responses for the various motivators (sorted by average).

![Figure 5: Motivators for (intended) participation into mobile microwork.](image)

Reliability Analysis

Cronbach Alpha was used to test the reliability of the test items that are related to the motivations. Cronbach Alpha measures the internal consistency of responses to determine how well the test items are measuring what it is expected to measure. The reliability coefficient of Cronbach alpha ranges between 0 and 1 where a great internal consistency is indicated by a coefficient that is close to 1 (Gliem & Gliem, 2003). The motivations construct met the requirement of having a Cronbach Alpha measure of greater than 0.6 which is the acceptable alpha measure for an exploratory study (Bhattacherjee, 2012). An alpha of 0.74 was obtained which indicates that the questions posed for the motivations construct are all reliable as there is a high degree of internal consistency for the test items related to the construct and that these questions group well together (Gliem & Gliem, 2003). The high degree of internal consistency allows all tests items related to motivations to be used in further analysis.

Hypotheses and Model Testing

A multiple regression analysis was performed to test the simultaneous effect of independent variables. The results in Table 4 indicate a moderate relationship ($r = 0.36$) with the independent variables which explains the $13.23\%$ variance of participation in microwork as the dependent variable. Payment/remuneration is highlighted as the only construct that is statistically significant at a confidence interval of 0.05 (95%) for determining participation in microwork. A summary of Multiple Regression Analysis for Microwork Participation is shown in Table 2 below.

Extrinsic Motivations (Financial Rewards/Remuneration) ($H_1$): There is a statistically significant correlation of 0.181 between payment/remuneration and task identity and a statistically significant correlation of 0.187 between payment/remuneration and pastime. However, not all the motivational factors have a statistically significant correlation with financial reward/remuneration. Thus, the hypothesis $H_1$ is partially supported. The responses to the survey indicate that financial rewards/remunerations are positively
associated with a worker’s motivation to participate in mobile microwork. Financial rewards/remunerations can, therefore, be regarded as one of the predominant factors that influence a worker’s attitude and motivations to participate in mobile microwork. This finding is consistent with previous research done by Kaufman et al. (2011) and Pilz and Gewald (2013) where task identity and pastime were rated higher than the remaining motivational factors in relation to financial reward/remuneration.

**Intrinsic Motivations (H2):** There is a statistically significant correlation between a micro worker’s intrinsic motivations and their participation in mobile microwork. The majority of test items indicated a statistically significant correlation between intrinsic motivations and participation in mobile microwork. However, there are a few test items that do not have statistically significant correlations. Thus, the hypothesis H2 is partially supported.

**Employment (H3):** There is a statistically significant correlation between employment with participation in mobile microwork. Twenty-five percent of respondents indicated that they were unemployed at the time of completing the survey. Thus, the hypothesis H3 is supported.

**Awareness/Visibility (H4):** There is no statistically significant correlation between visibility and participation in mobile microwork. The p-value for participation is 0.04 and does not fall within the confidence interval of being statistically significant at a confidence interval of 0.05 (95%). Thus, the hypothesis H4 is rejected.

<table>
<thead>
<tr>
<th>Regressions Summary for Dependent Variable: Participation in Microwork</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R^2 = .36378605$ $R^2_{adj} = .13234029$ $R^2 = .03072249$</td>
</tr>
<tr>
<td>$F (13,111) = 1.3023$ p&lt;.22217 $St. Error of estimate: .90509$</td>
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</table>

<table>
<thead>
<tr>
<th>Motivations</th>
<th>b*</th>
<th>Std.Err. of b*</th>
<th>b</th>
<th>Std.Err. of b</th>
<th>t (111)</th>
<th>p-value</th>
</tr>
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<tbody>
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<td>Intercept</td>
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<td>1.111</td>
<td>-0.064</td>
<td>1.110</td>
<td>-0.571</td>
<td>0.570</td>
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<td>Skill Variety</td>
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<td>0.112</td>
<td>-0.062</td>
<td>0.114</td>
<td>-0.384</td>
<td>0.701</td>
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<td>Task Identity</td>
<td>-0.023</td>
<td>0.114</td>
<td>-0.044</td>
<td>0.121</td>
<td>-0.205</td>
<td>0.838</td>
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<tr>
<td>Task Autonomy</td>
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<td>0.114</td>
<td>-0.025</td>
<td>0.121</td>
<td>-0.205</td>
<td>0.838</td>
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<td>0.101</td>
<td>0.140</td>
<td>0.102</td>
<td>-1.366</td>
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<td>0.046</td>
<td>0.090</td>
<td>0.511</td>
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<td>0.074</td>
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<td>0.075</td>
<td>0.117</td>
<td>0.641</td>
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<td>0.110</td>
<td>-0.129</td>
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<td>0.270</td>
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<td>0.114</td>
<td>2.827</td>
<td>0.006</td>
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<td>Barriers</td>
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<tr>
<td>Visibility</td>
<td>0.071</td>
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<td>0.074</td>
<td>0.098</td>
<td>0.753</td>
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<td>Bandwidth Constraints</td>
<td>0.005</td>
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<td>0.005</td>
<td>0.105</td>
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<td>Skill set/Education</td>
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<td>Payment Mechanisms</td>
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<td>Suitable jobs/tasks</td>
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<td>0.102</td>
<td>0.031</td>
<td>0.099</td>
<td>0.317</td>
<td>0.752</td>
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</table>

| Table 2. Summary of Multiple Regression Analysis for Microwork Participation |

**Discussion**

The adapted Self-Determination Theory model depicts how motivations and barriers affect a worker's participation in microwork. This research attempts to determine whether there is an association between the attitudes, experiences and barriers of workers and their participation in mobile microwork.

**Attitudes:** Although an attitude of a worker cannot be directly measured, the results of this research indicates that the attitude of a worker can be influenced by a number of factors such as their age, their employment status and education level. The attitude of workers is therefore shown to have an influence on whether the worker intends to participate or actually participates in mobile microwork in order to earn an income or supplement their income. Both the intrinsic motivations and extrinsic motivation are found to play...
a role in motivating workers to participate in mobile microwork. The motivations of a worker were found to positively influence a worker's attitude of participating in mobile microwork.

**Experiences:** Individuals with experience in participating in microwork are more motivated to continue participating in mobile microwork. These individuals found participating in microwork as an easy manner of earning an income, especially when unemployed despite the internet access and remuneration issues that they have encountered.

**Barriers:** Barriers that affect participation in microwork were not included in the original SDT model. However, the various barriers included in the adapted model were shown to have an influence on participation in mobile microwork. High data charges and skills/education required are two factors that are statistically significant and negatively influences the attitudes of workers and their participation in mobile microwork. Important factors that stood out in the quantitative data that was examined include time constraints due to current job demand and the remuneration received for participating in mobile microwork. Bandwidth constraints were also highlighted in the quantitative data as a barrier that influences participation in mobile microwork.

**Conclusions and Future Work**

This research shows that for the most part that the intrinsic and extrinsic motivations positively influence a worker's attitude towards participating in mobile microwork. In addition to the motivations that have been identified by the SDT model, factors such as employment status and education level also impact a worker's attitude, motivations and barriers that are encountered. The barriers experienced have been found to influence the attitudes and experiences as well as the intention to participate and actual participation in mobile microwork.

This research has contributed to the body of knowledge as well as practise by providing insights into the attitudes, experiences and barriers of those who have and who have not participated in microwork by detailing the motivations that affect workers' decision to participate in mobile microwork as well as the barriers that prevent workers from participating in mobile microwork in the context of a developing country, South Africa. Based on these insights, organizations can be able to make better decisions on how to motivate a crowd to participate as well as how to target a crowd by taking into consideration the barriers that are affecting participation.

A limitation of this research is that the sample that was obtained mostly included responses from a young group of individuals that come from a well-educated background and who are full-time employed and thus not really motivated to participate in mobile microwork due to certain constraints. This crowd of individuals might differ from the larger South African population who have different educational backgrounds, employment statuses and who might be more motivated to participate in mobile microwork.

While this research focused on the perspective of the microworker, further research can be done to understand the attitudes and experiences of organizations in South Africa towards participating in mobile microwork and making more job opportunities available to microworkers. Research into how organizations are adopting crowdsourcing platforms and the reasons behind their adoption can be carried out. This research has also left scope for further investigation into the same topic by further exploring the factors that have been identified. Organizations that wish to utilise crowdsourcing need to have a better understanding of what it is that motivates a crowd, the barriers that are experienced by the crowd as well as the incentives that would be suitable for the crowd in order to ensure the successful adoption of crowdsourcing platforms.

**References**


