International Journal of Engineering & Technology, 7 (4.33) (2018) 65-70

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research paper

Low Income Community as Crowd Worker for Crowdsourcing: Issues, Challenges and Future Direction

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Abstract

World are now facing flood of low income community responding to current global issue regarding employment. Considering the advantages of crowdsourcing, it has been identified as one potential solution to the issue. Responding to that, the concept has been implemented in many developing countries that have high rate of low income community such as India, Nepal and Philippines. Through crowdsourcing, business and individual can achieve greater and higher productivity in faster and shorter period. Crowdsourcing offer flexibility in terms of time, locations and durations of doing tasks and the most important is crowdsourcing will give additional income to complement existing income that will help to uplift one's lifestyle hence reduce the rate of low income community. However, focusing on low income community as crowd worker for crowdsourcing require depth understanding on varies factors such as crowd education levels, skills, attitudes, language and etcetera. Visibly, there are numerous issues and challenges in the implementation process. Thus, this study aims to discuss the issues and challenges when dealing with low income community as crowd worker. This study presents seven vital factors that need to be taken into deliberation when dealing with low income community. The results and discussion from this study can be used as a road map to prepare an action plan for a successful crowdsourcing implementation for low income community.

Keywords: *Crowd worker; Crowdsourcing; Low Income Community; Impact Sourcing; B40.*

1. Introduction

Crowdsourcing is a relatively new concept which has transformed the way people works [12]. Crowdsourcing has similar concept of outsourcing, but instead of outsourcing to business, crowdsourcing will outsource to crowd (known or unknown). Crowdsourcing can be described as the distribution of well-defined discrete tasks (micro tasks) to a (potentially large) group of networked users (crowd workers) through the internet [5, 16]. Term crowd worker are referring to group of individuals whose characteristics of numbers, heterogeneity and knowledge will be determined by the requirements of the crowdsourcing initiatives [3, 6, 9, 18, 21-22, 27-30]. Crowdsourcing makes use of the unknown workforce to complete these tasks in a distributed way [4]. These tasks can be completed under flexible time and location as long as there are internet connected devices such as smart phone, tablet, laptop or personal computer. When a task needs to be completed, it can be done faster and more efficiently with the help of others via crowdsourcing. This is the fundamental understanding of what crowdsourcing is from an employer's perspective. Crowdsourcing has become a cost effective way for companies to give opportunities for individuals outside of the companies to use their skills and time for good use and earn additional income. These companies pay people based on the amount of hours of works, and save millions of ringgits by doing so [10, 31]. Companies also will be able to tap into a large pool of talents, allowing these talents to choose what works suit them best. Crowdsourcing also allows companies to employ a large group of skilled people to handle projects within a specific time frame for a fixed price. Besides that, crowdsourcing is an effective way to accomplish tedious tasks at a faster rate. Task can be done either online or offline. Normally, crowdsourcing involves large projects that are broken down into micro tasks. These micro tasks are well-defined and then distributed to a group of workers. Typical micro tasks are translation, data validation, image tagging, research, writing, editing, categorization and data entry. Some of existing crowdsourcing platforms available globally supporting crowd sourced micro tasks includes 99Design, Mechanical Turk, oDesk.com, Elance and many more.

In the early stage of crowdsourcing, there are also other researchers who named crowdsourcing as micro sourcing [18]. Even though the definitions and terms may vary, the basic idea is still the same which is to tap into the collective intelligence of the public at large to complete business related tasks through internet connected devices [13].

As reported by The World Economic Forum (WEF) in its publication 'Future of Jobs' in January 2016, crowdsourcing is one of the top ten trends affecting industries with certain industries such as the Professional Services, Financial Services and Investors, as well as Information and Communications Technology (ICT). The market of crowdsourcing is expected to exceed 20 billion US dollars by 2020 [15]. It has been reported that the Global Crowdsourcing Industry has a bright future in Online Outsourcing and the market size have growth by 33% on average per year [15]. Until today, there are few big organizations that have begun to adopt crowdsourcing in conducting their business affair such as Google, AOL, Philip Morris (Altria Group, Inc.), GEICO, ESPN, VeriSign, and Polo [14]. With the emergence of crowdsourcing, a growing number of players are establishing. Involved parties are most likely to benefit economically and socially from these practices [11].

Due to its flexibilities in terms of time and locations, the concept has been implemented in many developing countries that have high rate of low income community such as India, and other low

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income locations such as Philippines, Mauritius and Brazil. Other emerging markets, including Kenya, Ghana, Rwanda and Uganda, have included crowdsourcing in their national growth strategy. Companies nowadays are focusing on hiring crowd worker for micro task for example data entry from these countries as the payment are cheaper. They are also skills crowd worker from this country but do not get the opportunity to find a job that suit their qualification [26]. Hence, crowdsourcing opens up their opportunity to find best suited job based on their qualification. The fact that, numerous of crowdsourcing services are delivered from low income locations demonstrate that the role of developing countries and low income community as consumers and producers of crowdsourcing is evolving and crucial [6]. These verified that crowdsourcing is one potential solution to the greatest issues facing developing countries which is a growing population in need of employment and will be able to reduce the percentage of low income community these days.

Nevertheless, focusing on low income community as crowd worker for crowdsourcing require depth understanding on varies factors such as crowd education levels, skills, attitudes, language and etcetera [20]. Apparently, there are various issues and challenges in the implementation process. Thus, this study aims to discuss the issues and challenges and to present seven vital factors that need to be taken into consideration when dealing with low income community. The results and discussion from this study can be used as a road map to prepare an action plan for a successful crowdsourcing implementation for low income community. The next section will discuss the concept of low income community.

2. Low Income Community

Globally, in rich or poor nations, low income community has always been present. No matter how advanced a country is, such as the United States of America, the United Kingdom and Japan, there will always be vulnerable groups, low income groups as well as the homeless and jobless. Low income community (also known as poverty) can be described as the state of one who lacks a usual or socially acceptable amount of money or material possessions [9]. Low income community is generally understood as a brief experience when income falls below family survival needs or the poverty line. In most nations today, inequality the gap between the rich and the poor is quite high and often widening. Low income is a major cause of social tensions and threatens to divide a nation because of the issue of inequalities, in particular income inequality [13]. In a society, poverty is a very dangerous factor that can weaken the entire country. Low income causes critical impacts to health, social, education and morality. In terms of health, people living in poverty are more likely to experience a range of stressors such as: incarceration of family members, substance abuse and mental health and so on [9]. Researches proved that living in a low income community will have immense impact on education as children from lower income households score significantly lower on measures of vocabulary and communication skills, knowledge of numbers, copying and symbol use, ability to concentrate and cooperative play with other children than children from higher income households [20]. Besides that, the effects of poverty have on human beings are so drastic that the phenomenon of poverty merits the undivided attention of governments, human and natural scientists, aid agencies, relief organizations, and citizen's everywhere [8].

Low income community in Malaysia is conceptualized and defined as income poverty and measured using a poverty line income to define poor and non-poor households [16]. The poverty line is determined in both absolute and relative terms. Absolute poverty line is calculated based on the income required to purchase a minimum food basket and other basic necessities. Currently, the B40 (bottom 40 which referring to 40 percent of poverty in Malaysia) consists of 2.7 million households throughout Malaysia. Criteria of B40 as listed in the 11th Malaysian Plan or Rancangan Malaysia ke-11 (RMK-11) report are for those who earned less than RM2, 537 per month. Due to that, government of Malaysia is targeting to increase the average income of B40 households from the current RM2, 537 monthlies to more than RM5, 000 in 2020. Many plans have been structured to achieve this goal. The next section will discuss in detail the low income community in Malaysia as crowd worker.

3. Low Income Community in Malaysia as Crowd Worker

As mentioned previously, one of the greatest issues facing developing countries is a growing population in need of employment. Countries with rapid growth rates are experiencing a "youth bulge", with young people entering the workforce forming a significant percentage of the population. This issues become more critical in low income country. To employ youth entering the workforce and help decrease unemployment among the young by 50 percent, over 700 million jobs will need to be created by 2020. Discussion in the previous section proved that crowdsourcing is one potential solution to the issues. By providing job through crowdsourcing to this talented resource pools, businesses and society gain benefits in a win-win situations. There is growing interest in developing countries as potential growth markets for crowdsourcing practices. Hence, crowdsourcing is one great solutions to the issue.

In the global market, crowdsourcing has made a significant impression in providing job opportunities for low income community to earn additional income. There has been growing numbers of crowdsourcing platforms in recent years, indicating huge potentials in this market that have not been tapped yet. Todays, majority of crowdsourcing are delivered from low income locations, which have prove that the role of developing countries and low income community as consumers and producers of crowdsourcing is evolving and crucial [6].

In Malaysia, under government initiatives program called Digital Malaysia, crowdsourcing industry has been identified as a potential industry to uplift the income of the population in the bottom 40 percent (B40) household income. Under Digital Malaysia, crowdsourcing is a way to earn additional income by performing tasks available in the crowdsourcing industry [1]. Digital Malaysia use existing and new initiatives that drive towards the development of the Digital Economy in Malaysia. This project aims to contribute RM287 million to Malaysia's Growth National Income (GNI) by 2020. At the same time, it also will create 1,425 full time jobs by 2020, and estimated to create income for 340,000 task workers [16-17]. As household expenses are increasing every year, Malaysia government believes that by developing the paid crowdsourcing, it gives wide range of opportunities for the low income community earners to improve their livelihood and lifestyles.

Under Digital Malaysia, eRezeki program was officially launched with objective to scale up impact of crowdsourcing and connecting the B40 communities to digital income opportunities. The eRezeki is a national program based on crowdsourcing concept and its variety of models. The Government of Malaysia via Malaysia Digital Economy Corporation (MDEC), has taken a unique country-level approach in developing and managing local crowd worker, especially since the program targets to benefit the population in the B40.

When it was first launched in 2015, eRezeki's primary focus is to match the local crowd worker with suitable service based task, starting with the introduction of simple digital micro tasks. One of eRezeki's key value propositions is indeed about efficiently matching the demand from the crowdsourcing industry with the supply of services from Malaysian citizens, and vice versa. Hence, profiling of eRezeki participants is vital and continuous process in the eRezeki system that will enable a proper demand-supply matching function, and this is the first attempt in the world to process and match wide spectrum of tasks of different complexi-

ties and origins with a national-level crowd of different skills, qualifications and experience [24-25].

In addition to the digital micro task, the eRezeki program also includes digital work category, which is directed towards B40 community with specific skills and qualifications (for example, unemployed graduates, under-employed graduates, retrenched workers and pensioners). There are three categories of work on eRezeki which digital works, digitally enabled tasks and digital micro tasks are. Digital works are tasks such as application development, creative work and language-based work. This type of task requires specific skills to perform the work and longer time to perform the tasks. Example of tasks are Web Development and Software Development. Digitally enabled task includes tasks such as survey, running errands and domestic services which were distributed online but must be performed offline or on-site for example cleaner or part timers. Digital micro tasks referring to simple task involving data entry, processing of images or actions that requires no-specific skills or high level of skills to perform the tasks. Tasks can be performed and completed within few minutes such as installation.

In the context of eRezeki, the Government of Malaysia is providing the necessary support and assistance in term of soft and hard infrastructure, particularly to the B40 community to enable them to participate and earn income as crowd workers [25]. Since the beginning of the programme, there are more than 50 eRezeki centres, purposely set-up under eRezeki and fully funded by MDEC. This eRezeki centers functions are to provide training in the particulars of eRezeki portal and system control, facilitate eRezeki online training, provide training slots based on needs and for walk-ins, provide work space and means to perform task, provide guidance during working on eRezeki tasks, and assistance in understanding instruction. Next section will discuss the issues and challenges of low income community is Malaysia as crowd worker.

4. Issues and Challenges of Low-Income Community in Malaysia as Crowd Worker

There are several issues and challenges that need to be addressed when dealing with low income community as crowd worker [25]. The issues and challenges vary from crowd motivation, education levels, skills, attitudes, language and etcetera.

The success of a crowdsourcing implementation largely depends on crowd worker and their motivation to participate. Motivation determines the quality and the quantity of contributions [25]. Motivation itself includes trust, freedom, career development, responsibility, satisfaction, contribution, achievement, recognition, peers, colleagues, being challenged, superiors, and the work itself etc. Besides that, motivation factors also include payment, company policy and administration, personal relations, status, security and etcetera. However, study conducted proved that most of the low income community lack in motivation itself. The B40 group has also been identified as having lack of confidence, low self-esteem, and high personal insecurity. They are vulnerable to even smallest setbacks because of their limited financial capability.

Study showed that most B40 households have low educational achievement. Based on Department of Statistics Malaysia [24-25], only 36.4% of household heads attained *Sijil Pelajaran Malaysia* (SPM) and equivalent while 36% had no certificate. Due to that, 89.9% household heads are employed in low- and semi-skilled. Thus, it will be challenging to prepare low income community to be involved in crowdsourcing as some jobs required high level of knowledge.

Data from Department of Statistics Malaysia [24-25] shows that the majority of B40 household heads are employed in low paying occupations, which include 21.7% in sales and services while 18.2% are in skilled agriculture-, forestry- and fishery-based occupations. In urban areas, 26.5% household heads work in sales and services, 19.9% as plant and machine operators and 15.4% in craft and related trades. In rural areas, 39.3% are involved in skilled agriculture-, forestry- and fishery-based occupations. Thus, B40 group possesses moderate to low level skills. Most of low income community have moderate competency in basic computer and mobile phone skills, and low competency in English, internet skills, communication, financial management and multi-tasking [32].

High dropout rate has been identified as one of the reasons for the low educational attainment among B40 households, particularly Orang Asli in Peninsular Malaysia, Bumiputera in Sabah and Bumiputera in Sarawak. Lack of interest to attend school, unconducive home environment, lack of parental support and low awareness on the importance of education among B40 households contributed to the high dropout rate. According to the Malaysia Millennium Development Goals (MDGs) 2010 Report [24-25], over 90% of those within lower secondary age and 75% within upper secondary school age and not in school are from the B40 households. Language barriers are also one main issue and challenge in adopting crowdsourcing. Low achievement, lack of interest towards education make it hard for low income to be successful crowd worker. Next section will discuss the methodology that been used in this study.

5. Methodology

This section discusses on the research methodology and research foundation that was used in the study. The study applied the quantitative method through questionnaires. Questionnaire is a structured set of questions for collect all information needed from the target respondent. A set of questionnaire are provided to eight subject matter expert via paper based and online survey. The subject matter experts are chosen based on their involvement in the strategic planning, develepoment, monitoring and marketing of crowdsourcing as they are capable of providing the overview of the crowdsourcing. Certainly, in an academic research, a small sample might only provide a limited perspectives of the picture. However, with reference to absolute minimum sample size, opinions from a small group of key experts of the industry are sufficient for generating reliable and useful results. In this study the subject matter experts are carefully chosen based on their involvement in crowdsourcing industry. The subject matter expets includes CEO, Vice President, Project Directors and senior executive who in charge in projects and development strategies of crowdsourcing. In this study, the subject matter experts should provide feedback in relevance with the important factors for low income community as crowd worker. These factors are vital as it can be used as a road map to prepare an action plan for a successful crowdsourcing implementation for low income community. The questionaires are develop based on the conceptual framework of crowdsourcing business model for low income community [34-35]. The conceptual framework consists of three main part which are crowd worker, job provider and platform. For this study, result related to crowd worker are presented. Based on the conceptual framework, seven factors have been identified as presented in Table 1. Based on the factors, the experts examine the importance of each factor that related to low income community as crowd worker.

Through the questionnaires, the experts examine the importance of each factor that related to low income community as crowd worker. The importance of each factor is measured using scaling system. 1 represents strongly disagree, 2 represents disagree, 3 represents neither, 4 represents agree and 5 represents present strongly agree.

Table 1: Factors for Low Income Community as Crowd worker [36]

Factor	Description	Researchers
Motivation to participate	Motivation for low income community to participate in crowdsourcing.	[3, 6-7, 16-17, 19-21, 28, 35]
Policy, rules and regulation	Policy, rules and regulations to protect low income community from exploitation	[1, 3, 6, 9, 12, 16, 18, 21]

	and abuse of labor.	
Infrastructure	Infrastructure that can cater the need of low income community. Infratsurcture includes internet connection, computer and etc.	[3, 6-8, 12, 19, 30]
Knowledge, skills andexperience in ICT	Knowledge and skills in ICT is very important related to low income community. Knowledge and skills include basic skills in ICT, language and etc.	[3, 6-8, 18-19, 21]
Payment and incentives	Payment and incentives are related to motivation. One of the main reason why low income community involve in crowdsourcing is to earn extra income.	[3, 6-8, 16, 18-19, 21, 29-30, 32]
Trust	Trust towards paltform among low income is very important especially when it comes to payment and incentives.	[28]
Quality of task	Quality of task completed by low income community.	[3, 6-8, 19, 24, 27]

6. Results and Discussion

Based on the conceptual framework, seven factors have been identified as presented in Table 1. Total of eight experts involved in the data collection process. The findings are presented in Table 2 present the findings gathered from the questionnaires. Table 3 and Figure 1 present the summarize percentage based on the findings. From the findings, it can be concluded that all seven factors presented in the conceptual framework are importance as perceived by the experts. Those seven factors are motivation to participate with 87.5%; policy, rules and regulation with 77.5%; infrastructure with 85%; knowledge, skills and experience in ICT with 90%; payment and incentives with 70%; trust with 85% and quality of task with 87.5%. From the findings, it proved that all seven elements are vital and crucial to be taken into consideration when implementing crowdsourcing for low income community. The conclusion is derived based on the value of percentage that is exceeding 60% for each factor.

Table 2: Importance of each factor (as perceived by experts)

Functions and Capabilities	A	B	C	D	E	F	G	H	Average	Standard Deviation
Motivation to participate	5	5	5	4	5	4	4	4	4.50	0.534
Policy, rules and regulation	4	3	4	4	4	4	4	4	3.88	0.354
Infrastructure	5	5	4	4	4	4	4	4	4.25	0.463
Knowledge, skills and experience in ICT	5	4	5	5	5	4	4	4	4.50	0.535
Payment and incentives	4	2	4	4	3	4	3	4	3.50	0.756
Trust	5	4	5	4	4	4	4	4	4.25	0.463
Quality of task	4	5	4	5	4	4	5	5	4.50	0.534

Table 3: Percentage of each factor (as perceived by experts)

Factor	Percentage (Based on Agreement on the Importance of Each Factor)-As Perceived by Experts
Motivation to participate	87.50
Policy, rules and regulation	77.50
Infrastructure	85.00
Knowledge, skills and experience in ICT	90.00
Payment and incentives	70.00
Trust	85.00
Quality of task	87.50

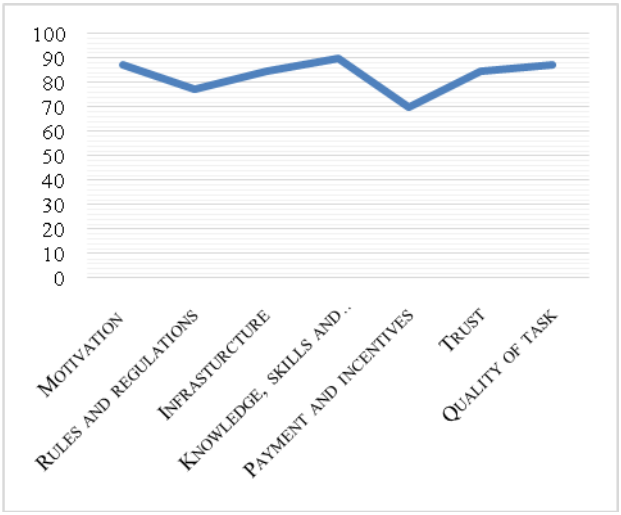

Fig. 1: Percentage of each factor (as perceived by experts)

6.1. Motivation

Motivation factor is a very crucial for low income community to participate in crowdsourcing as crowd worker. Motivations will determine the quality and quantity of contributions of the crowd worker. Crowd worker with long term goals, internal focus, self-esteem will ensure they become a successful crowd worker. Motivation can be disbursed by ongoing support by government. The support can be done through providing workshop or seminar from time to time to boost up their spirit and encouragement. As discusses above, apparently motivation can be persuaded by giving reward or incentives to the low income community whenever they participate or based on their performance. It can be concluded that motivation is associated with payment and incentives.

6.2. Knowledge, skills and experience in ICT

Low income community need to have skill and knowledge in handling technology aspect like computer skills, mobile phone and internet. Besides that, language proficiency, communication, financial management and multitasking are also crucial. Some tasks in crowdsourcing require low to moderate skill and can be performed in a comparatively short period of time. Others call for more qualifications and expertise. As discussed previously, study proved that low income community have low skill level due to low education. Hence, to ensure that low income community can become a good and successful crowd worker is by attending training that related to specific task/job that they are interested in such as data entry training.

6.3. Payment and incentives

Payment and incentives are related to motivation. One of the main reason why low income community involve in crowdsourcing is to earn extra income. Incentives can be divided into three categories which are financial incentives (payment, coupon, bonus, free product, free service), social incentives (award, prize, trustworthiness) and organizational incentives (extra privileges, career opportunities). By giving incentives to crowd worker, this will encourage low income community to involve and participate in crowdsourcing.

6.4. Policy, rules and regulation

Policy, rules and regulations to protect low income community from exploitation and abuse of labor. Guidelines for home working could be extended for low income community that involve in crowdsourcing. For instances, income from crowdsourcing is exempted from income tax. Besides that,

guideline related to usage of this new technological breakthrough are crucial as there are increasing trend of information technology abuse amongst users. Users seem to neglect laws and guidelines with their intentionally or not committing to the unethical actions [1].

6.5. Quality of task

Crowd worker quality based on three factors which are worker's availability, flexibility of working hours and crowd workerreputation (based on history and average satisfaction score attained upon completion of a task). Hence, low income community who become crowd worker need to gain good reputation. The most important are the quality of the task that will be given or completed by the crowd worker. Reflected from the education, skills ad knowledge issue, quality of task of low income community may be affected. Hence, attending workshop or training will help low incomec ommunity to enhance their skills and knowledge.

6.6. Infrastructure

Infrastructure that can cater the need of low income community. Infrastructure includes internet connection, computer and etcetera.Crowdsourcing is web based pattern which make best use of individuals on the internet through open call, hence internet facility for low income community area is compulsary. Low income community should at least own mobile phone or computer. Government can take action by providing community centers with ICT facilities. In Malaysia, although the government has promoted technology inclusion of low income community, the consideration of readiness for technology need to be taken into consideration [3]. The effort for better understanding of the complexity of low income community in Malaysia may contribute better understanding for empowerment among low income community in Malaysia towards the creation of technology [2].

6.7. Trust

Trust towards paltform among low income is very important especially when it comes to payment and incentives. The willingness of crowd worker to depends on platform. Trust has also been proposed in outsourcing literature as a key factor that influences the relationship between crowd workers and platform. Besides that trust regarding privacy issue is also critical. Information sharing over the Internet has significantly changed the way of communication among the users all over the globe. Consequently, this has led to security and privacy issues as the users are willing to their share personal information online without any hesitation [33-34].

7. Conclusion

Today, one of the greatest issues facing developing countries is a growing population in need of employment. Crowdsourcing is one potential solution to the issues and opportunities present globally today. Considering the advantages of crowdsourcing, the concept has been implemented in many developing countries such as India, Nepal and Philippines. In Malaysia, under the recent Malaysian government initiatives called Digital Malaysia, various crowdsourcing efforts and programs have been introduced in order to help the low income community. This study aims to discuss the issues and challenges when dealing with low income community as crowd worker. This study involved findings from eight experts in the industry regarding taking low income community as crowd worker in crowdsourcing. This study presents seven vital factors that need to be taken into deliberation when dealing with low income community. The results and discussion from this study can be used as a road map to prepare an action plan for a successful crowdsourcing implementation for low income community.

Acknowledgment

The authors would like to thank to Ministry of Education Malaysia, LESTARI Grant (title: Crowdsourcing Feasibility Assessment for Small and Medium Enterprises in Malaysia) and Universiti Teknologi MARA (UiTM) for their funding support.

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