

Utilizing Crowdsourcing in Education: A Future of Academic Retiree

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Abstract— The socio-economic challenges caused by ageing populations have encouraged many countries to re-evaluate the place of the elderly in society and adopt measures in encouraging them to be participative. In recent decades, crowdsourcing has been identified as a rapid growth of innovative internet-based information and communication technologies in giving the opportunities to educational organizations to reach their goals. With their accumulated skills and knowledge, academic retirees can be resourceful to the society. However, their knowledge and experiences seem to be undervalued and underutilized. Retired academics have better opportunity to extend their contribution in the society as their valuable knowledge is more appreciated than people from other background. Retired academics have the ability to fulfill their desire for professional continuity via suitable platform. This paper discovers the use of crowdsourcing in educational activities, especially for the academic retirees. Therefore, the objectives of this paper are to take an exploratory look on how educational organizations use crowdsourcing as part of their activities at the present time, and to suggest how the practice of crowdsourcing may expand to other educational activities as the time goes on.

Keywords — *Academic Retiree, Crowdsourcing, Educational activities, Social innovation, Social technologies*

I. INTRODUCTION

Higher learning institutions face dilemma when they are expected to simultaneously reduce expenditures and improve learning outcomes through faster graduation rates. The roles and functions of academics compile not only teaching and doing research, but also involve administration work. This is crucial because many universities worldwide are required not only to produce quality graduates, but also centers for wealth creation through research [1]. Therefore, the top management of these institutions needs to come out with several strategies to ensure that these expectations can be met through the existing teaching and learning process, and fully utilize the academician in order to burst up the research and academics perspectives which have been addressed. The assurance of successful institutions can be addressed by how the top management generates their self-income, develops, maintains and grows the potential profit and research project, exploits the possibility of

the products to be marketed and protects its knowledge base, skills and competencies [2].

The emergence of web technologies 2.0 offers in social online interactivity and the collaboration of expertise around the world have made the teaching and learning process in higher learning institutions is not limited within the campus or classrooms anymore. In this cyber world, people tend to seek for help virtually to solve a complex cognition and manipulation tasks and these problems can be solved by the assistance of a mass volunteer which is acknowledged as a crowd [3]. Therefore, crowdsourcing has been identified as a rapid growth of innovative internet-based information and communication technologies [4] in giving the opportunities to educational organizations to reach their goals. Crowdsourcing is the mostly used web based social system to perform the tasks [5][6]. The rise of associated techniques in crowdsourcing has further significantly influenced the education on the web [7] to facilitate the online social environments.

Thus, the objectives of this paper are to take an exploratory look on how educational organizations use crowdsourcing as part of their activities at the present time, especially for the academic retiree and to suggest how the practice of crowdsourcing may be expanded to other educational activities by time.

II. CROWDSOURCING

Crowdsourcing is one of the platform that has been greatly used towards capturing the ideas of users and participants in contributing their knowledge, completing task and providing feedbacks for a project, platform or services. There are many crowdsourcing platforms that are available nowadays such as Mechanical Turk, Topcoder, CloudCrowd, YourPartTime.com, MyKerja.com.my, Edusource.mmsc.com.my and CloudFlower.

In recent years, crowdsourcing has emerged as an online distributed problem solving and production model [8]. Coined by Jeff Howe in the June 2006 issue of Wired magazine [9], crowdsourcing is new web-based model that can integrate all the expertise (crowds) into a creative solution of an individual distributed network through solving several problems which has been raised up by any individual or organization (the crowd) which called as open call. [10] also argued that

crowdsourcing is categorized into four (4) pillars; the crowd, the crowdsourcer, the crowdsourcing task and the crowdsourcing platform. The crowd's participation in crowdsourcing plays a vital part in determining the successfulness of a platform. It relies on their skills, experiences and knowledge in the domain [10].

In other words, the individual or an organization will post their problems online, a mass of individuals will offer a solution to the respective problem and the winning ideas will receive rewards. [11] introduced the existing crowdsourcing business model in Malaysia as depicted in Figure 1.

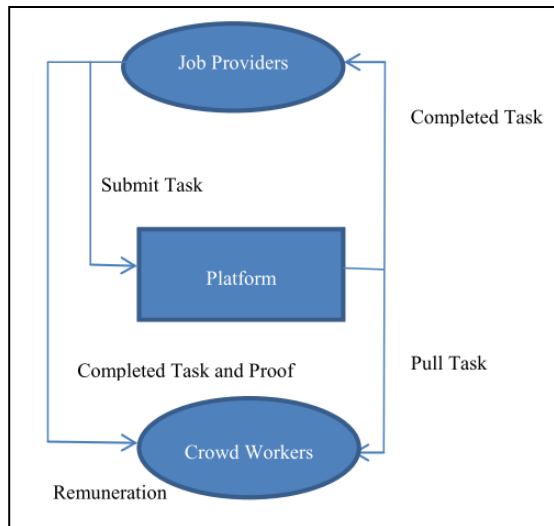


Fig. 1. Existing micro sourcing business model in Malaysia [11]

The crowd will be awarded with money [12][13], tangible benefits and pleasure [5], besides the credibility earned [14] in completing the given tasks and solving the problem. Through crowdsourcing, workers have the flexibility of doing work 24/7 as well as choosing locations and duration of their own preference. It also provides an additional income to complement existing income [11]. But somehow, these crowds assist the individual or organization without expecting any reward besides benevolence [15].

A broader perspective has been adopted by [16] who argues that crowdsourcing allows difficult and time-consuming projects to be tackled short time by a large group of individuals who work simultaneously at their own pace. [13] and [17] claimed that there are four crowdsourcing commonalities from published research; (1) speed, (2) at low cost, (3) good quality, and (4) variety of solution and workers. In the same vein, [7] in his research concluded that crowdsourcing in education can offer additional luxury through social networking which is still in development.

III. PROBLEM STATEMENT

Previous study has reported by [18] that at one time academics' careers might have been considered to be "boundaryless", perhaps the boundaries between work and non-work can be blurred and the nature of the academic role is

often open ended. Survey conducted by [19] have shown that the academicians continue to use their specialized skills and knowledge in different activities in retirement. Other factors found to be influencing early academic retiree have been explored in several studies. In 2004, [20] argues that intention to leave the academic profession is high in higher institutions of learning due to joining other professions, do not keen to pursue a similar line of work, finding other sources of income and continuing to work until they find a good job.

More recently, literature has emerged that some studies offer contradictory findings about reasons of these academicians continue to work later in life, such as financial pressures on pension schemes from an ageing population, labor shortfalls and skills shortages [21], dissatisfaction with changes in the universities and financial inducements [22]. The issue has grown in importance in light of recent shortage of qualified workers [23] and been offered a better job abroad [22]. This scenario in Malaysia is no different.

It has been conclusively shown by [2] that whenever these academicians retired, the institution of higher learning will experience three (3) top loss; (1) loss of an expert employee with knowledge of the products and processes of the company, (2) loss of customer and supplier contacts, relationships and established trust, and (3) loss of understanding of the informal personnel networks. It is clear from the previous studies above that the major concern about the academic retiree loss is not about the technical and professional knowledge, but also loss of the undocumented and underlying knowledge gained from the experience and profitable engagement.

To date, there has been little agreement on the uses of crowdsourcing for academic retiree. How many academic retirees such as professor, teachers, educators and other professionals, would still like to contribute? How many people love education, have valuable skills and expertise, but work in fields outside of education? How can they contribute and share the knowledge, expertise and skill gained from the previous engagement with public? How can the continuation of the involvement of older academics in the universities be best facilitated?

In view of this, it makes sense to study the retirement of academicians where the nature of their work allows for flexibility and provides the scope for alternative work arrangements in late career and retirement. Specifically, the findings of this study would clarify the significance of individual and organizational factors in determining academics' career advancement.

IV. RETIREMENT IN ACADEMIC CONTEXT

Retirement is considered to be a major life transition, marking the boundary between work and rest. The researcher's interest in studying retirement in academic was motivated at first by his belief that older people, with their accumulated skills and knowledge, are a resource to society, which seems to be undervalued and underutilized. This is also argued by [19] who stated that if the older people, especially the academic retirees retain their health and live in an environment which

promotes their active participation, they can act as a valuable resource contributing to society with their experience, skills and wisdom.

Therefore, in this scenario, institution of higher learning will continuously form networks which interactively collaborating the researchers and stakeholders [1] in knowledge development and sharing in order to produce a quality graduated students. The organization might lose their skills and experiences worker [22][19] if the organization did not plan to retain these precious knowledge. It may be difficult, expensive and impossible to recover the knowledge [2] from the academicians who have knowledge in their heads which no longer work for the institutions.

Most academic staff continued to use their academic skill in different area and environment such as industry and private practice. Some of them working through a series of jobs and retired several times [22]. Although there are a lot of advantages of retirement, higher learning institutions also need to address the disvalued among the academic retiree [22] once they leave the university.

Hence, the academic profession is a very important sector in the development of every developing country and it is important to understand the roles that the academics play in Malaysia in moving the country toward a developed nation status by the year 2020.

V. MALAYSIAN GOVERNMENT INITIATIVES

As an initiative plan to upgrade and uplift the quality of Malaysian life, Malaysian government had introduced a micro sourcing resolution under Tenth Malaysia Plan (10th MP), 2011-2015, [24] to give the opportunities to Malaysian in participating in micro sourcing industry to flourish their financial and economy, especially who are in the bottom 40 percent household income group (B40 group). B40 households refer to households with income up to RM3,855.00 [25]. Micro sourcing training has provided community leaders with basic computer skills, social media management, email management, internet searching skills, email marketing, and database management. It has enabled them to solely rely or supply their income on new job opportunities such as data entry and e-mail marketing. This serious matter has also been emphasized by Malaysian government in Eleventh Malaysia Plan (11th MO), 2016 – 2020, [24] where a special attention given to B40 community to improve their socio-economy on covering the cost of living, household income, education and employment opportunities, entrepreneurship and safety.

Therefore, Multimedia Development Corporation (MDEC), the lead agency for Digital Malaysia, has introduced the National 'eRezeki' program [26], that provides additional source of income for B40 community. The B40 community includes blue-collared workers, the unemployed and under-employed, students, housewives, retirees and senior citizens.

According to [27], 56% of Malaysian citizen are using computer or laptops or smartphones, 57% of Malaysian individuals are using the internet and 72% of them are using the computer with internet at home. Therefore, it is believed

that with the statistics shown previously can somehow boost up the crowdsourcing usefulness among Malaysian citizen, especially the academic retiree in assisting the student's teaching and learning process. Even though the leading challenges of crowdsourcing approaches is the digital gap [28] between Malaysian community, the Malaysian government has strived to narrow down the division by expanding the internet connection and capacity and establishing Kampung Tanpa Wayar (KTW) and Pusat Internet 1Malaysia (PP1M) in rural area.

This study aims to contribute to this growing area of research by exploring how the senior citizens, especially the academic retiree can contribute their knowledge and skill to society by using the online platform, either by existing government portal or university's learning portal to overcome the problems raised in previous section [22][23][21].

VI. CROWDSOURCING AND EDUCATION

The availability and accessibility of Information Communication Infrastructure (ICT) can facilitate the teaching and learning processes, including the research and administration work effectively and solve problem arise in digital boundary. Almost every paper that has been written on the crowdsourcing in education includes a section relating to the advantages of using crowdsourcing compared to the traditional education. This view is supported by [4] who had identified the reasons why education is an exciting approach for crowdsourcing research; (1) crowd-techniques will be required in order to deliver quality education in some areas, (2) existing techniques are ready for application to this new area, and (3) online education represents a new unexplored way of creating crowds.

Crowdsourcing has emerged as a dynamic aspect of education on the web because it promotes the openness and sharing of resources and knowledge [29] contributed by the crowd communities. Instead of teaching the students in the classroom or laboratory and using the learning portal developed by the institution itself, crowdsourcing techniques will likely be crucial in order to reach the full potential of this medium. Students are also encouraged to use the crowdsourcing initiatives to ask crowd workers to solve their problems in learning a course, as emphasized by [3], such as gathering data to train algorithms. Academic retiree can participate in the community of improving the educational materials and the process of education itself [4] because they have at least the basic skill sets and prerequisites for the course. By offering an online course, this may harness numbers of ideas to improvise the education materials from a group of skilled crowd.

Other than web, crowdsourcing can be facilitated by any new media tools [12] such as web blog, websites and SNS. Crowdsourcing platform such as Mechanical Turk offers proofreading services, which is believed that the crowd workers are among the language expertise community. One study by [30] reported the contribution of academic retiree to personalization of education and instruction can tremendously

increase the engagement and learning outcomes of students. [4] [31] suggested that crowdsourced peer grading can lead to more accurate assessments in students learning by combining the ideas and opinions of graders, expertise and stakeholders. As long as the academicians are willing to share their experience and knowledge with others, it will be the key to knowledge transfer success [23].

RE-SEED (Retirees Enhancing Science Education through Experiments and Demonstrations) is a decent example of program introduced by Northeastern University in 1991 [32]. This program prepares retired science and engineering professionals to work as volunteers in middle school science classrooms and assist middle school science teachers with teaching, which allow them to make science interesting and relevant to everyday situations. Even though this program is considered as face-to-face training, higher learning institutions need to take part on establishing and gathering all the retired academicians to contribute their knowledge and skill through the university's learning portal or other social network site (SNS) and assist the needed students.

Recently, in vitro studies have shown that feedback mechanism in crowdsourcing is essential to create on-campus support from the crowds [33][34][16][35] and keep the students forefront of learning courses. Forum discussion provided by the university learning portal [34] is also an efficient and effective way of transferring priceless knowledge among the academic retiree, expertise and stakeholders with the students. Even though the learning contents are laborious to be developed [30], especially on the construction of web interface for crowdsourcing [28], it is believed that by using the crowdsourcing techniques, the collaboration and idea innovation between the academic retiree from the whole Malaysian universities will make the course contents easier to be developed.

There are number of tools which assist to use crowdsourcing online. The main idea of the crowdsourcing in education is to share knowledge, expertise, time and resources [29]. People wanting to show their expertise to solve issues together have driven crowdsourcing to be helpful for society in reaching positive goals.

[16] discussed the four primary strategies of crowdsourcing, illustrated by [9] and mapped them with higher leaning institutions; (1) crowd wisdom, (2) crowd creation, (3) crowd funding, and (4) crowd voting. As senior academicians in university, crowd wisdom involves sharing the knowledge and gathering the ideas on solving a problem, predicting the graduates needs and outcomes, and helping to improve the university directions and corporate strategy towards the university objectives. In crowd creation, students or university staff can produce a better product and research project which requires the public (crowd) involvement so that the product can be marketable and beneficial for society. Malaysian universities nowadays need to generate their own financial income to operate. Therefore, crowdfunding can be one of the processes for the crowd to contribute their money for education projects and academic research. Meanwhile, crowd voting

refers to requiring an opinion or ideas by voting. All the strategies above can be collaborated and contributed by the senior academicians who have retired or will be retired in order to support the teaching and learning process, university goals and initiatives.

Recent evidence suggested by [12] showed that there are four approaches to crowdsourcing involvement that can be implemented by any of organization, including the higher learning institutions; (1) knowledge discovery and management, (2) distributed human intelligence tasking, (3) broadcast search, and (4) peer-vetted creative production. As long as there is an internet connection, anyone (crowd) can participate through online crowdsourcing application which fits into their interested project.

Lastly, higher learning institutions need to be aware with the involvement of public (crowd) during the participation process and they need to identify the people to be excluded and included in order to overcome the potential conflicts in certain tasks or projects, especially in sharing knowledge in teaching and learning process.

VII. CONCLUSION

It is time for the academic retiree to involve in crowdsourcing. ICT technology enables an engagement between students, staff, researchers, lecturers, administration, stakeholders and society through the medium of the web. Crowdsourcing can be a tool to support the exchange of teaching and learning syllabus as an additional enrichment for an attractive lesson.

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