Productive Ageing: Insights from an Action Research dealing with Senior Citizens' engagement with an E-Learning Platform to Educate Underprivileged Children

Arina Bardhan

Mailing address: arina.bardhan@gmail.com

Doctoral Research Fellow in the department of Sociology at Jadavpur University, Kolkata, West Bengal. She is also the Senior Research Associate at Social Informatics Research Group, Indian Institute of Management Calcutta, Kolkata. She has completed her Masters in Sociology from University of Hyderabad, Hyderabad, India in the year 2012.

Somprakash Bandyopadhyay

Mailing address: somprakashb@gmail.com

A Professor at MIS Group and the Research Director of Social Informatics Research Group, Indian Institute of Management Calcultta. He is a PhD in Computer Science from Jadavpur University Calcutta, India and B. Tech in Electronics and Electrical Communication Engineering from Indian Institute of Technology, Kharagpur, India. He was a fellow of the Alexander von Humboldt Foundation, Germany and fellow of the Japan Trust International Foundation. He has around 37 years of experience in teaching, research and technology development in several organizations of international repute, including PricewaterhouseCoopers Ltd., Advanced Telecommunications Research Institute, Japan, Indian Institute of Technology Kharagpur, Indian Institute of Technology Bombay, German Research Centre for Artificial Intelligence, Germany, Tata Institute of Fundamental Research, Bombay and Jadavpur University, Calcutta.

Productive Ageing: Insights from an Action Research dealing with Senior Citizens' engagement with an E-Learning Platform to Educate Underprivileged Children

Abstract

The world is experiencing an important demographic transformation: an unprecedented increase in the ageing population in almost all developed and developing nations. The increased ageing population has not only put pressure on social care and health care systems but also raised issues of social isolation and disengagement among elderly in society. These issues have led to the emergence of gerontological social services focusing on maintenance and enhancement of the quality of life and well-being of elderly by promoting independence, autonomy and dignity. The paper here critiques the current Indian gerontological services and governmental policies that focus primarily on health care services, social security and financial stability of the elderly and often ignore issues related to promoting their independence and productive engagement in society. In this context, the paper by way of promoting independence and productive engagement in old age, presents the findings of some interventions from an action research programme "Ageing Well: Using Pervasive Information System for Empowerment of Indian Elderly People", conducted by Social Informatics Research Group, Indian Institute of Management Calcutta. This paper presents the insights and observations of the interventions where fifteen retired senior citizens were trained in using an online learning platform to get productively engaged by utilising their dormant knowledge resource to impart quality education from their home to rural underprivileged school students for three years. This Action Research

programme demonstrates that use of Internet and Web 2.0 Technologies by senior citizens not only helps them to get involved in a productive activity but also directly engage themselves in the development process of improving the learning outcomes of underprivileged school children in rural India.

Keywords: productive ageing; Internet and Web 2.0 Technologies; online e-learning platform.

Introduction

United Nations Report on Madrid International Plan of Action on Ageing (MIPAA) indicates that ageing will be the dominant and most visible aspect of world population dynamics in the 21st century (UN, 2002). In this context, MIPAA has urged the governments and society at large to adopt innovative mechanisms to promote participation of elderly/senior citizens as citizens with full rights, and to assure that persons everywhere are able to age with security and dignity. The objective is to create an inclusive society for all ages characterised by independence, participation, care, self-fulfilment and dignity.

Since Independence, India has recognised senior citizens as a priority target group for social welfare interventions and rarely as resource or as active participants in mainstream productive activities. The Central Government Policies (Ministry of Social Justice and Empowerment, 1999) and various gerontological social services focus on various welfare schemes that secures only financial and health issues of elderly in the country. This subscribes to the disengagement theory of ageing that constructs age as a process of economic, social, and physical decline (Turner, 1995) and therefore need support in those aspects. However, to create inclusive society for all ages, the focus must shift to constructive engagement of elderly in society rather than on supporting them. Rejecting the disengagement theory of ageing and current focus of Indian gerontological social services,

3

the action research programme presented in the paper demonstrates the potential of Internet-based social technologies in providing productive engagement opportunities to elderly through enhancement of virtual social connectivity.

Until Industrial Revolution, elderly had honored roles in society; they were the nurturers, guardians of the traditions, teachers, mentors and initiators of the young. However, in modern society, the mainstream visions of ageing have largely seen the senior years as a time for withdrawing from making contribution to the larger community, a time for winding down. However, this is a group that has acquired a lifetime of skills, knowledge and wisdom which can be shared with the younger generation, contributing to the knowledge capital of the society. In this context, the paper proposes the action research programme where a group of knowledgeable senior citizens, using their vast pool of knowledge and experiences, redefine their role as teachers and mentors and get engaged in disseminating quality learning to the underprivileged students in rural India using an online e-learning platform.

Children in rural India continue to be deprived of quality education owing to factors like "teacher absenteeism, inadequately trained teachers, non-availability of teaching materials, inadequate supervision, and little support" (Kumar, 2010). Children from rural schools often drop out due to factors like an "unattractive classroom environment, teacher absenteeism, teacher-centered teaching, and a stagnant daily routine" (Dreze, 2013). Retired senior citizens, who have the required knowledge base but are not involved in any productive engagement, can act as remote teachers using computer assisted distance learning to these students leading to enhancement of quality of education of the children and their improvement in quality of life after retirement.

Objectives

The action research programme has focused on the current nature of subjective wellbeing among a group of senior citizens in the city of Kolkata and further explores the need of productive ageing through utilisation of dormant knowledge capital in disseminating quality education to underprivileged rural students using digital technologies. The overall objective is to study the effectiveness of digital technologies as an enabler to promote a better quality of life for the senior citizens and be an active participant in the process of social change.

Background

In India, several NGOs such as Agewell Foundation, Calcutta Metropolitan Institute of Gerontology, HelpAge India Deep Prabin Parisheba, Nightangle Medical Trust are at present working on providing assistance to elderly in their everyday life which includes affordable medical care at home, improved access to institutional health care, home-based rehabilitation services and social support. Though many such gerontological social services have started to focus on social engagement of elderly, efforts are much less in comparison to assistive health related support given to the senior citizens of India. Governmental policies in India are now keen on providing opportunities for elderly that will guarantee independence and dignity in society in terms of main-stream engagements in social activities. This brings us to the discussion on the need towards *productive ageing*. The concept of productive ageing is not restricted to earning a living in old age (Raje, 2012). As Robert N Butler says "The principal concept of productive ageing is to remain constructive in relationship to the larger society and immediate environment as long as possible. I think the downside to productive ageing is if it is only seen as work" (Butler & Gleason, 1985). Gokhale (1995) explains: "Productive ageing implies the participation in action- oriented policies and programmes aimed at guaranteeing social and economic security for the elderly as well as providing opportunities for them to contribute to and share in the benefits of development". In this context, the paper

focuses on mechanisms of disseminating elderly knowledge and wisdom as a means towards productive ageing. Indigenous elder knowledge sharing traditions have the potential to address some of the mentoring and knowledge transfer needs within a community.

Role of Internet and Web 2.0 Technologies in Productive Ageing

Use of information and communication technologies (ICT) as assistive technologies are quite common in providing assistive care to the elderly which helps people stay healthy and live independently at home for a long time (Siegel & Dorner, 2017). However, in this context, the focus shifts from assistive means of technology to the wider scope of the cyber-world that provides productive opportunities for enhancing the social connectivity of older adults through various social technology tools and platforms. ICT can play an important role in helping older adults to stay independent as long as possible and stay socially included by way of interacting with others. Digital technology has the potential to bridge barriers as online social networks and online discussion forums can be used to engage in social contact regardless of geographical or temporal location. Senior citizens' participation in social media ranges from passive engagements such as reading posts and online discussions to active engagements of writing blogs, creating content, connecting online with family and friends, etc (Sims, Reed, & Carr, 2016), which has positive impact on the physical and mental well-being of older adults.

Intergenerational solidarity and family support is an important component of ageing gracefully in later life and social networking platforms can play a significant role in this regard. Grandparents can also serve as mentors, historians, wizard or nurturer (Kornhaber & Woodward, 1981). Different initiatives have used the virtual spaces in building online communities among old and young. NGOs, gerontological societies and individuals all across the world, believing in the positive impact of connecting younger generations with elderly, have taken number of initiatives in connecting them using social media. FCB Brazil, an

advertising agency based out of Brazil has initiated "Speaking Exchange" project for CNA language schools where young Brazilians learn English from American elderly using video conferencing meeting room. A group of retired elderly in old age homes and own homes in America help the youth in Brazil with speaking and communicating in English (Nudd, 2014). "Cyber Seniors" initiative centred on senior citizens based out of San Francisco, USA focuses on connecting generations using Internet. This initiative focuses on a group of senior citizens getting trained in using Internet through computers or smart phones by young volunteers for three months. The seniors eventually start using Facebook, youtube, Gmail etc. and connect with loved ones using video conferencing software. These seniors engage themselves by uploading their videos, watching others' videos through youtube. All these initiatives through digital technologies aims at making the elderly actively engaged after retirement and intend to alleviate loneliness and social isolation in old age. But the paper questions as to whether elderly can use this avenue of connecting with the younger generations in solving a burgeoning social problem of poor quality of education.

Aiming towards redefining the roles of elderly in society as mentors to the younger generation, the action research programme has focused on the capacity of knowledgeable elderly in solving problems of education in rural India using social technologies. Underprivileged students in rural areas lack holistic growth because of inexperienced rural teachers and poor content. Thus, the paper reflects potential of a group of retired senior citizens to disseminate quality formal and non-formal education to the rural underprivileged students through online e-learning platforms.

The action research reflected in this paper has two parts. In the first part, an attempt has been made to prove a hypothesis that engagement with productive activities and social interactions facilitates overall subjective wellbeing of senior citizens. The main findings of the study have been mentioned. In the second part, some observations and insights

from interventions have been presented where an attempt has been made to create an opportunity for knowledgeable senior citizens to get involved in productive engagements and social interactions using Internet and web 2.0 technologies. 15 retired senior citizens were trained to get engaged in an online e-learning platform to impart quality education from their home to rural underprivileged school students for three years. The e-learning platform was developed by the research group to conduct the action research. The objective is to demonstrate that use of Internet and Web 2.0 Technologies by senior citizens not only helps them to get involved in a main-stream productive activity but also improves the well-being and learning outcomes of underprivileged school children in rural India.

Effect of Productive Engagements and Social Interactions on Subjective Wellbeing

The paper will now discuss briefly the main findings of a subjective wellbeing study that was conducted in the action research programme where 98 middle class elderly from city of Kolkata, India was selected using snowball sampling to investigate the factors responsible for increasing one's subjective wellbeing in old age. The independent variables of this study are: (i) physical wellbeing, (ii) companionship, (iii) involvement in paid services, and (iv) involvement in voluntary services. These variables are scored in a 1-3 scale and can be defined as follows:

Physical well-being: It assesses the ability to perform basic activities of daily living and to live independently. Health and physical wellbeing is an important parameter to determine subjective wellbeing of older adults.

Companionship: This variable comprises of component of social and family interactions, relationship with off-springs and grand-children at home. This parameter gauges the presence and support of spouse, offsprings and grandchildren as well as social engagements in old age.

Involvement in Paid services: This variable is one component of productive ageing. This parameter defines engagement of elderly in any work that yields economic return.

Involvement in Voluntary services: This variable indicates extent of productive participation in voluntary services such as helping underserved communities, working in NGOs, taking part in local community activities, etc.

The dependent variable taken in this study is **subjective wellbeing** of elderly in old age. Subjective measures of wellbeing, scored in a 1-5 scale, capture people's feelings or real experiences, explores people's perceptions on their life, their happiness, sadness, satisfaction etc. (McGillivray and Clarke 2006). McGillivray and Clarke state that "subjective wellbeing involves a multidimensional evaluation of life, including cognitive judgments of life satisfaction and affective evaluations of emotions and moods." Subjective wellbeing is measured using Life Satisfaction Index, Morale Scale and Affect (Positive and Negative). The Life satisfaction measurements have been conducted using the Diener Scale, the Morale scale has been conducted using Philadelphia Geriatric Morale Scale (PGC Morale Scale) and the Affect scale measurements are conducted using The PANAS-X: Manual for the positive and negative affect schedule (Watson & Clark, 1999).

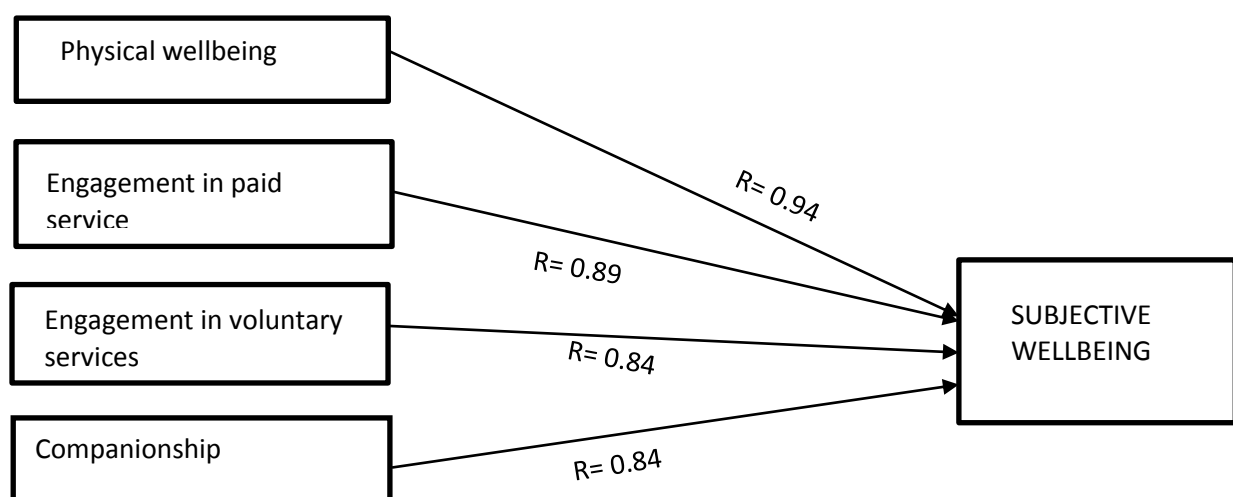The correlations of independent variables with the dependent variable are presented in figure 1.

Figure 1. Correlations of Independent Variables with Subjective Wellbeing

As shown in figure 1, the independent variables show high positive correlation with subjective wellbeing. The first relationship indicates that older adults with low *physical wellbeing* will have low *subjective wellbeing*. The primary reasons behind this are confinement at home and inability to participate freely in social / productive engagements. It implies that digital technology has the potential to improve their wellbeing through improved access to social / productive engagement opportunities using Internet and web 2.0 technologies, even if they are confined at home.

The second and third relationships indicate that increased *engagement in paid services* and increased *engagement in voluntary services* increases feelings of subjective wellbeing among the older adults. This implies that increased subjective wellbeing of an older adult depends only on active engagements in mainstream social activities, even if it is unpaid. This analyses that to ensure increased subjective wellbeing, an older adult needs to be active participants in social change.

The final relationship between companionship and subjective wellbeing shows positive correlation at 0.84. People tend to have higher subjective wellbeing when they stay connected with their spouse or offsprings. Intergenerational solidarity is considered to be a factor influencing subjective wellbeing among older adults where interaction and relationship between two generations especially alternate generations are taken.

To summarise, this quantitative study of subjective wellbeing emphasizes the need for *productive* and *meaningful social engagements* after retirement. The derivations of a positive relationship between activities and subjective wellbeing can be further explained from the Activity theories of ageing (Havighurst, 1961) that has emphasized on the importance of work with categorisation of age.

Creating Productive Ageing Opportunities using Internet: Insights from the Action Research

As indicated in the last section, productive and meaningful social engagements play an important role in improving subjective wellbeing among retired senior citizens. In the second part of the paper, we present some insights from interventions where the primary objective is to exploit the potential of Internet-based social technologies in providing productive and meaningful social engagement opportunities to elderly through enhancement of virtual social connectivity.

15 knowledgeable retired senior citizens were selected from an initial sample of 98 using convenient sampling. These 15 senior citizens were previously not involved in any productive activities after formal/informal retirement. Since elderly knowledge and wisdom is the primary asset of retired senior citizens, we have focused on creating an online e-learning platform (Figure 2) where the knowledgeable elderly will get connected online with young underprivileged learners in rural India from the comforts of their homes.

These retired senior citizens from Kolkata connected with the underprivileged students located in rural regions of Burdwan, Birbhum, South 24 Parganas, Nadia, Murshidabad and Kolkata in West Bengal, India through this online e-learning platform. The elderly teachers have taught them academic subjects such as English, Mathematics and Science and a non-formal subject termed 'Grand-parenting', comprising of story-telling, recitation, art and crafts, exposure to world knowledge etc.. It focuses on holistic development of children. The purpose of such interventions is to engage knowledgeable senior citizens in a productive activity of knowledge dissemination.

All of the 15 elderly are within the age group of 65 to 80 years and were not involved in any meaningful activity after formal/informal retirement from work. Five out of the 15

elderly teachers are retired professors, three of them are retired Montessori trained teachers, three of them are retired secondary school teachers and rest of the four elderly have retired from corporate offices. The four elderly who were into formal services have prior experience of teaching students privately at home or in tuition centres. Out of these fifteen elderly, eight were male and seven were female. Three out of seven elderly women were predominantly home-makers but no longer involved in nurturing own children and were now spending less time to take care of the households. They felt lonely with the sudden reduction of activities. The men too after retiring from formal employment felt the need to be engaged in an activity that will give meaning to their life.
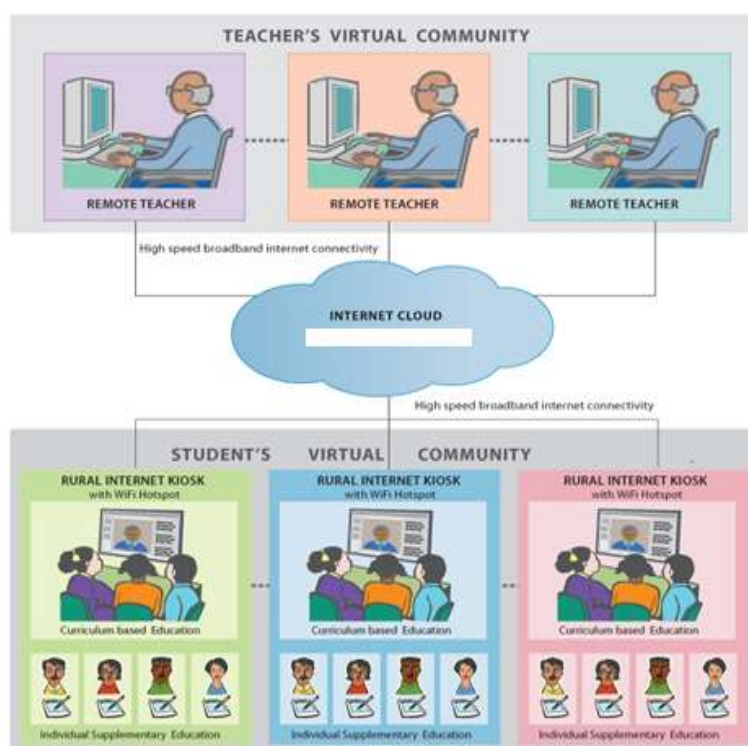

Figure 2. Elderly teachers teaching underserved students using an online e-learning platform

The e- learning platform

The online e-learning platform (Fig 2) has an in-built video conferencing system that also has a provision to share digital content on the computer screen or to use in-built digital white

board for diagrammatic explanations. These elderly teachers teach from their homes, where they have an ICT setup (laptop/desktop, speakers, camera, and headphones) along with high speed internet connectivity.

During the initial stage of the intervention none of these elderly knew the use of computer/laptop and Internet. 10 young volunteers started training the interested elderly teachers at their residence and it took them more than a month to complete the training. The objective of the training was to connect them with the cyber-world. After the training, the teachers could operate Youtube, Facebook, Gmail, Whatsapp and the online teaching learning platform (figure 3).

Figure 3. Elderly teachers teaching underserved students online: two snap-shots

The rural underprivileged students are located in remote classrooms, which are also equipped with an ICT setup (desktop/laptop, large monitor/screen or projector, camera, speakers and microphone) and high speed internet connectivity. The classes are conducted at scheduled times, using the above platform. Individual student can also get connected with on-line teacher on a one-to-one basis, using his/her smart-phone or tablet. An on-site teaching assistant/ class coordinator appointed at this rural classroom would schedule classes,

coordinate the teaching process via this platform, manage the classroom and mediate the interactions with students and the online teachers during classroom sessions.

The effectiveness of these classes conducted by elderly teachers (Figure 3) can be briefly described highlighting the following aspects:

- Bridging the barrier: The underserved students from the rural communities were not exposed to the world outside. The elderly teachers used to talk about their urban environment, urban experiences to the students located in distant villages of West Bengal, India. One of the teachers, who went to her daughter's place in Boston, USA for a vacation, conducted online classes from USA. She showed, for example, the snow-fall and streets & buildings of Boston from the window of her room, while interacting with those rural children online. Through the online e-learning platform, a teacher showed short films of Charlie Chaplin and Disney, making students familiar with the world outside. Thus, the senior teachers focused on holistic development of each student by introducing a world that was earlier unknown to them.

- Explanation of concepts: The underserved students had difficulty in understanding basic concepts in Mathematics and Science. They were weak in English grammar and pronunciations. The online classes focused on clarification of the concepts where the elderly teachers used colourful e-whiteboard, audio-visuals as well as real life examples while explaining those concepts. While teaching English, the elderly teachers focused on pronunciation.

- Engagement in cultural activities: Unlike the existing rural school teachers, the elderly teachers encouraged students to read story books, poems, sing and dance in class to make the classroom environment learner-centric yet devoid of the monotonousness of a regular classroom. One of the elderly teachers had asked the students to organise a

cultural function where all of the students rehearsed online and staged a play scripted by the teacher himself.

- Encouraging participation: Existing rural school teachers, having low interest level in teaching a class, never encourage students to participate. On the other hand, the elderly teachers, having the interest and desire to impact the lives of the underserved students, payed much attention on communication, reciprocation and peer- to peer learning using the online learning platform.

Assessing the Impact on Elderly Teachers

The impact of the interventions on elderly teachers engaged in online teaching can be illustrated using certain themes derived from first-hand accounts of the teachers:

1. Intergenerational solidarity: While teaching students, one of the elderly teachers shared his childhood memories with the students online. He used to show videos of Laurel Hardy, Indian Epics and various cartoons to make learning fun. Students too shared their fears and happiness with the elderly teacher, resulting in the usage of the term "Dadu" or grandfather for the elderly teachers. These moments have impacted deeply in the minds of the elderly teachers who too consider the students as their own grand-children, contributing in their holistic development. The elderly teachers have said in interviews that they feel closer to these students than their own grand-children who do not stay with them.

2. Socio-economic contribution: Teaching the underserved rural children was the primary motivation of majority of teachers to become a part of the social experiment. One of the elderly teachers is a retired school teacher and had 40 years of experience in teaching students from decent socio-economic backgrounds. After retirement she was looking for opportunities where her expertise in teaching can be used to impact those who are in need of good teachers. She was in need of an activity that will satisfy

15

her as a human being. As a result, teaching the underserved rural children with low learning achievement levels was the driving force for her to be a part of the social experiment. After teaching for three years, she expresses her extreme satisfaction in contributing to the problem of education in India. She constantly looks for better study materials for the students to make them at par with the urban students. Apart from contributing in mitigating a social problem, financial reward, although insignificant, was another factor that attracted the elderly teachers to this initiative where they can also earn from the comfort of their home. All the teachers have expressed extreme satisfaction in contributing to the problem of education in India.

3. Reduction of physical problems: One of the elderly teachers has said that the lively and engaging interactions with students help her forget her health problems. Two hours of engagement everyday through the online learning platform energises the elderly teachers to such an extent that they feel more positive and socially included. One of the teachers had a brain surgery and he couldn't teach students for two months and was in a state of depression. He regained his spirit after joining back the classes after two months.

Assessing the Impact on Rural Children

79 students from three rural schools in districts of Nadia, Burdwan and South 24 Parganas in West Bengal took part in the online learning interventions. Most of the students from underserved rural communities are first generation learners. They receive little or no help at home. The elderly teachers have tried to bridge the rural-urban education divide by catering to each students, addressing individual problems and clarifying basic concepts using relevant examples. The students receiving less attention at home and schools feel included when the elderly teachers force them to talk about themselves. The impact on the students can be illustrated as follows:

1. Academic Impact: Students are now enjoying their studies and want to learn more. They started interacting and communicating more with the online teachers.

2. Holistic Development: The underserved students were now more enlightened because of the constant knowledge sharing by the elderly teachers. The students enjoy listening to the stories narrated by the elderly teachers. These stories, poems and real life experiences of the elderly teachers help students go beyond their microcosmic locale.

We have tried to measure students' improvement with two variables: **Students' Wellbeing** and **Learning Achievement**. It can be stated that learning and wellbeing are inextricably related, as students learn best when their wellbeing is optimized, and eventually they develop a strong sense of wellbeing when they experience success in learning. In this context, it has been observed that students themselves identify schooling as a significant influence on their wellbeing: "be it the positive impact of a great teacher, an inspirational and engaging classroom lesson or that extra support provided at just the right time" (Student Learning And Wellbeing Framework, 2018). It is stated that "more learning occurs in a joyous classroom where children feel safe, secure and accepted, and where they feel the teacher sees them for who they really are" (Diamond, 2010). The learning achievement of the students have been measured using competency based grade level questionnaire that have been formulated keeping in mind the heterogeneity of school boards and geographical locations.

Before the students were engaged in this social experiment, a preliminary study was conducted to assess their wellbeing and learning achievement. After the intervention, the students have shown considerable improvement. Figure 4 and 5 shows the improvement on Wellbeing score and Learning Achievement score of those 79 underprivileged students **at an individual level**. It is to be noted that the improvement is noticeable for each individual students in their Wellbeing scores. It must be also stated that there has been a stark

improvement in Learning Achievements among the students indicating a positive shift towards quality of education.
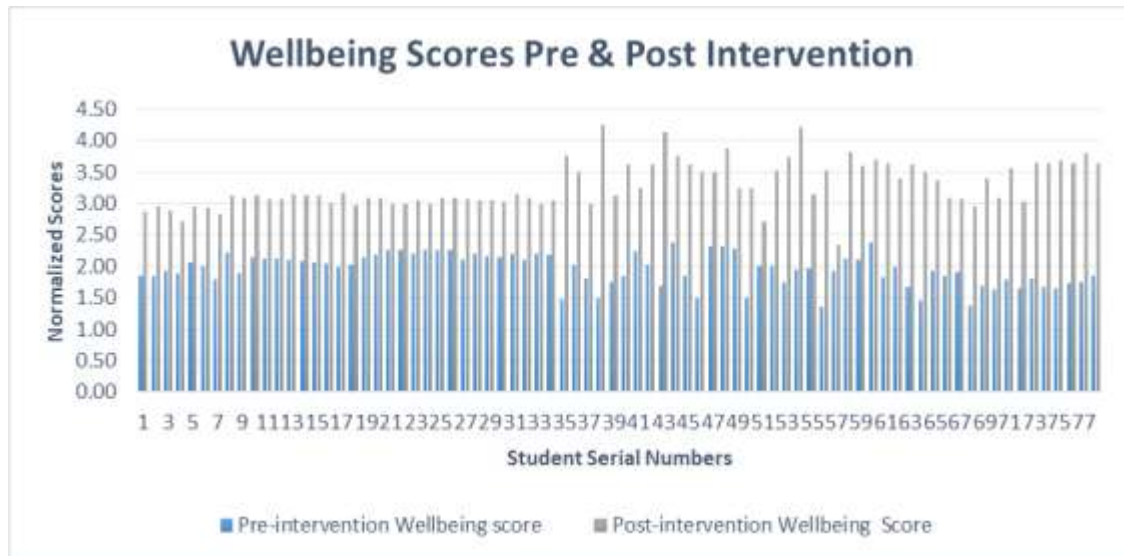

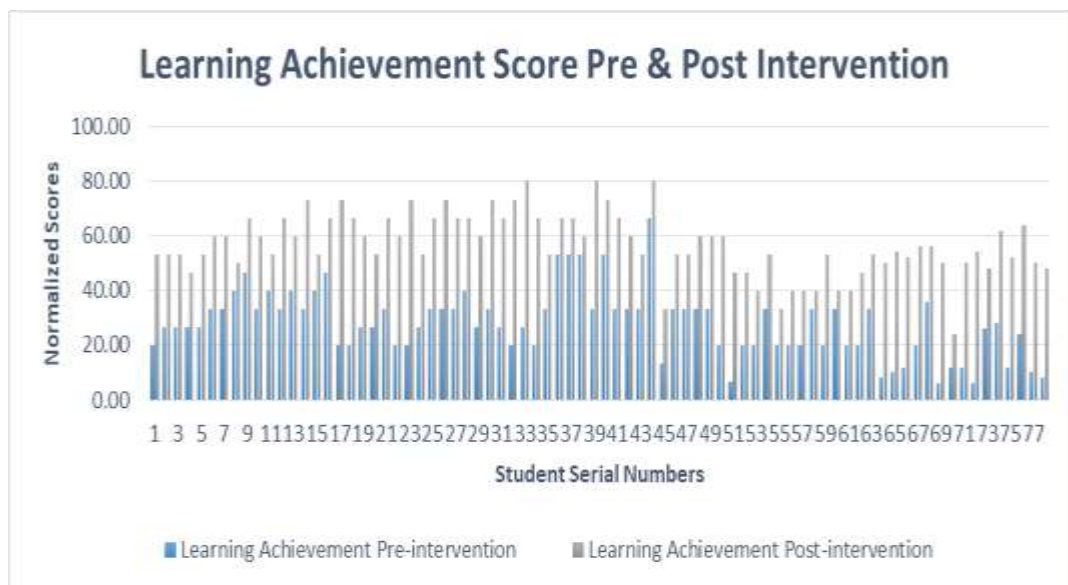Figure 4. Improvement of 79 students in Wellbeing after Intervention

Figure 5. Improvement of 79 students in Learning Achievement Score after Intervention

Conclusion

The paper has focused on the importance of productive and meaningful social engagements in old age which is positively correlated with subjective wellbeing. The paper also suggests the use of Internet-based social technologies in providing productive engagement opportunities to the senior citizens through enhancement of virtual social connectivity. Though the scope of the term "Productive ageing" ranges from paid services to voluntary activities, Robert Butler has focused on remaining constructive in relation to the larger society. In other words, productive ageing implies contribution to economic growth and social development of a nation in old age (Butler and Gleeson, 1985). The action research mentioned in the paper has focused on productive ageing where the dormant knowledge capital of knowledgeable elderly can be mobilized using Internet and web 2.0 technologies, contributing to improvement in the rural education system of the nation. At the same time, this enhances the subjective wellbeing of the senior citizens. The positive experiences gained by the elderly teachers through the proposed online e-learning platform prove that intergenerational solidarity plays crucial role in benefitting both the age groups. The positive experiences of the students assert the fact that knowledgeable elderly have the potential to mentor younger generations.

The action research programme proposes not only active involvement of elderly after retirement but also their meaningful engagements in society. The policy implementation thus proposed is realisation of the definition of productive ageing characterised by autonomy and independence in old age. The paper critiques the primary focus of majority of gerontological social work organizations and governmental policies of India that focus primarily on health care services, social security, and financial stability of elderly and ignore the issues related to promoting independence and productive engagement of older adults in the society. Along with financial and health related securities, there is dire need for recognition of the roles and

19

expertise of elderly in society by the government and gerontological services. This would be possible if all such organisations come together and envision a platform for the elderly where they can find their own agencies to contribute and play important roles in society. This paper has demonstrated the importance of productive ageing and suggested an online e-learning platform as an example of creating a robust mutually benefitting community where retired senior citizens can feel socially included and independent.

References

1. Butler, R.N. & Gleason, H.P. (1985): Productive Ageing: Enhancing Vitality in Later Life. New York: Springer Pub.

2. Diamond, A 2010: The Evidence Base for Improving School Outcomes by Addressing the Whole Child and by Addressing Skills and Attitudes, Not Just Content. Early Education and Development, vol. 21, no. 5, pp 780-793.

3. Dreze, Jean and Amartya Sen (2013): An Uncertain Glory: India and its Contradictions. Princeton University Press, 2013.

4. Gokhale, S. D. (1995): Community experiences in active ageing: An NGO perspective. Population Ageing and Development. *Asian Population Studies*. Series No.140.

5. Havighurst, R. J. (1961): Successful ageing. *The Gerontologist*. **1**: 8–13. doi:10.1093/geront/1.1.8

6. Kornhaber, A. & Woodward, K.L. (1981): Grandparents, grandchildren: the vital connection.NewYork: Anchor Press/Doubleday.

7. Kumar, A. K. & Rustagi, P. (2010): Elementary Education in India: Progress, Setbacks, and Challenges. *Oxfam India Working Papers Series,* OIWPS – III

8. McGillivray, M., & Clarke, M. (2006): Human well-being: Concepts and measures. In M. McGillivray, & M. Clarke, Understanding Human Wellbeing (pp. 3-16). New York: United Nations University Press.

9. Ministry of Social Justice and Empowerment (1999): The National Policy on Older Persons. New Delhi: Government of India.

10. Nudd, T. (2014): Brazilian Kids Learn English by Video Chatting With Lonely Elderly Americans. https://www.adweek.com/creativity/perfect-match-brazilian-kids-learn-english-video-chatting-lonely-elderly-americans-157523/

11. Raje, A. (2012): Productive Ageing: An Indian Perspective. In I. Holmerova, M. Ferreira, & P. Wija, Productive Ageing: Conditions and Opportunities: A Monograph (pp. 71-78). Prague: The Ministry of Education, Youth and Sports –Charles University, Faculty of Humanities.

12. Sciegaj,M., Hooyman, N.R., Mahoney, K.J. & DeLuca,C. (2018): The times they are a-changing: Self-directed long-term services and supports and gerontological social work. Journal of Gerontological Social Work. https://doi.org/10.1080/01634372.2018.1439852

13. Siegel, C., & Dorner, E. (2017): Information technology for active and assisted living influences to the quality of life of an ageing society. *International Journal of medical informatics,* 100, 32-45

14. Sims, T., Reed, A.E., & Carr, D.C. (2016): Information and communication technology use is related to higher well-being among the oldest-old. *Journals of Gerontology Series B:Psychological Sciences and Social Sciences.* 72(5) 761-770

15. Sivaraju, S, Alam, M.,Gangadharan, K., Syamala, T., Verma, S., Gupta, N (2017): Caring for our elders: Early Responses. *India ageing report 2017. United Nations Population Fund.* India. https://india.unfpa.org/sites/default/files/pub-pdf/India%20Ageing%20Report%20-%202017%20%28Final%20Version%29.pdf

16. Student Learning and Wellbeing Framework. (2018): State Of Queensland (Department Of Education) 2018. http://education.qld.gov.au/schools/healthy/docs/student-learning-wellbeing-framework.pdf

17. Turner, B. (1995): Ageing and Identity. In M. a. Featherstone, Images of Ageing. London: Routledge.

18. United Nations, Department of Economic and Social Affairs. (2002): Madrid International Plan of Action on Ageing 2002. New York: United Nations.

19. Watson, David & Anna C. Lee. (1999): The PANAS-X: Manual for the positive and negative affect schedule-expanded form. Psychology Publications.