循道衛理楊震社會服務處
YANG MEMORIAL METHODIST SOCIAL SERVICE
彩虹長者綜合服務中心
Choi Hung Community Centre for Senior Citizens

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Report on Evaluation Study on Meeting on the Rainbow: Virtual Social Club for the Socially Isolated Carer in the Community

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Introduction

This brief report titled "Evaluation Study on Meeting on the Rainbow: Virtual Social Club for the Socially Isolated Carer in the Community was conducted by the Research Team of Felizberta Lo Padilla Tong School of Social Sciences of Saint Francis University. It aimed at generating empirical evidence on the implementation and the outcomes of the "Meeting on the Rainbow" (hereafter the Programme) conducted by Yang Memorial Methodist Social Service Choi Hung Community Centre for Senior Citizen.

The objectives of the Programme were: (1) To identify the hidden carer and encourage carer to participate the online interaction program; (2) To establish an effective virtual connection network for the carer in order to reduce the problem of social isolation & loneliness; (3) To increase the social capital of Wong Tai Sin to support the carer who care for elderly and their caring elderly. The Research Team is chiefly responsible for evaluating the objectives (2) & (3).

Methodology

There were two groups of participants, the caregivers and the volunteers, in the Programme. Mixed methods, consisting of quantitative survey and qualitative focus group interviews, were employed to evaluate the effectiveness of the study through quasi-experimental design. Both caregivers and the volunteers were invited to respond to quantitative survey at 2 time-points with 6 months apart, and same groups of participants were also invited to join focus groups.

Major Measures

i) Online/ offline social capital: Williams (2005)'s 20-item scale is grounded on Putnam's (2000) bonding and bridging capital, that the scale also differentiated between those social capital occurred online or offline. The Research Team has dropped an (1) item after discussing with the Centre – for caregivers and volunteers

ii) Senior Technology Acceptance: A 14-item scale developed by Chen and Lou (2020) had been used to predict older people's acceptance of everyday technology – for caregivers and volunteers

iii) Sense of Community – 8-item Sense of Community scale assessing the dimensions of needs fulfillment, group membership, influence, and emotional connection would be used (Au et al, 2020) – for volunteers only

Procedure

Ethical approval has been received from the Research and Ethics Committee of Saint Francis University (HRE No.: HRE230237) prior data collection. All participants have given their consent to participate in the study. Fifty dollars supermarket coupons have been given to participants who have completed the 2-wave surveys, and the focus groups. Research assistant has assisted in the collection of quantitative data from participants, while the principal investigator and the research assistant conducted the focus group interviews together.

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Results

In this brief report, the Research Team focused on reporting and discussing about the quantitative findings of both caregivers and volunteers

Caregivers

Descriptive statistics

This study comprised a total valid sample of 101 caregivers, of whom 32 (31.7%) were male and 69 (68.3%) were female. The mean age of the caregivers was 70.48 (*SD* = 11.18, missing = 1), ranging from 42 to 101 years. Regarding the demographic of the care recipients, 47 (46.5%) were male and 54 (53.5%) were female, with a mean age of 82.02 (SD = 9.43), ranging from 63 to 100 years. The caregivers-care recipients' relationships were that spousal accounted for 63.4%, while 34.7% were parent-child relationships, and the remaining 2% were siblings.

Inferential statistics

Paired sample *t*-tests were performed to compare mean scores of pre- and post-test on bonding social capital in both the online and offline contexts. In the online context, finding showed a significant difference between pre-test ($M = 2.88$, $SD = .93$) and post-test ($M = 3.18$, $SD = .72$); $t(100) = -3.64$, $p < .001$, two-tailed). Finding from the offline context showed similarly result that pre-test ($M = 3.38$, $SD = .57$) was found significantly different from post-test ($M = 3.57$, $SD = .39$; $t(100) = -3.61$, $p < .001$, two-tailed). Bonding social capital is conceptualised a strong tie within homogeneous groups, such as family or close friends (Granovetter, 1973; Putnam, 1995). Both online and offline bonding are found significantly increased in the post-test, indicating that the bonding with strong ties has enhanced after joining the activities. The statistically significant increase in both online and offline bonding social capital implies that caregivers used the virtual community mainly to strengthen and reinforce existing close-knit (or strong ties) which can attain better emotional or familial supports. This finding may at the same time suggested a successful translation of the online interaction to offline ties through technology-enabled maintenance of relationships that encourages more frequent FTF communication, which overall facilitates a synergy in socialization.

Concerning bridging social capital, paired sample *t*-tests were performed to compare mean scores of pre- and post-test in both the online and offline contexts. In the online context, finding showed no significant difference between pre-test ($M = 2.83$, $SD = 1.01$) and post-test ($M = 2.98$, $SD = .68$); $t(100) = -1.91$, $p > .05$, two-tailed). Finding from the offline context, however, showed significant difference between pre-test ($M = 3.34$, $SD = .69$) and post-test offline bridging ($M = 3.49$, $SD = .38$; $t(100) = -2.59$, $p < .05$, two-tailed). Bridging social capital indicates weak ties between the heterogeneous groups, perhaps in this context ties between caregivers and professionals (Ng et al., 2022). The present results show that participants reported that their weak ties relationships have increased after joining activities. Nevertheless, online bridging social capital shows no significant findings between pre-test and post-test. This indicates that online weak ties across diverse group did not increase statistically after joining activities.

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Another two sets of paired sample *t*-test were performed to compare mean scores of pre- and post-test on participants' technology acceptance. In terms of attitudinal beliefs, finding showed

no significant difference between pre-test (M = 6.34, SD = 2.08) and post-test (M = 6.49, SD = 1.80); $t(100) = -.89$, $p > .05$, two-tailed). However, finding on participants' gerontechnology anxiety showed a significant difference between pre-test (M = 5.05, SD = 2.46) and post-test (M = 4.53, SD = 1.89; $t(100) = 2.07$, $p < .05$, two-tailed). The mean of gerontechnology anxiety drops from 5.05 to 4.53, resulting in a difference in means of .51. The result indicates that participants' attitudes toward technology remain unchanged "at a moderate level of acceptance," while their technology anxiety reduced.

Brief discussion

Previous research has proposed that bonding and bridging social capital are two complementary concepts. Bonding is the strong tie, being beneficial to social, emotional, mental (Simons et al., 2020) and even physical health (Kishimoto et al., 2013; Norstrand & Xu, 2012), while bridging is the weak ties, enable additional encouragement from the community or even resourceful external to caregiving support.

As to the fact that only offline bridging social capital are evidenced to be improved but the online one, a possible explanation could be that virtual community has managed to offer the ease for the caregivers to maintain close ties through online interactions, and that saves time and energy for them to connect to real-world social groups of greater diversity which are outside their immediate social circles. Online bridging, however, could not be as effortless as the offline one as the caregiving elderly may still be new to the digital world even though their gerontechnology anxiety appears to be reduced in the present study. While trying to get familiar with the digital devices coupled with meeting least familiar ties (weak ties), their willingness to engage and expand unfamiliar online community networks could not be increased in the post-test. This may explain why caregiving elderly still prefer bridging social capital in the offline context than doing it online.

The present research showed that participants have reduced technology anxiety, and that might be explained by their increased in the use of it, thereby getting more familiar with the technology. By handling the older adults' attitudinal perception or technology literacy while engaging in social networking, they could be more confident to broaden their social connections of better richness, for example intergenerational, which eventually provide them greater access to potential resources for future caregiving issues, learning opportunities, and reduce social isolation and loneliness.

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Table 1. Differences Between Pre-test and Post-test of key variables of caregivers

	Pre-test		Post-test		
$N = 101$	*M*	*SD*	*M*	*SD*	*t*
Social Capital					
Online Bonding	2.88	.93	3.18	.72	-3.64***
Online Bridging	2.83	1.01	2.98	.68	-1.91
Offline Bonding	3.38	.57	3.57	.39	-3.61***
Offline Bridging	3.34	.69	3.49	.38	-2.59*
Senior Technology Acceptance					
Attitudinal beliefs	6.34	2.08	6.49	1.81	-.89
Gerontechnology anxiety	5.05	2.46	4.53	1.88	2.07*

*$p < .05$, **$p < .005$, ***$p < .001$

Volunteers

Descriptive statistics

This study included 48 volunteers, with the majority being females (n = 44, 91.7%). The mean age of the participants was 66.38 (*SD* = 7.57, missing = 3), ranging from 47 to 82 years. Regarding the demographic characteristics of the participants, about 50% of them had a secondary education level, all of them reported they have been using smartphones, and the top two purposes of using technological devices are communication (*n* = 39, 81.3%) and video watching (*n* = 35, 72.9%). They rated their perceived technological application capabilities as 4.12 (*SD* = 4.12), implying that they are generally considered capable.

Inferential statistics

Paired sample *t*-tests were performed to compare mean scores of pre- and post-test on bonding social capital in both the online and offline contexts. Regarding the bonding aspect, findings showed a significant difference between pre-test online bonding (*M* = 3.06, *SD* = .83) and post-test online bonding (*M* = 3.44, *SD* = .73; (*t*(47) = -4.05, $p < .001$, two-tailed). Findings also demonstrated a significant difference between pre-test offline bonding (*M* = 3.40, *SD* = .70) and post-test offline bonding (*M* = 3.77, *SD* = .53; (*t*(47) = -4.10, $p < .001$, two-tailed).

Concerning the bridging aspect of social capital, findings showed similar results that both post-test online bridging (*M* = 3.64, *SD* = .81) and offline bridging (*M* = 3.84, *SD* = .46) are significantly improved from pre-test online bridging (*M* = 3.41, *SD* = .97; (*t*(47) = -2.03, *p* = .048, two-tailed) and offline bridging (*M* = 3.68, *SD* = .60; (*t*(47) = -2.06, *p* = .045, two-tailed), respectively.

Other sets of paired sample *t-tests* were performed to compare mean scores of pre- and post-tests on participants' technology acceptance. In terms of attitudinal beliefs, findings showed no significant difference between pre-test (*M* = 7.41, *SD* = 1.53 and post-test (*M* = 7.54, *SD* = 1.55; *t*(47) = -.70, $p > .05$, two-tailed). In terms of the cognitive aspect, findings also showed no significant difference between pre-test (*M* = 6.81, *SD* = 1.81 and post-test (*M* = 7.13, *SD* = 1.57;

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$t(47) = -.63$, $p > .05$, two-tailed). However, findings on participants' gerontechnology anxiety showed a significant difference between pre-test ($M = 5.98$, $SD = 2.36$) and post-test ($M = 5.04$, $SD = 2.03$; $t\ (47) = 3.03$, $p = .004$, two-tailed). The results indicate that participants' attitude and cognitive evaluation towards technology remain unchanged while their technology anxiety reduced.

Regarding general well-being in our samples, results showed no significant difference between pre-test ($M = 3.34$, $SD = .94$ and post-test ($M = 3.53$, $SD = .67$; $t(47) = -1.71$, $p > .05$, two-tailed). However, in terms of the sense of community, participants reported a significant improvement from pre-test scores ($M = 2.68$, $SD = .64$) to post-test scores ($M = 2.94$, $SD = .45$; $t(47) = -3.33$, $p = .002$, two-tailed).

Brief discussion

Resonating the similar findings in caregiver groups, the volunteer group showed significant increases in all domains of social capital post-test scores, indicating that the volunteers could develop more ties and enhance bonding with strong ties via joining the activities. Concerning a greater effect size observed in the bonding aspect of social capital, a study suggested that volunteering often strengthens bonding more than bridging because it brings together people with shared values or backgrounds, boosting trust and emotional closeness (Davies et al., 2024).

The present research also showed that our volunteers reported a higher sense of belonging after joining the program. The results are largely supported by previous studies in both local and non-local situations (e.g., Lu et al., 2024; Russell et al., 2019). Research generally suggests that volunteering helps older adults maintain meaningful social networks, as reflected in the improvement in social capital domains, which helps them cultivate belonging and recognise their roles and values.

Volunteers reported a reduction in technology anxiety, and that might be explained by the positive experience in technology use during the program and which can modify their perceptions and improve their digital literacy (An et al., 2024).

Table 2. Differences Between Pre-test and Post-test on Key Variables of volunteers

	Pre-test		Post-test		
$N = 48$	*M*	*SD*	*M*	*SD*	*t*
Social Capital					
Online Bonding	3.06	.83	3.44	.73	-4.05***
Online Bridging	3.41	.97	3.64	.81	-2.03*
Offline Bonding	3.40	.71	3.77	.53	-4.10***
Offline Bridging	3.68	.60	3.84	.46	-2.06*
Senior Technology Acceptance					
Attitudinal beliefs	7.41	1.53	7.54	1.55	-.63
Self-efficacy	6.81	1.81	7.13	1.57	-1.49
Gerontechnology anxiety	5.98	2.36	5.04	2.03	3.03**
Sense of Community	2.68	.64	2.94	.45	-3.33**

*$p < .05$, **$p < .005$, ***$p < .001$

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General Discussion

Through the participation in the Programme, both the caregivers and the volunteers have shown significant increase in terms of online and offline social capital. As mentioned in previous section of this booklet, caregivers have shared they have built bonding social capital through universality in terms of caregiving experience and participation in the Programme, and also with the guidance from volunteer, their anxiety in using technology has been reduced, as one of the caregivers has reviewed that adopting iPad is as simple as holding a key to open the door（Ms Law，FG2，F，76，Caregiver）. Among the volunteers, they have strengthened bonding with other fellow volunteers through ongoing partnership, exchange in whatsapp group and sharing of experience in offline meeting. Regarding the bridging social capital, both caregivers and volunteers would regard the genuiness and reciprocity between them would enable them to exchange common experience and build trust.

Limitation and Conclusion

Caregivers and volunteers joined the Programme through various strategies including outreach and invitation by the staff of the Centre, self-approach, or referral through snowball and convenience sampling. They might have relatively higher intention, interest, and anticipation to join the Programme. Although this quasi-experimental design does not have a control group of caregivers and volunteers, this evaluation study shed light on the preliminary and pilot evidence in demonstrating the effectiveness of the Programme by increasing participants' online/ offline social capital, as well as increasing caregivers' and volunteers' acceptance of technology.

Since the COVID-19 pandemic, social service agencies in Hong Kong have showed rapid incorporation of information and communication technology (ICT) in the service delivery. Knowing the technology acceptance among the older people might vary, this evaluation study demonstrated that extra resources such as volunteers would be necessary to close the implementation gap of utilizing ICT in service delivery. In this regard, the pioneer implementation of Yang Memorial Methodist Social Service in incorporating volunteers in the caregiving service with ICT elements in the Programme is comprehensive in addressing to the holistic needs of caregiver living in the community.

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