



## **DESIGN OPPORTUNITIES IN MUTUAL SUPPORT SERVICE FOR THE ELDERLY**

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### **Abstract**

As concerns about economic crisis and lack of human resource by rapid ageing population are growing, new models of social support service are required. One of alternatives for enabling sustained well-being life for elderly people is mutual support model. While there are high levels of interest in the research and enthusiasm for the concepts of mutual support in service sector, there are also low levels of awareness, understanding about this specific type of support based on reciprocity. With lack of knowledge, there is an ambiguity in designing or improving mutual support service. In this research, we conducted case studies exploring influential factors on building relation in mutual support service to know about what needs to be considered in designing mutual support service. Even though this research has limitations as preliminary study, the findings from case studies in this research still could be helpful to those who want to design mutual support model for elderly people or improve the relational quality of their service model.

**Keywords:** Service design, Case study, Mutual support, Sustainability

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## **1 INTRODUCTION**

Ageing is a serious social problem in South Korea and many other countries and one of the biggest issues regarding elderly people's wellbeing is a social connection. While maintaining good social relationships is key to quality of life for elderly people (Percival, 2010), isolation and loneliness are problems shared by many elderly people (Blood, 2010), and there have been many services providing them social support with an aim of connecting them into social network and decreasing their loneliness. In general perspective, elderly people have been considered as passive receivers receiving support unilaterally, however increasing burden of supporting high ageing population requires elderly people to be more active participants in service above the role of recipient.

Mutual support service is a unique model which engages elderly people to take part in service or community in a more mutually beneficial way giving and receiving rather than staying as a passive receiver (Bowers et al., 2013). It is characterised by relationship-based delivery and exchange of support that can be experienced at different levels (i.e. peer to peer or community based) or different arrangements (i.e. formal or informal, highly organized or less organized) (Bowers et al., 2011). There are many evidences about positive effects of mutual support on elderly people's psychological wellbeing (Maton, 1988; Chien and Norman, 2009; Loat, 2011).

While there are high levels of interest in the research and enthusiasm for the concepts of mutual support in service sector, there are also low levels of awareness, understanding and direct experience about those supportive relationships based on reciprocity (Bowers et al., 2011). Furthermore, because there is a lack of knowledge on this relational aspect, there is certain ambiguity in designing or improving mutual support service in a way enhancing reciprocal relationship between participants.

This research contributes to fulfil this gap by identifying influential factors on building mutually supportive relationship. We conducted and analysed case studies with an aim of exploring influential factors on building relation in mutual support service to know about what needs to be considered in designing mutual support service. Through case study analysis, following questions will be answered: (1) what are influential factors in building a relationship in mutual support service? (2) how can those factors be considered in designing mutual support service for elderly?

## **2 LITERATURE REVIEW**

### **2.1 Mutual support of elderly people**

Mutual support can be distinguished from naturally occurring social support in that it is an intentional process which involves standard procedures and routines (Davidson et al., 1999). The core value of mutual support is reciprocity (Munn-Giddings and McVicar, 2007) and many researches revealed that elderly people have needs on reciprocal relationship. Elderly people desire to contribute, and be seen as active citizens with responsibilities and roles (Bowers et al., 2011). They value making a contribution wherever possible, being valued and respected (Qureshi and Henwood, 2000). Even in friendships, elderly people who considered themselves to be in equitable relationships experienced the least amount of stress and it was found that those individuals who over-benefited from the interactions experienced more anger and distress than those who under-benefited (Roberto and Scott, 1986). There are also many benefits reported as result of mutual support. When the relation is mutually beneficial, it is likely to last long time maintaining high satisfaction on the relationship (Fyrand, 2010). Maton (1988) addressed that people who both provide and receive support will experience greater wellbeing than those involved in only one of these two processes. People participating in mutual support reported lower levels of depression, higher self-esteem and higher levels of satisfaction than those who predominantly gave or received support.

Through mutual support, participants can give and receive emotional, informational and instrumental support. Members who participated in mutual support service reported that they received personal gains of empathy; experiential knowledge and practical information; experience across a range of life events and dilemmas; shared interests and hobbies; practical support; friendship; personal care and support; emotional support (Bowers et al., 2011; Munn-Giddings and McVicar, 2007).

## **2.2 Categories of mutual support model**

In Bowers et al.(2013)'s research, categories of mutual support model were identified. The categories are as followings: (1) Mutually supportive relationships; (2) Mutually supportive communities; (3) Cohousing; (4) Homeshare; (5) Shared lives; (6) Time banking; (7) Circle of support; (8) Volunteering; (9) Self-help and Peer support network

We excluded two categories 'mutually supportive relationships' and 'mutually supportive community' because all the other categories contain the nature of mutually supportive relationships or mutually supportive community so it was considered that they are too broad and redundant categories overlapping other categories. Every models were founded on principle of reciprocity and each model can be described as followings: (1) Cohousing is collective housing arrangements which are established and run by their members for mutual benefit. Members are consciously committed to living as a community; developments are designed to encourage social contact and a sense of neighbourhood; common spaces facilitate shared activities; (2) in Homeshare schemes, a householder, typically an elderly with a spare room, offers free or low-cost accommodation to another person in exchange for an agreed level of support (Wikipedia, 2016); (3) in Shared lives schemes, an elderly use the carer's home as a resource, and the relationship between the person who needs support and the person who provides the accommodation and support is key; (4) Circles of Support is a small group of people who come together to help someone identify what they need or would like to do in their life, and then work out how to make it happen; (5) Volunteering in this category refers to support which is provided and received on a volunteer (unpaid) basis, typically through an organised scheme; (6) Self-help and peer support network refers to groups and networks where members support each other on the basis of having shared experiences; (7) Time banking is a pattern of reciprocal service exchange that uses units of time as currency. A 'time bank', also known as a service exchange, is a community that practices time banking.

## **3 METHOD**

As method, semi structured in-depth interviews were conducted targeting participants and operators or managers of mutual support services. The cases were selected by using purposive sampling technique and our case selection criteria is as followings: (1) the service involving elderly people as participants (2) the service with an aim of building a long term relationship between participants rather than a single encounter

As it was considered that exploring various type of mutual support model would be more beneficial to obtain general understanding about reciprocal relation rather than focusing on only specific one, cases were selected based on Bowers et al. (2013)'s category of mutual support model. Among 7 categories introduced in advance, Time banking and Shared lives models were excluded because the relation built through Time bank is temporary relation rather than long term relation and Shared lives is too specific model on care arrangement for elderly people with high support need. Five cases were selected from each category and they are as followings: Retirement farm in Cohousing category; Sede-gongam which means 'Empathy across generation' in Homeshare category; Social Fam in Circles of Support category; Hamkaesali which means 'Living in harmony' in volunteering category; Elderly-elderly care in Self-help and peer support network.

We interviewed 17 people from 5 cases. We intended to interview both participant and operator/manager but we could get permission to interview participants only in two cases (Elderly-elderly care and Retirement farm). In three cases, it was not allowed to interview participants because of the service operation policy. So in that cases, we only interviewed operators and managers in that community. The interview results were analysed by adopting within-case analysis and across case analysis approach. Through within case analysis, individual characteristics of each cases were found and though across case analysis, patterns of facilitating and hindering factors on building relation in mutual support service were analysed.

## **4 RESULT**

### **4.1 Characteristics of individual cases**

Five mutual support models shares common features but also differ in various aspects. Following descriptions address each models' specific characteristics and context.

- Elderly-elderly care is a social service run by Ulsan Jung-gu Senior club. In this service, elderly person supports other older person in local area by visiting him/her. Service providers mainly support emotionally through conversation but also do simple domestic chores or support in need. This service was designed with intention of giving benefits to both service provider and recipient even though the way of building relationship is initiated in a unilateral way. Service providers reported that this was not a one directional service which they just give support but they received emotional support a lot from service recipients. Manager takes a role of matching elderly people, holding regular meeting and providing education to service providers. Elderly people are matched but short geographical distance between people is prioritised.
- Hamkaesali is a peer support service run by Yeongdeungpo senior centre. Single elderly person visits other single older person in the neighbourhood. Similarly with Elderly-elderly care, service providers mainly provide emotional support by building friendship. If there is a need of elderly people they visit which they cannot help, they report it to senior centre so that he/she can get well-fare service in need. The manager in centre holds events for collaborative activity and regular meetings.
- Sede-gongam is a housesharing service matching elderly person and university student run by district offices in Seoul. This service was designed with intention of providing mutual benefits to elderly people and university students not only by supporting each other emotionally but by letting students to get accommodation in low cost to and elderly people to make profit with their spare room. It was reported that the degree of intimacy differed greatly from case to case. There are some basic rules regarding etiquette but there is no expected role of elderly person and student. The manager of this service takes a role of matching elderly person and student and checking if there is any problem through regular phone call. In matching, they prioritise student's convenience the most, i.e. distance from university to residence.
- Social fam is a community service building virtual families consisting of single households and it is run by Singles union. Each family involves three generations such as child, parent and grandparent generation. The aim of this community is connecting single households and letting them to support each other. The operator matches social family and holds various events & program where social family can gather regularly and build more intimate relationship. When family members are matched, the mutual interest such as interest and major is prioritised. They live separately but they often gather together and contact each other through online channel. They mainly support each other emotionally but also share information in need.
- Retirement farm is a community in Hongseong-gun and retired people live together in farmhouse. They have separate space for private living and pay monthly rent. The operator of community provides room, food and care. Only rule settled is having meal together at same time. Elderly people build relationship by having meal and working together. Anyone who wants can do farm work and earn some money according as they work.

#### 4.2 Influential factors on mutually beneficial relationship

The hindering and facilitating factors on building and developing mutually supportive relationship were analysed and those factors were classified into five categories. Table 1 shows the five dimensions and hindering and facilitating factors in each category.

*Table 1. Coding categories and involved factors through data analysis*

Category	Hindering factors	Facilitating factors
Trust building	Uncertainty, lack of information	Openness, candid conversation
Prioritised value in matching	Prioritising functional value	Prioritising relational value
Congruence of perception	Lack of shared understanding	Awareness about incongruence
Autonomy and obligation	Invasion of autonomy by obligation	Certain degree of obligation or distributed role
Feedback on contribution		Emotional, verbal feedback on contribution
Socialising activity		Regular meeting or event for collaborative activity

#### **4.2.1 Trust building**

Lack of trust by uncertainty and lack of information was revealed as a hindering factors in initiating relationship and openness and candid conversation was found as facilitating factors. It was reported that especially in first encounter, it was not easy to get people involved in initiating relationship when there are uncertainties and have no information regarding counterpart as state below.

*“They didn’t have any information about us and had no idea who we were. So when we visited them, they were very defensive and reluctant.” - Participant #1 of Elderly-elderly care.*

*“Elderly people expressed anxiety about letting stranger in their home. I think uncertainty may be the biggest reason they are reluctant to participate in this program.” - Manager #1 of Sede-gongam.*

In building trust, openness was considered significant. Participants said trust about counterpart was built while they had honest talks and got to spend more time together.

*“When I talked about my painful past experience really frankly, she also talked about her past experience. In that way we felt empathy and could trust each other better.” - Participant #3 of Elderly-elderly care.*

Openness between participants takes time but in some case which openness is considered needed, the manager of service took a role facilitating candid conversation between participants.

*“After matching, I accompanied student when she first met elderly person. I facilitated student and elderly person to talk about their lifestyle so that they could know each other better because it would not be easy to talk frankly in first encounter.” - Manager #1 of Sede-gongam.*

#### **4.2.2 Prioritised value in matching**

In peer to peer relationship, it was reported that what is prioritised in participants’ matching process is influential on building relationship between participants. Prioritising functional value sometimes hindered building relationship whereas prioritising relational value plays positive role on it. As stated in the statement below, if economic benefit is emphasised in promotion, people who have no need in building relationship but only seek economic benefit are likely to participate in service. Also in the case of prioritising functional value such as convenience of participant in matching stage, it was reported that sometimes participants were likely to establish only formal relationship rather than intimate relationship.

*“Economic benefit is emphasized to facilitate people’s participation. ...There are some participants who have no need in relation but only seek economic benefit. It may be the reason why the relationship is not well established in some cases.” - Manager #1 of Sede-gongam.*

*“When we match people, we prioritise the distance of elderly’s house from student’s university.....there are quite a few cases that participants’ relation just limits to house owner and tenant. Their relation is no more or less than that. Some students did not spend time with elderly people at all and they always came back to residence late at night and stayed only for sleep.” - Manager #2 of Sede-gongam.*

On the other hand, in the service where most participants were building reciprocal and intimate relationship, it was reported that the relational value is prioritised in matching process. For instance, the matching was conducted by considering distance from each other or common interests so that they can get to each other more easily and build intimacy.

*“The place where she lives are close to where I am living. So I can go there very easily. We are supposed to go only once a week but I go there much more often. When I have something to eat, I go to her and share it.” - Participant #6 of Elderly-elderly care.*

*“When we match people to become one social family, we prioritise to find common elements between people. Such as common interests, major, hobby so that they can build a relationship more easily by talking and sharing about their interests in common.” - Operator of Social Fam.*

#### **4.2.3 Congruence of perception**

It was also found that incongruence of participants' perception caused some trouble or hindered building reciprocal relation. Some discordances of perception reported in the interview were caused by lack of shared understanding about each other's role in service. Following statement shows that some participant misunderstood the role of counterpart and required unilateral support.

*“She asked me many things more than what I am supposed to do. I think she misunderstood about this service so she might consider me as housekeeper or something like that. Sometimes she asked me to cook for her and clean the room. She took it for granted so I felt embarrassed.” - Participant #2 of Elderly-elderly care.*

Sometimes participants have some trouble with their counterpart because of they have different perception on concept of sharing, i.e. sharing living room or kitchen.

*“When they started living together, sometimes troubles were reported and some of them were caused by elderly person and student's different perspective on sharing space.” - Manager #1 of Sede-gongam.*

To alleviate trouble or any problem caused by incongruence of perception, what service managers and operators were doing was sharing about previous cases educate them how they react in certain situation. They said that recognising about potential situations would help participants to react more adequately.

*“We have regular meeting with elderly participants visiting older people. In that meeting, we talk about potential problems which participants could face by mentioning previous cases and let them know how they would react in that situation. If participants face that unexpected situation without any knowledge, they would be hurt and demotivated.” - Operator of Elderly-elderly care.*

*“In advance, we mention to participants about cases which previous participants caused trouble so that participants can be more aware with potential situations.” - Manager #2 of Sede-gongam.*

#### **4.2.4 Autonomy and obligation**

It was found that both autonomy and certain obligation are needed in mutual support relationship. In some cases, participants did not like their autonomy is invaded by obligation and even did not keep the obligation as stated below.

*“In the beginning, there was certain obligation of supporting counterpart for few times a week. But participants did not like it and it was rarely kept. So we do not even mention it anymore.” - Manager #1 of Sede-gongam.*

*“They are likely to be demotivated if they are managed and interfered.” - Operator of Retirement farm.*

On the other hand, in some cases, it was said that certain degree of obligation was required. As one of the way balancing autonomy and responsibility, co-production of guideline was mentioned as below.

*"We consider that certain basic rules regarding etiquette which participants need to follow is needed because participants need to more considerate each other for better cohousing life. Many troubles caused by a lack of consideration."- Manager #2 of Sede-gongam.*

*"We open workshop for making guideline about required role of participants. All social fam members gather in one place and co-produce guideline through discussion." - Operator of Social Fam.*

#### **4.2.5 Feedback on contribution**

In mutual support model, participants support counterpart in any ways. It was reported that feedback about participants' contribution is influential on participants' motivation and emotion. If there is certain emotional feedback such as smiling, being thankful regarding participants' support, they felt happy and had higher self-esteem. It also motivated them to continue the relationship.

*"When the elderly person I am visiting is pleased and especially when she laughs, I feel happy because I have something I can share with and please other people like this." (participant of Elderly-elderly care).*

*"It is rewarding when she says to me 'thank you'." - participant #2 of Elderly-elderly care*  
*"In the last meeting, we had time to share participants' thoughts about this service and some participants presented how grateful they were for received supports. It moved other participants to tears." - Operator of Social fam.*

#### **4.2.6 Socialising activity**

Most cases of mutual support model were encouraging collaborative activity which participants gather together and do some collaborative work. The operators and managers of those services expected that through collaborative activities, participants can learn collaboration and develop their relationship in a natural way.

*"Sometimes we plan a collaborative activity such as making food together. All the participants are encouraged to participate in this kind of activity so that they learn collaborating and sharing experience." - Manager of Hamkaesali.*

*"Elderly people are close to each other naturally while working in farmland together. It is not only a working time but an enjoyable time talking and laughing." - Operator of Retirement fam.*

*"We often plan various events which participants gather together and do collaborative activity so that they can get closer to each other and develop relationship." - Operator of Social Fam.*

## **5 DISCUSSION**

Throughout case study, influential factors on mutual support relationship were drawn as following: (1) trust building; (2) prioritised value in matching; (3) congruence of perception; (4) autonomy and obligation; (5) feedback on contribution; (6) socialising activity. We will discuss about how these findings are supported by existing literatures and how they could be connected to design opportunities.

### **5.1 Trust building**

The results from interviews show that adequate information may facilitate trust building. Lack of information caused uncertainty hindering trust building while sharing private information contributed to open counterpart's mind. Trust has been emphasised as a crucial element in many researches on reciprocal relationship (Bowers et al., 2013; Chen and Molina, 2014; Jégou and Manzini, 2008; Zhong, 2012). The two basic ways of building trust are promoting the trustworthiness in a cognitive way and an affective way. The cognitive way relies on the adequate diffusion of the information on the capability, the potential risk and the possible uncertainty. Zhong (2012) said providing the information on the

service as much as possible is the only way of building a cognition based trust. The affective way is generated by doing citizenship behaviour and enough interaction in the civil behaviours but it is also built based on sufficient information (McAllister, 1995). Self-disclosure which is an explicit communication of some personal information may be helpful because it represents the willingness to develop a relationship, or to strengthen a current relationship (Archer and Cook, 1986).

Even though trust building cannot be forced, service system could be designed in a way facilitating people to get to know each other so that they build a trust. For instance, participants could be encouraged to be more opened to share their own information such as their profile or individual story.

Participants' interaction may be also facilitated through socialising activities which participants can be naturally involved in the process getting to know each other.

## **5.2 Prioritised value in matching**

In our research, relational value was defined as something beneficial to building relation while functional value was something which is technically or economically beneficial. Nasreen (2010)'s description on relational and functional value enhances our definition. Relational value is related to communication, solidarity and interdependence while functional value is related to rational and economic dimensions such as price, reliability and responsiveness. Both values need to be considered in service but in our research, it was found that the relationship development could be critically influenced by what is prioritised especially in matching stage.

Prioritising relational value was likely to enable more intimate relationship between participants. Therefore relational value needs to be considered in matching participants, i.e. matching based on people's mutual interest, similar characteristic or background, so that they could communicate and build empathy based on their common denominator.

## **5.3 Congruence of perception**

Through interview, it was found that incongruence of perception between participants hindered mutual support relationship. The need for reducing incongruence of perception was also mentioned in researches on social support (Shumaker and Brownell, 1984; Brickman et al., 1982). If providers and recipients differ in their ideas about how assistance should be offered, then recipients are unlikely to receive what they feel is needed. In this situation, providers may feel frustrated by their unappreciated attempts at assistance and it could seriously endanger the stability of the relationship (Brickman et al., 1982). Incongruence is caused by ambiguity and unclearness. Bowers et al. (2013) emphasise about clarity in the purpose of the arrangement, the needs, contributions and expectations of participants as a condition of successful and sustained mutual support model.

In service encounter stage, participants could be supported to participate in service based on congruent understanding on service by sharing service information, i.e. the purpose, expected outcome of service and expected role of participants. As mentioned in several cases, one of the ways alleviating negative effect by incongruence of perception is letting participants aware about potential situations in advance by mentioning previous cases. Recognising about potential situations would help them react more adequately in those situations.

## **5.4 Autonomy and obligation**

Our finding indicates that autonomy of participant should be considered but sometimes certain obligation is also needed. Without any obligation, reciprocal relationship may not be naturally developed in some cases. On the other hand, Bowers et al. (2011) reported about side effect of it by saying that imposing constraints or formalities where they are not naturally evolving, desired or essential can be barriers to reciprocity.

Considering that inappropriate obligation can be rather obstacles, balancing the autonomy and obligation is needed in designing service. There is no standard of balance and it is considered that required degree of obligation varies according to characteristics of each service model. Therefore co-designing service with participants might be a potential approach which could balance the degree. By adjusting the balance based on participants' own ideas and needs, more contextually fitted and adequate obligation could be designed.



## **5.5 Feedback on contribution**

It was found that service participants were sensitive with feedback from other participants. If their contribution was appreciated, they were more motivated in supporting counterpart and considered it worth to do. Supporting others causes great positive effects on elderly people's psychological well-being such as lower levels of depression, higher self-esteem and higher levels of satisfaction (Maton, 1988). However interestingly, Bowers et al. (2013)'s study infers that participants are likely to have lack of awareness about their own contributions even though they mutually support each other. It was reported that when elderly participants of mutual support service were asked about what they gave and received, they stressed what they gained but found it harder to articulate what they gave.

Considering that there is a lack of participants' awareness on their own contribution, it is considered that the way of interaction or feedback system could be designed so that they more aware that they are contributing to mutual support relationship and also being appreciated by counterpart.

## **5.6 Socialising activity**

In most cases of our research, collaborative activities were encouraged and some program or event for the activities were arranged. Socialising activity was commonly considered as facilitating factor of building and developing relation. By being included in group activities, elderly people can get higher sense of belonging and social integration (Shumaker and Brownell, 1984). One of the roles of design supporting relationship building is making environment for those activities which enables interaction between people (Manzini and Coad, 2015). Bowers et al. (2011) says that a variety of ways and places people can be connected are needed.

In that the socialising activity is considered to be important design element in mutual support service, the service can be designed in various ways connecting people and facilitating communication through socialising activity, i.e. making food together, collaborative art experience, storytelling.

## **6 CONCLUSION**

In our research, the influencing factors on building reciprocal relation was explored and it was discussed about design opportunities based upon the findings. As this is a preliminary study with an aim of exploring design opportunities in mutual support service from relational perspective, there are limitations which need to be reinforced in future study. In some cases, researchers were not allowed to access participants due to their policy. Even though we asked the service operators and managers to share specific cases of participants but still their subjectivity could be involved. Therefore in future case study, involving more participants in interview and accepting various perspectives is needed to reduce bias. Also in terms of analysis, there is a possibility that researcher's subjectivity could be involved in interpreting data. The process of checking reliability and validity of coding frame is required for enhancing rigor of coding analysis.

In spite of limitations, the initial findings from case studies in this research still could be helpful to those who want to design mutual support model for elderly people or improve the relational quality of their service model. As a future study, the coding framework will be more developed with additional case studies and the design strategy will be built based on the framework. It is expected that current research can be a good prototype for our future research. With regard to applicable fields of our research, it can be applied into service such as collaborative service, social service, community based service especially where mutual support is considered essential.

## REFERENCES

- Archer, R. L. and Cook, C. E. (1986), "Personalistic self-disclosure and attraction: Basis for relationship or scarce resource", *Social psychology quarterly*, 268-272.
- Blood, I. (2010), "Older people with high support needs: how can we empower them to enjoy a better life", York. Joseph Rowntree Foundation.
- Bowers, H., Lockwood, S., Eley, A., Catley, A., Runnicles, D., Mordey, M., Barker, S., Thomas, N., Jones, C. and Dalziel, S. (2013), *Widening choices for older people with high support needs*, Joseph Rowntree Foundation, York.
- Bowers, H., Mordey, M., Runnicles, D., Barker, S., Thomas, N., Wilkins, A., Lockwood, S. and Catley, A. (2011), 'Not a one-way street: Research into older people's experiences of support based on mutuality and reciprocity', Joseph Rowntree Foundation: York.
- Brickman, P., Rabinowitz, V. C., Karuza, J., Coates, D., Cohn, E. and Kidder, L. (1982), "Models of helping and coping", *American psychologist*, 37(4), 368-384.
- Chen, R. and Molina, A. R. (2014), "Does reciprocity affect willingness to contribute?: An empirical study on crowdsourcing organizations".
- Chien, W.-T. and Norman, I. (2009), "The effectiveness and active ingredients of mutual support groups for family caregivers of people with psychotic disorders: a literature review", *International journal of nursing studies*, 46(12), 1604-1623.
- Davidson, L., Chinman, M., Kloos, B., Weingarten, R., Stayner, D. and Tebes, J. K. (1999), "Peer support among individuals with severe mental illness: A review of the evidence", *Clinical psychology: Science and practice*, 6(2), 165-187.
- Fyrand, L. (2010), "Reciprocity: A predictor of mental health and continuity in elderly people's relationships? A review", *Current gerontology and geriatrics research*, 2010.
- Jégou, F. and Manzini, E. (2008), "Collaborative services: Social innovation and design for sustainability".
- Loat, M. (2011), *Mutual Support and Mental Health: A Route to Recovery*, Jessica Kingsley Publishers.
- Manzini, E. and Coad, R. (2015), *Design, when everybody designs: An introduction to design for social innovation*, MIT Press.
- Maton, K. I. (1988), "Social support, organizational characteristics, psychological well-being, and group appraisal in three self-help group populations", *American Journal of Community Psychology*, 16(1), 53-77.
- McAllister, D. J. (1995), "Affect-and cognition-based trust as foundations for interpersonal cooperation in organizations", *Academy of management journal*, 38(1), 24-59.
- Munn-Giddings, C. and McVicar, A. (2007), "Self-help groups as mutual support: What do carers value?", *Health & social care in the community*, 15(1), 26-34.
- Nasreen, K. (2010), "Functional and relational value influence on commitment and future intention: The case of banking industry", *Journal of International Social Research*, 3(10), 376-391.
- Percival, J. (2010), "Simon Evans, Community and Ageing: Maintaining Quality of Life in Housing with Care Settings", *Ageing and Society*, 30(07), 1280-1282.
- Qureshi, H. and Henwood, M. (2000), *Older people's definitions of quality services*, Citeseer.
- Roberto, K. A. and Scott, J. P. (1986), "Equity considerations in the friendships of older adults", *Journal of Gerontology*, 41(2), 241-247.
- Shumaker, S. A. and Brownell, A. (1984), "Toward a theory of social support: Closing conceptual gaps", *Journal of social issues*, 40(4), 11-36.
- Wikipedia (2016), Homeshare. [online] The free Encyclopedia. Available at: <https://en.wikipedia.org/wiki/Homeshare> (accessed 10 December 2016).
- Zhong, F. (2012), "Collaborative service based on trust building. Service design for the innovative food network in China".

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