

Towards a Service Value Co-creation Model for Older Adult Education

Jinfang Cai^(✉) and Michitaka Kosaka

School of Knowledge Science,
Japan Advanced Institute of Science and Technology,
Nomi, Ishikawa, Japan
{caijinfang,kosa}@jaist.ac.jp

Abstract. With the raise of aging problem in many developed and even developing countries, Older Adult Education (OAE) has been considered an effective way to deal with the problem and widely adopted and deployed. It comes naturally another problem that how to fully utilize OAE, i.e., to maximize the value of it. Unlike business services to which numerous efforts are being made to achieve their maximal value, OAE is usually provided by government as a public non-profit service, and few attention has been paid to the maximization of its value. In this paper, we propose a concrete service value co-creation model that is specialized to OAE by studying two successful cases on OAE universities in Shanghai from service science perspective. The model is instantiated from a meta business service value co-creation model called KIKI model.

Keywords: Service · Value co-creation · Older adult education · KIKI model

1 Introduction

The nation is rapidly graying. Such statement is mentioned in a report [1] by American Council on Education, 2007. The aging problem also emerges even in developing countries such as China and could be worse than other countries due to its “One Family One Child” policy in history. The aging problem leads to various social problems such as workforce shortages, health and medical care burden and increasing demand for financial investment.

OAE is a process of knowledge creation, providing older adults with ways to improve the knowledge and skills and help them to live a better life in their third ages. It is first proposed by western countries as a special kind of post-secondary education for the older adult. Older adults mean those people aged 55 to 79 years, the prime years during which people are actively choosing how they will spend the third age of their lives [1]. Older adults are considered as resources to help address workforce shortages, solve community problems, mentor the next generation, and decrease the burden caused by aging population.

OAE is being increasingly adopted and deployed in many countries, and it is indeed helpful in some aspects such as to improve the life quality of retired older

adults, to keep them both physically and mentally healthy, and to help them back to workplace. A number of studies show that older adults are positively engaged in educational programs [2]. However, based on our survey there is little literature on the maximization of the value of OAE, i.e., how to fully utilize OAE to make its value maximized. According to a survey from U.S. National Center on Education Statistics, only 27 % older adults prefer to attend work-related courses, and 21 % prefer personal interest courses [1]. Our survey in China also shows that older adults are more likely to attend those courses for their personal interest, but have little interest in work-related courses. OAE is well welcome to the older adult as a kind of social welfare, while governments provide such education to the older adult as a kind of investment. A problem arises that how to maximize the value of OAE for both the older learner and the education provider, i.e., to make both sides profitable from the education.

To address the aforementioned problem, the central question to answer is that what kind of education should be provided to the older learner so that the objectives of both the education provider and the older learner can be achieved. Although there does not exist a unique answer to the question due to the variety of the motivations of older learners and the challenges faced in deploying OAE, it is still desired to establish some model, by which one could develop step-wisely customized education systems for specific classes of older learners.

Unlike business services to which numerous efforts are being made to achieve their maximal values, OAE is usually provided by governments as a public service, and few attention has been paid to the maximization of its value. In this paper, we propose a concrete service value co-creation model that is specialized OAE from the perspective of service science. We consider the education for the older learner as a kind of service, and attempt to apply an abstract service value co-creation model called KIKI model to the education. KIKI model is originally proposed for the value co-creation of business services. In our work, we survey two successful Chinese OAE universities for older adults, analyze the development of their education system using KIKI model, and finally generalize a concrete model by instantiating each step in KIKI model. This study shows that KIKI model is also suited to value co-creation for OAE.

The rest of this paper is organized as follows. Section 2 presents a survey on the motivations and challenges in OAE. Section 3 views OAE from service science perspective and introduces KIKI model. Section 4 presents two case studies and the value co-creation model for OAE. Section 5 finally concludes the paper.

2 Motivations and Challenges in Older Adult Education

Motivation plays a central role in the process of older adult learning [8, 11]. As described in the report [1], *at the heart of these challenges is the range of motivations and needs of the older adult population*. To maximize the value of OAE, it is necessary to balance the motivations between the older learner and OAE providers and hence to make the objectives of both sides achieved. In this section, we survey by literature review the motivations of the both sides and the challenges that OAE is facing in the reality.

2.1 Motivations of the Older Adult to Participating OAE

Increasing attention is being paid to the study of older adults' motivation to learn in OAE. In the work [11], Yin classifies the motivation of older adult learners into the following five kinds:

1. *Desire for knowledge*, i.e., learning new knowledge;
2. *Desire for stimulation*, i.e., having the chance to exercise their mind;
3. *Desire for self-fulfillment*, i.e., self-actualizing by pursuing a diploma;
4. *Desire for generativity*, i.e., taking responsibility for future generations by learning and teaching;
5. *Learning as a transition*, i.e., transiting to another life or career.

In the work [3], Dench and Regan summarize three major motivations that 74% of older learners reported as very or fairly important to their study, including intellectual, personal and instrumental motivations. By intellectual motivation it means that learners want to increase their knowledge, to keep their mind active, to enjoy the challenge of learning new things. By personal motivation it means that learners want to gain qualifications for personal satisfaction and to take their life in different directions. Instrumental motivation means that learners want to learn for their work, to help their family, and to help with voluntary or community work. It is also reported that the third one is less important than other two motivations.

It can be apparently seen that motivations of older adults to higher education participation are diverse, which makes OAE differentiate itself from other educations such as youth school education.

2.2 Motivations of Offering Higher Education to Older Adults

The motivation (or aim) of providing higher education for the older adult is discussed in numerous literature from either theoretical or practical point of view. Theoretically, education is considered as a right that must be accessible throughout life, and therefore educational institutions become responsible for creating opportunities involving older adults themselves in activities backed up by the philosophy of lifelong learning and inter-generational education [4]. To be concrete, by higher education (a) it satisfies older adults' cultural needs; (b) it answers older adults' educational demands; (c) older adults contribute to their support through their work and tax payment.

Practically, the main objective of providing higher education to older adults is to alleviate or solve social problems caused by population aging. For instance, in the report [1], it is proposed that higher education for older adult can help address workforce shortages. Older adults' education experiences in Argentina emphasize the role that education has on empowering and learning new social roles or the re-signification of traditional ones [4]. In China, universities for retired cadres (those who take the leading or administrative role in government or state-owned sections) were founded since 1983 to answer their demands for keeping active and physically and mentally healthy. The University of the Third

Age (U3A), one of the most famous universities for older adults founded in France in 1972, formulates their three aims for the education of older adults [4]:

1. The first is around learning and “intellectual stimulation” – encouraging members to share their knowledge with others and learn from others;
2. The second is social and concerns providing social contacts for its membership, i.e., to provide continuing education, stimulation and companionship for retired people, as one committee member put out;
3. The third is an advocacy aim and asserts the ability of older adults to continue learning, i.e., to refute the idea of intellectual decline with age.

Benefits from OAE are multiple, not only to older adults but also to the society. Providers of OAE, e.g., colleges and universities for older adults may emphasize some of them, depending on the background of participants and the missions of founding colleges and universities.

2.3 Challenges in Higher Education for Older Adults

Challenges in higher education for older adults can be classified into two kinds. In one kind are the challenges for the older adult and in the other are the challenges for the higher education provider.

ACE identifies three barriers in the United States of America that could weaken the motivation of the older adult to learn. The three types of barriers include demographic barriers, attitudinal barriers and structural barriers [1].

1. *Demographic barriers*: Age, race and ethnicity, and geography are the main demographic variables that complicate decisions about higher education participation;
2. *Attitudinal barriers*: Both external attitude from advisers, family, and friends, and internal attitude from the older adult themselves can pose barriers for them to participate into higher education;
3. *Structure barriers*: Lack of transportation, support service and financing, and insufficient adaption of existing programs often keep older adults out of classroom.

Challenges for the higher education provider are mainly from shortage of funding, outreach barriers, and programming concerns [1]. Nowadays, OAE is still a public program that is mainly supported by government. By outreach barriers, it means that the educational needs and motivations of the older adult vary, as discussed in Sect. 2.1. Such variety forces colleges and universities to find means to reach older adults from different background, ranging from the PhD to high school dropout, from retired executives to part-time laborers, etc. Programming concerns mean the programs, courses and models that are adopted for older adults. Unlike school education, programs, courses, and models are various in both contents and forms.

Researchers do a lot of work on OAE which focus on theoretical research and practical research from education science perspective and social science perspective. Research contents consist of the impact and influence of OAE on society,

development of senior education, education contents, education approaches, etc. Little attention has been paid to minimize the gaps of motivations between education providers and older learners. According to the situation survey and literature review, there are various barriers for realizing the service value of OAE for both the older learner and education providers. Some new solutions should be identified to maximize the value.

3 Older Adult Education in Service Science Perspective

As the rise in ascendance of the service sector, there has been an increasing interest by industry, government, and academia on understanding the determinants of productivity in service industries as well as innovation. In this section, we introduce the basic research of service science, and view OAE in service science perspective, and then propose a hypothesis of applying the value co-creation model, i.e., KIKI model, to OAE.

3.1 Service Science, Service System and Service Dominant Logic

Service science is the study of service system and of the co-creation of value within complex configurations of resources [10]. It has been becoming a common research thread in information and knowledge industries. More and more researches on service innovation and service value creation have been proposed and put forward. According to description of Sadahiko Oda, the chairman of a famous Japanese SPA hotel, service is an activity that provides professional techniques, satisfies the customer, and results in compensation for the service provider.

In service science, new concepts related to service have been proposed. Vargo and Lusch proposed the service dominant logic (SDL) concept which is different from traditional goods dominant logic (GDL), that the value is determined by customer on the basis of “value in use” [9, 10]. In GDL, the determination of value is products based on concept “value in exchange”. Whereas, in SDL, it leads to a new viewpoint of service through extension of its concept to include goods. The key point of SDL is that service value for customers is created through collaboration between service providers and customers, and the customer is a co-producer of the service and is an active participant of mutual interaction.

3.2 A Service Value Co-creation Model: KIKI Model

Value creation is the core purpose and central process of economic exchange [10]. A number of value co-creation models have been proposed in different logic such as Service Dominant Logic, Goods Dominant Logic, Experience based Service Value Co-creation, and Experience based Economy. A service value co-creation model can be either static or dynamic.

Kosaka et al. proposed a dynamic experienced-based service value co-creation process model called KIKI model [7], which has been successfully applied to many

business cases such as Energy Saving Service System. The feature of KIKI model is that the concept of service field is applied to B-to-B (Business-to-Business) collaboration. Service field is a concept that is similar to electromagnetic field in physics, where electromagnetic power is determined by both the electric charge and the electromagnetic field where it is located. The value of a service is also determined by the service itself and the field which shows the context of provided service [6]. In KIKI model, the process model of service value co-creation consists of the following four steps:

- Step 1: *Knowledge sharing in collaboration*: Service providers and receivers cooperate with each other, share their objectives and experience, and understand each other;
- Step 2: *Identification of the service field*: Data collection and analyses are used to extract information of the first step, and identifying service field;
- Step 3: *Knowledge creation for new service idea*: New service idea is designed based on the identified service field of step 2. Through participants' collaboration in value co-creation process, new knowledge of service is created by combining various service ideas and technologies;
- Step 4: *Implementation of new service idea*: The created new idea is put into practice. Collaborators in service value co-creation process evaluate the results of knowledge creation step for the required service and take them into account in the following process for enhancing service.

These steps are iterated as a spiral development process. During the iteration of the process, the service field changes based on the change of the customer's experience in each step.

3.3 Service Value Co-creation Model for OAE

OAE is different from teenager education and professional education in many aspects, such as education forms and education objectives. The older learner have specific characteristics: (1) they expect to be treated with respect and recognition; (2) they want practical solutions to real-life problems; (3) they can reflect on and analyze individual experiences; (4) they are motivated by the possibility of fulfilling personal needs and aspirations; (5) they have different learning styles; and (6) they are capable of making their own decisions and taking charge of their own learning.

With the above facts, OAE can be viewed as a type of service, and it should be conducted according to SDL, in which older learners are active participants of the service. We propose research hypothesis as follows:

1. The value of OAE can be achieved through service value co-creation;
2. The old people are co-creators of the service value;
3. The model of service value co-creation structure can be used to analyze relationship between older learners and education providers;

4. The model of service value co-creation process (KIKI model) can be used to identify the service field of OAE, provide new services to older learners, and maximize their satisfaction and improve the value of education providers.

Based on above hypothesis, we propose the structure and process of service value co-creation model of OAE based on KIKI model, as depicted in Fig. 1.

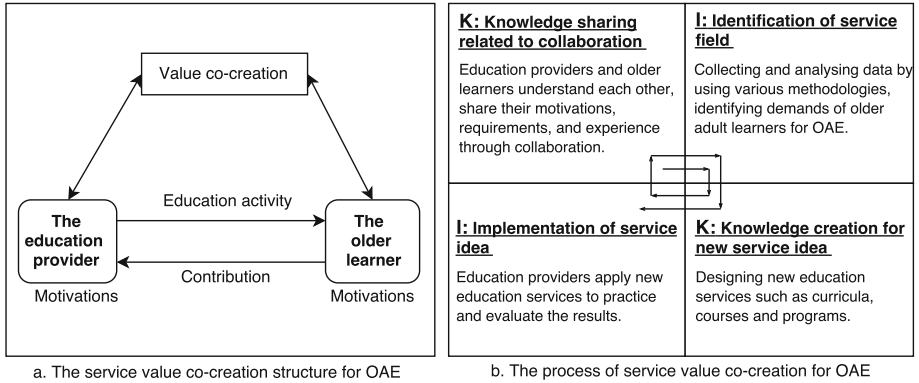


Fig. 1. The abstract structure and process of value co-creation model for OAE from service science perspective

4 Case Study

In this section, we present two case studies to show how the service value co-creation model described in Sect. 3.3 can naturally depict the improvement process of the education service in two successful OAE universities in China, by which we say the hypothesis proposed in Sect. 3.3 is verified.

We choose two Chinese OAE universities mainly for two reasons: One reason is that OAE has been prevalently adopted in China along with the concept of Lifelong Learning (LLL) and Education for All (EFA) which have become central themes in education area. According to incomplete statistics, until 2013, the number of universities and schools for old people in China has dramatically increased to 43000 and learners have reached nearly five million [5]. The other reason is that the government plays one of the most significant roles in promoting elder learning. It gives the overall guidance and provides funding, venues and facilities. However, there is a gap between the rhetoric of national policy and the practice on the ground in China.

4.1 Design of the Survey Used in Case Studies

We use both qualitative and quantitative methods to collect data in two cases. The survey subjects include two groups, i.e., the education provider and the older

Table 1. Design of the survey subjects, methods and contents used in case studies

Subject	Method	Content
Education provider	Interview	<ol style="list-style-type: none"> 1. Education objective: What is education objectives? What extent and how does it be achieved? 2. Education situation: what is overall education situation? What are provided education activities? What are students' response to the activities? 3. Education content: How to develop new education contents? What is principle of developing new courses? What is the process of designing new education contents? How to test new idea? 4. The role of older learner in education activity: Is there any co-creating experience? How to interact with older adult? In what ways do the university interact with students? What is effect of co-creation? 5. Service innovation for senior education: What is your feeling on senior education? What is the ideal older adult university in your mind? What is good relationship between education providers and education receivers?
The older learner	Questionnaire & Interview	<ol style="list-style-type: none"> 1. Learning objective and requirement: What is your purpose of attending the university? What extent can your requirement be achieved? 2. Learning experience and degree of satisfaction: What have you learned from the university? Does the provided service meet your needs? 3. Service co-creation experience: Do you have experience on giving your suggestions to education providers? Do you think it is necessary for the learners to join the reform? Will you positively get yourself into the reform? 4. Service innovation for senior education: Do you think the current senior college should be reformed? What should be improved? Do you have any ideas? What is the ideal older adult university in your mind? What is good relationship between education providers and receivers?

learner, who are two major groups in education system. We conduct survey in order to gain deep understanding of the situation of each university such as the objectives of founding the universities for the education providers, the objectives of participating the education for the older learners, and the satisfaction degree of the both two groups to the current education. We collect data from them and analyze it using the SPSS tool.

Table 1 shows the sketch of the design of our survey approach used in the two case studies. We survey the education provider mainly by the means of face-to-face interview, and the older learner mainly by questionnaire and interview. The questionnaire consists of 24 questions which are divided into three different types, i.e., motivations and needs, satisfaction, and suggestions. We also interview some

older learners such as class monitors who usually are more motivated and positive to participate education activities.

4.2 Case I: Shanghai University for the Retired Veteran Cadre

Shanghai University for the Retired Veteran Cadre was founded in 1985 by Shanghai local government, and developed rapidly to be a national advanced older adult university and a demonstrative university in Shanghai. It has more than 3000 students who are once leaders retired from government departments. It provides more than 40 types of inner-classroom courses to students. In addition, it has outstretched education activities, such as learning salons and student associations. The government gives financial support, objectives, and administrative guide to the university. The administrators and working staff deploy education activities, and provide them to retired veteran cadres.

Data Collection and Analysis. On the older learner side, we collect 100 pieces of questionnaire among students randomly and interview three student representatives. We investigate their purposes of attending the university and satisfaction degree with provided education service from 7 aspects (the overall degree of satisfaction with served education, reasonability of courses, appropriateness of teaching methods, dedication of teachers, scientificity of teaching contents, satisfaction with infrastructure, and helpfulness of learning activities).

Figure 4 shows the distribution of the purposes of attending to the university and satisfaction degree with provided service. There may be multiple purposes for older learners to attend to the university. The first three purposes include *to learn and enrich lives*, *to keep physically and mentally healthy* and *to meet hobbies*, while the percentage of the learners who have other purposes such as *to make friends*, *to keep pace with society* and *to serve society* are quite low, i.e., under 35 %. Figure 4(b) depicts the satisfaction of the learners with the education provided by the university. More than 90 % older respondents are satisfied with the current education in seven aspects, although they think there are still space to improve the education. These data reflect the university conducts successful education activities from the older learners' point of view.

On education providers' side, we try to explore the mechanism which makes its education successful in practice. We interview an education administrator, a researcher, and a lecturer based on the investigation design shown in Table 1. We conclude the successful experience by using qualitative method.

The interviewed administrator said that “*the main objective of the university is to make it a base to advocate innovative theory of the party, to spread new knowledge, to study Chinese traditional culture, and to make examples of retired veteran cadres*”. The researcher and administrator emphasized that “*older learners are the first consideration factor of all education activities*” in their education system. On the development of new course and service idea, the researcher said that it is mainly based on the needs and interests of older learners. They also design some new courses based on the objectives of university and then give some directions to learners to help them develop their interests. Besides, some

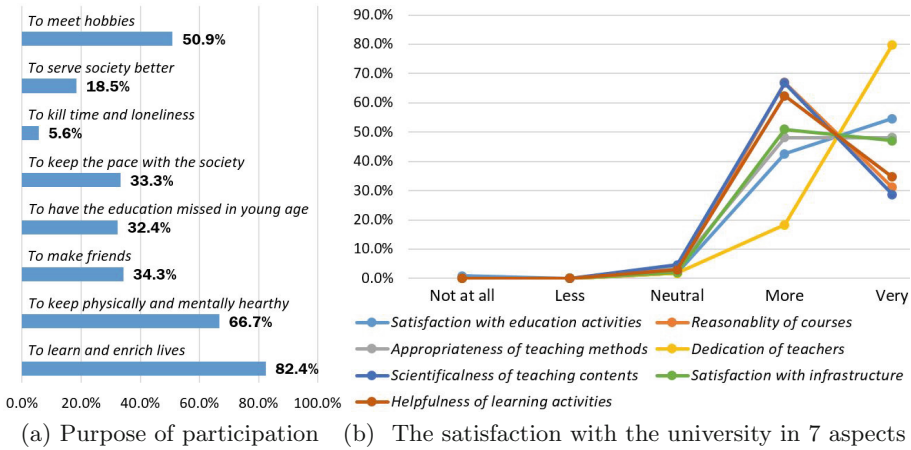


Fig. 2. The survey result on purpose distribution of older learners and their satisfaction degree with education service in Case I

state-of-the-art courses like computer skills are provided to help older learners to keep pace with the society.

The university develops multiple ways to interact with the learners. Older learners are organized by classes, and in each class a monitor is assigned, who is mainly responsible for recording the feedback of his classmates every day. Such record is called *class diary*. These class diaries are the main data source for university administrators to analyze their education quality. At the end of each term, the university also organizes meetings for class representatives, monitors and administrators to listen to their opinions with each other.

The surveyed researcher said: *the process of developing our education system consists of following several steps: Investigation on the requirement of students through formal and informal forms, like questionnaire, face-to-face conversation, etc. Our research teams collect the data, conclude the effective information and design some new education ideas, and then conduct the second investigation to get the overall attitude of students towards new ideas. If the percentage of acceptance is high, then the idea can be tested by using seminar four times a term. We will collect students' interests again at the end of each term. If the result is good, the course can be applied as a regular course. The university evaluates the course by using our own evaluation system at the end of the first year of it. An evaluation system is developed in the university to check if a newly opened course indeed achieves its objectives. The above statements show that the education providers interact with the students frequently in many ways and take their needs as the main factors to determine the courses.*

A Refined Service Value Co-creation Model for OAE in Case I. In the case, the university conducts a type of need-oriented education. The older students' needs play central roles in service consideration. From our aforementioned

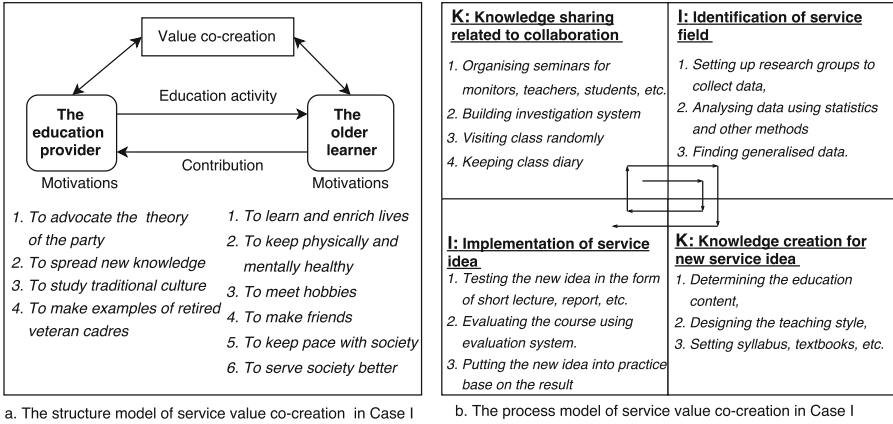


Fig. 3. The structure and process model of value co-creation for OAE in Case I

survey, we can divide the process of establishing a successful OAE system into four steps: (1) collaborating and sharing knowledge with the older learner through formal and informal ways; (2) professional research teams collect and analyze data that are important to course designing; (3) new education service is designed based on analysis result and (4) new service is evaluated.

Through comparing research hypothesis with the practice of case I, we found that the hypothesis in Sect. 3.3 are suitable for OAE. The service value of OAE is a co-created process, older learners are co-creators of the value. Apparently, such process conforms to KIKI model.

We establish a concrete service value co-creation model for OAE in Case I, derived from KIKI model with the objective domains of both the education provider and the older learner being identified, and each step in the process is refined. Figure 3 shows the refined model. In the structure model, we identify four main objectives of the education provider and six main objectives of the older learner, as shown in Fig. 3(a). In the process model, concrete approaches to achieving each step is summarized based on our survey, as shown in Fig. 3(b).

4.3 Case II: Shanghai University for the Elderly

Shanghai University for the Elderly was also founded in 1985, aiming at *being spiritual home of old people and getting high satisfaction of student with the running of university*. It provides 109 kinds of course to nearly 10000 older students, and has no enrollment limitation compared with Case I.

Data Collection and Analysis. We survey both the older learner and staff in the university and collect data as we do in Case I.

On the older learner's side, we collect 112 pieces of questionnaire among students randomly and interview three student representatives. We invest their

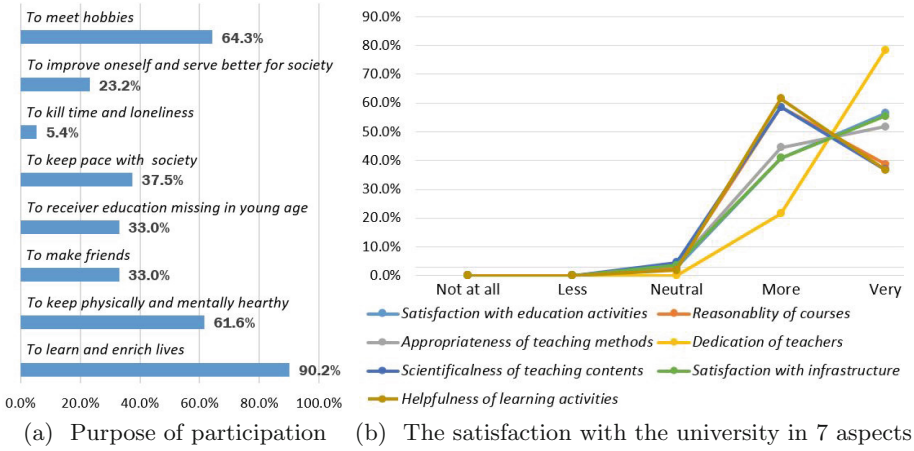


Fig. 4. The survey result on purpose distribution of older learners and their satisfaction degree with education service in Case II

purposes of attending the university and satisfaction degree with provided education service from 7 aspects. Figure 4 shows the main purposes and needs for the elderly attending OAE university. The first purpose is *to learn and enrich lives* which is 90.2%. The percentage of choosing *to meet hobbies* and *to keep physically and mentally healthy* is also very high, they are 64.3% and 61.6%. While the percentage of other purposes such as *to keep pace with society*, *to make friends*, *to receive education missing in young age* and *to improve oneself and serve better for society* are quite low. Over 90% respondents are satisfied with the provided education service.

On the side of education provider, we interview four education providers for their experience of developing education service, they are education administrator, dean, a part-time lecture and a Third Class leader. We also participate some Third Classroom activities to obtain more detailed data.

The interviewed administrator said that the development of new course and service is mainly based on the needs and interests of older learners. They also explore some unknown needs of learners and lead them to learn. These needs may be unconscious to old people but they are really interested. Some state-of-the-art courses like photo shop course are provided to help older learners to keep pace with the society. The leader of Third Classroom gave details about the channel of teaching “*we have three classrooms: First Class, Second Class and Third Class. The First Class is a traditional one; the Second Class is called club or after-school activity which is organized by students who have the same interests. The Third Class can be named social practice, which is an important way for student to make contributions to community and society.*”

The university lays emphasis on the comments and reflect of student on teaching activities and learning experience. The dean said “*the main method we used is monitor responsibility system under the leadership of dean. Every classroom*

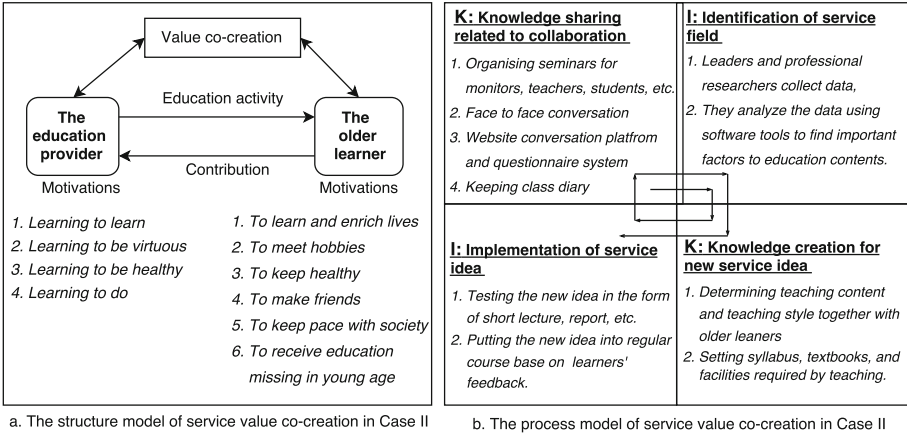


Fig. 5. The structure and process model of value co-creation for OAE in Case II

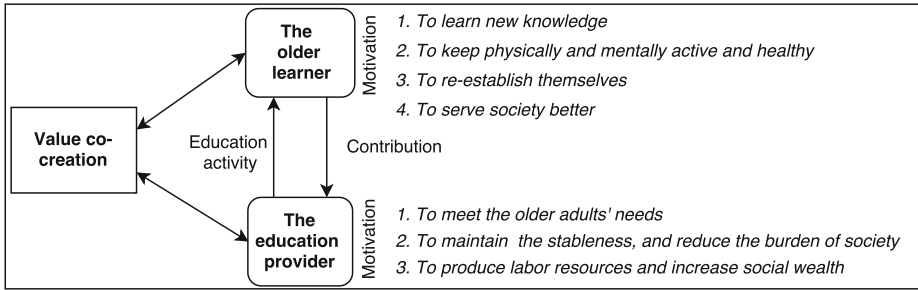
keeps a dairy note to record the detail of student information, needs, questions and the Monitor transfers those details to the dean. There are also seminars for monitors to share their opinions. Moreover, the forum of teacher representatives and student representatives are held twice a term to get more detailed information of provided service. BBS is also accessible for learners to reflect their problems anytime.” The lecture told that “the course system we offered looks like a supermarket and buffet service that suits the different requirements and characteristics.”. An evaluation system is developed in the university to check if a newly opened course indeed achieves its objectives and also be used to evaluate teaching quality of lecturers.

A Refined Service Value Co-creation Model for OAE in Case II. The above statements reflect that the education providers interact with the older students frequently in many ways and take their needs as the main factors to develop new services, deploy them, evaluate them, and improve them, which apparently conform to the four steps in KIKI model.

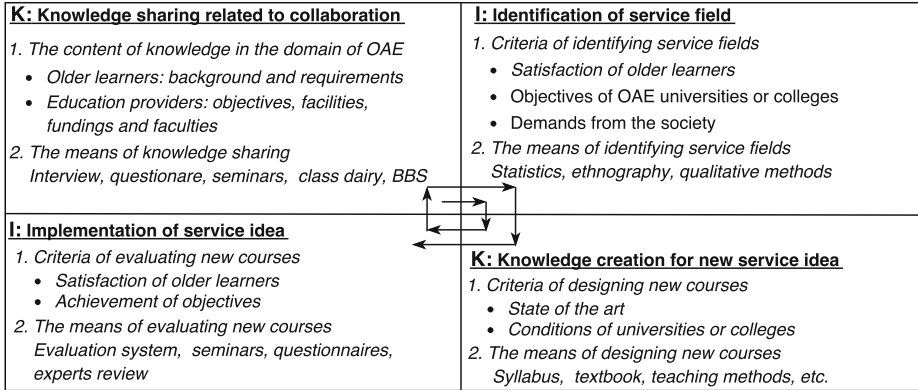
Figure 5 shows the concrete model for Case II. In the structure model, objectives of the service provider and the older learner in the university are identified. In the process model, we show the means of how the provider and the learner interact in each step to develop new courses and activities.

4.4 A Generalized Value Co-creation Model for OAE

From the survey and analysis result described in Sects. 4.2 and 4.3, we can find that the processes of developing their education service system in two universities conform to KIKI model, although the two universities are two different types of OAE universities. For instance, the university is Case I is opened only for a specific class of older learners, while the one in Case II is opened for any older



a. The structure model of the generalised service value co-creation model for OAE



b. The process model of the generalised service value co-creation model for OAE

Fig. 6. The structure and process of the generalized value co-creation model for OAE

learners. The needs of old learners in Case II are more varied than those in Case I. The older learners in Case I usually have rich education experience at universities and work experience at government, and hence their needs are sometimes more difficult to meet than those in Case II.

By unifying the two concrete value co-creation models in Case I and II, we generalize a value co-creation model for more general cases of OAE, as depicted in Fig. 6. In the model, we identify the contents and the means of knowledge sharing, and define the criteria and means of identifying service field, design new service, and implement the new service in the domain of OAE. The model is an instantiated one from KIKI model, but more abstract than those in the two cases in that the criteria and means in the model are more generic to OAE.

5 Conclusion and Future Work

In this paper, we presented a generalized service value co-creation model for OAE. The model is derived from a meta business model called KIKI model. By studying the process of developing education systems in two Chinese OAE universities where the older learners have high satisfaction, we identified the

content and approaches to knowledge sharing, and generalized the criteria and approaches in each step of the process model. By applying the model, we can establish customized education services and activities that can meet both the older learner and education provider's objectives. In this way, the values of these customized services and activities are maximized.

Regarding to the future work, we are considering conducting more case studies on OAE universities or colleges not only in China but also in other countries, by which we can make the content of knowledge sharing in the domain of OAE, the criteria and approaches in each step in the model more generic, resulting in a more general model for the value co-creation of OAE. By conducting more case studies, we could also examine the generality of the proposed model by checking whether it is suited to other cases in different countries.

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