SemeAd 2024
XXVII Seminários em Administração

05, 06, 07 e 08 de novembro de 2024
ISSN 2177-3866

Service Dominant Logic and Value Co-creation Practices in Health Care Service Ecosystems of Brazilian Higher Education Institutions

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Abstract

Purpose - This paper analyzed the relationship between the Service Dominant Logic and Value Co-creation, expressed by a typology shaping Health Service Ecosystems of Brazilian Higher Education Institutions that provide free health services to the community. Gaps were identified in the literature, namely, linking the application of the typology to a set of studies that addressed it in a qualitative research carried out in concrete situations and analyzing the typology in real situations in Higher Education Institutions that provide healthcare services.

Design/methodology/approach - A semi-structured form of a qualitative nature designed based on the typology was applied to 50 persons (patients, managers, teachers, students, and employees).

Findings - The results confirmed the existence of relationships between the Service Dominant Logic and the Value Co-creation from the perspective of the actors and expressed by the typology. These relationships shape and explain Practices of Value Co-creation that emerge from the networks of relationships between the actors. These practices emerge through the provision and use of services, which characterize as Ecosystems of Health Services the services provided by the institutions.

Originality - This work reports a novel management conception in healthcare management that includes the active and co-creative participation of the actors in the process of sharing services and knowledge, including knowledge sharing practice that flows from the user to the professionals.

Keywords - Health Services Ecosystem, Value Co-creation, Service Dominant Logic, Organizational Networks, Typology of co-creation practices.

Paper type - Research paper

1. Introduction

The Service Dominant Logic (S-D Logic) represents a new paradigm, placing service as the basic structure of exchange between actors (Vargo and Lusch, 2004; 2008). According to the authors, It's origin is associated with the development of studies on the Value Co-creation (VCC), especially associated with dynamic ecosystems that enable the exchange and sharing of services among its actors.

This value is co-created and shared by a network of interactions that is distributed across the many levels of service ecosystems and stimulates value outcomes, where innovation emerges as the fruit of a co-creation process. Thus, innovation has the potential to provide solutions for ecosystems and, more broadly, to promote consistent social changes (Vargo *et al.,* 2015).

Frow *et al.,* (2016) established a typology of co-creation practices providing measures to assist managers in monitoring their performance, determining the impact of co-creation practices on relationships. The measures proposed are useful in guiding the extent and direction of given changes to the ecosystem, adopting a more patient-centered approach in healthcare. Principles followed in the typology include "increasing self-management of care, shared decision making between patient, families and a health care team, and improving communication and shared understanding" (Frow *et al.,* 2016).

The measures of co-creation practices (CP) proposed by Frow *et al.,* (2016) have fostered a new research agenda. Still, gaps have been identified in the literature, and include evaluating the application of the typology in a set of studies that have used it qualitatively and its application in real healthcare service delivery situations, analyzing the innovative impacts of these practices at the meso (patient referral) and micro (host service management) levels of the ecosystems analyzed.

Therefore, this paper aimed to contribute to this development of relationships with the innovative Value Co-creation Practices (VCCP) that shape the ecosystem of the health services (Health Services Ecosystems; HSE) provided free of cost by Brazilian Higher Education Institutions (HEIs). The objective was to analyze practices that impact HSE, created or constrained by their structures. The innovative VCCP impacting the HSE created or constrained by the structures that form their contexts from the perceptions of the actors involved were analyzed. This innovative VCCP associated with perceptions of the actors is supported in the 4th Co-Creation Practice

of Frow *et al.'s* (2016) typology – "Practices that impact the ecosystem, created or constrained by the physical structures and institutions that form their contexts", and is also supported by the fundamental assumptions of Value Co-creation Practices (VCCP; Vargo and Lusch, 2016).

These practices, which occur among the actors of these ecosystems, dynamize the interaction and sharing of resources and services, and were analyzed based on responses to a semi-structured qualitative questionnaire applied from May to July 2022 to 50 actors. These actors include managers, patients, teachers, students, and employees of 2 Higher Education institutions located in the cities of São Paulo and São Caetano do Sul (Brazil).

2. Theoretical Background

In the typology developed by Frow *et al.,* (2016, p.27), VCC relations are developed in four levels within an ecosystem: micro, meso, macro, and mega. These levels are organized in an "ecological niche", which, in an HSE, corresponds to the spaces where services are provided and shared among the actors.

At the mega level, Co-creation Practices (CP) concern government agencies, regulatory bodies, and health financing bodies, which determine aspects of health policy in general. At the macro level, CP is related to state health authorities that determine resource allocation, professional associations of physicians and nurses, and health insurers. At the meso level, hospitals, clinics, and health support agencies are included. At the micro level, there are health professionals, patients, family members, friends and other patients, working together to develop a health care protocol, which will influence the conduct of all actors involved (Frow *et al.,* 2016, p.27).

According to Palumbo *et al.* (2017), at the meso level of the HSE, Healthcare organizations should try to provide a healthy environment that establishes the VCC among the actors, through the sharing of their resources.

The resources made available enhance the practices of the actors that host them and, in turn, stimulate the integration of new resources through these VCCPs, which spread and reinforce the well-being of the entire HSE, in a feedback action that shapes the relationships between the actors.

These feedbacks are related to Davey e Grönroos (2019), who have added a new Co-creation Practice to the Frow *et al's.,* typology (2016), named as the CP9:

"Practices that complement the roles of in-service literacy exercised by the actors", which, according to the authors, is present in all other practices of typology and influences their understanding, Because, for actors, especially patients, understanding every aspect of health services is critical in order to better take advantage of the services offered, a process that the authors call “Health Services Literacy” (HSL).

HSL can also be described according to "health behavior change", described by Kaatermo and Känsäkoski (2018) as a process associated with managerial activities and training factors, that promote the autonomy of patients and their families in relation to basic health care, emphasizing the integration of knowledge as an essential factor for the establishment of VCC.

The health care model of the Brazilian Unified Health System is divided into Primary (basic health care and low complexity services), Secondary (medium complexity), and Tertiary (high complexity) sectors. In Brazilian HEIs, there are university extension projects that provide free services to the needy population while also serving as an internship and training area for students. This research analyzed the primary and secondary levels by relating them to the micro and meso levels of Frow ***et al’s*** (2016) ecosystem model, to study the health services provided by the surveyed HEIs from the ecosystem perspective of Dessers and Mohr (2020).

In the area of health service delivery, HSE is defined as being “composed of actors and their respective resources, linked together through value propositions in a network of relationships” (Frow *et al*., 2016, p.24). Therefore, value propositions become associated with the costumer’s value concept, associated to the VCC, an axiom developed from the S-D Logic concept (Vargo and Lusch, 2004; 2016).

The S-D Logic concept proposes the integration of products with services and defines VCC as the sharing of skills, resources, and services among the actors involved in the exchange processes and interactions between companies, service providers, and patients (Vargo and Lusch, 2004). These interactions have been called Co-creation Practices (CP) by Vargo and Lusch (2016).

These CP are also related to the “operating resources", related to the S-D Logic (Hughes and Vafeas, 2018)

To assess the role of these CP in shaping HSE, the "Typology of Cocreation Practices that shape Service Ecosystems: a health care perspective" was developed by Frow *et al.* (2016). This typology consists of analyzing eight CP in the context of health care, providing a set of measures that impact the ecosystem's well-being.

The typology aims to identify the impact of CP on HSE, which helps to increase efficiency and achieve better results. Specifically, Frow *et al*. (2016) identify their work as relevant for Patient-Centered Care models, in which the HSE is influenced by both service providers and the patient. In other words, the purpose of the HSE to provide assistance to the inhabitants of a region is what enables its conceptualization, composition, and structure as an HSE.

According to Ciasullo *et al.* (2017), the Patient-Centered Care model is associated with S-D Logic and the VCC process, understood as a dynamic integration of resources between actors, a perspective that points to the need to develop a broader view of the VCC process from a perspective of the HSE.

An HSE is dynamic and constantly changing in terms of the value propositions and resources made available, and the CPs being shared. Understanding this state of permanent mutability is essential to identify to what extent these CPs can change and thus determine the well-being of this HSE, in a process of resource sharing that characterizes VCC (Frow *et al.,* 2016).

The concept of "ecological niches" can be related to service ecosystems. Actors interact with each other within their niche and with other niches, providing value through experiences that have meaning in these nested and overlapping ecosystems (Vargo and Lusch, 2016). Institutional arrangements, that are negotiated practices among actors that allow them to access and share the resources that are made available at each level, manage these interactive processes.

The actors are also bound by value propositions that enable access to resources that favor the well-being of each niche and impact the nature of the value propositions provided and the focus of the associated CPs. Actors engage with such practices directly or indirectly, within and across the ecosystem levels. The value that is co-created by the objectives and involvement of the actors (Frow *et al.,* 2016).

The extent of dissemination of symbols, signs, and stories within the ecosystem is supported by the definition of the institution as a norm and institutional arrangements as interrelated sets of institutions (Akaka *et al.,* 2014). The set of integrated patient care norms of a given institution constitute a relatively coherent organization that facilitates the coordination of VCC activities in the HSE (Vargo and Lusch, 2016).

Institutions play a key role in VCC based on S-D Logic (Vargo and Lusch, 2016, p.8). Hence, the HSE perspective is a new Fundamental Premise (FP11) and a new axiom (A5), adding to the critical review of the seminal 2004 paper (Vargo and Lusch,

2004) stating that "VCC is coordinated through institutions generated by actors and institutional arrangements" (Vargo and Lusch, 2016, p.8).

At the core of S-D Logic there is the question of how to apply collective skills, experiences, and knowledge (operant resources) to provide benefits for all actors (Vargo and Lusch, 2016, p.8). Without these benefits, there is no Value in Use, a fundamental element of S-D Logic (Ranjan and Read, 2016), related to the “complementarity”, the third characteristic of "ecosystemic co-creation". This characteristic highlight that an activity performed by an actor stimulates another activity that, in turn, provides feedback and stimulates the chain of resources and services made available by the actors (Ranjan and Read, 2021).

The networks formed by the interactions between actors can be recognized at the many aggregation levels of the HSE, structurally reflecting what the S-D Logic axiomatically grasps in the specification of resource integration (Vargo and Lusch, 2011), as postulated in axiom 3 (A3) which states that "all social and economic actors are resource integrators" (FP9; Vargo and Lusch, 2017, p.60).

3. Methodology

CP4 was chosen among the eight CPs in Frow *et al.'s* (2016) Typology to be presented in this paper because it is focused on the relationships between service providers and patients interacting at the meso and micro levels of the HSE. This CP is characterized by its viability as a Cocreation Factor to be analyzed. The responses were discussed considering the theoretical framework and CP4 of Frow *et al.´s* (2016) typology. The summary of the responses and of the discussion, the conclusions, and concluding remarks are presented for the purpose of this paper.

This study was submitted to the USCS Research Ethics Committee (CEP; CAAE: 58439122.3.0000.5510) and approved following the consented opinion no. 5.408.104, issued on 05/13/2022; https://plataformabrasil.saude.gov.br/).

This is a qualitative research of exploratory nature, conducted by semi-structured interviews focused on understanding the phenomenon studied (Gil, 2017).

After being authorized by the HEIs, pre-scheduled visits were made to the service provision sites and interviews were conducted with the individuals indicated by the coordinators of the HEIs. All interviews were conducted in reserved rooms made available by the HEIs, recorded, and transcribed. These HEIs were chosen for being

institutions that provide healthcare services to the community, thus being suitable environments to be analyzed as Health Services Ecosystems (HSE).

The data on the services provided by the HEIs researched in the health area and the approximate number of patients per month, of 1.000 to 4.000, was obtained from the websites of the institution itself. These services are provided free of charge to the population and have two pillars. The first is to offer free, quality health services to the population and the second is to offer practical training for students, a requirement for exercising their profession.

A total of 50 persons who attend the HEIs studied were interviewed, distributed among 10 patients (group A), 12 managers (group B), 09 professors (group C), 10 students (group D), and 09 employees (group E). All research participants were presented with an Informed Consent Form (ICF) explaining the background of the research and its objectives. The interviewees answered to the research questions that are presented in Table 1.

Table I. Questions presented to the participants focused on the fourth CP of Frow *et al.'s* typology (2016)

	Guiding Questions
Q1	Could you describe how the welcoming, selection, and referral of patients to the services is performed?
Q2	Do patients participate in the development and/or improvement of these practices? Could you give us some examples?
Q3	Are there practices that provide interdependence and integration between the various actors and the resources they can make available? Could you give examples?
Q4	Are there practices that improve procedures and promote the sharing of knowledge of professionals with patients and other institutions? Could you give us some examples?

Source: Prepared by the authors, 2023

4. Results and Discussion

In all, 19 points were identified as Value Cocreation Practices (VCCPs) (Table 2, Column 2; referenced throughout this chapter by the superscript numbers), according the four levels or the Health Ecosystem of Frow *et al.'s* typology (2016),

developed at the researched HEIs health services (meso level) and the relationships between service providers and patients interacting, performed at the micro level.

The answers were discussed in the light of the theoretical framework and according to the order of the questions on the form and are summarized in Table 2.

4.1. Question 1.

This section presents the first Guiding Question (Q1, see Table I). This question unfolds into underlying questions that helped drive and guide the responses, addressing patient participation in the development and improvement of practices.

Based on Q1, the responses describe the standard assistance procedure in the two HEIs surveyed. The users, being in possession of a prescription referred by a doctor of public or private services, go to the HEI. Then, they go to the reception, are screened, and forwarded to the service according to their needs. During the service, they are welcomed by the students, who prepare and monitor the work being carried out, supervised by a teacher and under the coordination of the managers. The first elements observed in the answers are the feeling of being "very well received" described by the patients and the personalized follow-up they receive, with direct results in their perception of their own quality of life.

This point of view of the patients is in line with the "Caring for Health" concept, a cornerstone of the Brazilian Unified Health System (*SUS*). It results from a network of relationships between actors, people, and institutions who share attitudes such as dignified and quality treatment, welcoming and establishing bonds, connecting perfectly with the HSE care model (Pinheiro, 2008) [Q1-1] found in the analyzed HEIs.

> The reception starts at the entrance, with the security guards opening the door, because we can't get through the turnstile. We are generally very well received, and after 2 or 3 minutes the person in charge comes, always passes by, asks how we are, if we need anything, and makes us and the students very comfortable. (A5)

Among the teachers, we highlight interviewee C1, who mentioned the "pleasant and welcoming" environment for the user: “[...] being a place that has all the concern, a nice place for people to stay makes a lot of difference” (C1).

Among the students, we highlight the welcoming and evaluation procedures, and the application of the activity protocols prescribed by the professors for each user.

The students described their day to day as being in direct contact with the patients, always supervised and guided by the teachers.

> We call the patients at the waiting room […] We examine them, among ourselves first, do the physical exam, anamnesis, and then we call a preceptor [...] and we discuss what he thinks about everything we did; [...] and then we direct the treatment. (D2).

The interviewees' responses to Q1 show the presence of S-D Logic (Vargo and Lusch, 2017) Q1-2 in the procedures adopted for welcoming patients and training students in this VCC process. The S-D Logic concept was present both in the development of treatment protocols and in the care and services provided.

The responses also show a direct association with CP4 (Frow *et al.,* 2016), once values such as receiving the patient, which provides them with the feeling of being "well welcomed", and the commitment of the other actors with this "welcoming" were present. These practices positively impact the HSE of the HEIs analyzed and were created by the structures that form their contexts, i.e. the way the HEIs structure themselves to welcome patients allows them to generate this co-created value perceived by the actors.

4.2. Question 2.

The second question (Q2, Table I) is supported by Ciasullo *et al*. (2017) Q2-3, who proposed practices to improve care procedures by integrating the resources made available by the actors in the HSE and found support in the responses of some patients. These patients, with the experience they gathered during their coexistence with their clinical conditions, provide feedback to the students on how they are receiving the services, the effects they are feeling, the pain and discomfort that the exercises cause them, and the best way to be led in the exercises. In this way, they support student learning, in a typical VCC practice.

> I talk a lot with the students because I have this experience in physical therapy. They are learning now, with the teacher; [...] I explain how they have to pick me up, how they have to get me down [to the pool], how they have to leave with me. Of course, the teacher is always watching. They give their opinion, but since I already had this experience, they make me more comfortable. (A4).

This active participation of the patients, as a contemporary approach in healthcare areas, was also emphasized by manager B12, who highlighted the proposals of "Shared Therapy" and the "Affective Medical Record", where activity protocols are not only linked to the symptoms that patients present, but also to their personal preferences.

For example, a certain song, that can be used in a "music therapy" activity that the student will be involved with, or a certain exercise that the user does not like and can be replaced by another one, as long as it exercises the same muscle group and has similar objectives can be recorded in the medical record.

This approach adds to the observations and feedbacks of the students mentored by the internship supervising teachers during the anamnesis and assessment performed with the patients. This is a contemporary clinical practice characterized as Institutional arrangements as interrelated sets of institutions (Akaka *et al.* (2014) Q2-4 and related to S-D Logic (Vargo and Lusch, 2017) Q1-2.

> Nowadays, due to social networks, the patient occasionally comes to the university informing the student what he has to do [...] So, the professors discuss with the students this matter of listening to the patient, of shared therapy, of planning a therapy for that individual. Each individual is unique. The "Affective Medical Record" is an idea (B12).

The students demonstrated that they are assimilating well and applying this vision of active user participation in the elaboration of the care protocols and is in line with CP5 of Frow *et al*.'s (2016) Q2-5 typology. According to CP5, good CP practices have a positive effect on the HSE as health professionals consider the opinions of patients and their families when designing care protocols.

> I usually ask what the main complaint is, what he hopes to improve with physiotherapy and what he likes to do so we can try to relate it to a more dynamic physiotherapy and not become boring; [...] to guide me on how to conduct treatment (D5).

The answers to Q2 show direct relationship with the Cocreation Practice 4 (Frow *et al.,* 2016) and with the sharing of resources pointed out in FP9 (Vargo and Lusch, 2016) Q2-6, which, in turn, was established by the authors as an axiom of S-D Logic. FP9 identifies all actors involved in the process as resource integrators and is characterized as a narrative of cooperation and coordination within the HSE.

4.3. Question 3.

Question Q3 (Table I) is referenced by the 1st lesson of the "Ecosystem Perspective and the 7 lessons for HSE design" (Dessers and Mohr, 2020) Q3-7, which addresses issues of interdependencies among activities, actors, challenges, strategies, and solutions for composing and maintaining HSE homeostasis.

The Question 3 is also related directly to Health Services Literacy (HSL) as a new VCCP to Frow *et al*.'s (2016) typology and to the 1st proposition of this practice, which posits that "the HSL roles of patients are dynamic and interdependent" (HSL; Davey and Grönroos, 2019) Q3-8.

These are easily identifiable interactive practices and opportunities, as in interviewee A10's response, which flowed like a conversation with the interviewer. The user reported the existence of a network of patients that became organized in a completely spontaneous and informal manner.

The patients share information and habit changes with one another helping each other stick to their exercise programs. Such practice is characterized as a HSL process (Davey and Grönroos, 2019) Q3-8; although in a more expanded form, since this HSL occurs in a shared manner among patients, an action identified as VCCP in the analyzed HEI.

This practice also portrays an innovative VCC behavior (following Vargo and Lusch, 2021) Q3-9, as there are to our knowledge no references on spontaneous self-organized groups of patients formed to share the knowledge received in the HEIs, in addition to stimulating and helping each other to practice physical activities in places and times outside the HEIs.

This attitude of sharing incentives for the practice of activities shows that the knowledge they obtain while using the services is truly significant and promotes healthy living habits. In addition, it is characterized as a knowledge integration practice, which is a paramount factor for the achievement of a VCC (Kaatermo and Känsäkoski, 2018) Q3-10. An example is the dialogue below between the interviewer and actor A10:

> We end up making friends. [...] We share ideas. For example: I say that this patient that is with me pushes a lot, so I am holding on, because one gives strength to the other. If she doesn't do it this way you are going to atrophy, don't complain! You have to walk; you have to do treadmills! (A10)
>
> So, this knowledge sharing does exist? (interviewer)

> Yes, it does! "Is your brochure the same as mine?"; "You will do leg exercises?"; " will you do arm exercises?" [...] We even set the time to walk: "Hey! 6 o'clock we are going to walk. Turn on the phone. I want to know if you are walking!" (A10)
>
> And when you go out for a walk, you get on WhatsApp and encourage your friends? (interviewer)
>
> Hey! We are going for a walk at 6 o'clock this afternoon! Not at 6. I can't! My son is coming to dinner! Then what time will we walk? Because if it gets dark the old man can't see, he might trip on the street, it has to be early. (A10)
>
> So, you mean that each one walks their separate paths, but you communicate, you talk to each other along the way? (interviewer)
>
> Look, what someone says: “call me! Make a video call! I want to see if you are really on the street!” Then I'll make a video call to show that I'm walking. It has to be that way! [...] Right! Provocation! Because one wants to do more than the other, so that works! That helps! [...] Know that doing this, for those who are old, my God, is a blessing. This friendship is wonderful. This thing we have is part of our therapy, of our physiotherapy. (A10)

This answer confirms the institutional practice of stimulating socialization among patients, which promotes patient compliance to the treatment and was reported by C5:

> I notice that they like it here not only because of the exercise. Actually, I think the exercise is even secondary. It is more the integration among them, this socialization. They make friends, so I realize that they like to be here for their friends, which makes them not skip a day (C5)

Further on the HSL perspective (Davey and Grönroos, 2019) [Q3-8], the responses of managers and teachers demonstrate concrete actions to educate patients, relatives, and caregivers on the necessary daily monitoring of basic health care. They adopt an orientation practice that surpasses the traditional proposal of the health services, focusing on monitoring and educating patients in their daily lives, stimulating the adoption of healthy habits and daily care, which are as important as medication.

> When we didn't have, for example, the possibility of having face-to-face care [...] we used telehealth. The child is there, it depends a lot on the family, it depends a lot on how the family is inserted in the context. [...] this happens a lot with children, because co-responsibility is in the person responsible, so my little one doesn't go into the middle of the kitchen to prepare a meal. I need to understand how this process is [...] So we make the report not only for the doctor or for another professional. We make a report for the school, we make a report for the family [...] we literally bring the whole family to the office. (B3)

The answers to Q3 showed practices that provide interdependence among the actors, patients, family members, caregivers, and students. These individuals, due to the training of future health professionals, another service provided by the HEIs, are also involved in the training and HSL.

> Normally the user is perceived by the scholar [...] the student performs the medical appointment and then we discuss the case in the presence of the patient. We arrive at a joint diagnosis, and together we write the prescription of what the patient needs, including the patient in the decision. (B9)

These practices cause interdependence among the actors and affect the sharing of knowledge between students and teachers. This sharing provides students with a relational environment and consequently a differentiated learning for their future insertion in the labor market.

> There are two things. It's a calm and very well-organized day to day. I think that this reverts into patient care and comfort during work time [...] so there is a very organized flow that is very followed, very respected, and the eventualities are taken care of quickly, efficiently. I think that because of the good relations. (C1)

The practice of matrix support (case study) that occurs at least within each sector, with some participation from other sectors, and/or by invitation from personal contacts stands out in relation to knowledge sharing practices among sectors.

> We conduct it [case studies]. Sometimes it involves other sectors. Actually, this is done more here in the clinic [...] Usually the choice of patient is exactly the one that manages to aggregate all the internship areas, and it has happened sometimes that we manage to aggregate other disciplines. (EC8).

These answers indicate the existence of a multidisciplinary effort that generates value and integrates patients as co-creators of this value in the HSE. The HSE has also been defined as a community of actors who, interacting and sharing competencies and resources, adapt to the environment and coevolve (Palumbo *et al.,* 2017) Q3-11.

Accordingly, the HSE communities evaluated together develop mechanisms to apply to their lives the learnings they have received and co-created, in the process of providing and receiving the health services provided by the HEIs.

Thus, question 3 enlightens practices that impact the HSE, emphasizing the practices whose co-creation, carried out by all the actors, is streamlined by the arrangement of care and service provision structures found in the HEIs.

The HEI, in turn, is well characterized regarding the students' answers to this question, indicating that the students are aware of the importance of multidisciplinary

work and shared value for the homeostatic functioning of the HSE, demonstrating academic training as "operating resources", related to the S-D Logic (Hughes and Vafeas, 2018) Q3-12.

> Sometimes the patient comes here looking for, focused on a treatment, but when he comes here and talks to this multiprofessional team he realizes that he has much more to gain by using, for example, nutrition, nursing, psychology, physical therapy, alongside the doctor, in a broader and more correct treatment. (D3).

Among the employees of the HEIs, whether working at the reception or supervising students, the HSL and the direction of the services are focused on the development of the user's and student's autonomy, that provides a direct response to the objective of this article to ascertain the components characterizing VCCP that shape and explain the relationships established in the service delivery process. Moreover, they relate the S-D Logic, expressed in the mission of serving patients, with the VCC, expressed in the reciprocal learning for the use and delivery of health services.

> This is the goal, [to develop the patients' autonomy] [...] this process carried out with a multi-interdisciplinary team, is for this patient to have a minimum of autonomy (E1).

> The importance also of the physical therapy clinic for the student [...] Here in the clinic we must ensure the quality of learning. [...] Ethical values. Our teachers are examples [...] that is why I think the School Clinic is so important, for the patient. There is a service for the population of the city, for the student, because he has an internship, he has the security of leaving here very well trained. (E4).

Informal networks were detected, covering knowledge sharing, service dissemination, and mutual aid among patients, characterizing the practical use of the teachings received during care at the HSL (Davey and Grönroos, 2019) Q3-7.

Moreover, it was observed a more extended version of this concept, as, in these networks, knowledge is shared among patients without the direct action of the professionals and students from the HEIs that assist them.

A multidisciplinary work was identified, consciously carried out by the actors that generates balance, an atmosphere of well-being, and VCC in HSEs. This work is driven in interaction with patients as co-creators of this value, confirming the concepts of Value in Use and the Co-production of Value (Co); (Ranjan and Read, 2016) Q3-13.

The answers also address the complementarity, the third characteristic of "ecosystemic co-creation". (Ranjan and Read, 2021) Q3-13.

4.4. Question 4.

The fourth question (Q4, see Table I) was based on Ciasullo *et al.* (2017) Q4-14 and refers to the knowledge sharing practices in the HSE from the micro to the meso level, whether they are carried out by virtual registration tools or by the exchange actions of goods and services between the actors.

User A4, patient with a rare muscular dystrophy (Fascioescapuloumeral Muscular Dystrophy; see Medical Subject Headings, 2008), shows a innovative valuable knowledge sharing. This is yet another prominent finding of this research, as it is rare to find a lay patient that assists in training for healthcare professionals and students. This user delivers lectures to health professionals and students about this rare health condition.

After being diagnosed with this muscular dystrophy for over 14 years, he became a self-taught "expert" on this specific dystrophy and for this reason introduces it to professionals and students. He is the founder of an association for bearers of this pathology and a member of the Human Genome Studies Laboratory of a public university in the state of São Paulo.

It is worth noting that the practice of a patient, a layperson, lecturing on a clinical condition to health professionals in institutions of higher education is provided for in part in CP1 (“Practices that endow actors with social capital”; Frow *et al.,* 2016, p.31).

Frow *et al.,* (2016) Q4-15 cite the participation of patients in online forums, where they share knowledge acquired on their health condition with other people with similar conditions, stating that the credibility of these patients comes from their own experience of living with the pathology, with the treatments, and their contacts with professionals.

The uniqueness of user A4's report consists of the fact that this user talks about his pathology to health professionals and not only to other patients like him. According to Palumbo *et al.* (2017) Q4-16, who claim that ecosystem interactions that enable VCC through the exchange of resources among actors. This report consists of a knowledge sharing practice that flows from the user to the professionals, a very rare practice in this environment. Hence the preciousness of this report, for this article as well as for future studies addressing this theme.

> Yes, I talk a lot. I make them very comfortable. I tell them: whatever you want to ask me about muscular dystrophy, especially the one I have, you can ask me, because I will explain it to you, and it will be better for you [...] I also give lectures about this dystrophy. I give lectures in some universities, as I have done here because I have studied it since the beginning [...] I was also learning with Dr. A. At the university, when they give lectures, they always invite me [...] and we made an association. Four doctors, two parents who have children with dystrophy, and I. (A4).

In the HEIs analyzed there is also concern that the user be discharged not only in function of the treatment results, but also when their family members and caregivers are properly prepared to continue the treatments and procedures needed by the patients. This attentiveness is characteristic of HSL (Davey and Grönroos, 2019) Q4-17, as reported by teacher C8.

> We not only provide care, but we also provide guidance; [...] imagine that I received a patient and that a work of guidance or training of the family member, for, I don't know, the aspiration of this patient at home (or any care for him at home) is being conducted. I as the supervisor, and my student will continue this work (C8).

The answers to question Q4 showed VCCP among the actors of the analyzed HSEs. Specifically, it revealed a practice of knowledge sharing from a user to health professionals, which is uncommon in the area, where the professionals are the ones who share their knowledge with patients.

Question Q4 also brought responses aligned with CP4 (Frow *et al.,* 2016) Q4-18. These responses consider the micro level as the space where direct communication and sharing of knowledge and capability resources among patients and caregivers takes place, creating value.

In this regard, valuing and training the patient provides activates resources, engaging him in practices to protect and promote his own health condition.

Accordingly, the interviewees' responses ascertain the existence of VCCPs that impact the HSEs, which are created or constrained by the structures that form their contexts.

The responses also made it possible to identify relationships between S-D Logic and VCC (Vargo and Lusch, 2016) Q4-19 in the surveyed HSEs, and are summarized at Table 2.

Table 2: Results and discussion

Regarding the PC4 (FROW *et al*., 2016) and the Objective of this work: To analyze the relationship between the Service Dominant Logic and Value Co-creation, expressed by a typology shaping Health Service Ecosystems of Brazilian Higher Education Institutions that provide free health services to the community.			
Analyzed Data:	a) Indication of patients - impact: meso levels (forwarding); and micro (service management)	b) Analysis of patients reception and referral procedures; VCCP and S-D Logic	
Questions	VCCP Identified	Responses to the Objective in relation to the CP4 (Frow *et al.,* 2016):	Bibliographic Reference:
Q1 - Could you describe how the welcoming, selection, and referral of patients to the services is performed?	1. "Caring for Health" concept, connecting perfectly with the HSE care model.	Result from a network of relationships between actors, and institutions who share attitudes such as dignified and quality treatment, welcoming and establishing bonds.	Pinheiro (2008)
	2. Presence of S-D Logic.	Procedures adopted for welcoming patients and training students in this VCC process.	Vargo and Lusch (2017)
Q2 - Do patients participate in the development and/or improvement of these practices? Could you give us some examples?	3. Users: feedback on how they are receiving the services - assist with student learning.	Improve care procedures by integrating the resources made available by the actors.	Ciasullo *et al.* (2017)
	4. Shared Therapy and Affective Medical Record.	Institutional arrangements as interrelated sets of institutions.	Akaka *et al.* (2014)
	5. Active participation of the user in the elaboration of the care protocols, assimilated by the students.	CP5 - Beneficial Practices - Patient-Centered Care	Frow *et al.* (2016)
	6. Resource sharing between actors.	FP9 - S-D Logic Axiom: Actors as Resource Integrators.	Vargo and Lusch (2016)
Q3 - Are there practices that provide interdependence and integration between the various actors and the resources they can make	7. 1st lesson of the "Ecosystem Perspective and the 7 lessons for HSE design".	Issues of interdependencies among activities, actors, challenges, strategies, and solutions for HSE homeostasis.	Dessers and Mohr (2020)
	8. "The HSL roles of patients are dynamic and interdependent."	Health Services Literacy (HSL).	Davey and Grönroos (2019)
	9. Spontaneous self-organized groups of patients formed to share the knowledge received in the HEIs, in addition to stimulating and helping each other to practice physical activities in places and times outside HEIs.	Innovative VCC behavior.	Vargo and Lusch (2021)

available? Could you give examples?	10. The knowledge that the patients obtain while using the services is truly significant and promotes healthy living habits.	Paramount factor for the achievement of a VCC.	Kaatermo and Känsäkoski (2018)
	11. Existence of a multidisciplinary effort that generates value and integrates patients as co-creators of this value in the HSE.	The HSE has been defined as a community of actors who, interacting and sharing competencies and resources, adapt to the environment and coevolve.	Palumbo *et al.* (2017)
	12. Practices that provide interdependence between actors: focus on students, whose training is the scope of the services provided by HEIs.	Training based on the "operating resources" of the actors, related to the S-D Logic.	Hughes and Vafeas (2018)
	13. Multidisciplinarity: balance and CCV; integration of users as Co-creators.	Value in Use and Co-production of Value; 3rd characteristic of "ecosystem co-creation": complementarity.	Ranjan and Read (2016; 2021)
Q4 - Are there practices that improve procedures and promote the sharing of knowledge of professionals with patients and other institutions? Could you give us some examples?	14. Knowledge Sharing Practices in HSE – Micro and Meso Level.	Practices, which co-create value, create new structures and institutions.	Ciasullo *et al.* (2017)
	15. Sharing of knowledge and personal experience between users and service providers.	CP1 - Practices that endow actors with social capital.	Frow *et al.* (2016)
	16. User who shares knowledge with health professionals.	Innovative HSE interactions that enable VCC through the exchange of resources among actors.	Palumbo *et al.* (2017)
	17. Attentiveness as characteristic of HSL.	Participation of teachers, students, caregivers and family in the patient's treatment process extended to procedures and care at home.	Davey and Grönroos (2019)
	18. Micro level as the space where communication and sharing of knowledge and resources among actors takes place, creating value.	CP4 - Practices that impact the ecosystem, created or constrained by the physical structures and institutions that form their contexts.	Frow *et al.* (2016)
	19. Relationships between S-D Logic and VCC in the surveyed HSEs.	Existence of VCCPs that impact the HSEs, which are created or constrained by the structures that form their contexts.	Vargo and Lusch (2016)

Source: Prepared by the authors, 2024

From these 19 Value Cocreation Practices, identified in the answers to the questionnaire and summarized in Table 2, it was possible to develop a broader view of the VCC process, according to "Caring for Health" concept (Pinheiro,2008).

This concept is related to the Health Services Ecosystem care model, and responds to the need pointed out by Ciasullo *et al.* (2017), to develop an Ecosystem Perspective for the provision of Health Services, postulated years later by Dessers e Mohr (2020).

This Ecosystem Perspective that analyzed the responses to the questionnaire made possible to highlight the relationships between the S-D Logic and the Value Cocreation expressed in the Innovative Value Cocreation Practices identified and supported by the authors presented and discussed in the theoretical framework, providing the answers to the objective of this work.

5 CONCLUSIONS

This research identified, from the perspectives of the actors, the existence of Value Cocreation Practices. The perspectives provided presented consistency and explanation for the relationships involving the Service Dominant Logic and the Value Co-creation, which occur during the provision of health services in the evaluated HEIs. The questions used to obtain the information were based on Frow *et al.,* (2016), where a set of measures indicative of the actions of S-D Logic and VCC in the well-being of Health Services Ecosystems are presented.

This study also identified that the analyzed HEIs function on two pillars: quality of the free service to the population and student training. The relationships among the actors involved in the operationalization of these pillars are expressed by the typology applied, characterized as Value Co-creation Practices.

It was observed several and innovative Value Co-creation Practices and proposals to improve the health services provided by the HEIs analyzed from the "Ecosystem Perspective". Examples are the co-construction of service experiences, equalized to their context and relational environment, which advocates the values of welcoming patients, students, and other actors, in their varied proposals for action.

Practices that generate participation of patients and other actors in the elaboration and improvement of welcoming practices and in the prescription of services

by HEIs are configured as Value Co-creation Practices and generate new referential frameworks of value for these HEIs. These referential value frameworks include experience, participation, and creation of actors in the entire process.

These new references of co-created value are described as the integration of resources pointed out in FP9 (5th axiom of Value Co-creation). This integration provides a narrative of cooperation and coordination that includes the active and co-creative participation of the actors in the process of sharing services and knowledge found in the HEIs studied, following a healthcare approach that establishes a new management conception.

This new conception promotes relationships by elevating patients and their resources to the level of fundamental partners for the recognition of the nature of health services as an ecosystem, differentiated by the specificities of the health area, in an integrative process. This is one of the four foundations of the S-D Logic, which promotes the sustainability and well-being of all components of the Health Services Ecosystem.

The easy access, the welcoming environment, and the provision of quality services, identified in the researched HEIs, promote Value Co-creation Practices such as the sharing of knowledge among patients, an uncommon practice in the health area, where it is usually the professionals who share their knowledge with the patients. This sharing of knowledge among the actors is another specific finding of this study.

This finding provides a concrete answer to the Cocreation Practice 4 and the Objective of this study, by considering the sharing of knowledge resources and capabilities among the actors as value co-creators of at the micro level of the Health Services Ecosystem. This values the training of actors and engages them in adopting practices to protect and promote their own well-being.

The existing relationship between the Value Co-creation and the S-D Logic was confirmed from the perception and perspective of the actors, considering the interviews, the bibliography researched, and the typology. These existing relationships, as a proposed approach for the HEIs surveyed, shape and explain the innovative Value Co-creation Practices that emerge from the networks of relationships formed among the actors, through the provision, receipt, and use of the healthcare services. The relationships among the actors characterize these services provided by HEIs as authentic Health Services Ecosystems.

As suggestions for further studies this work indicates research that assess the point of view and awareness of each actor's role in the HSEs; Measure and evaluate the quality of the results obtained from the ecosystem perspective of the relationships between S-D Logic and Value Co-creation recorded and research that adapt and validate the Typology of Frow *et al.,* (2016) for the reality of the Brazilian public health service.

As the main limitation is the fact that the research was carried out in only 2 higher education institutions. It is suggested to expand the number of institutions for future studies.

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