A Service-Dominant Logic and Value Co-creation Approach for Online Business Education

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Abstract The service-dominant (S-D) logic, of value creation in use, has merit for online business education. This chapter takes a closer look at service-dominant logic frameworks presented by researchers and explores their application to online business education. In particular, the five axioms of service-dominant logic are linked to online business education to show how the framework can be adapted. In addition, a five-phase process of the core service-dominant logic concept of co-creation of value is applied and explained in relation to online business education. These frameworks may provide useful insights for online business education effectiveness.

1 Introduction

The service-dominant (S-D) logic, as introduced by Vargo and Lusch (2004, p. 9), is "a mindset, a lens through which to look at social and economic exchange phenomena so they can potentially be seen more clearly." One of the core tenets of the S-D logic is the co-creation of value, where the customer is "a co-creator of value" (Vargo & Lusch 2008, p. 7) and an enterprise/organization offers a value proposition; together, the customer and organization create value. Although developed primarily in the marketing area, the S-D logic is applicable to areas other than the exchange of products and services. Chalcraft and Lynch (2011) suggest that higher education is amenable to analysis through the S-D logic lens.

Education is commonly thought of as being a service, and literature treats it that way in order to look at quality (Hill, 1995), student satisfaction (Mark, 2013; Woodall, Hiller, & Resnick, 2014), and students as customers (Saunders, 2014). Additionally, the North American Industry Classification System considers

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education to be a service (Stats Canada, 2016). Yet at this point, very little literature exists relating education to S-D logic. As a service then, it is logical and valuable to apply the lens of S-D logic to education, and S-D logic may even serve as an umbrella concept for the various education-as-a-service articles.

While there has been some research (Baron & Harris, 2006; Chalcraft & Lynch, 2011) that links S-D logic and higher education, the literature does so at a fairly high level. However, within the S-D logic, there are a number of concepts, axioms, specialized terms, and foundational premises at a lower, more applied level. The application of S-D logic concepts to the educational context may provide opportunities for improvement in educational effectiveness and student learning and will point to areas for further research, especially in the online education sector where one of the key success factors is student service where service includes not just knowledge creation but also support services that make the student experience with the higher education institution memorable.

In the education field, institutions provide access to courses, course materials, instructors, evaluations, and credentials, to potential students, who, through effort and work on their part, can co-create value. Co-creation of value is a core concept in S-D logic, whereby a supplier or manufacturer or service organization provides a good or service to a customer who, though use, and involvement in the process, gains value (e.g., Etgar, 2008; Payne, Storbacka, & Frow, 2008; Vargo & Lusch, 2004). The question may arise, "what is value to a student?"; this is an important question, which, however has no definitive answer. As discussed later in the chapter, the beneficiary (student) determines what value is for themselves. We can speculate though, as to some potential types of value for students: increased knowledge or knowledge creation, skill development, job readiness, self-satisfaction, or feelings of self-worth. As students will define value for themselves, this list could be much longer and could be different for each student. Further, online education is growing rapidly, and within the education sector, it seems that more independent motivation and effort are required on the part of students. They may, therefore, be more actively involved in the co-creation of value process. This in turn suggests that an online educational context may be even more relevant for the S-D logic than understood. This implies that how we look at students, potential students, educational institutions, and other stakeholders in the education sphere, and how they interact, is changing with the advances in technologies and collaborative tools used by higher education institutions.

Thus, this chapter sets out to examine how to apply the S-D logic to an educational context – specifically an online business school context. The goal is to examine the application of some S-D logic concepts to the educational system in an effort to suggest ways of thinking that have the potential to improve educational systems for institutions involved in imparting business education. This chapter first gives an overview of S-D logic, its five axioms, and looks at the co-creation process in relationship to education and online business education. The chapter then suggests how S-D logic concepts of co-creating value can be applied to online business education.

2 Service-Dominant Logic

Service-dominant logic comes out of the services marketing work that took strong root in the early 1980s (Vargo & Lusch, 2017). Services marketing is essentially differentiated between goods and services and goods marketing and services marketing. Scholars focused on the fact that services were fundamentally different from goods; thus, they needed to be understood differently and marketed differently. While there was a significant amount of research pursuing this theme, Vargo and Lusch (2004) felt that emerging out of the services marketing research over the years was a new orientation to marketing thought, and a new dominant logic for marketing, which they called the "service-dominant (S-D) logic" (Vargo & Lusch, 2016, p. 47). In their own words:

> *…marketing activity (and economic activity in general) is best understood in terms of* service-for-service exchange*, rather than exchange in terms of goods-for-goods or goods-for money. In other words, it is the* activities *emanating from specialized knowledge and abilities that people do for themselves and others…and the activities they want done for them,* not the goods, *which are only occasionally used in the transmission of this service, that represent the source of value and thus the purpose of exchange. Second, value is co-created, rather than created by one actor and subsequently delivered.*

In this view, goods-products are not produced for their own sake; rather, they deliver services from which customers realize value (Gummeson, 1995). Thus, customers realize that value in the use of the goods. Additionally, by using the goods, customers are *involved* in realizing the value, such that value is co-created.

The notion of value being co-created is one of the axioms of the S-D logic. In a goods-dominant logic, a manufacturer imbues a product with value and sells it to a customer, such that there is value in exchange. In an S-D logic, there is value in use; the customer, in essence, participates in the creation of value by using or being engaged with the product or service that is worked on by a manufacturer or service provider. Further to this, the value that is created is always in the eye of the beneficiary (Vargo & Lusch, 2017). Vargo and Lusch (2004, p. 6) say, "A S-D Logic implies that value is defined by and co-created with the consumer rather than embedded in output."

The interaction between the producer, manufacturer, or service provider and the consumer then has significant aspects of relationships inherent in the co-creation of value. Furthermore, within such a relationship, there actually may be more actors than the producer and consumer, implying that a network approach is appropriate within the S-D logic framework.

Early work on the S-D logic put forward eight foundational premises (Vargo & Lusch, 2004), which were expanded in later years to 10 (Vargo & Lusch, 2008). Later still, these were condensed into five axioms, from which all ten foundational premises could be derived. The five axioms of the S-D logic from Vargo and Lusch (2017, p. 47) provide the core aspects of the framework:

1. Service is the fundamental basis of exchange.
2. Value is co-created by multiple actors, always including the beneficiary.

3. All social and economic actors are resource integrators.
4. Value is always uniquely and phenomenologically determined by the beneficiary.
5. Value co-creation is coordinated through actor-generated institutions and institutional arrangements.

3 Service-Dominant Logic in the Educational Context

While the S-D logic was originally developed and presented in a marketing context (Vargo & Lusch, 2004), it was not intended to be restricted to the marketing area. Rather, Vargo and Lusch (2008, p. 3) contend that "S-D Logic is a generalizable mindset" and it can be applied in many different contexts, including education (e.g., Baron & Harris, 2006; Chalcraft & Lynch, 2011). Each of the five axioms can be tied directly into an educational context, although some of the terms and resources need to be slightly modified, for example, students rather than customers or consumers and universities rather than companies. Nonetheless, the S-D logic framework seems to be applicable, and thus what follows is its integration to an educational context.

3.1 Axiom 1: Service Is the Fundamental Basis of Exchange

To begin with, Vargo and Lusch (2008, p. 2) say that service is "the process of using one's resources for the benefit of another entity" or, as stated by them earlier (Vargo & Lusch, 2004, p. 2), "the application of specialized competences (knowledge and skills) through deeds, processes and performances for the benefit of another entity." In order to do this, it is important to distinguish between two main types of resources: operand and operant. Operand resources are those "resources on which an operation or act is performed to produce an effect," while operant resources are those "which are employed to act on operand resources" (Vargo & Lusch, p. 2).

At its simplest level, education is an exchange of services. Professors use their resources to benefit students, with the goal of helping students learn new skills and acquire knowledge. Professors are, and use, operant resources to produce effects in students. Students can be considered to be beneficiaries of the professors' efforts to instill knowledge and skills. Knowledge and skills are inherently intangible and thus would be considered to be services. Even though there may be tangible objects used in the educational process (i.e., computers, books, paper), these are operand resources upon which the operant resources act to produce benefits. Students themselves can even be considered as operand resources, as they are, from a certain perspective, operated on by professors to be transformed with new skills and knowledge. What happens then is that rather than an exchange of goods to the students, the entire educational process is a service exchange.

In an online educational setting where students and professors engage in co-creation of value in a virtual environment, and the emphasis is on peer learning, students can be viewed as both operand and operant.

3.2 Axiom 2: Value Is Co-created by Multiple Actors, Always Including the Beneficiary

Although originally S-D logic was based on a producer-customer relationship dyad, this language was found to be inconsistent with the co-creation of value premise (Vargo & Lusch, 2008). Thus, a variety of terms, such as "actors," "beneficiary," and "provider," have been adopted. This is important in the educational context, as there has been debate as to the role of a student. In line with the notion of providing excellent service, some authors have suggested that students are "customers" (Anshari, Alas, Yunus, Sabtu, & Hamid, 2015; Mark, 2013; Wong, 2017); others have suggested that this metaphor for a student as customer can have a negative impact on the students and staff (Laing & Laing, 2016; Saunders, 2014).

Chalcraft, Hilton, and Hughes (2015) linked students into the S-D logic framework by discussing their role as customer, collaborator, or co-creator. What is clear is that students are involved in the educational process and are not passive in the process. Active involvement is a key requirement in online education, which follows a collaborative learning approach. Considering students as customers has some implications that some product is delivered to them and from that then get value in use. However, as an "actor," the implication is that students are inherently part of the process and are active in co-creating the value.

The active nature of co-creating value is particularly apropos in an educational setting, as students must study; do assignments; work in groups; question professors and support staff; read, listen to, or watch materials; and generally put in effort – that is, apply their knowledge and skills as operant resources to the operand resources (the materials and exercises provided by the professor) in order to produce an effect. Students in this context are the primary beneficiary, and as they acquire skills and knowledge, this is the value spoken of in the S-D logic framework. Clearly, they participate in the creation of that value, and in fact, they co-create that value and learning.

As described above, students and professors are the primary actors in the educational context. There are, however, other actors who contribute to the co-creation of value. The university itself provides resources for both the professor and student to use, support staff contribute to the value, and other students – in particular, if there is group work – can be considered to be actors involved in the co-creation of value.

In an online business educational setting, there are some additional players, for example, organizations where students are employed or organizations that will employ the students in the future. Student experience is an important piece in the quality of the value created and this often comes from the students' organization.

3.3   Axiom 3: All Social and Economic Actors Are Resource Integrators

Within an educational setting, a network of actors is involved in the co-creation of value – for example, students, professors, support staff, information technology staff, classmates, teaching assistants, parents, and friends. In order to be part of the co-creation of value, each of these actors acts on resources and integrates them in a way that facilitates the process. Professors bring together materials from textbooks, articles, their own experiences, special speakers or contributors, and a variety of other sources. Students bring their time; their skills of reading, writing, and using the library; and their knowledge of prerequisite material, along with, perhaps, a computer, access to the Internet, and other tools for working on assignments and projects and communicating with the professor and others who are involved in the value co-creation process. In business schools, students also bring their experiences to class and that is integrated in a subtle manner or purposefully in the value creation process. Business schools can provide more value when they can harness the experience of students for new knowledge creation. The richness of this resource is invaluable when it comes to an online environment where students come from different regions, cultures, and backgrounds.

In short, in order for value to be realized in this setting, these resources must be brought together and they must interact. This interactivity allows for the creation of value. Thus, each of the actors functions as resource integrators.

3.4   Axiom 4: Value Is Always Uniquely and Phenomenologically Determined by the Beneficiary

Although multiple actors co-create value, it is the beneficiary who determines what that value is. In an educational setting, that beneficiary is the student. But what is value in education? It can be different things for different students. One student may want to increase their knowledge of a particular disciplinary concept, another may want to develop a specific skill set, and yet another may simply want a credential; there are probably as many different definitions of value as there are students. Vargo and Lusch (2008, p. 7) say that "value is idiosyncratic, experiential, contextual, and meaning laden." This is an interesting perspective when seen from an online business education viewpoint. In a virtual classroom, the receiver of service has an opportunity to choose which sources he or she would like to draw from to be effective in their job environment or development of a skill set. The choices in an interconnected institution present one with more opportunities than in a bricks-and-mortar setting.

3.5 Axiom 5: Value Co-creation Is Coordinated Through Actor-Generated Institutions and Institutional Arrangements

Institutions are the taken for granted norms and beliefs that exist in a system. These are the unspoken rules which guide our behaviors and actions in relating to the world around us. The actors in an educational setting are guided by a set of norms. These influence how the actors integrate resources in co-creating value; some actions are unacceptable (e.g., plagiarism), some are encouraged (e.g., creating study notes from readings), but all work together to coordinate how value is co-created. In an online business educational setting, some new rules come into play (e.g., net etiquette), which fit with the opportunities it presents through connecting people, resources, and sometimes even industries. Value creation is not restricted from online business schools, but its management and coordination require a new set of rules and guidelines.

3.6 Concluding Remarks About Service-Dominant Logic in Online Education

As illustrated above, the main axioms of S-D logic are readily applicable to an educational setting. As education is commonly thought of as a service, there is no difficulty in applying an S-D logic framework in that context. The question, though, is whether or not this application of S-D logic to an educational context is beneficial. The authors of this chapter believe that such an application is beneficial and can improve the overall effectiveness of education – in particular, online education. Business schools are involved in value creation for its students and, indirectly, organizations that employ these students. A better understating of the axioms helps institutions to figure out the right approach and process for value creation.

4 Co-creation of Value in Education

One of the most important facets of S-D logic is the co-creation of value. As is seen in the five axioms, three of those five are specifically tied to the co-creation of value, so even axiomatically, the importance of co-creation of value is primary. But given that value is co-created by students and professors and a host of other actors, how does this impact what a professor and a university does? Axiom 2 states that "value is co-created by multiple actors, always including the beneficiary" (Vargo & Lusch, 2017, p. 47). This requires engagement of some sort, and at some level by the beneficiary, or in our current context, the student.

Etgar (2008) uses the term co-production, which is very similar to co-creation, and has been largely accepted as being a linked and a nested subordinate concept of co-creation (Payne et al., 2008; Vargo & Lusch, 2008). Etgar (2008, p. 98) makes an interesting and critical point about the engagement of the consumer in co-creation, "co-production is an *explicit result of decision making* [emphasis added] by consumers reflecting their own preferences." This means that consumers (students) make a choice about whether or not to engage in the co-creation of value and how engaged they will be. On the positive side, this implies that if a professor or university can provide the opportunity, then students will be active in the co-creation of knowledge or some other type of value. However, to some degree, if a student refuses to engage, that is their decision, although some thought would need to be given to what opportunity was provided and how it was presented.

In order for learning to be effective then, students need to *decide* to engage in the co-creation process, and the co-creation process needs to be amenable to student engagement. In order to help address this situation, Etgar (2008, p. 99) developed a five-stage process of co-creation:

> *(1) development of antecedent conditions, (2) development of motivations which prompt consumers to engage in co-production, (3) calculation of the co-production cost-benefits, (4) activation when consumers become engaged in the actual performance of the co-producing activities, (5) generation of outputs and evaluation of the results of the process.*

Applying these stages to an educational context – and particularly in an online educational context – should provide a setting in which the co-creation of value can take place effectively and ultimately benefit the students. Online business programs place a significant amount of emphasis on student engagement and are always on the lookout for better approaches. Without student engagement or his or her willingness to learn, the virtual classroom would fail to deliver.

4.1 Development of Antecedent Conditions

If students are going to engage in the co-creation of educational value, a set of conditions needs to first be in place. Broadly, these are macroenvironmental conditions, student-linked, service- or product-linked, and situationally linked conditions (Etgar, 2008). Etgar (2008) breaks the macroenvironmental conditions down even further into economic, cultural, and technological preconditions.

Economically, students must be in a position where they are able to pursue education. With online education, this precondition is less burdensome, as often there is no requirement to move to a new location, or to quit a job, or even to bear the costs of transportation to a specific location.

In mature economies (e.g., Western Europe, North America, and the Far East), there have been changes in the consumer culture whereby consumers are becoming more interested in customization and co-production (Gronroos, 1994; Palmer, 2005). At the same time, there is increasing demand for experiences, rather than just products (e.g., Arnould & Price, 1993; Pine & Gilmore, 1998). Both cultural shifts

are producing a context where students are more likely engage in co-creation of value or at least be more willing to do so. An educational system that taps into the customization and experiential aspects of the student culture could see an increase in co-creation engagement by those students.

Although almost all educational settings now seem to rely on technology, this is an absolute must for online programs. In today's digital world, technology is rapidly growing and changing. Students today have grown up with technology all around them, and they simply take it for granted. On the university side, providing access to systems, tools, and materials (e.g., library services, course web sites, statistics packages) is critical. This is part of the (new digital) ecosystem (Akaka & Vargo, 2015) in which the co-creation can take place. However, students also need the appropriate equipment (e.g., computer, tablet, smartphone) to access the systems. There can, thus, arise a tricky balancing act, where the development and use of new technology may not be compatible with older, legacy equipment on both sides, university and student. Getting this balance wrong can impede or even prevent value co-creation.

Etgar (2008) also suggests that there are individual differences in consumers/ students that affect their predisposition to engage in co-creation. That is, "some consumers [students] are more prone to engage in co-production than others" (Etgar, 2008, p. 100). This is the case, as different students have different sets of resources (i.e., skills, knowledge, tools, and time) upon which to draw in co-creating value. One significant implication of this relates to the segmentation and targeting of students by universities. Universities need to understand the resources that students have and their general predisposition to engage in co-creation. The design of their own systems needs to match students' predisposition to co-creation. Therefore, university programs must match students' predispositions. Further, in marketing the programs, universities need to focus on the segment of students around which they designed their systems.

Customer predisposition to engage in co-creation can also be linked to the nature of the product or service, where some products and services are more amenable to co-production and co-creation of value. Customers are more likely to be willing to invest time and effort into co-creation of value in items and activities where there is the possibility of a significant difference in value arising from the effort (Etgar, 2008). Education is a service where the effort of the student can make a noticeable difference in the value received. These sum up why business schools see moving online as a great opportunity. They can lower the barriers to learning and provide an education that prepares a student for a job in any global setting. The mixing of cultures, experiences, and business practices in one classroom leads to higher level of value creation. Business schools often sell their product or service using these arguments.

4.2   Development of Motivations

While there are a set of conditions that set the context for the co-creation of value, integrated into that context is the motivation of the student. Etgar (2008) says that there are three relevant drives for consumers: economic, psychological, and social.

These fit with students as well. Economic drives are directly linked to economic rewards (Lusch, Brown, & Brunswick, 1992). One of the primary reasons for students to attend higher education business institutions is that they can get a job when they graduate. Business students are usually aiming at jobs in industry where they have significant opportunities for economic rewards. Online business education provides another source of economic reward; the tuition fees may or may not be less in an online program, but not having to potentially move to a new location to attend classes and not having to give up one's current job provide significant motivation for online education. Being involved in the co-creation of their own educational outcomes can be very motivational for students.

Psychological motivations are also important. Holbrook (2006) suggests that there are intrinsic and extrinsic values which affect the psyche of consumers. Students may pursue education for the joy of learning and for the satisfaction of accomplishing something. These intrinsic factors fit well with motivating students to engage in co-creation in their own education. Extrinsic factors are also important in that students may be able to show their identity through achieving educational credentials. Or, as a means to achieving a specific job or promotion or position, the extrinsic value of education can motivate students to engage more fully in co-creation.

The third motivation drive is for social benefits. In general, students who are seeking status and social esteem (Holbrook, 2006) can be motivated to engage in co-creation in their educational endeavors. However, this could vary depending on the mode of education delivery. For example, online education provides a different social experience than a face-to-face, campus environment. Berthon and John (2006) suggest that there is enjoyment when people with similar interests share activities, which can be a motivator. We expect that this would be a stronger motivator in place-based education compared with online education. However, it is possible that because social contact is different in an online context, students might be *more* motivated to engage in co-creation of value, perhaps trying to compensate for the lack of face-to-face contact and interact with their co-creation partners.

4.3   Cost-Benefits

In this stage of the process of determining the level of co-creation that will be engaged in, the benefits of co-creation are compared with the costs. Costs can be both economic (e.g., use of their resources, payment of fees) and noneconomic (e.g., time, psychological effort). Etgar (2008) suggests that the outcome of this comparison will be that a consumer will decide whether to engage in the co-creation process or not. In an educational context, there seems to be more than a binary choice. Students can vary the amount of effort they put into co-creation activities and thus vary the outcomes. For example, students can read all of the required readings plus the supplementary readings, and do extra research on the topic, or they can skim through the most important sections, gleaning just enough information to get

a pass. Thus, in an educational context, the cost-benefit analysis will determine how much effort a student will put into co-creation activities, rather than whether or not to engage. In an online setting, this analysis may be even more salient. That is, lacking the face-to-face, social aspect of a place-based setting, a student needs to deliberately decide for themselves how much to engage in co-creation activities, whereas in a place-based setting, their classmates may be able to physically encourage and motivate students. Thus, the nature of the costs and benefits can be different in an online educational context. In business schools offering online classrooms, these cost-benefits need to be well understood. Design of courses can go a long way in engaging students and assessment systems to ensure that the program goals are being met regularly and the benefits outweigh the costs.

4.4 Activation

Once a student decides to engage in the co-creation process, he or she then moves to the final stage – activation. In Etgar's (2008) research, the focus was on consumers; thus, the activation phase was focused on consumption, distribution and logistics, assembly, manufacturing, design, and initiating. These do not exactly "fit" in an educational context. However, there are equivalents in education, particularly in online education – consumption/learning, distribution and logistics/online distribution, assembly/course production, manufacturing/course writing, design/course design, and initiating/curriculum planning.

The final of these steps is the learning step, in which the student is involved in the co-creation activities. Leading up to these are the sequence of steps starting with curriculum planning (setting up program learning goals) and deciding what courses are needed; designing courses, which will achieve program learning goals; and finally, gathering materials and writing the course. The course is then "assembled" in a course production area, which puts all of the materials together in a format that is amenable to learning, followed by publishing the course online, ready for the student to engage with the material for learning.

The distribution, or publishing of a course online and creating the learning environment, is quite a critical step in enabling co-creation with the student. It is here where the various actors – such as students, professors, teaching assistants, and support staff – will interact with each other. This is the service ecosystem where there are direct and indirect interactions between the various actors, as the co-creation of value – or learning – takes place (Akaka & Vargo, 2015). A service ecosystem is a "relatively self-contained, self-adjusting system of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange" (Lusch & Vargo, 2014, p. 161). Within the ecosystem, co-creation of value can occur, but this also requires the engagement of the actors, in particular, the students (the beneficiaries) and the professors. Student engagement is also known to be important for effective student learning, especially in online education (Garrison, Anderson, & Archer, 1999), and an "engagement orientation urges firms

[universities] to co-create a wider range of activities with their customers [students]" (Venkatesan, 2017, p. 293). Therefore, the development of an educational course ecosystem where students can engage in the learning materials and also use their own resources in co-creation activities can enable effective learning. Online business schools tend to focus on this aspect with engaging learning material, online access to resources, and course designs that bring out the student experiences in a common-place where value creation can take place. This leads to the final stage – evaluation.

4.5   Evaluation

After activation, where the students engage in the co-creation of learning, they undertake an evaluation of the co-creation process. This involves a comparison of the end value (which as stated in S-D logic axiom 4) determined by the beneficiary (the student) and to the motivations which initially prompted the student to consider engaging in the co-creation to begin with.

Online business schools need to have effective measurement systems to capture this feedback. This helps with the continuous improvement system. Feedback can be captured at various levels, before the start of the program to get a view of the baseline expectations, after each course to track the progress and after the program to see the end result. Comparison helps in making an assessment on the effectiveness of the value creation process.

4.6   Discussion

As has been described above, the S-D logic views service as the fundamental basis of exchange. Further, although the S-D logic was originally written in relation to the field of marketing, it is applicable to other fields as well (Vargo & Lusch, 2008). One of the core features of S-D logic is co-creation of value. Payne et al. (2008, p. 83) say, "the value-creation process…occurs when a customer consumes, or uses, a product or service, rather than when the output is manufactured." In the educational context, the same logic is applicable and relevant, whereby, the value to a student occurs when the student engages in the learning process (through studying, writing assignments, and exams) and literally co-creates the learning value. One additional, important factor is that students and other actors use their operant resources to act on the operand resources in the co-creation process and undertaking course and program improvements.

It is not a new thought that students have responsibility for their own learning. However, using the lens of S-D logic focuses our attention on what that responsibility entails. This is not simply a case of advising students to work hard, study hard, and do well. Rather, this is a recognition that there is an integration of resources and efforts between multiple actors to create value. That creation, or co-creation concept, goes much further than simply "working hard." The implication is that engagement

is required of the student, and there is a requirement for the professor and university to establish a context and ecosystem within which co-creation can flourish.

An interesting implication of this application of S-D logic to education is in relation to the type of students that are involved. That is, there is a more specific need to understand student characteristics in designing and delivering education. In particular, the mode of delivery in comparison to the student characteristics is important. Business schools have been able to see the need from the student and business perspective. They provide service to both by training one to meet the needs of the other.

In an online business university, there are more benefits to nonlocal students, who may be more willing to engage in co-creation activities from a distance, rather than if they had to travel to a campus for those co-creation activities. Additionally, if the ecosystem of an online university is developed to allow for multi-device access, students who may have quite a variety of digital devices would be more willing to engage in co-creation activities than if there was only one access point.

Developing and building an ecosystem for students (whether online or place based) need to be designed to allow and facilitate co-creation activities. That is, students need access to resources and people (e.g., professors, support staff) in their own time, so that they can easily be a part of the co-creation process. Difficulties in networking between all of the actors would hinder co-creation activities and thus have the potential to reduce the value to the students. However, in virtual classrooms, the interaction is fairly continuous as there are various tools available that enable co-creation activities.

5   Conclusion

This chapter has taken the first step toward examining the S-D logic for education. While detailed linkages between core axioms and concepts in S-D logic have been explored, further work can be done to find its application to online business education. The roles of each of the actors can be expanded, the various operand and operant resources can be explored, and the stages of the co-creation process can be more specifically developed in relation to a program or even at the course level. By developing these ideas further, we can more fully understand how to make learning more effective and how to provide an environment where students can realize value in their education.

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