



Article

Improving Society by Improving Education through Service-Dominant Logic: Reframing the Role of Students in Higher Education

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Abstract: The role of higher education (HE) in the development of societies is an unquestionable fact, and its management has traditionally been a major concern of governments. Lately, there has been worldwide debate on whether universities should adopt traditional management practices as applied in any business sector. This paper questions the adoption of these practices, because they tend to simplify the complexity of this service, and argues that service-dominant logic (SDL) is a more appropriate approach to manage HE institutions. It envisions HE as a complex system where many actors interact to co-create value and focuses on the student–teacher dyad. Through a critical literature review, this paper states that the increasing established analogy of the 'student–customer' and 'teacher–provider', adopted to simplify the complexity of the HE service and thus allow the implementation of traditional management practices, jeopardizes the sustainability of social development due to its effects on the long-term quality of professionals' training. Then, under the frame of SDL, we define students as co-creators of value (rather than customers) and teachers as value proposers, providing new insights to the debate and critical new recommendations for policymakers and universities to manage this critical relationship.

Keywords: students-as-customers; service dominant logic; value co-creation; higher education

1. Introduction

Recently, higher education (HE) institutions have gone through several transformations as the result of different factors, such as globalization, changes in government control, international integrative initiatives, quality measurement policies, or expansion. These transformations have brought to the fore the discussion on the increased competition among HE institutions and the new competitive setting that is increasingly permeating the university context [1–5].

These environment pressures have led most institutions to adopt traditional management practices in a process that has been denominated by many authors "the marketization of HE" (e.g., [6–9]). This marketization process contains the market exchange analogy as its core principle, which regards the university as the service provider and the student as the customer. In spite of the fact that this subject has been widely discussed by education and management researchers, there is still an ongoing debate concerning the profound implications that these considerations have on the quality of HE and their impact on society at large [10–13]. In this sense, it is considered that good management practices in HE will have direct and profound implications on the sustainability of societies [14] by means of a

more efficient use of resources within institutions that will result in the generation of highly qualified professionals who will integrate their skills and knowledge into the network of society.

The main argument of this article is that the designation of students as customers is based on a perspective that has tried to 'fit' HE into a traditional management approach designed for commercial market offerings that does not take account of the specific characteristics of the HE 'service'. These particular features add several levels of complexity to HE service management, although research has shown that there is still a lack of theoretical models which reflect HE characteristics in service contexts [15]. Arguably, the HE service is currently facing uncertainty and complexity as never before [16]. Furthermore, as previous research has found, the danger is that the designation of students as customers may have problematic interpretations for university staff that can lead to a detriment in the quality of HE [11,17–20].

Hence, this paper aims to develop an alternative framework that is more appropriate for addressing the student–teacher dyad within the HE service. In the pursuit of this goal, we reach out to the latest developments in service (such as service science [21,22], many-to-many marketing [23], the viable system approach [24], and service-dominant logic (SDL) [25–27]) as integrative strands of research that deal with the management of complexity by changing the basis of traditional service management and incorporating complexity as a core element. Specifically, we look into the student–teacher dyad from the SDL perspective, where the value co-creation concept is essential for its understanding. Lusch and Wu [28] (p. 10) argue that *since education is a co-created learning service*, SDL can provide a framework for both HE strategy and public policy. In this regard, recently, some efforts have been made to propose SDL as a framework to address value co-creation in HE contexts (e.g., [2,28–32]). However, the literature is still insufficient, and the students-as-customer metaphor has not been discussed thoroughly within a theoretical framework based on SDL to provide a clear analytical understanding of the issue.

The contribution of this paper is twofold: First, through a critical review of the literature, we provide theoretical elements to reframe the role of students from customers to active co-creators of HE; for this purpose, we develop a framework that specifies students' and teachers' roles within HE. Secondly, since education has been largely neglected in services management literature [33], we attempt to make a contribution to educational research by providing specific tools for HE managers and policymakers.

This paper is organized as follows. First, we briefly contextualize the effects of the marketization of HE institutions and critically assess the students-as-customer metaphor. Secondly, we review the major implications for HE of the consideration of students-as-customers. Third, we introduce the theoretical elements underlying value co-creation and develop a framework based on the core principles of SDL to manage HE. Finally, considerations and implications to reframe the debate by proposing 'students as cocreators' are provided.

2. The Marketized University and the Student-as-Customer Metaphor

The marketization of HE refers to the adoption of market and business concepts and practices (e.g., advertising, branding, client satisfaction, quality controls, etc.) by these institutions to promote themselves as 'businesses' in a global marketplace. This phenomenon is the consequence of several changes that started in the late 1970s and 1980s across HE institutions, which resulted in higher competitive pressure for universities and led to the adoption of firm practices in HE markets [1,2,6–9]. Marketization of HE is now considered a well-established international phenomenon. According to Hemsley-Brown and Oplatka [5], in several countries, governments have ceded some of their control over HE institutions. Research shows that universities in the USA, United Kingdom, Australia, and New Zealand have been deregulated and subjected to market conditions. In countries such as Japan, Russia, Holland, Spain, and Israel, governments have also applied deregulatory policies.

Authors have tracked the origin of marketization in the personalization of education, which has its intellectual roots in marketing theory [7,34]. Recently, the marketization of HE has received

more attention, both by management scholars (e.g., [3,35]) and educators and public policymakers (e.g., [18,35,36]).

This subject has generated different opinions. On the one hand, there are those who advocate for the benefits of the market theory's efficiency and claim that business management patterns and HE are compatible. They understand that universities, when facing competitive challenges, should employ marketing strategies as any business would do. This will improve the efficiency of institutions (e.g., [37,38]). On the other hand, there are those who argue that considering universities as standard service providers may harm HE institutions and education itself (e.g., [18,29,39]). The main argument of these authors lies on the fact that treating students as customers results in their empowerment, which eventually translates into a service transformation from a highly intellectual professional service characterized by information asymmetry to a simple transactional operation, where students get a degree in exchange for the money they pay or the scholarship they hold.

The marketization of HE has been studied by different marketing theoretical approaches, such as services marketing [1,40], relationship marketing [41–43], and market orientation [5,44]. More recently, there has been a growing interest in analyzing HE services from the SDL perspective. Thus, some researchers have used this approach to analyze different HE service aspects, such as the importance of pedagogy over technology in HE provision [45], the change in the focus of the marketization debate to a co-creation approach [2], the assessment of lecturer's performance only by the use of student satisfaction surveys [31], the identification of types of value expected by students from universities [32], and the degrees of co-creation experiences lived by international students in university–student–community engagement [46].

The marketization debate still persists. In a review of literature on marketing practices for HE, Hemsley-Brown and Oplatka [15] concluded that the research related to the topic is "incoherent, even inchoate, and lacks theoretical models that reflect upon the particular context of HE and the nature of their services" ([15], p.318). Despite the lack of agreement, most authors conclude that business practices have found a place in HE [1,47,48] and can be expected to continue to grow for the foreseeable future ([3], p. 88).

A natural consequence of the marketization of HE is that universities have become more customer-focused, employing marketing strategies to recruit, retain, and manage the customer experience in HE, in order to obtain competitive benefits in the market [11,12]. This is when the students-as-customers metaphor arises (HE literature has referred to students as *customers* or *consumers*, mainly using the terms indistinctively and interchangeably, although some authors differentiate between them (e.g., [49]), arguing that customers are the ones who pay for a service, while consumers are the users of it). The metaphor has its roots in the discipline of total quality management (TQM), where a key maxim is to 'delight the customer'. The debate has mainly focused on the implications for HE institutions of considering students as customers [50–52].

3. Controversies of the Student-as-Customer Metaphor

Since the seminal work of Kotler and Levy [53] and subsequently Kotler [54], the marketing concept has extended to different sectors such as politics, religion, and education, among others, proclaiming the customer metaphor as being applicable to almost any social setting. Since then, critics have suggested the need to narrow rather than broaden this marketing concept as it can be considered that it undermines the fundamental purposes of social institutions [55,56].

Hutton et al. [57] analyzed the uses and applications of the customer metaphor in the context of education, health care, religion, government, and other social institutions across five countries. In general, results showed that in certain contexts, such as the news media, the customer metaphor is more appropriate than in contexts such as religion or education. The authors claim that in education, this analogy may not be the most appropriate as it compromises or contradicts the basic purpose of education and other social institutions. For instance, some respondents indicated that when patients

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or students were considered as customers, this term "trivialized, demeaned or dehumanized" them ([57], p. 56).

However, the fact is that HE experts have different views about the appropriateness of the use of the students-as-customers metaphor. Some authors argue that in order to remain competitive, considering students as customers may help to improve university teaching quality and student satisfaction [10,13]. Some advocate that this metaphor may be useful to achieve a customer focus in HE in the context of the marketized university [11,20,43,58–60]. However, others argue that considering students as customers is unhelpful [51], unproductive [12], delusional [19], controversial and emotional [9], could represent an ethical dilemma [18], or may have negative impact on students and academic staff [11,31]. There is even empirical evidence that suggests that a higher customer orientation may result in lower student academic performance [61] and threaten the quality of education by forming unrealistic expectations and stimulating narcissistic characteristics in students [62].

Furthermore, educators and students may have different perceptions of who the customer is. It is well stated that students see themselves as customers of HE (e.g., [1,59]), but there is a gap between what students want and the educator's vision of their best interests; while the former might be focused on short-term wants, it is supposed that the latter is interested in the student's long-term benefits, such as learning [63].

In the analysis of the student-as-consumer metaphor, Brady [64] suggests that in different learning processes, i.e., program development, class meetings, assessment, and grading, among others, students play multiple roles, such as customers, actors, suppliers, raw material, and end product. The author asserts that considering students as customers is "somewhat simplistic". We argue that the term 'customer' types the student into a specific role, which fits better for commercial transactions, as it does not represent the complexity of HE.

If students are framed as customers of HE, then the learning process might be compromised, because they may not know what they want [17,50], they are less likely to be involved in their education [61,65], they may see themselves as customers who are purchasing academic services in order to obtain a degree [66], they could see the university as a passport for a "better job" rather than a learning experience [62], seek to "have" a degree instead of learning the professional skills [39], may feel "entitled to a degree" [67], think they have the right to judge the "goodness" of a teacher [68], think they have equivalent rights as in the everyday marketplace [19], and may demand entertaining lessons [69]. Since the term 'customer' may have different interpretations according to the context of the experience, this may not be the proper manner in which to designate students in HE settings. As stated by Franz [17] p. 63, "whatever you do, don't treat your students like customers!"

Moreover, there is more than one single party that receives direct or indirect benefits from an HE service [70]; the vision of customers of HE is broader, including numerous beneficiaries. However, there is a lack of consensus identifying who HE customers are: students, parents, employers, government, the research community, and society at large, have all been identified as potential customers of HE [17,50,52,57,58]. Most common classifications identify three processes based on HE functions—teaching, learning, and research—and categorize customers into 'internal' or 'external' [71, 72]. Table 1 summarizes this classification:

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Table 1. Classification of customers of higher education (HE).

Process	Internal Customers	External Customers
Teaching	TeachersFaculty	• Students
Learning	• Students	EmployersSociety
Research	TeachersResearchersFaculty	SocietyPublic administrationNonprofit organizations

Based on: [71,72].

Since there is no consensus on how to designate students as having a single role in HE, there have been various suggestions to change it from students as customers to students as products [17], as clients in a professional/client relationship [73], as employees [74] or partial employees of HE [75], as learners [12], as citizens of the university community [19], as co-producers [76], and recently, as co-creators [2,9].

An additional problem with this student-as-customer designation deals with the notion of customer satisfaction. The marketization of HE institutions has led universities to develop a strong interest in measuring student satisfaction with the 'service provided' by the teacher with surveys as if referring to the service provided by a waiter in a restaurant. In this sense, as analyzed by Díaz-Méndez et al. [29] in the medical services context, patient satisfaction does not determine the quality of the doctor due to the asymmetry of information. Similarly, teaching quality cannot be determined only by student ratings since they lack all technical knowledge to evaluate the competence of teachers. Students experience only one aspect of the 'service delivery', which reflects only part of the quality of teaching. Service quality literature states that providing higher quality is an essential strategy for business to achieve a sustainable competitive advantage. However, it is important to acknowledge the complexity of the university, understanding that to measure quality requires more than simple indicators [31]. In this sense, Redding [49] highlights that service quality cannot be compared to customer satisfaction, especially in HE, because customer satisfaction is related to short-term perceptions from consumption experiences, and this is not the objective of HE. In a previous work, the authors concluded that quality has to be measured, but not limited to student perceptions [68]. If only student ratings are used for this purpose, then it could be very harmful to the quality of education itself. As Schurenberg ([77], p. 148) remarks about the introduction of the marketing concept in education, "good marketing and good teaching are incompatible: the one requires that you find out what the customer wants and provide it, the other that you demand things of the student that he may prefer not to do". This is closely linked to what Ng and Forbes [1] describe as the "ideological gap" which represents the difference between a student's expectations and what the institution believes is best for them. Therefore, if the HE service focuses primarily on student satisfaction, teachers may feel mediated and constrained by these quality measurement measures (usually surveys and subjects' pass rates) and decide to underutilize their operant resources in a calculated way in order to obtain good evaluations from their students, thus resulting in an inefficient use of resources that directly affects future social development.

In summary, basic arguments against the designation of the students-as-consumers metaphor are based on the fact that universities have more than one beneficiary (e.g., employers, society) that may be also designated as 'customers'. The designation of students as 'customers' may oversimplify and distort their role in the complex HE service context and may give rise to a cascade effect of business practices inappropriately applied to the HE context.

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We argue that the designation of students-as-customers is subject to problematic interpretations and may jeopardize HE quality by directly affecting students' attitudes, understanding, and motivations, thereby distorting or damaging the quality of their learning experience with resultant detrimental consequences for social development and sustainability due to the decreasing quality of the training of professionals at the university.

4. HE through the SDL Lens: Value Co-Creation

According to the previous analysis, the co-creation approach within the SDL framework arises as an opportunity for HE institutions, since this theoretical approach addresses the complexity and dynamics of service [29–32]. In this sense, Dziewanowska [32] considers four of the 11 premises of the SDL as being particularly relevant to the HE sector: foundational premise (FP) 4—operant resources (i.e., knowledge) are the fundamental source of strategic benefit; FP 6 (axiom)—value is co-created by multiple actors, always including the beneficiary; FP 7—actors cannot deliver value, but can participate in the creation and offering of value propositions; and FP 9 (axiom)—all social and economic actors are resource integrators ([27]). Thus, SDL as an evolving marketing approach states that firms (HE institutions) cannot create isolated value, but only provide a proposition of value, which will be subjectively experienced by the beneficiary (i.e., customer) through the *value-in-use* influenced by the social and cultural context in an extended network, i.e., *value-in-context* [78–80]. This occurs via the application of resources (operant and operand) of each actor participating in the process. 'Operant resources' are those that are capable of acting on other resources (i.e., skills and competences), which are the source of strategic benefit; and 'operand resources' are those that are acted upon to create value, such as tangible assets (i.e., economic resources, classrooms, and notebooks) [81,82].

SDL adopts a resource-based perspective of marketing [83] in which organizations and customers hold different types of resources, both tangible and intangible, which are to be integrated to co-create value [84]. The process is given through the application of these resources for the benefit of another entity (i.e., service), where operand resources become the source of strategical benefit, and value is assessed by the beneficiary and his/her unique needs and the availability of other resources [25,27,84]. Teachers and students are the key actors in the value co-creation process, and resource integration is largely given by repeated interactions between and among the parties.

Education research has long recognized the importance of students' active contributions to their learning process (e.g., [85,86]), thus accepting that the value obtained by students does not depend only on the quality of the teachers' resources, but also on the students' resources (means and abilities to learn). Education is co-created by its own nature [1,28,31]. Hence, all the parties involved need to be engaged in the learning process, because without engagement, there is no resource integration, and therefore no co-creation [87].

This perspective implies that universities have to provide and assure by all means that students have the best learning experience, but also that students have a protagonist role in their education. One of the missions of the university in a modern age is providing a service to society [88]. However, before regarding community and society in general, value first has to be co-created with students [89]. In an SDL mindset, teachers become facilitators of learning and students co-creators, and the process occurs inside and outside the classroom and across all actors involved [45].

This approach focuses on the interaction among multiple actors, broadening the scope of the dyadic relationship between firm and customer, and the customer-centric view, to a multilevel perspective where value is jointly and collaboratively co-created [90]. Thus, HE can be seen as a networked system which has a constellation of resources that can be incorporated in society to develop technology, university policies, government educational policies, alumni networks, and industry relationships, among others. This concept takes on special relevance in sharing systems where all actors interact together to co-create value [91]. The incorporation of value co-creation into the HE service can be extended to the sustainability of societies for its particular view of integrating resources into the service system for tangible and efficient value creation (e.g., [92]).

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5. SDL and Participants as Co-Creators

Adopting an SDL perspective has several implications for the management of HE institutions. This article highlights the role of students as co-creators within HE, instead of students as customers, as previous research has established. Table 2 synthetizes the key components of value co-creation for HE within an SDL approach.

Table 2. Key components of value co-creation for HE within a service-dominant logic (SDL) mindset.

Key Component	SDL	When Applied to HE
Value driver	Value-in-use or value-in-context	A shift from to 'obtain a degree' to managing the value generated by the applied use of knowledge and skills in a specific context (e.g., job, community) over the lifetime of the degree holder
Creator of value	Firm, network, partners, and customers	HE conceived as a service system where many actors interact with each other to co-create value. Actors include teachers, students, faculty staff, the research community, and society at large.
Process of value creation	Firms propose value through market offerings, and customers continue the value-creation process through use	A shift from teachers as service providers to teachers as value facilitators; from students as customers to students as co-creators. Teachers facilitate value (e.g., a case study) and students use it as an input for value co-creation.
Purpose of value	Increase adaptability, survivability, and system wellbeing through service (applied knowledge and skills) of others	Managing the learning experience to develop a student's employability skills and competences to be used in a specific context.
Measurement of value	The adaptability and survivability of the beneficiary system	The main role of universities is to manage the bundle of resources provided by all the actors involved to achieve a successful student learning experience, by preparing them for lifelong learning, in order to achieve economic growth and societal wellbeing for society at large.
Resources used	Primarily operant resources, sometimes transferred by embedding them in operand resources–goods	Education is conceived as a bundle of resources, both operand (e.g., books, technology, presentation materials, etc.) and operant (teaching methods, experience, communication capabilities, etc.)
Role of firms	Propose and co-create value	Teachers as value facilitators
Role of customers	Co-create value through the integration of firm-provided resources with other private and public resources	Students become active collaborators in the co-creation of their own knowledge

Source: Based on [28,79].

Then, under a SDL perspective, regarding the student's role, education research has demonstrated that a student's academic achievement is positively influenced by the student's operant resources, such as intellectual ability, engagement, achievement motivation, and self-efficacy, among others (e.g., [93–95]); as well as the student's social characteristics, assessed through interaction with peers and teachers, especially in collaborative methodologies such as cooperative, team-based learning or the flipped classroom model (e.g., [96,97]. The integration of network resources—e.g., technology, facilities, the learning environment, recreation, and administrative services—into the process help to provide a meaningful learning experience [60,95].

These perspectives have established that the more that students engage in their learning, the better the outcomes of the learning experience (e.g., [85]). The quality of the resources deployed by students

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will be determinant for the assessment of the outcome of the co-creation experience in HE. Since students may possess different levels of resources, those who lack the required standard must receive special attention from HE institutions and teachers. Initiatives such as student mentoring from the faculty can be implemented, since it could enhance academic performance [98].

From an SDL perspective, students are not passive customers; they are active participants of their learning process, engaged in different activities to obtain better results. The student's role in value co-creation is to get involved in the educational process and co-create value with the integration of resources provided by HE actors.

In relation to this, and considering the teacher's role, according to the SDL, teachers become 'value facilitators' who deliver an input to students for the co-creation of value. The quality of the outcome corresponds to the quality of the input. Therefore, for a successful process, teachers should work to acquire characteristics valued by students; for example, expertise in the field, variety of teaching methods, positive attitude, innovation, creative work, and fairness of assessment, among others [13,99]. Conducting research is another valuable characteristic; for instance, O'Brien et al. [100] reported that scholarly research in business schools adds economic value by directly enhancing student salaries.

Loshkareva et al. [101] argues that nowadays, teamwork, collaboration, and communication are some of the top skills increasingly demanded by employers. Accordingly, teachers may be aware and use interactive methodologies, e.g., metaphor game, peer feedback, play project, or storytelling, among others, to promote students' independent activity [102]. Since individuals learn in different manners, teachers should acknowledge a student's learning style and their own teaching style, since it has been demonstrated that when the learning style matches the teaching style, it provides better educational outcomes [103].

Another key area is technology, since it has reconfigured HE; however, a great challenge still remains unsolved, which is the ability of technology to be incorporated into the learning process by educators [104], especially in the case of the millennial generation, shaped by technology since birth or childhood [105]. Researchers suggest that the incorporation of social networks such as Twitter or YouTube as complementary teaching tools enhances the student learning experience [106,107].

For a successful value co-creation process, each actor has to perform their role. For example, in the flipped classroom model, which consists of pre-class and in-class interactive group learning [108], teachers facilitate inputs and student involvement becomes crucial for the individual and collaborative creation of knowledge. Through this practice, students get engaged in active learning and collaboration among students and teachers is improved [109]. Employing this methodology, Sun et al. [97] found a positive and significant relationship between student self-efficacy (students' confidence in their abilities to learn) and learning strategies in the academic achievement of HE students in mathematics.

At this point, HE should be considered as a network composed of several actors who use and integrate resources among themselves to obtain benefits together with the network resources, such as university policies or educational politics, which are also integrated into the process. The interaction and interrelationship among actors in HE may produce different results for the parties engaged. Value co-creation in HE implies that service-for-service exchange goes beyond a dyadic relationship and involves other actors for the co-creation of value. For instance, at a meso-level, the exchange includes a triadic relationship [78,80]. In HE contexts, a triadic relationship at a meso-level may occur due to the integration of resources of other actors such as academic staff, alumni, employers, government, the research community, and society in general, which is explained through the following examples: (1) When a current student interacts with an alumni association, the network is deploying resources for the co-creation of value between the actors, influencing the expectations of current students and creating potential resources of collaboration and affiliation for the alumni association. (2) As participants of the process, teachers also become active actors that subjectively experience value as a result of the interactions with the students and other participants of the HE network, such as the research community. Therefore, if a teacher has active participation at conferences, s/he can interact with peers and acquire new resources that will be deployed later on in the classroom. S/he is using

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network resources of the *meso-level* to improve the value co-creation process at a *micro-level*, i.e., in a teacher–student relationship. The system as a whole will be improved by the improvement of all the actors involved. The analysis of the contexts and the different layers that the system contains frame the evaluations of experiences [79].

6. Conclusions and Implications

The marketization of HE is a global phenomenon that has extended through different countries around the globe, evolving towards a metaphor that envisions university students as customers. The main problem with this designation is the potential negative outcomes which may impact on the quality of HE. It directly affects not only student learning, since the current HE conception is increasingly oriented to produce graduates under a simplistic input/output perspective with seemingly sophisticated quality measurement systems, where student satisfaction is quantified with surveys and teachers' performance evaluation is basically reduced to their subjects' pass rates and students' opinion, but also produces negative consequences for society, therefore jeopardizing its wellbeing over the long-term (i.e., sustainability) by the inefficient management of operant resources within HE institutions and the consequent lower quality of the training of future graduates.

This paper presents the SDL as a framework to address these challenges by providing a vision of HE as a complex system where students, teachers, and institutions are some of the 'actors' who integrate resources for the co-creation of value. The role of universities is to manage the bundle of resources provided by all the actors involved to deliver a valuable learning service and student experience. In this sense, as HE largely influences a student's life, we consider that the term 'customer' provides a narrow definition of the student's role in HE. HE institutions are to provide much more than knowledge and competences for graduate students; they should afford them a lifelong alumni network for their professional career [110], transform their understanding of how the world works, and equip them with self-learning competences for a lifetime [95].

Based on this study, we propose different implications for university managers and education professionals:

- (i) For university managers to adopt an SDL perspective: HE institutions need to change their focus from *value-in-exchange* to *value-in-use*. In the former, the student's degree has 'value' in terms of competences to be exchanged in the professional marketplace; in the latter, the focus of value is not only on the student's experience, but also in their character development, professional future, and lifelong self-learning capacity. University managers should ask and provide answers to questions such as: How a degree can deliver lifelong learning skills? How long will it take graduates to find a job that pays for their educational investment? What is the impact of the alumni network on new generations? How may technology be integrated into the learning process? That is, how different actors may integrate their resources to enhance the co-creation experience.
- (ii) For education professionals, the marketization of and the student-as-consumer metaphor in HE bring into question the application of traditional management practices for the education sector, since they do not capture the unique characteristics and complexity of HE. This article proposes SDL as a framework to rethink the application of conventional marketing concepts such as customers, commercial transactions, or market orientation when applied to specific social sectors such as education.

Special interest has to be placed on the application of teaching quality measurements, since traditional adaptation of service quality questionnaires just capture a student's short-term satisfaction. It is necessary to develop more comprehensive measurements that take into account the inherent values of HE. Education professionals should ask and provide answers to questions such as: How can a student's performance be measured in subsequent courses as a real base of previous learning? What other institutional factors affect a teacher's evaluations? How can the development of a student's lifelong learning skills be measured?

Finally, the student's ratings must be critically analyzed, and educational managers should provide the appropriate weight to these ratings as a metric to evaluate teacher performance, especially when making promotions or finishing decisions.

7. Limitations and Further Research

This study has several limitations linked to opportunities for future research. The complexity of the topic discussed in this article raises some interesting future research options. First, this paper looks into value co-creation focused on the student-teacher dyadic relationship as the core relationship of the HE service. A next step should investigate the resources and contributions of other actors (e.g., employers, society, and government) to the value co-creation process within the HE service. In addition, we have focused the analysis on value co-creation under an SDL perspective; however, this framework is extensive and may include other elements of analysis, such as the study of meso and macro levels. This would add to our understanding of HE as a complex system. Secondly, since value-in-use is a determinant of the co-creation experience, future research should include novel perspectives on the use of this approach in academic research, such as the use of ethnographic methods that describe deep knowledge about student's experience or ex-post assessments of former students on different time points after graduation. Finally, this is a conceptual paper that sets a framework for the study of value co-creation processes between teachers and students under the SDL perspective in the HE context; in this sense, some empirical research using different methodologies could validate the proposed principles that this paper states considering different elements affecting complexity, such as the country's culture, institution ownership, social development, university size, types of degree, and students' features, among others.

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References

- 1. Ng, I.C.L.; Forbes, J. Education as service: The understanding of university experience through the service logic. *J. Mark. High. Educ.* **2009**, *19*, 38–64. [CrossRef]
- 2. Judson, K.M.; Taylor, S.A. Moving from marketization to marketing of higher education: The co-creation of value in higher education. *High. Educ. Stud.* **2014**, *4*, 51–67. [CrossRef]
- 3. Taylor, S.; Judson, K. A Service Perspective on the Marketization of Undergraduate Education. *Serv. Sci.* **2011**, *3*, 2007–2009. [CrossRef]
- 4. Spring, J. Research on globalization and education. Rev. Educ. Res. 2008, 78, 330–336. [CrossRef]
- 5. Hemsley-Brown, J.; Oplatka, I. Market orientation in universities: A comparative study of two national higher education systems. *Int. J. Educ. Manag.* **2010**, *24*, 204–220. [CrossRef]
- 6. Williams, G.L. The "marketization" of higher education: Reforms and potential reforms in higher education finance. In *Emerging patterns of Social Demand and University Reform: Through a Glass Darkly*; Dill, D., Sporn, B., Eds.; Pergamon Press: Oxford, UK, 1995; pp. 170–193.
- 7. Hartley, D. Education, markets and the pedagogy of personalization. *Brit. J. Educ. Stud.* **2008**, *56*, 365–381. [CrossRef]
- 8. Furedi, F. Introduction to the marketisation of higher education and the student as consumer. In *The Marketisation of Higher Education: The Student as Consumer*; Molesworth, M., Nixon, E., Scullions, R., Eds.; Routledge: New York, NY, USA, 2011. [CrossRef]
- 9. Guilbault, M. Students as customers in higher education: The (controversial) debate needs to end. *J. Retail. Cons. Serv.* **2018**, *40*, 295–298. [CrossRef]
- 10. Koris, R.; Nokelainen, P. The student-customer orientation questionnaire (SCOQ): Application of customer. *Int. J. Educ. Manag.* **2015**, 29, 115–138. [CrossRef]

11. Laing, C.L.; Laing, G.K. The Student-as-Customer Metaphor: A Deconstruction Using Foucauldian Constructs. *Aust. Account. Bus. Fin. J.* **2016**, *10*, 40–54. [CrossRef]

- 12. Cuthbert, R. Students as customers. High. Educ. Rev. 2010, 34, 328–329.
- 13. Kashif, M.; Ting, H. Service-orientation and teaching quality: Business degree students' expectations of effective teaching. *Asian Educ. Dev. Stud.* **2014**, *3*, 163–180. [CrossRef]
- 14. Kuhlman, T.; Farrington, J. What is sustainability? Sustainability 2010, 2, 3436–3448. [CrossRef]
- 15. Hemsley-Brown, J.; Oplatka, I. Universities in a competitive global marketplace. *Int. J. Publ. Sec. Manag.* **2006**, *19*, 316–338. [CrossRef]
- 16. Luksha, P.; Cubista, J.; Laszlo, A.; Popovich, M.; Ninenko, I. *Global Education Futures Report, Educational Ecosystems for Societal Transformation*; GEF: Moscow, Russia, 2018.
- 17. Franz, S. Whatever you do, don't treat your students like customers! *J. Manag. Educ.* **1998**, 22, 63–69. [CrossRef]
- 18. Natale, S.M.; Doran, C. Marketization of Education: An Ethical Dilemma. *J. Bus. Ethics* **2012**, *105*, 187–196. [CrossRef]
- 19. Svensson, G.; Wood, G. Are university students really customers? When illusion may lead to delusion for all! *Int. J. Educ. Manag.* **2007**, *21*, 17–28. [CrossRef]
- 20. Voss, R.; Gruber, T.; Szmigin, I. Service quality in higher education: The role of student expectations. *J. Bus. Res.* **2007**, *60*, 949–959. [CrossRef]
- 21. IfM; IBM. Succeeding through Service Innovation: A Service Perspective for Education, Research, Business and Government; University of Cambridge Institute for Manufacturing: Cambridge, UK, 2008.
- 22. Maglio, P.P.; Spohrer, J. Fundamentals of service science. J. Acad. Mark. Sci. 2008, 36, 18–20. [CrossRef]
- 23. Gummesson, E. Many-to-Many Marketing as Grand Theory: A Nordic School Contribution. In *The Service–Dominant Logic of Mark.: Dialog, Debate, and Directions*; Lusch, R.F., Vargo, S.L., Eds.; ME Sharpe: Armonk, NY, USA, 2006; pp. 339–353.
- 24. Golinelli, G.M. Viable Systems Approach (VSA): Governing Business Dynamics; Cedam: Padova, Italy, 2010.
- 25. Vargo, S.L.; Lusch, R.F. Evolving to a New Dominant Logic. J. Mark. 2004, 68, 1–17. [CrossRef]
- 26. Vargo, S.L.; Lusch, R.F. Service-dominant logic: Continuing the evolution. *J. Acad. Mark. Sci.* **2008**, *36*, 1–10. [CrossRef]
- 27. Vargo, S.L.; Lusch, R.F. Institutions and axioms: An extension and update of service-dominant logic. *J. Acad. Mark. Sci.* **2016**, *44*, 5–23. [CrossRef]
- Lusch, R.F.; Wu, C. A Service Science Perspective on Higher Education: Linking Service Productivity Theory and Higher Education Reform; Center for American Progress: Washington, DC, USA, 2012; Available online: www.americanprogress:wp-content/uploads/issues/2012/08/pdf/service_science.pdf (accessed on 15 March 2019).
- 29. Diaz-Mendez, M.; Saren, M.; Gummeson, E. Considering pollution in the higher education (HE) service ecosystem. *TQM J.* **2017**, *29*, 767–782.
- 30. Baron, S.; Harris, K. A New Dominant Logic in Marketing: Pedagogical Logic Implications. *Mark. Rev.* **2006**, *6*, 289–300.
- 31. Diaz-Mendez, M.; Gummesson, E. Value co-creation and university teaching quality: Consequences for the European. *J. Serv. Manag.* **2012**, 23, 571–592. [CrossRef]
- 32. Dziewanowska, K. Value types in higher education–students' perspective. *J. High. Educ. Pol. Manag.* **2017**, 39, 235–246. [CrossRef]
- 33. Shank, M.D.; Walker, M.; Hayes, T. Understanding professional service expectations: Do we know what our students expect in a quality education? *J. Prof. Serv. Mark.* **1995**, *13*, 71–83.
- 34. Miliband, D. Staying with you. In *Personalised Learning in Schools*; National College for School Leadership: Nottingham, UK, 2005; pp. 8–12.
- 35. Dill, D.D. Higher Education Markets and Public Policy. High. Educ. Pol. 1997, 10, 167–185. [CrossRef]
- 36. Lynch, K. Neo-Liberalism and Marketisation: The Implications for Higher Education. *Eur. Educ. Res. J.* **2006**, 5, 1–17. [CrossRef]
- 37. Binsardi, A.; Ekwulugo, F. International Marketing of British education: Research on the students' perception and the UK market penetration. *Mark. Intel. Plan.* **2003**, *21*, 318–327. [CrossRef]
- 38. Edmiston-Strasser, D.M. An examination of integrated marketing communication in U.S. public institutions of higher education. *J. Mark. High. Educ.* **2009**, *19*, 142–165. [CrossRef]

39. Molesworth, M.; Nixon, E.; Scullion, R. Having, being and higher education: The marketisation of the university and the transformation of the student into consumer. *Teach. High. Educ.* **2009**, *14*, 277–287. [CrossRef]

- 40. Newman, S.; Jahdi, K. Marketisation of education: Marketing, rhetoric and reality. *J. Furth. High. Educ.* **2009**, 33, 1–11. [CrossRef]
- 41. Arnett, D.B.; German, S.D.; Hunt, S.D. The identify salience model of relationship Mark. success: The case of non-profit Mark. *J. Mark.* **2003**, *67*, 89–105. [CrossRef]
- 42. Trim, P.J. Strategic marketing of further and higher educational institutions: Partnership arrangements and centers of entrepreneurship. *Int. J. Educ. Manag.* **2003**, *17*, 59–70. [CrossRef]
- 43. Bowden, J.L.-H. Engaging the Student as a Customer: A Relationship Marketing Approach. *Mark. Educ. Rev.* **2011**, *21*, 211–228. [CrossRef]
- 44. Webster, R.L.; Hammond, K.L.; Rothwell, J.C. Customer and Market Orientation Within AACSB Member Business Schools: Comparative Views from Three Levels of Administrators. *Am. J. Bus. Educ.* **2010**, *3*, 79–91. [CrossRef]
- 45. Bowden, J.L.-H.; D'Alessandro, S. Co-creating value in higher education: The role of interactive classroom response technologies. *Asian Soc. Sci.* **2011**, *7*, 35–47. [CrossRef]
- 46. Fleischman, D.; Raciti, M.; Lawley, M. Degrees of co-creation: An exploratory study of perceptions of international students' role in community engagement experiences. *J. Mark. High. Educ.* **2015**, 25, 85–103. [CrossRef]
- 47. Pucciarelli, F.; Kaplan, A. Competition and strategy in higher education: Managing complexity and uncertainty. *Bus. Hor.* **2016**, *59*, 311–320. [CrossRef]
- 48. Gibbs, P.; Murphy, P. Implementation of ethical higher education marketing. *Tert. Educ. Manag.* **2009**, *15*, 341–354. [CrossRef]
- 49. Redding, P. The evolving interpretations of customers in higher education: Empowering the elusive. *Int. J. Cons. Stud.* **2005**, *29*, 409–417. [CrossRef]
- 50. Kamvounias, P. Students as Customers and Higher Education as Industry: A Review of the Literature and the Legal Implications. *Acad. Educ. Lead. J.* **1999**, *3*, 30–38.
- 51. Eagle, L.; Brennan, R. Are students customers? TQM and Mark. perspectives. *Qual. Assu. Educ.* **2007**, 15, 44–60. [CrossRef]
- 52. Tasie, G.O. Analytical observations of the applicability of the concept of student-as-customer in a university setting. *Educ. Res. Rev.* **2010**, *5*, 309–313.
- 53. Kotler, P.; Levy, S.J. Broadening the concept of Marketing. J. Mark. 1969, 33, 10–15. [CrossRef] [PubMed]
- 54. Kotler, P. A generic concept of Marketing. J. Mark. 1972, 36, 46–50. [CrossRef]
- 55. Hutton, J.G. Narrowing the concept of Marketing. J. Nonprofit Publ. Sect. Mark. 2001, 9, 5–24. [CrossRef]
- 56. Hutton, J.G. *The Feel-Good Society: How the "Customer" Metaphor is Under-Mining American Education, Religion, Media and Healthcare;* Pentagram Publishing: West Paterson, NJ, USA, 2005.
- 57. Hutton, J.G.; Leung, V.; Mak, A.K.Y.; Varey, R.J.; Watjatrakul, B. Students, Patients, Citizens, and Believers as "Customers": A Cross-National Exploratory Study. *J. Nonprofit Publ. Sect. Mark.* **2011**, 23, 41–70. [CrossRef]
- 58. Conway, T.; Mackay, S.; Yorke, D. Strategic planning in higher education: Who are the customers? *Int. J. Educ. Manag.* **1994**, *8*, 29–36. [CrossRef]
- 59. Pitman, T. Perceptions of Academics and Students as Customers: A survey of administrative staff in higher education. *J. High. Educ. Pol. Manag.* **2000**, 22, 165–175. [CrossRef]
- 60. Arboleda, A.M.; Alonso, J.C. Students' emotional experience at the university: An alternative approach to understanding students as consumers. *Serv. Mark. Q.* **2017**, *38*, 129–141. [CrossRef]
- 61. Bunce, L.; Baird, A.; Jones, S.E. The student-as-consumer approach in higher education and its effects on academic performance. *Stud. High. Educ.* **2017**, *42*, 1958–1978. [CrossRef]
- 62. Nixon, E.; Scullion, R.; Hearn, R. Her majesty the student: Marketized higher education and narcissistic (dis)satisfactions of the student-consumer. *Stud. High. Educ.* **2016**, *43*, 1–21. [CrossRef]
- 63. Nguyen, A.; Rosetti, J. Overcoming potential negative consequences of customer orientation in higher education: Closing the ideological gap. *J. Mark. High. Educ.* **2013**, 23, 155–174. [CrossRef]
- 64. Brady, M.P. Multiple roles of student and instructor in university teaching and learning processes. *Int. J. Manag. Educ.* **2013**, *11*, 93–106. [CrossRef]

65. Finney, T.; Finney, R. Are Students Their Universities' Customers? An Exploratory Study. *Educ. Train.* **2010**, 52, 276–291. [CrossRef]

- 66. Wellen, R. The University Student in a Reflexive Society: Consequences of Consumerism and Competition. *High. Educ. Persp.* **2005**, *1*, 24–36.
- 67. Delucci, M.; Korgen, K. We're the customer –we pay the tuition: Student consumerism among undergraduate sociology majors. *Teach. Sociol.* **2002**, *30*, 100–107. [CrossRef]
- 68. Edmundson, M. On the Uses of a Liberal Education: As Lite Entertainment for Bored College Students. *Harper's Mag.* **1997**, 295, 39–49.
- 69. Wong, B.; Chiu, Y.T. Let me entertain you: The ambivalent role of university lecturers as educators and performers. *Educ. Rev.* **2019**, *71*, 218–233. [CrossRef]
- 70. Brennan, L.; Bennington, L. Concepts in Conflict: Students and Customers. *J. Mark. High. Educ.* **1999**, 2, 19–40.
- 71. Marzo, M.; Pedraja, M.; Rivera, P. The customer concept in university services: A Classification. *Int. Rev. Publ. Nonprofit Mark.* **2007**, *4*, 65–80.
- 72. Carvalho, M.A.; Terra, M. A key question for higher education: Who are the customers? In Proceedings of the 31st Annual Conference of the Production and Operations, Atlanta, GA, USA, 4–7 April 2003; pp. 1–16.
- 73. Bailey, J.J. Students as Clients in a Professional/Client Relationship. *J. Manag. Educ.* **2000**, 24, 353–366. [CrossRef]
- 74. Gillespie, T.L.; Parry, R.O. Students as employees: Applying performance management principles in the management classroom. *J. Manag. Educ.* **2009**, *33*, 553–576. [CrossRef]
- 75. Hoffman, K.D.; Kretovics, M.A. Students as partial employees: A metaphor for the student-institution interaction. *Innov. High. Educ.* **2004**, 29, 103–120. [CrossRef]
- 76. Kotzé, T.G.; du Plessis, P.J. Students as "co-producers" of education: A proposed model of student socialisation and participation at tertiary institutions. *Qual. Assur. Educ.* **2003**, *11*, 186–201. [CrossRef]
- 77. Schurenberg, E. The Agony of College Admissions. *Money Magazine*, 1 May 1989, pp. 142–150. Available online: https://money.cnn.com/magazines/moneymag/moneymag_archive/1989/05/01/85114/index.htm (accessed on 24 January 2019).
- 78. Akaka, M.A.; Vargo, S.L.; Lusch, R.F. The Complexity of Context: A Service Ecosystems Approach for International Marketing. *J. Int. Mark.* **2013**, *21*, 1–20. [CrossRef]
- 79. Vargo, S.L.; Maglio, P.P.; Akaka, M.A. On value and value co-creation: A service systems and service logic perspective. *Eur. Manag. J.* **2008**, *26*, 145–152. [CrossRef]
- 80. Chandler, J.D.; Vargo, S.L. Contextualization and value-in-context: How context frames exchange. *Mark. Theory* **2011**, *11*, 35–49. [CrossRef]
- 81. Lusch, R.F.; Vargo, S.L.; Wessels, G. Toward a Conceptual Foundation for Service Science: Contributions from Service-Dominant Logic. *IBM Syst. J.* **2008**, *47*, 5–14. [CrossRef]
- 82. Vargo, S.L.; Lusch, R.F. Service-dominant logic 2025. Int. J. Res. Mark. 2017, 34, 46–67. [CrossRef]
- 83. Vargo, S.L.; Lusch, R.F.; Archpru, M.A.; He, Y. Service-dominant logic: A review and assessment. *Rev. Mark. Res.* **2010**, *6*, 125–167. [CrossRef]
- 84. Arnould, E.J.; Price, L.L.; Malshe, A. Toward a cultural resource- based theory of the customer. In *The Service-Dominant Logic of Mark: Dialog, Debate, and Directions*; Lusch, R.F., Vargo, S.L., Eds.; M.E. Sharpe: New York, NY, USA, 2006; pp. 91–104.
- 85. Astin, A.W. Student Involvement: A developmental theory for higher education. *J. Colleg. Stud. Person.* **1984**, 25, 288–307.
- 86. Nystrand, M.; Gamoran, A. Instructional discourse, student engagement and literature achievement. *Res. Teach. Engl.* **1991**, 25, 261–290.
- 87. Storbacka, K.; Brodie, R.J.; Böhmann, T.; Maglio, P.P.; Nenonen, S. Actor engagement as a microfoundation for value co-creation. *J. Bus. Res.* **2016**, *69*, 3008–3017. [CrossRef]
- 88. Scott, J.C. The Mission of the University: Medieval to Postmodern Transformations. *J. High. Educ.* **2006**, 77, 1–39. [CrossRef]
- 89. Bitner, M.J.; Ostrom, A.L.; Burkhard, K.A. Service Blueprinting: Transforming the student experience. *Educ. Rev.* **2012**, *47*, 38–40.
- 90. Lusch, R.F.; Vargo, S.L. Service-Dominant Logic: Premises, Perspectives, Possibilities; Cambridge University Press: Cambridge, UK, 2014. [CrossRef]

91. Lan, J.; Ma, Y.; Zhu, D.; Mangalagiu, D.; Thornton, T.F. Enabling value co-creation in the sharing economy: The case of mobike. *Sustainability* **2017**, *9*, 1504. [CrossRef]

- 92. Alquilani, B.; Silvestri, C.; Ruggieri, A. Sustainability, TQM and value co-creation processes: The role of critical success factors. *Sustainability* **2016**, *8*, 995. [CrossRef]
- 93. Dweck, C.S. Motivational processes affecting learning. Am. Psych. 1986, 41, 1040–1048. [CrossRef]
- 94. Busato, V.V.; Prins, F.J.; Elshout, J.J.; Hamaker, C. Intellectual ability, learning style, personality, achievement motivation and academic success of psychology students in higher education. *Pers. Individ. Dif.* **2000**, 29, 1057–1068. [CrossRef]
- 95. Duque, L.C.; Weeks, J.R. Towards a model and methodology for assessing student learning outcomes and satisfaction. *Qual. Assur. Educ.* **2010**, *18*, 84–105. [CrossRef]
- 96. Davidson, N.; Major, C.H.; Michaelsen, L.K. Small-Group Learning in Higher Education—Cooperative, Collaborative, Problem-Based, and Team-Based Learning: An Introduction by the Guest Editors. *J. Exc. Coll. Teach.* **2014**, 25, 1–6.
- 97. Sun, Z.; Xie, K.; Anderman, L.H. The Role of Self-Regulated Learning in Students' Success in Flipped Undergraduate Math Courses. *Inter. High. Educ.* **2018**, *36*, 41–53. [CrossRef]
- 98. Campbell, T.A.; Campbell, D.E. Faculty/student mentor program: Effects on academic performance and retention. *Res. High. Educ.* **1997**, *38*, 727–742. [CrossRef]
- 99. Nasser-Abu, A.F. Teaching in higher education: Good teaching through students' lens. *Stud. Educ. Eval.* **2017**, *54*, 4–12. [CrossRef]
- 100. O'Brien, J.P.O.; Crook, T.R. Armstrong, C.E. Does business school research add economic value for students? *Acad. Manag. Learn. Educ.* **2010**, *9*, 638–651. [CrossRef]
- 101. Loshkareva, E.; Luksha, P.; Ninenko, I.; Smagin, I.; Sudakov, D. Skills of the future, How to thrive in the complex new world. Global Education Futures. World Skills Russia. Available online: https://www.edu2035:files/WSdoklad_12_okt_eng.pdf (accessed on 2 April 2019).
- 102. Yakovleva, N.O.; Yakovlev, E.V. Interactive teaching methods in contemporary higher education. *Pacific Sci. Rev.* **2014**, *16*, 75–80. [CrossRef]
- 103. Ford, N.; Chen, S.Y. Matching/mismatching revisited: An empirical study of learning and teaching styles. *Br. J. Educ. Technol.* **2001**, *32*, 5–22. [CrossRef]
- 104. Watty, K.; McKay, J.; Ngo, L. Innovators or inhibitors? Accounting faculty resistance to new educational technologies in higher education. *J. Account. Educ.* **2016**, *36*, 1–15. [CrossRef]
- 105. Gibson, L.A.; Sodeman, W.A. Millennials and technology: Addressing the communication gap in education and practice. *Organ. Dev. J.* **2014**, *32*, 63–75.
- 106. Junco, R.; Heiberger, G.; Loken, E. The effect of Twitter on college student engagement and grades. *J. Comp. Assist. Learn.* **2011**, 27, 119–132. [CrossRef]
- 107. Moghavvemi, S.; Sulaiman, A.; Jaafar, N.I.; Kasem, N. Social media as a complementary learning tool for teaching and learning: The case of youtube. *Int. J. Manag. Educ.* **2018**, *16*, 37–42. [CrossRef]
- 108. Bishop, J.L.; Verleger, M.A. The flipped classroom: A survey of the research. In Proceedings of the 120th ASEE: American Society for Engineering Education National Annual Conference & Exposition, Atlanta, GA, USA, 23–26 June 2013.
- 109. Fulton, K. Upside down and inside out: Flip your classroom to improve student learning. *Learn. Lead. Technol.* **2012**, *39*, 12–17.
- 110. Coughlan, J.; Jamal, A.; Macredie, R.D. AGENT: Alumni Growth and Engagement Across New Technologies. In Proceedings of the European, Mediterranean and Middle Eastern Conference on Information Systems, Munich, Germany, 7–8 June 2012; pp. 763–769.



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