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DIMENSIONS OF CO-PRODUCTION OF EDUCATION SERVICE

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Abstract

The paper deals with the issue of value co-production in higher education and it consists of three parts. In the first part the literature review on conceptualization and the role of joint production of value is presented leading to the proposal of 7-dimensional concept of value co-production in educational services. In the second part of the paper, the results of a quantitative study conducted on a sample of over 1,000 business students from three leading Polish universities are discussed. The analysis of the results allows for the confirmation of the 7 dimensions of value co-production (dialogue, control, access to information, intellectual and behavioral involvement, knowledge sharing and knowledge intake), as well as their positive relationship with students' loyalty towards the university and the perception of the university image. In the final part of the paper, some practical implications are offered and the limitations of the study are addressed.

Introduction

Every organization seeks opportunities to build strong market position and achieve their goals in the best possible way, which sometimes implies high sales and profits but occasionally it refers to more intangible objectives such as creation of knowledge and the development of the society. This is also true for the higher education sector, where many institutions are forced to re-evaluate their strategies and adapt their activities in order to face the

present and upcoming challenges (Diaz-Mendez, Gummeson, 2012; Judson, Taylor, 2014). This paper discusses the phenomenon of value co-production, examines its application in the higher education sector and attempts to verify some theoretical assumptions via empirical research (survey).

Literature review

Value has been in the center of researchers' attention for more than four decades, however, there is lack of consensus in terms of its meaning and definition (Sanchez-Fernandez, Iniesta-Bonillo, 2006). Various proposals presented in the literature range from price/cost approach to the phenomenological understanding of the concept addressing the economic and psychological aspects of value creation (Gallarza, Gil-Saura, Holbrook, 2011). In this paper value is conceptualized as a benefit for an actor, which emerges from a preferential, interactive and subjective experience (Holbrook, 1999) resulting from the comparison of all benefits and all sacrifices incurred by an actor. Similarly to the definition of value, there are also debates as to the process in which value is created. With the development of the service-dominant logic (Vargo, Lusch, 2004; Vargo, Lusch, 2008), the initial value-in-exchange approach has been replaced by value-in-use and value-in-context putting value creation in ever wider context of a service ecosystem with numerous participants involved (Vargo, Lusch, Akaka, 2010).

One thing is clear, though – value is subjective and always determined by the beneficiary, thus some form of customer participation in this process is necessary (Prahalad, Ramaswamy, 2004). The concept of customer participation covers a variety of behaviors, such as value co-creation, co-production, prosumption and open innovation (Leclercq, Hammedi, Poncin, 2016). This paper focuses on value co-production which is a sub-process of value co-creation (Vargo, Lusch, 2004; Xia, Fan, 2008). Co-production (joint production) of value is not an entirely new concept and it has been discussed in the literature for the last four decades. It is understood as a direct or indirect cooperation with the customers (Hu, McLoughlin, 2012) or their participation in the design and production of a product or service (Etgar, 2008), where the company has the dominant position and defines the scope of customer activity. The involvement of the customer in company's processes is proven to bring various benefits (Bendapudi, Leone, 2003), such as increased effectiveness (Fitzsimmons, 1985), perceived quality (Dablokhar, 1990) and greater responsibility of the customer for the process and its results (Van Raaji, Pruyn, 1998). It also allows the company to diversify its market offer (Song, Adams, 1993) and changes the perception of the offer from product to process (Firat, Dholakia, Venkatesh, 1995). An interesting conceptualization of value co-production is proposed by Ranjan and Read (2016), who claim that it is an essential component of value co-creation and it consists of three dimensions:

- knowledge and information sharing and exchange,
- equity (transparency and power sharing, company's willingness to give customer some control over the process),
- interactions occurring via dialogue and customer involvement in the process of value creation.

This proposal was adapted to the higher education sector, where students are the actors in the role of a customer – their involvement in the educational service process is desirable and necessary, and to some extent predefined by the university, which is officially in charge of the education programs and processes. This approach seems of particular importance in the Polish context, where higher education institutions are exposed to increased competition, unfavorable demographic trends and social perceptions, as well as are subject of fierce criticism and

significant changes (Dziewanowska, 2014; Kwiek, 2015). Understanding students' perceptions of the educational service can be instrumental in planning of the university activities.

Research method

The purpose of this study was to investigate the dimensions of value co-production concept in the education service and to investigate the relationship between the dimensions of value co-production and students' loyalty and their perception of the university's image. Based on the literature review it is assumed that value co-production consists of three major dimensions: knowledge, equity and interactions (Ranjan, Read, 2016, p. 303).

The following hypotheses were stated:

- H1. Value co-production is a multidimensional phenomenon.
- H2. There are differences in all dimensions of value co-production among students representing the three institutions.
- H3. There is a positive relationship between dimensions of value co-production and students' loyalty.
- H4. There is a positive relationship between dimensions of value co-production and the perception of the university image.

The research method used in the study was a survey (PAPI) and the research tool was a questionnaire consisting of two parts. Part one comprises statements referring to value co-production (with a 5-point Likert scale anchored at 5 – strongly agree, 1 – strongly disagree) and part two refers to sample characteristics. The questionnaire was distributed among students from faculties of management at three Polish universities and a quota sampling technique was used. Table 1 presents detailed characteristics of the sample.

Table 1. Sample characteristics

	University of Warsaw (UW)	University of Economics in Katowice (UEK)	Poznań University of Economics and Business (UEP)
Total	350	353	324
Female	234	253	191
Male	116	100	133
1st BA	70	82	58
2nd BA	78	82	60
3rd BA	66	62	58
1st MA	75	65	86
2nd MA	61	62	62

Source: own study, N = 1027.

Results of the study

In order to verify the first hypothesis (H1) the factor analysis was conducted using principal component analysis with a Varimax rotation (with Kaizer normalization). The KMO measure of sampling adequacy was 0.890, the Bartlett's test of sphericity was significant and the factors explained 62.5% of the variance. Table 2 presents the statements grouped into 7 factors: 1) dialogue, 2) access to information, 3) behavioral involvement, 4) control, 5) intellectual involvement, 6) knowledge sharing, 7) knowledge intake. The Cronbach's alpha coefficients exceed

0.76 for all factors except knowledge intake (0.663), which is acceptable for newly created scales (Nunnally, Bernstein, 1994).

Table 2. Service co-production dimensions – component matrix

Statement/Factor	1	2	3	4	5	6	7
I think my faculty takes me seriously	0.760						
I think my faculty takes active steps to satisfy my needs	0.750						
I have a feeling that my faculty makes decisions and acts in my best interest	0.733						
I know I will be listened to when needed	0.731						
It seems to me that my faculty understands my needs	0.705						
I have an impression that my opinion doesn't matter to my faculty	0.584						
I can easily express some suggestions	0.549						
I feel well-informed		0.853					
I can easily get to important information		0.831					
I have negative opinion about the access to information at my faculty		0.828					
My faculty uses proper communication channels		0.827					
I reckon the information flow at my faculty is satisfactory		0.794					
I am involved in additional activities at my faculty (apart from studying)			0.844				
I am a member of an academic/student association			0.767				
I participate in workshops organized at my faculty			0.734				
I participate in social events organized by my faculty			0.728				
I participate in conferences organized at my faculty			0.715				
I have a feeling I make a substantial contribution to my faculty			0.655				
I know that effects of my studying depend on me				0.739			
I usually decide on my own what's best for me in terms f studying				0.727			
I feel that in terms of studying I am in charge of my destiny				0.725			
While studying, I feel that I can take actions that will benefit me				0.693			
I have control over the course of my studies				0.675			
I try to prepare for the classes					0.766		
I devote more time to studying than other people					0.764		
I put minimal effort into studying					0.731		
I am involved in my studies					0.721		
I gladly talk about my experiences with other students						0.837	
I readily share my knowledge						0.803	
I gladly discuss my experiences during classes						0.778	
In my opinion other people are the best source of knowledge							0.777
I often learn from others							0.738
I think other students are a poor source of knowledge							0.719
Cronbach's Alpha	0.861	0.922	0.852	0.809	0.768	0.772	0.663

Source: own study, N = 1027.

The 7 identified factors match the three theoretical dimensions proposed by Ranjan and Read (2016) as factors 7 and 6 (knowledge sharing and knowledge intake) constitute the knowledge dimension, factors 4 and 2 (control and access to information) constitute the equity dimension, and factors 1, 3 and 5 (dialogue, intellectual and behavioral involvement) constitute the interactions dimension. Thus, the H1 is supported.

In order to verify the second hypothesis (regarding the differences in all dimensions of value co-production among students representing the three institutions), Kruskal-Wallis nonparametric test was used and the results are presented in Table 3. It can be observed that the results are significant for all dimensions except dialogue (1) and control (4), thus H2 is partially supported.

Table 3. Kruskal-Wallis test: value co-production dimensions at universities

	Dialogue	Access to information	Behavioral involvement	Control	Intellectual involvement	Knowledge sharing	Knowledge intake
Chi-Square	0.164	15.449	10.829	0.779	26.378	15.759	10.287
df	2	2	2	2	2	2	2
Asymp. sig.	0.921	**0.000**	**0.004**	0.677	**0.000**	**0.000**	**0.006**

Source: own study, N = 1027.

A further look at the means for each dimension reveal that students declare a rather high level of control over their course of study (3.78), as well as knowledge sharing (3.70) and intake (3.71), while the dialogue (3.04) and access to information (3.18) dimensions are perceived as neither high nor low. It is interesting (and perhaps worrisome from the university perspective) that the behavioral involvement (2.20) is definitely low and intellectual involvement is average (3.23). The UW students declared the highest levels of involvement (3.42 for the behavioral and 2.34 for the intellectual involvement) and knowledge sharing (3.83) and intake (3.81), while UEK students expressed the highest assessment of access to information (3.30).

Table 4. Means for universities and co-production dimensions

University		Dialogue	Access to information	Behavioral involvement	Control	Intellectual involvement	Knowledge sharing	Knowledge intake
UW N = 350	mean	3.049	3.187	**2.342**	3.786	**3.423**	3.827	3.814
	std. dev.	0.723	0.911	0.940	0.687	0.753	0.629	0.650
UEK N = 353	mean	3.032	**3.302**	2.109	3.801	3.244	3.654	3.636
	std. dev.	0.669	0.853	0.820	0.624	0.675	0.730	0.702
UEP N = 324	mean	3.052	3.030	2.153	3.743	3.117	3.617	3.687
	std. dev.	0.672	0.923	0.844	0.696	0.786	0.743	0.698
Total N = 1027	mean	3.044	3.177	2.203	3.778	3.265	3.701	3.713
	std. dev.	0.688	0.901	0.875	0.669	0.748	0.707	0.687

Source: own study, N = 1027.

The verification of hypotheses 3 and 4 (regarding the relationship between dimensions of value co-production, students' loyalty and the university image) was conducted with the correlation analysis. The scales for students loyalty and the university image were developed and tested by Dziewanowska (2016). The mean score for the university image was 3.18 (with no statistically significant differences among universities), while the mean for students loyalty was 3.55 (the highest for UW – 3.71, and the lowest for UEK – 3.40). The correlation is significant for both students' loyalty and the university image and all dimensions of value co-production, and its strength varies between weak and moderate. The strongest relationship can be observed for dialogue and control dimensions for

both loyalty (0.469 and 0.343 respectively) and image (0.478 and 0.338 respectively), and behavioral involvement for loyalty only (0.354). Thus, hypotheses 3 and 4 are fully supported.

Table 5. Spearman's rho correlation coefficient for co-production dimensions, students' loyalty and the university image

		Dialogue	Access to information	Behavioral involvement	Control	Intellectual involvement	Knowledge sharing	Knowledge intake
Loyalty	correlation coefficient	**0.469**	0.311	**0.354**	**0.343**	0.307	0.230	0.226
	sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Image	correlation coefficient	**0.478**	0.295	0.172	**0.338**	0.219	0.177	0.261
	sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Correlation is significant at the 0.01 level (2-tailed).

Source: own study, N = 1027.

Conclusions

The results of the study confirm the multidimensionality and complexity of the value co-production concept in educational services, as well as their relationship with students' loyalty and the university image. A closer look at the results allows also for some practical implications.

First of all, it is clear that students feel they are in control of their course of study and willingly engage in knowledge sharing with others. At the same time, it can be observed that their behavioral involvement (actual participation in activities offered by the university) is rather low, while their assessment of other dimensions is moderate. These results are of consequence for students' loyalty and the perception of the university image. As the correlation analysis shows, the relationship between the dialogue dimensions and students' loyalty and university image is the strongest, thus more attention should be paid to understanding students' needs and acting upon that knowledge (or perhaps making them more aware of the university activities undertaken in this area). As for the control, its relationship with students loyalty and university image is moderate and this dimension was assessed best by the students. However, involvement – especially the behavioral one – was declared at a low level and the same time its relationship with students' loyalty is rather high. Therefore, it seems that more effort should be put into encouraging students to physically participate in various activities organized by their universities as it can not only increase their loyalty, but also benefit them from educational perspective.

Limitations of the study

This study has three major limitations. The first one results from the sampling method used in the study and it is suggested that further research should be conducted on a randomized sample. The second limitation stems from the survey technique used in the study where only students' declarations and not actual actions are investigated. Thus, other techniques (such as observations and experiments) should be also used in further research. Finally, educational service is a very complex one with various participants within and outside of the university (e.g. lecturers, administrative staff, future employers, government) and it would be interesting to learn their perspectives on value co-production process.

References

Bendapudi, N., Leone, R.P. (2003). Psychological implications of customer participation in co-production. *Journal of Marketing*, *1* (67), 14–28.

Dablokhar, P. (1990). How to improce perceived service quality by improving customer participation. In: B. Dunlap (ed.), *Developments in Marketing Science* (pp. 483–487). Cullowhee, NC: Academy of Marketing Science.

Diaz-Mendez, M., Gummeson, E. (2012). Value co-creation and university teaching quality. *Journal of Service Management*, *4* (23), 571–592.

Dziewanowska, K. (2014). Współtworzenie wartości w edukacji wyższej w świetle badań jakościowych. *Marketing i Rynek*, *8*, 222–228.

Dziewanowska, K. (2016). Wymiary doświadczeń w usłudze edukacyjnej w szkolnictwie wyższym. *Studia i Prace WNEiZ UW*, *2* (43), 41–51.

Etgar, M. (2008). A descriptive model of the consumer co-production process. *Journal of the Academy of Marketing Science*, *1* (36), 97–108.

Firat, A.F., Dholakia, N., Venkatesh, A. (1995). Marketing in postmodern world. *European Journal of Marketing*, *1* (29), 40–56.

Fitzsimmons, J.A. (1985). Consumer participation and productivity in service operations. *Interfaces*, *3* (15), 60–67.

Gallarza, M.G., Gil-Saura, I., Holbrook, M.B. (2011). The value of value: Further excursions on the meaning and role of customer value. *Journal of Consumer Behaviour*, *10*, 179–191.

Holbrook, M.B. (1999). Introduction to consumer value. In: M.B. Holbrook (ed.), *Consumer Value. A framework for analysis and research* (pp. 1–28). London: Routledge.

Hu, Y., McLoughlin, D. (2012). Creating new market for industrial services in nascent fields. *Journal of Services Marketing*, *5* (26), 322–331.

Judson, K.M., Taylor, S.A. (2014). Moving from Marketinzation to Marketing of Higher Education: The Co-Creation of Value in Higher Education. *Higher Education Studies*, *1* (4), 51–67.

Kwiek, M. (2015). *Uniwersytet w dobie przemian.* Warszawa: Wydawnictwo Naukowe PWN.

Leclercq, T., Hammedi, W., Poncin, I. (2016). Ten years of value cocreation: An integreative review. *Recherche et Applications en Marketing*, 1–35.

Nunnally, J.C., Bernstein, I.H. (1994). *Psychometric Theory.* New York: McGraw-Hill.

Prahalad, C.K., Ramaswamy, V. (2004). Co-creation experiences: The next practice in value creation. *Journal of Interactive Marketing*, *3* (18), 5–14.

Ranjan, K.R., Read, S. (2016). Value co-creation: concept and measurement. *Journal of the Academy of Marketing Science*, *3* (44), 290–315.

Sanchez-Fernandez, R., Iniesta-Bonillo, M. (2006). Consumer perception of value: literature review and a new conceptual framework. *Journal of Consumer Satisfaction*, *Dissatisfaction and Complaining Behavior*, *19*, 40–58.

Song, J.H., Adams, C.R. (1993). Differentiation through customer invovlement in production of delivery. *Journal of Consumer Marketing*, *2* (10), 4–12.

Van Raaji, W.F., Pruyn, A.T. (1998). Customer control and evaluation of service validity and reliability. *Psychology & Marketing*, *8* (15), 811–832.

Vargo, S.L., Lusch, R.F. (2008). Service-dominant logic: continuing the evolution. *Journal of the Academy of Marketing Science*, *1* (36), 1–10.

Vargo, S.L., Lusch, R.F., Akaka, M.A. (2010). Advancing Service Science with Service-Dominant Logic. In: P.P. Maglio, C.A. Kieliszewski, J.C. Spohrer (eds.), *Handbook of Serice Science* (pp. 133–156). Springer.

Vargo, S., Lusch, R. (2004). Evolving to a New Dominant Logic for Marketing. *Journal of Marketing*, *68*, 1–17.

Xia, L., Fan, X. (2008). Who should do the work: The different roles of customer participation and its impact on satisfaction. *American Marketing Association*, 284–291.

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