DOI: 10.20472/IAC.2015.015.196

EMILY HON TSHIN YAPP
Universiti Malaysia Sabah, Labuan International Campus, Malaysia

STEPHEN SONDOH J.R
Universiti Malaysia Sabah, Malaysia

RUTH SIGANUL
Universiti Malaysia Sabah, Labuan International Campus, Malaysia

CO-PRODUCTION DIMENSIONS IN MEDICAL SERVICES

Abstract:

Previous research have shown that customer co-production is able to improve company's productivity, enhance customer loyalty, increase competitiveness and enhance customer satisfaction. Although customer co-production has long been recognized in the service marketing literature, few empirical studies examine the dimensions of co-production in medical services. In addition, services providers in the industry are competing with each other to find ways to get closer to the organisations. A closer relationship between customers and organisation could enhance competitive advantage and enable more profitable relationship. Therefore, the present study aims to identify factors (affective commitment, communications, interaction justice and patient expertise) that can effectively enhance the level of customer co-production. Survey questionnaires are distributed using individually completed questionnires in a set of 24 items. Each item was phrased as statement on 5-points Likert scales. These 5-points Likert scales type scales with anchor ranging from strongly disagree to strongly agree. The respondents are the undergraduate students of a public university in Malaysia. The surveyed data are analysed using the Partial Least Squares (PLS) approach. The survey results suggest that interactional justice, communication and patients expert can increase the level of co-production. This implied that patients and doctor communication could lead to an effective understanding of each other's role during the co-production process and the outcome. In addition, the finding also shown that interaction justice had a significant and positive association with co-production. This suggested that, the emotional of relationship between patient and doctor is also an interest for customers in order to participate in co-production. As for patients expertise, it seems that when patients have sufficient knowledge about their illness/disease, they are more likely to participate in co-production. Interestingly, affective commitment does not contribute to customer co-production. Limitation and future research directions are also discussed.

Keywords:

Co-production, service marketing, medical services

JEL Classification: M31

Introduction

Co-production has been defined as constructive customer participation in the service creation and delivery process (Auh, Bell, McLeod, and Shih, 2007). Customers are being increasingly encouraged to actively participate in producing goods and services. For example, customers serve themselves via ATM as well as cooperate with healthcare providers. Previous research have shown that customer co-production is able to improve company's productivity (Lovelock and Young, 1997), enhance customer loyalty (Auh et al., 2007), increase competitiveness (Prahalad and Ramaswamy, 2000) and enhance customer satisfaction (Dabholkar, 1990; Claycomb, Lengnick-Hall and Inks, 2001). Although customer co-production has long been recognized in the service marketing literature, few empirical studies examine the determinance of co-production especially in medical services. Therefore, the present study aims to identify factors that are likely to increase the level of co-production in medical services context especially among medical doctors and their patients. The present study is timely and important because service providers in the industry are competing with each other to find ways to get customers closer to the organisations. A closer relationship between customers and organisation could enhance competitive advantage and enable more profitable relationship.

Theoretical Background and Hyptheses

Affective commitment

As defined by Auh et al (2007), affective commitment is where customer attached to, identification with and involvement in the organisations. Services such as consumer health care, education, personal care as well as legal services need customer themselves to play their vital role in creating service outcomes. As a result, customers indirectly create their own satisfaction and the value that they received. This factor has supported marketers' view that customer as partial employees (Mills, Chase and Margulies, 1983, Kelley et al 1990, Bowen 1986). Generally, customer as partial employees have expanded the view of service organisations by incorporating service recipients as a temporary members or participants (Bitner, Faranda, Hubbert and Zeithaml, 1997). For example, patient need to provide accurate information about their illness to enable a doctor to be more efficient and accurate in their diagnoses. The quality of the information that provided by the patient can ultimately affect the outcome. As a result, customers do contribute inputs which will give impact to the organisation and in future, customers will be more likely to engage in co-production. Auh et al (2007) suggest that customers who regard themselves as partial employees should engage more in co-production. This is particularly apparent for employees with strong affective commitment.

H1: Affective commitment has a positive effect on co-production.

Communication

Communication is the human activity that links people together to create relationships (Duncan and Moriarty, 1998) where sharing of meaningful information and timely information between customers and organisations (Sharma and Patterson, 1999). In the context of our study, patient and doctor communication is very important. Patients need to communicate with their doctor about their illness to enable the doctor to identify their problems and to prescribe a proper medication as well as proper advice. Such information sharing between patient and doctor could lead to relationship building (Day, 1992); building trust by resolving patients illness and concerns (Sharma and Patterson 1999). According to Fledderus, Brandsen and Honingh (2013), they find that co-production relates to identification-based trust. Therefore, the willingness to communicate between patients and doctor could increase the tendency of co-production.

H2: Patient and Doctor communications relates positively to co-production.

Interactional Justice

Interactional justice is primarily rooted in the social exchange theory (Blau, 1964). In social exchange theory, it is assumed that relationships between patient and doctor are seen as exchanges in which patient and doctor reciprocates a positive personal outcome (e.g. fairness). From this perspective, interaction justice refer to the extent to which customers are treated fairly in their interactions with the service provider/service encounter (Voorhees and Brady, 2005 and Matterson, Lewis, Goldman and Taylor, 2000). Interaction justice concerns the extent to which services provider treats its customer with friendliness, objectivity, honesty, politeness and genuine interest. It is also suggested that interaction justice is able to make significant and independent contribution to customer satisfaction, repurchase intention (Bowen, Gillilang and Folger, 1999) and co-production (Auh et al, 2007). Therefore, interactional justice will enhance the level of co-production.

H3: Interaction justice has a positive effect on co-production.

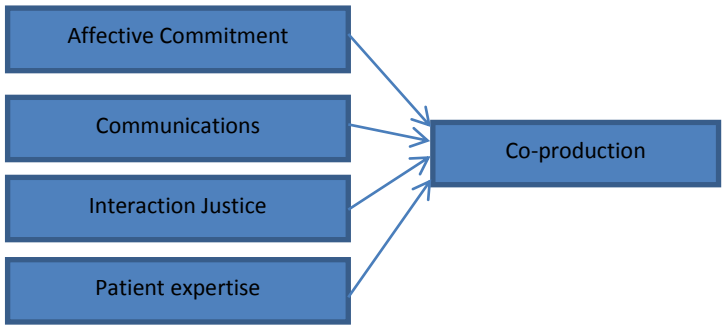
Patient Expertise

According to Sharma and Patterson (2000), expertise in customer perspective is where customers have a accrued knowledge about how a product should perform and a general understanding of the average performance of similar brands in a product category. Nowadays customers are sophistication and their knowledge are increasing (Bounds, Yorks, Adam and Ranney, 1994). As customer expertise increases, their ability to make effective contribution to co-production will also increase (Morthy, Ratchford & Talukdar, 1997). Moreover, Lusch et al. (2007) similarly agree that customer expertise significantly contributes to co-production. In addition, Auh et al. (2007) also find that there is a

positive relationship between patient expertise and co-production. Therefore, we propose the following hypothesis.

H4: Patient expertise has a positive effect on co-production.

Figure 1: Conceptual Model



Methods

The target population for this study involves patients that visiting their panel doctors. Survey questionnaires are distributed among students through convenience sampling. The respondents are the undergraduate students of a public university in Malaysia. A total of 249 questionnaires were collected but there are only 226 fully completed questionnaires. The data were collected using individually completed questionnaires in a set of 24 items. Each item under the factors that contribute to customer co-production was phrased as statement on a 5-point Likert scales. These five Likert-type scales with anchor ranging from strongly disagree (1), disagree (2), neither (3), agree (4) and strongly disagree (5) were set on each statement in the questionnaire. The surveyed data were analysed using the Partial Least Squares (PLS) approach. The test was conducted using the Smart PLS M2 version 2.0 (Ringle et al 2005). PLS is selected for this analysis because it can simultaneously evaluate the measurement model (the relationships between constructs and their corresponding indicators), and the structural model with the aim of minimizing the error variance (Chin, 1998; Cil-Garcia, 2008). In addition, it has advantage for small sample size (Chin, 2010).

Results

We start the PLS analysis by testing the convergent validity of our measurement model. Convergent validity is the degree to which multiple measures that have the same concept are in agreement. As suggested by Hair et al (2010) we use factor loadings, composite reliability and average variance extracted to assess the convergent validity of the measurement model. To assessing the measurement model, it is important to demonstrate satisfactory level of reliability and validity (Fornell and Larcker, 1981).

Table 1: Measurement Model

Construct	Items	Loading	AVE[a]	CR[b]	Cronbach α
Affective Commitment	AC1	0.778	0.556	0.831	0.758
	AC2	0.807			
	AC3	0.572			
	AC4	0.799			
Communication	COM1	0.814	0.595	0.814	0.659
	COM2	0.822			
	COM3	0.828			
	COM4	0.727			
Co-Production	COP1	0.846	0.638	0.876	0.812
	COP2	0.780			
	COP4	0.679			
Interaction Justice	IJU1	0.731	0.640	0.876	0.815
	IJU2	0.751			
	IJU3	0.852			
	IJU4	0.858			
Patient expert	ME1	0.501	0.513	0.803	0.690
	ME2	0.710			
	ME3	0.844			
	ME4	0.764			

Scale validation is proceeded in two phases which are the convergent validity and discriminant validity analysis. The convergent validity of scale items was assessed with three criteria suggested by Fornell and Larcker (1981). First, all items' factor loading

should be significantly greater than 0.50 (Hair et al 2010). Second, the composite reliabilities for each construct should exceed 0.70 (Hair et al, 2010). Lastly, the average variance extracted (AVE) for each construct should exceed 0.50 (Hair et al, 2010). As shown in Table 1, all items had loadings greater than 0.5 except factor COP 3. As a result, factor COP 3 was dropped from subsequent analysis. As for the composite reliability, all factors had exceeded the required minimal of 0.70. Under the average variance extracted, Table 1 shows that each construct had exceeded 0.50. As a result, all three convergent validities were met.

Discriminant validity had been tested using Fornell and Larcker's (1981) criterion. As recommended by Fornell and Larcker, the correlation between variables in any two constructs should be lower than the square root of the AVE shared by variables within a construct. As shown in Table 2, the square root of variance shared between a construct and its measures was greater than the correlations between a construct and other construct. Therefore, the discriminant validity criterion was also met.

Table 2: Discriminant Validity

Constructs	Affective	Co-production	Communication	Justice	Medical
Affective	**0.745**				
Co-production	0.181	**0.771**			
Communication	0.302	0.492	**0.799**		
Justice	0.431	0.348	0.460	**0.800**	
Patient expert	0.370	0.299	0.299	0.269	**0.716**

Note: Diagonals represent the square root of the AVE while the off-diagonals represent the correlations

After confirming good psychometric properties in the measurement model, structural model will then be examined to assess their explanatory power and the significant of the paths. The R^2 values range from 0.157 to 0.283 which within the ranges typically reported in structural model research (White et al, 2003).

The results of the PLS analysis are presented in Table 3. H1: there is a positive relationship between affective commitment and co-production is not supported (β=-0.063, $p>0.05$). Thus, affective commitment is not significantly positively related to co-production. Further, the link from communication to co-production is positive and significant (β=0.392, $p<0.01$), indicating the support for H2. A positive and significant relationship was found between interactional justice and co-production (β=0.151, $p<0.05$),

supporting H3. In accordance with H4, patient expertise are positively related to co-production (β=0.164, p<0.01).

Table 3: Structural Model

Hypothesis	Relationship	Std. Beta	Standard Error (SE)	T-Value	Decision/Supported
H1	Affective -> Co-production	-0.063	0.077	0.819	Not Supported
H2	Communication -> Co-production	0.392	0.060	6.544**	Supported
H3	Justice -> Co-production	0.151	0.079	1.914*	Supported
H4	Patient Expert -> Co-production	0.164	0.065	2.510**	Supported

Note: **p< 0.01, *p< 0.05

Discussions

The study found that communication, interactional justice and patient expertise have significant positive effect towards co-production. This implied that patients and doctor communication could lead to an effective understanding of each other's role during the co-production process and the outcome. In addition, the finding also shown that interaction justice had a significant and positive association with co-production. This suggested that, the emotional of relationship between patient and doctor is also an interest for customers in order to participate in co-production. As for patients expertise, it seems that when patients have sufficient knowledge about their illness/disease, they are more likely to participate in co-production. However, it is interesting to find out that affective commitment is not significant towards co-production.

In summary, this study has provided company managers with useful insights to encourage co-production from the perspective of the three underlying dimensions. Organisations should encourage their customers to participate in co-production as much as possible. In order to encourage customer participation in co-production, organisations should pay more attention in increasing their customers' ability as well as the communication clarity.

Limitation and Future Research

First, the present study relied on a sample of students in one of the public university. Therefore the result of this research cannot be generalised to other sample. Secondly,

this study only focused on panel doctors. Future research might consider similar services but looking into medical specialist and medical doctor services context. Medical services are considered as a high involvement service sector, however, it would be interesting to carry out similar research in a low involvement service sectors. Lastly, other antecedents as well as outcome of co-production could be included to produce more unified conceptualisation in future.

References

AUH, S., BELL, S., MCLEOD, C., and SHIH, E. (2007). Co-production and Customer Loyalty in Financial Services. *Journal of Retailing*, Vol.83, s.359-370.

BOUNDS, G., YORKS, L., ADAM, M. and RANNEY, G. (1994). *Beyond Total Quality Management: Toward the Emerging Paradigm*. New York:McGraw-Hill.

BLAU, P. (1964). *Exchange and Power in Social Life*. New York. Wiley.

BİTNER, M., FARANDA, W., HUBBERT, A. and ZEİTHAML, V. (1997). Customer Contributions and Roles in Service Delivery. *International Journal of Service Industry Management*. Vol.8, No.3, s.193-205.

BOWEN, D., GİLLİLAND, S. and FOLGER, R. (1999). HRM and Service Fairness: How Being Fair with Employees Spills Over to Customers. Organisational dynamics. Vol.28, s.7-23.

CHİN, W.W. (2010). How to Write up a Report PLS Analyses. In ESPOSİTO VİNZİ, V., CHİN, W. W., HENSELER, J. AND WANG, H. *Handbook of Partial Least Squares Concepts, Methods and Applications*. s.655-690.

CLAYCOMT, C., and LENGNİCK-HALL, C.A. (2001). The Customer as a Productive Resource: A Pilot Study and Strategic Implications . *Journal of Business Strategies*. Vol.18, s.47-68.

DABHOLKAR, P. A. (1990). How to Improve Perceived Service Quality by Improving Customer Participation. In B. J. Dunlap (Ed.), Developments in Marketing Science, s.483–487. NC: Journal of the Academy of Marketing Science

DAY, G. (1992). Marketing Contribution to the Strategic Dialogue. *Journal of the Academy of Marketing Science*, Vol.20, s.323-329.

DUNCAN, T. and MORİARTY, S. (1998). A Communication –Based Marketing Model for Managing Relationships . *Journal of Marketing*, Vol.62, No.2, s.1-13.

ETGAR, M. (2008). A Descriptive Model of the Customer Co-Production Process. *Journal of the Academic marketing science*. Vol.36, s.97-108.

FLEDDERUS, J., BRANDSEN, T., and HONİNGH, M. (2013). Restoring Trust Through the Co-production of Public Services: A Theoretical Elaboration. *Public Management Review*, Vol.16, No.3, s.424-423.

FORNELL, C., and LACKER, D.F. (1981). Evaluation Structural Equation Models with Unobserved Variables and Measurement Error. *Journal of Marketing Research*, Vol.18, No.1, s.39-50.

HAİR, J. F., BLACK, W. C., BABİN, B. J., and ANDERSON, R. E. (2010).*Multivariate Data Analysis*. Upper Saddle River, NJ: Prentice-Hall.

KELLEY, S.W., CHİU, H.C. and SKİNNER, S.J. (1990). Customer Participation in Service Production and Delivery. *Journal of Retailing*, Vol.66, s.315-335.

LOVELOCK, C. H., and YOUNG, R. F. (1997). Look to Consumers to Increase Productivity. Harvard Business Review, Vol.57, s.168-178.

LUSCH, R.F., VARGO, S. and O'BRIEN. (2007). Competing Through Service: Insights From Service Dominant Logic. *Journal of Retailing*, Vol.83, s.5-18.

MATERSON, S., LEWİS, K., GOLDMAN, B. *and* TAYLOR, M. (2000). Integrating Justice and Social Exchange: The Differing Effects of Fair Procedures and Treatment on Work Relationships. *Academy of Management Journal*, Vol.43, s.738-748.

MEUTER, M.L., BİTNER, M.J., OSTROM, A. L., and BROWN, S.W. (2005). Choosing Among Alternative Service Delivery Modes: An Investigation of Customer Trial of Self-Service Technologies. *Journal of Marketing,* Vol.69, s.61-83.

MİLLS, P.K., CHASER.B. and MARGULİES, N. (1983). Motivating the Client/Employee System as a Service Production Strategy. *Academy of Management Review*, Vol.8, s.301-310.

PRAHALAD, C. K., and RAMASWAMY, V. (2000). Co-opting Customer Competence. *Harvard Business Review*, Vol.78, No.1, s79–87

PRAHALAD, C.K. and RAMASWAMY, V. (2004) Co-Creation Experiences: The Next practice in Value Creation. *Journal of Interaction Marketing*. Vol.18, s.5-14.

SHARMA, N. and PATTERSON, P.G. (1999). The Impact of Communication Effectiveness and Service Quality on Relationship Commitment in Consumer, Professional Services. *Journal of Services Marketing*, Vol.13, s.151-170.

VOORHEES, C. and BRADY, M. (2005). A Service Perspective on the Drivers of Complaint Intentions. *Journal of Service Research*, Vol.8, s.192-204.

ZEİTHAML, V., PARASURAMAN, A. and BERRY, L. (1990). *Delivering Quality Service: Balancing Customer Perceptions and Expectations.* New York: Free Press.