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THE ANTECEDENTS OF CO-PRODUCTION: MEDICAL SERVICES PERSPECTIVE

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Abstract

Co-production is recognised in service marketing literatures and has proven that it can improve organisation's productivity, increase competitiveness, and enhance customer loyalty and satisfaction. However, there are only a few empirical studies that have examined the antecedence of co-production, especially in medical services. In a competitive environment, service providers compete with each other. Studies have found that a closer relationship between customers and the organisation does not only enhance the relationship between customers and organisation, but also increase the competitive advantage to enable a more profitable relationship. Therefore, the present study aims to identify the factors (affective commitment, communications, interaction justice, and patient expertise) that can effectively enhance customer co-production. Survey questionnaires were distributed and the surveyed data were analysed using the Partial Least Squares (PLS) approach. The empirical results support that interaction justice, communication, and patient's expertise may increase the level of co-production. It is also suggested that interaction justice is significantly and positively associated with co-production. Limitations and future research directions are also discussed.

JEL Classification: *I11*
Keywords: *Co-production; Medical services.*

1. Introduction

Co-production can be defined as constructive customer participation in service creation and delivery process (Auh et al., 2007). It is also one of the emerging trends in service marketing (Joosten & Hillebrand, 2016) and crucial to recognise customer as co-produce (Landry et al., 2012). This can be seen when customers are increasingly encouraged to actively participate in producing goods and services, and such occurrence is because consumption activities are not separate from production activities. Both activities are inter-

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connected (Vargo & Lusch, 2004). Furthermore, when researchers like Bitner et al. (1997) identified that customers are "partial employees" of service providers, this encompassed the cooperation between consumers and production partners (organisations). In today's service setting, customers serve themselves via ATM and self-checkouts in retail stores, and also cooperate with healthcare providers. These show that customers are now actively participating in service delivery. Research identified that through customer co-production, it can improve company productivity (Lovelock & Young, 1997), maximise profits (Chen et al., 2011), enhance customer loyalty (Auh et al.., 2007), and increase competitiveness (Prahalad & Ramaswamy, 2000).

Although customer co-production has long been recognised in service marketing literatures, there are only a few empirical studies that examined the antecedents of co-production, especially in medical service. Co-production can be applied in this perspective because it is directly linked to customisation (Etgar, 2008). Medical service is one of the services that requires high contact, where personal interaction is needed between patients and doctors. Patients need to give their direct input to the doctors so that they can customize their offers according to the patients' needs. Therefore, the present study aims to identify the antecedents that are likely to increase the level of co-production in the medical services context, especially among medical doctors and their patients in Malaysia. 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 organisation. A closer relationship between customers and organisation can enhance competitive advantage and enable more profitable relationships.

2. Theoretical Background and Hypotheses

According to Hu and McLoughlin (2012), co-production consists of directly and indirectly co-working with customers. It can also be a situation where customers participate in the design of the products or services (Auh et al., 2007), or facilitate the organisation during service delivery (Fledderus et al., 2013). These situations show that customers are in an active role in participating in service delivery. Therefore, organisations must understand its facilitating factor to enable a better outcome, especially satisfaction.

In the study carried out by Auh et al. (2007), there are four customer factors that bring about the effectiveness of co-production: commitment, communication, interaction justice, and expertise. To ensure that co-production is successful, customers must be willing to get involved. In the medical services context, customers must be motivated to communicate with the doctor, especially in relation to customer problems. In addition, customers also need to ask and provide relevant questions to the doctors. Such communication and patient expertise can improve service outcomes. Furthermore, if the customer likes the organisation and perceives the interaction process as consistent and fair, it helps the organisation (Lengnick-Hall et al., 2000). Such situation will be measured by interaction justice and affective commitment. In previous studies, similar factors were identified, it was tested from the financial services perspective (Auh et al., 2007). This study will be tested on the medical services in Malaysia.

2.1 Affective Commitment

As defined by Auh et al. (2007), affective commitment is where customers are attached to and identify and involved with the organisations. It involves emotional attachment and psychological bond between the customer and the organisation (Gruen et al., 2000). Affective commitment is derived from the customers themselves, as they believe it is worth maintaining the relationship with the organisation and vice versa (Chen et al., 2011). Furthermore, the more time and effort the customers spend being involved in the relationship with the organisation, they will be more involved in building a strong emotional bond with the organisation (Guo et al., 2016). Through affective commitment, the success of the cooperative behaviour is established. Customers are more willing to be involved in co-production due to the liking and emotional attachment in the partnership. Therefore, affective commitment is more likely to be associated with co-production.

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

2.2 Communication

Communication is the human activity that links people together to create relationships (Duncan & Moriarty, 1998) by the sharing of meaningful information and timely information between customers and organisations (Sharma & Patterson, 1999). In the context of our study, patient and doctor communication is very important. Patients need to communicate with their doctors about their illnesses so that the doctors can identify their problems and prescribe the proper medication, as well as sound advice. Such information-sharing between patient and doctor can build relationships (Wu & Lin, 2013) and trust by resolving patients' illnesses and concerns (Sharma & Patterson, 2000). According to Fledderus et al. (2013), co-production is related to identification-based trust. Therefore, the willingness to communicate between patient and doctor can increase the tendency of co-production.

H2: Patient and doctor communication relates positively to co-production.

2.3 Interactional Justice

Interactional justice is primarily rooted in Social Exchange Theory (Blau, 1964). In Social Exchange Theory, it is assumed that relationships between patients and doctors are seen as exchanges in which the patient and the doctor reciprocates a positive personal outcome (e.g. fairness). From this perspective, interactional justice refers to the extent to which customers are treated fairly in their interaction with the service provider/service encounter (Matterson et al., 2000; Voorhees & Brady, 2005). Interactional justice is concerned with the extent to which service providers treat their customers with friendliness, objectivity, honesty, politeness, and genuine interest. It is also suggested that interactional justice is able to make significant and independent contribution to customer satisfaction, repurchase intention (Bowen et al., 1999), and co-production (Auh et al., 2007). Therefore, interactional justice will enhance the level of co-production.

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

2.4 Patient Expertise

According to Sharma et al. (2000), expertise in customer perspective is where customers have the 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 have become more sophisticated and their knowledge is increasing (Khodakarami & Chan, 2014). As customer expertise increases, their ability to make effective contribution to co-production will also increase (Morthy et al., 1997). Moreover, Lusch et al. (2007) similarly agree that customer expertise significantly contributes to co-production and Auh et al. (2007) also found 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.

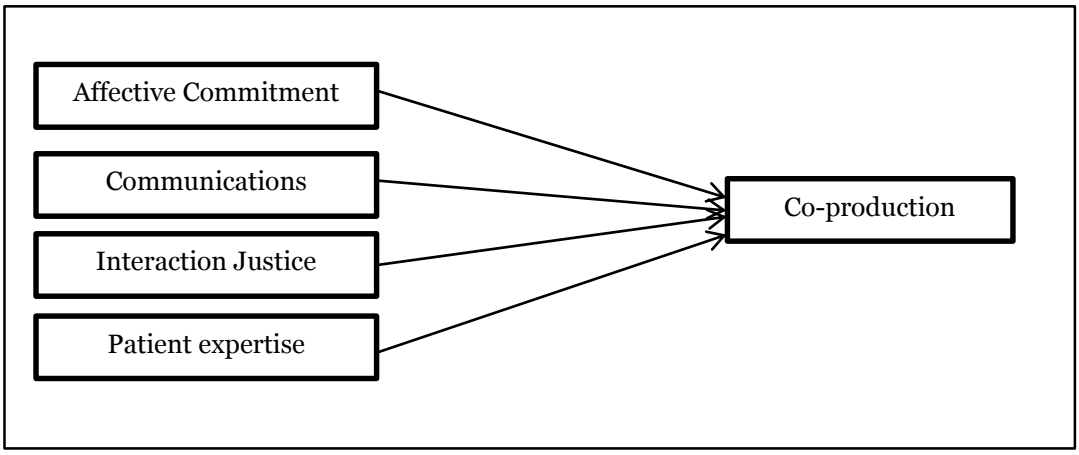

Figure 1: Conceptual model.

3. Methods

The target population for this study involved patients visiting their panel doctors. Survey questionnaires were distributed among the students through convenience sampling. The respondents were undergraduate students of a public university in Malaysia. A total of 249 questionnaires were collected, but only 226 were fully-completed questionnaires. The data was 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 statements on a 5-point Likert Scale. The five points in the Likert Scale ranging from Strongly Disagree (1), Disagree (2), Neither (3), Agree (4) to Strongly Agree (5) were set on each statement in the questionnaire. The collected data was analysed using the Partial Least Squares (PLS) approach and was conducted using the Smart PLS M2 Version 2.0. PLS was 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 minimising error variance (Cil-Garcia,

2008; Chin, 1998). In addition, it has advantage for a small sample size (Chin, 2010).

4. Results

We started 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 Hairet al. (2010), we used factor loadings, composite reliability, and average variance extracted to assess the convergent validity of the measurement model. To assess the measurement model, it is important to demonstrate satisfactory level of reliability and validity (Fornell & Larcker, 1981).

The scale validation is conducted in two phases: convergent validity and discriminant validity analysis. The convergent validity of the scale items was assessed with three criteria suggested by Fornell and Larcker (1981). First, all items' factor loading should be significantly greater than 0.5 (Hair et al., 2010). Second, the composite reliabilities for each construct should exceed 0.7 (Hair et al., 2010). Lastly, the average variance extracted (AVE) from each construct should exceed 0.5 (Hair et al., 2010). As shown in Table 1, all items had loadings greater than 0.5, except for factor COP 3. As a result, factor COP 3 was dropped from the subsequent analysis. As for the composite reliability, all factors exceeded the required minimal of 0.7. Under the average variance extracted, Table 1 shows that each construct exceeded 0.5, and as a result, all three convergent validities were met.

Discriminant validity was tested using the criterion suggested by Fornell and Larcker (1981). 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 the 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 correlation between a construct and other constructs. Therefore, the discriminant validity criterion was also met.

Table 1: Measurement model.

Construct	Items	Loading	AVE	CR
Affective Commitment	AC1	0.778	0.556	0.831
	AC2	0.807		
	AC3	0.572		
	AC4	0.799		
Communication	COM1	0.814	0.595	0.814
	COM2	0.822		
	COM3	0.828		
	COM4	0.727		
Co-Production	COP1	0.846	0.638	0.876
	COP2	0.78		
	COP4	0.679		
Interactional Justice	IJU1	0.731	0.64	0.876
	IJU2	0.751		
	IJU3	0.852		
	IJU4	0.858		

Table 1 (*continued*).

Construct	Items	Loading	AVE	CR
Patient Expertise	ME1	0.501	0.513	0.803
	ME2	0.71		
	ME3	0.844		
	ME4	0.764		

Table 2: Discriminant validity.

Constructs	Affective	Co-Production	Communication	Justice	Patient Expertise
Affective	0.745				
Co-Production	0.181	0.771			
Communication	0.302	0.492	0.799		
Justice	0.431	0.348	0.46	0.8	
Patient Expertise	0.37	0.299	0.299	0.269	0.716

After confirming good psychometric properties in the measurement model, the structural model was then examined to assess their explanatory power and the significance of the paths. The R^2 values ranged from 0.157 to 0.283, which were within the ranges typically reported in structural model researches (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 was not supported (β=-0.063, p>0.05). Thus, affective commitment is not significantly positively related to co-production. Furthermore, the link between communication and 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 was 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	0.06	6.544**	Supported
H3	Interactional Justice -> Co-Production	0.151	0.079	1.914*	Supported
H4	Patient Expertise -> Co-Production	0.164	0.065	2.510**	Supported

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

5. Discussion, Implications, and Conclusion

The main predictors that had a significant effect towards co-production were communication, interactional justice, and patient expertise. On the contrary, affective was found to have no impact on co-production.

Communication had a significant effect towards co-production. This indicates that the customer's role in communicating with the healthcare provider can lead to a more effective co-production.

The study found that communication, interactional justice, and patient expertise have significant positive effects towards co-production. This implies that patient and doctor communication can lead to an effective understanding of each other's roles during the co-production process and its outcomes. Both medical service providers and customers need to communicate the relevant information to enable the medical service providers to give their best treatment and advice, while at the same time allow customers to obtain the best solution to recover from their illnesses. Patient expertise has greater contribution to service delivery. The positive significance towards interactional justice indicates that customers must sufficiently feel that they are treated fairly, thus encouraging them to play their role in co-production. Such behaviour enables medical service providers to deliver the best customised solution and consequently increase patient satisfaction. When patients are satisfied, they tend to be loyal to the medical service providers. However, affective commitment does not have any effect towards co-production. Such result could be due to the culture where customers think that seeking a medical service provider does not require emotional and bonding attachment. Furthermore, this finding reflects the 'historically strong paternalistic model' of patients and doctors (Gafni et al., 1998) and is consistent with the findings of Auh et al. (2007).

From a healthcare provider's perspective, they should find ways to improve patient communication, interactional justice, and patient expertise. They should find the best and simplest way to communicate with their patients and avoid using medical jargons that are difficult for the patients to understand. Healthcare providers also have to show friendliness, objectivity, honesty, politeness, and genuine interest to their patients. Such behaviours encourage patients to be more open towards healthcare providers. They should 'feed' their customers with sufficient knowledge from time to time. For example, healthcare providers can put up useful fliers on diseases for patients to browse through while waiting for their turn to meet the doctors. Medical service providers can also organise events on specific medical topics in order to educate their patients.

The findings of this study should be considered for its limitations. First, the present study relied on a sample of students in one public university. Therefore, the results of this research cannot be generalised to other samples. Secondly, this study only focused on panel doctors. Future research should consider similar services, but in the medical specialist and medical doctor services context. Medical service is considered a high-involvement service sector, but it is also suggested to carry out similar research in low-involvement service sectors. Lastly, other antecedents, as well as the outcome of co-production can be included to produce a more unified conceptualisation in the future.

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