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UNDERSTANDING CUSTOMER CO-CREATION ACTIVITIES IN HIGHER EDUCATION: GROUPINGS, CHARACTERISTICS AND IMPLICATIONS

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ABSTRACT

Co-creation activities describe customers' involvement or participation in creating value through interaction with a provider. Enhanced customer co-creation can increase customer value. This study aims to determine groupings of customers based on their co-creation activities and to identify characteristics of the groups. Defining the groups should help in identifying ways of enhancing customer co-creation activities. This study uses higher education services as the study context. It involves students in master's degree programs at 18 universities in Indonesia. The sample selection was performed by two-stage sampling, in which the sample was 255 students from 9 private universities and 253 students from 9 public universities. The statistical methods used in this study were factor analysis and cluster analysis. Based on the results, five factors determine students' co-creation activities: information finding, responsible behavior, feedback, helping, and tolerance. Another finding revealed three student groups based on their co-creation activities: higher-level co-creator, irregular co-creator, and lower-level co-creator.

Keywords: Customer co-creation; Participation; Customer citizenship behavior; Higher education marketing; S-D Logic; Segmentation; Indonesia.

1. INTRODUCTION

Historically, value has been classified in two ways. First, value is a "goodness" determined by an individual in a personal, cultural, and even an ethical sense. Value is a "goodness" whether it be a person, an idea, a product, an activity, or anything else physically external to the person (Ng & Smith, 2012). Secondly, value is the consumer benefit created by a company and distributed via

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markets, usually through the exchange of goods and money (Vargo, Maglio, & Akaka, 2008). Recently, the marketing contribution perspective of value, in which the contribution of marketing creates utility and value added, has shifted to a customer orientation, a way of delivering value, a union of stakeholders, and value co-creation (Lusch & Webster, 2011).

In its role in delivering value, co-creation has received attention from scholars (Prahalad & Ramaswamy 2004; Centeno & Wang 2017; Jouny-Rivier, Reynoso, Edvarsson 2017). We define co-creation as the creation of value shared by companies and customers that enables customers to construct experiences, define problems, and solve problems together. This creates an environment of experience where customers engage actively in dialog (Prahalad & Ramaswamy, 2004). Furthermore, co-creation is a growing and dynamic concept in the marketing literature. Co-creations are often conceptualized in two ways: one focuses on the company while the other focuses on the customer (McColl-Kennedy, Vargo, Dagger, Sweeney, & Kasteren, 2012). From the perspective of the firm, co-creation is part of a company's activities in managing customer involvement in value creation. In this sense, customers are seen as outsiders in the creation of value. Other scholars have examined co-creation from a public value perspective (Bryson, Sancinob, Beningtonc, & Sørensend 2017), human brand identities (Centeno & Wang, 2017), and the business customer (Jouny-Rivier et al., 2017).

Research on co-creation has developed from many perspectives. However, studies that elaborate co-creation activities from the viewpoint of higher education segmentation are limited. The literature gives more attention in describing the concept, antecedents, and consequence of co-creation (Centeno & Wang, 2017; Füller, J. & Bilgram, 2017; Yi & Gong, 2013). By using co-creation activities as the basis of segmentation, this study makes an important contribution by describing a co-creator group of customers. Also, within segmentation literature, this study expands a new basis for segmentation in the higher education services context. Segmenting students into groups helps to customize university offering and assists in understanding variations among students in performing co-creation activities. Such variations are reflected in the groupings of students, characteristics of each group, and strategies that are used to enhance and develop student co-creation activities in each group.

This study bridges a gap in the literature, showing how co-creation activities can be used for segmenting higher education customers. Higher education services are used as the context of this study. In particular, our research objectives seek to understand which factors underline student co-creation activities; to group the students based on their co-creation activities; to identify the characteristics of each the groups; and to identify marketing implications for higher education marketer based on group characteristics.

2. LITERATURE REVIEW

2.1. Customer Value Co-Creation

Customer value co-creation developed as part of Service-Dominant (S-D) Logic (Vargo & Lusch, 2008). The core of S-D Logic includes 11 premises that guide marketing thinking and practices (Vargo & Lusch, 2016). S-D Logic has now developed into a systematic and broad social-ecosystem perspective (e.g., Hartmann, Wieland, & Vargo, 2018). Co-creation is shared value creation

by companies and customers. This enables customers to construct experiences; define and solve common problems; create an environment of experience where customers can actively engage in dialog; and emphasize experience variations (Prahalad & Ramaswamy, 2004). Furthermore, co-creation is a growing and dynamic concept. In the marketing literature, co-creation is conceptualized in two ways: a company-focused perspective and a customer-focused perspective (McColl-Kennedy et al., 2012).

Some researchers conceptualize customer value co-creation as typological in order to show the varieties and activities involved with co-creation (O'Hern & Rindfleisch, 2008; Yi & Gong, 2013). Co-creation activities typology can be traced from Yi and Gong (2013). They describe the behavior of co-creation in two dimensions: participation and extra-role behavior. Participation consists of information finding, information sharing, responsible behavior, and personal interactions. Extra-role behavior is comprised of feedback, advocacy, helping, and tolerance. In new product development, the co-creation types can be grouped on the basis of the contribution and selection activities (O'Hern & Rindfleisch 2008). Contribution activities use opportunities to contribute to value creation, whether customers are empowered or controlled; the selection activity, however, is carried out by a company or a customer. Activity types from this co-creation involve submitting, tinkering, co-designing, and collaborating.

Another typology is co-creation associated with co-production. Here there is a matrix of co-production and co-creation determined by the kind of engagement or dialog and the creation of key values (Chathoth, Altinay, Harrington, Okumus, & Chan, 2013). Involvement or dialog can be sporadic or continuous, and the creation of key value can be on a production process as well as on consumption or use. This typology results in four approaches: co-production, firm-driven service innovation, customer-driven customization, and co-creation. In another study, co-creation in medical services was classified by the level of activity (high vs. low) and the amount of interaction with other individuals (high vs. low) (McColl-Kennedy et al., 2012). This resulted in five typologies of activities: adapting pragmatically, team management, insular controlling, passive compliance, and partnering. In these five activity types, co-creation activities can be grouped into eight activities (8Cs). These include cooperating, collating information, combining complementary therapies, co-learning, changing ways of doing things, connecting, co-producing, and cerebral activities.

2.2. University Segmentation

In the marketing literature, the study of higher education students as customers has received attention from some scholars. For instance, a study of students related to satisfaction found that introducing students to the social and academic life of a campus (as well as developing a relationship between the instructors and freshman class community) increases student satisfaction (Schee, 2011). Additional studies also confirm other factors as antecedents of student satisfaction. These include: school placements and atmosphere among students (Gruber, Voss, & Gläser-Zikuda, 2010); student housing facilities (Najib, Aini Yusof, & Zainul Abidin, 2011); faculty, advisory staff, and classes (Hameed & Amjad, 2011); communication and access (Douglas, McClelland, & Davies, 2008); and quality of teaching and non-teaching services (Petruzzellis, D'Uggento, & Romanazzi, 2006).

The topic of students as customers has also been studied from a segmentation perspective. This involves segmenting students by characteristics and seeing how to serve their needs and wants. Specifically, researchers have identified three student groups, which are based on the benefits sought in higher education: the learning resource quality seeker group; the learning environment seeker group; and the lecturing seeker group (Sutarso & Suminar 2010). Students can also be categorized into three groups based on major factors that students emphasize when selecting a school or department. These include "career-oriented" students, "emotion-oriented" students, and "environment-oriented" students (Chen & Hsiao 2009). In addition, students can be further classified into two clusters based on student food shopping behavior (Ness, Gorton, & Kuznesof, 2002). Cluster one is typical of students who are relatively less responsible for their funding and are less cash constrained; cluster two is typical of a majority of students who are relatively more cash constrained and more responsible for their own funding.

3. RESEARCH METHOD

This section describes the research methods used in the study, including measurement, data, population, and samples.

3.1. Measurement

To measure the co-creation activities as the basis of segmentation, this study used the measurements adopted from Yi & Gong (2013) with 19 question items. The study used seven-point Likert scales (1 = strongly disagree and 7 = strongly agree) to measure the construct. There was a pretest of the questionnaire on 30 respondents from MBA students to get feedback about the questionnaire. After obtaining pretest data, statistical tests were used to estimate the validity and reliability. From this pretest, the question quality was determined, so it could be revised if needed.

3.2. Data Collection

The data were collected from survey responses in an independent questionnaire. The questionnaire was designed to determine the relative agreement of factors representing co-creation activities. The questions, which represented co-creation activities, were developed by reviewing relevant literature and conducting a preliminary interview. The items were adopted from Yi and Gong (2013). Then a pretest of the questionnaire was performed in order to examine and modify the questionnaire for wording, comprehensiveness, and ease of use. The measurement of individual items was based on a Likert scale, which expressed the students' attitudinal evaluations of the items with seven answer categories from 1 to 7. This ranged from "strongly disagree" (1) to "strongly agree" (7). A higher score indicated a higher level of student co-creation activities.

3.3. Population and Sample

The study population consists of graduate students in master of management (Master of Business Administration or MBA) programs who obtained an A level accreditation from the National Accreditation Board for Higher Education, Indonesia. Eighteen universities from 10 cities in Indonesia participated in the study. The analysis unit, which can be either an individual or group, is one

individual or student. The sampling technique used a two-stage sampling. The first stage of sampling is at the study program level using probability sampling. The second stage is at the respondent or individual level using judgment sampling. Eligible students are those who have the following criteria: students who have active status or no leave; are in the second semester of their studies; and are willing to fill out the questionnaire voluntarily. The researchers distributed 890 questionnaires, and 590 questionnaires were returned. Of those, 508 questionnaires were usable. The sample description of the study is illustrated in Table 1.

Based on the table, the respondents of this study are dispersed equally between males (50.4%) and females (49.6%). In addition, more than half are in the third semester (51.6%), and majority are under the age of 30 years (59.4%). In terms of occupation, most are professionals (44.7%) and pay all or most of the costs themselves (47.2%).

Table 1: Description of Respondents

Aspect	Classification	Public University		Private University		All University	
		Number	%	Number	%	Number	%
Gender	Male	141	55.3	115	45.5	256	50.4
	Female	114	44.7	138	54.5	252	49.6
Semester	2	44	17.3	123	48.6	167	32.9
	3	166	65.1	96	37.9	262	51.6
	4	36	14.1	33	13.0	69	13.6
	5	5	2	1	0.4	6	1.2
	≥6	4	1.6	0	0	4	0.8
Age	<30 year	150	58.8	152	60.1	302	59.4
	30–40 year	50	19.6	65	25.7	115	22.6
	41–50 year	18	7.1	14	5.5	32	6.3
	>50 year	3	1.2	1	0.4	4	0.8
	Abstain	34	13.3	21	8.3	56	10.8
Occupation	Not working	50	19.6	77	30.4	127	25.0
	Entrepreneur	34	13.3	35	13.8	69	13.6
	Professional	133	52.2	94	37.2	227	44.7
	Service Servant	29	11.4	45	17.8	74	14.6
	Abstain	9	3.5	2	0.8	11	2.2
Percentage of tuition fee paid by students.	0–25%	72	28.2	112	44.3	184	36.2
	26–75%	33	12.9	37	14.6	70	13.8
	76–100%	137	53.7	103	40.7	240	47.2
	Abstain	13	5.1	1	0.4	14	2.8
Total		255	100	253	100	508	100

4. RESULTS AND DISCUSSION

4.1. Factor Analysis

Factor analysis is the method of simplifying complex and interrelated observation variables into common factors or a horizontal grouping of data obtained in a study. This analysis method is used in a study because the method identifies the underlying dimensions of a domain of functioning, as assessed by a particular measuring instrument (Floyd & Widaman, 1995). The stages of data processing of factor analysis in this study are as follows: preparing a raw data matrix; preparing a correlation matrix; extracting factors; weighting the factors; and rotation. The method of extraction was used as the principal component analysis, and the rotation method was employed varimax. A feasibility check was performed on the data before conducting the factor analysis. On the adequacy of inter-correlation between the data or testing the existence of correlations between items, the study found a more than 60% correlation between items through Pearson correlation. This indicates that there are significant correlations between the items. Testing with a Bartlett test of sphericity shows that factor analysis could be successfully performed (approximately chi-square = 589.355, p = 0.000). Meanwhile, the measure of sampling adequacy (MSA) demonstrates a value more than 0.5, showing that it has met the cut-off value (Hair, Black, Babin, & Anderson, et al. 2010). Thus, it can be concluded that the data meets the requirements, so the factor analysis can be carried out.

The factor analysis on co-creation activities variables produced five factors as reflected in Table 2. Based on the items in the factors, the following factor names are identified: feedback (three items), helping (three items), tolerance (three items), responsible behavior (five items), and information finding (five items). The analysis showed that the factors with the total variance explained 71%, and that factor loading on each factor ranged from 0.549 (*I look for information about the course materials from various sources*) to 0.908 (*I help other students who have problems in understanding course material*).

Table 2: Student Co-creation Activities Factors

Factors	Items	Loading Factor
Feedback	If I have an idea about the material taught, I let the lecturer know.	0.835
	When the lecturer gives an explanation that appeals to me, I am willing to offer comments.	0.734
	When I have a problem receiving an explanation in class, I inform the lecturer.	0.785
Helping	I assist other students who have difficulty completing coursework.	0.863
	I help other students who have problems in understanding course material.	0.908
	I teach other students how to understand the course material.	0.832
Tolerance	If the time of a rescheduled class is not convenient, I would be willing to accept this.	0.784
	If a lecturer takes inappropriate actions, I would be willing to be patient.	0.804
	If a lecture was postponed, I willingly adapted.	0.833
Responsible Behavior	I completed all coursework given by the lecturer.	0.691
	I completed a minimum number of classes for attendance.	0.588
	I followed the lecturer's coursework direction.	0.699
	When the lecturer explains things, I listen carefully.	0.746
	When I meet a lecturer, I greet him or her.	0.747

Factors	Items	Loading Factor
Information Finding	If there is information about coursework that I do not understand, I ask the lecturer.	0.596
	I look for information about the course materials from various sources.	0.549
	In conversations about class scheduling, I inform the lecturer about my available times.	0.606
	I inform the lecturer about my assignment.	0.799
	I inform the lecturer about my difficulty in understanding a course in order to assist the lecturer in teaching.	0.712

4.2. Cluster Analysis

Cluster analysis was used to classify subjects based on the number of variables so as to establish groups. Therefore, the objects united in one group would be as similar as possible and the differences between groups would be as far as possible (Hair et al., 2010). The cluster analysis procedure consists of five steps: preparation of the raw data matrix; the design of research in the cluster analysis; a hierarchical calculation procedure; the calculation of K-means cluster; and the formation of cluster profiles. Estimation was done by a hierarchical procedure to find out how many clusters needed to be created. A K-mean cluster technique specified the number of clusters in which clusters were selected. The results of the cluster analysis using SPSS 16 software performed by K-means cluster—showed by the cluster center (cc)—are described in Table 3 and Figure 1.

Table 3. Cluster Center of Co-creation Groups

Factors	Groups (Percentage)		
	Higher Co-creator (53%)	**Irregular Co-creator (29%)**	**Lower Co-creator (19%)**
Feedback	0.322	−0.151	−0.677
Helping	0.575	−0.849	−0.328
Tolerance	0.145	0.332	−0.915
Information Finding	0.268	0.360	−1.306
Responsible Behavior	0.639	−0.979	−0.308

Figure 1: Characteristics of Co-creation Groups

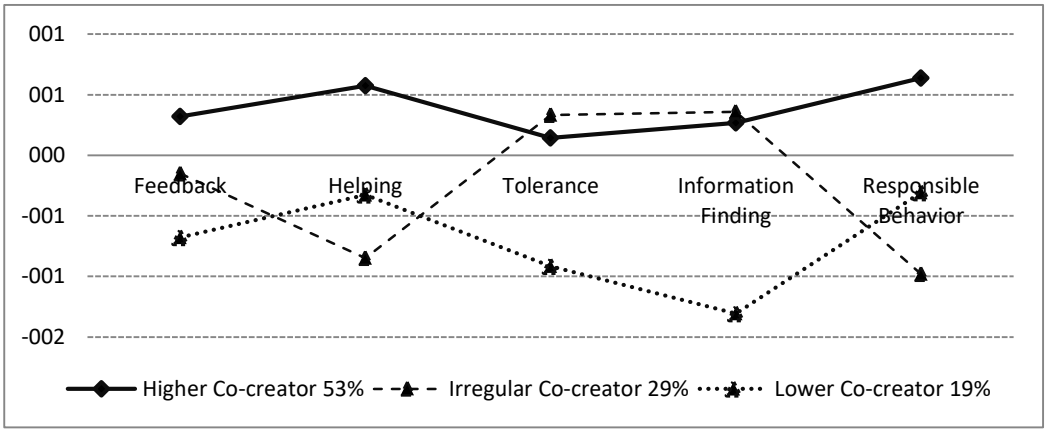

Figure 1 describes the characteristics of co-creation activities group indicated by the score of the cluster center (cc). A higher score shows a higher level of particular characteristics of the group. This study found three student groups based on co-creation activities (Figure 1). The first group is illustrated by a solid line, the second group is showed by a dashed line, and the third group is described by a dotted line.

Based on their characteristics, the first group, called *higher co-creator*, has the highest cluster center on feedback (0.322), helping (0.575) and responsible behavior (0.639). The group has a moderate cluster center on tolerance (0.145) and on information finding (0.268). The second group, called *irregular co-creator*, has the highest cluster center on tolerance (0.332) and information finding (0.360); in contrast, it has a moderate cluster center on feedback (−0.151) and the lowest cluster center on helping (−0.849) and responsible behavior (−0.979). The last group, called *lower co-creator*, has the lowest cluster center on feedback (−0.677), tolerance (−0.915), and information finding (−1.306) and a moderate cluster center on helping (−0.328) and responsible behavior (−0.308). Thus, the higher group has the three highest and no lowest cluster centers; in contrast, the lower group has no highest and three lowest cluster centers.

The demographic profile of student groups can be described as shown in Table 4. The table illustrates the important findings describing the proportion of demographic aspects in the groups. The proportion of *higher co-creation group* is dominated by students from private universities (56.7%), who are male (52.6%), are in Semester 3 (54.1%), are of age <30 years (53%), work as professionals (43.7%), and pay most (76–100%) of their tuition fees themselves (53%). Next, the proportion in the *irregular co-creation group* is dominated by students from public universities (60.7%), who are female (58.6%), are in Semester 3 (51.7%), are of age <30 years (66.9%), work as professionals (41.4%), and fewer than half pay most (76–100%) of their tuition fees themselves (37.2%). Finally, the proportion in *lower co-creation group* is dominated by student from public universities (51.6%), who are male (57.9%), in Semester 3 (45.3%), are of age <30 years (66.3%), work as professionals (52.6%), and just under half pay most (76–100%) of their tuition fees (46.32%). Thus, the higher proportions of group differences are in university type, gender, and semester. The

percentage of higher co-creators in private universities is considerably higher than in public universities; however, the percentage of irregular co-creators is slightly lower in private universities.

Table 4: Demographic Characteristic of Groups

Aspect	Classification	Group					
		Higher Co-creator		Irregular Co-creator		Lower Co-creator	
		Number	%	Number	%	Number	%
University type	Private	152	56.7	57	39.3	46	48.4
	Public	116	43.3	88	60.7	49	51.6
Gender	Male	141	52.6	60	41.4	55	57.9
	Female	127	47.4	85	58.6	40	42.1
Semester	2	72	26.9	52	35.9	43	45.3
	3	145	54.1	75	51.7	42	44.2
	4	44	16.4	16	11.0	9	9.5
	≥5	7	2.6	2	1.4	1	1.1
Age	<30 year	141	53.0	97	66.9	63	66.3
	30–40 year	68	25.4	28	19.3	19	20.0
	41–50 year	24	9.0	3	2.1	5	5.3
	>50 year	3	1.1	1	1	0	0
	Abstain	31	11.6	16	11.0	8	8.4
Occupation	Not yet working	62	23.1	47	32.4	18	18.9
	Entrepreneur	35	13.1	21	14.5	13	13.7
	Professional	117	43.7	60	41.4	50	52.6
	Service Servant	46	17.2	15	10.3	13	13.7
	Abstain	8	2.0	2	2	1	1.1
Percentage of tuition fees paid by students	0–25%	80	29.9	71	49.0	33	34.7
	26–75%	36	13.4	18	12.4	16	16.8
	76–100%	142	53.0	54	37.2	44	46.3
	Abstain	10	3.7	2	1.4	2	2.1
Total		268	100	145	100	95	100

By discriminant analysis, the study found that the variable of university type ($F = 5.875$; $p = 0.003$), gender ($F = 3.722$; $p = 0.025$), semester ($F = 6.470$; $p = 0.002$), occupation ($F = 3.105$; $p = 0.046$), and percentage of tuition fees paid by students ($F = 5.585$; $p = 0.004$) were different among the groups.

4.3. Discussion

Based on statistical analysis, there are three important discussion issues. The first priority is to determine the factors that represent students' co-creation activities. These factors shape the co-creation activities and are the basis for grouping students. The second priority is to determine what student groups can be formed based on their co-creation activities and to describe their character-

istics. Each group represents a unique grouping of students based on their co-creation activity factors. The final task is to identify marketing implications in order to serve students based on their groups.

By factor analysis, this study found five factors representing student co-creation activities: feedback, helping, tolerance, responsible behavior, and information finding. *Feedback* is the factor indicating the degree to which a student gives feedback in the learning process, such as telling a lecturer when they have an idea from learning activities, responding when a lecturer gives an appealing explanation, and informing a lecturer when they have a problem in receiving an explanation in class. *Helping* is the factor that refers to the degree to which a student helps others in the learning process, such as helping other students who have difficulty in completing coursework, helping other students who have problems in understanding course material, and teaching other students how to understand the course material.

Tolerance is the factor signifying the degree to which a student's behavior is tolerant in the learning process, such as trying to understand when the class is rescheduled by a lecturer, being patient when a lecturer takes inappropriate actions, and adjusting when a lecturer postpones a class. *Responsible behavior* is the factor signifying the degree to which a student takes responsibility in their learning and personal interactions, such as completing all coursework given by the lecturer, meeting a minimum level of class attendance, following the directions of a lecturer in how to perform in class, listening carefully when a lecturer explains lessons, and saying a greeting when meeting a lecturer. Finally, *information finding* is the factor manifesting the degree to which a student seeks and shares information. It is composed of activities such as asking a lecturer to provide information about coursework (citing a lack of knowledge), looking for information about course materials, getting the time about replacement class scheduling, informing a lecturer about their assignments, and communicating difficulty in understanding a course. The factors confirm some of the typology co-creation activities developed by Yi & Gong (2013). The typology comprises two dimensions: customer participation behavior (information seeking, information sharing, responsible behavior, and personal interaction) and customer citizenship behavior (feedback, advocacy, helping, and tolerance).

There are three groups based on these co-creation activities factors: the higher-level co-creator group, irregular co-creator, and lower-level co-creator group. The finding adds to the previous finding of student segmentation in higher education. These groupings include, for instance, three groups of students based on the benefits sought in higher education (Sutarso & Suminar 2010); three groups of student orientation in selecting a university (Chen & Hsiao 2009); and two clusters based on student food shopping behavior (Ness, Gorton, & Kuznesof 2002). The three groups based on co-creation activities in this study are more similar with the finding of segmentation based on food shopping behavior, in which two of the studies are based on leveling and hierarchical differences.

The higher-level co-creator group is characterized by the highest degree of feedback, helping, and responsible behavior. This group is actively involved in giving feedback, such as easily speaking up to a lecturer when having an idea, frequently responding to lecturer explanations, and straightforwardly informing a lecturer when they have problems in learning. Moreover, this group is happy to help others in the learning process. This includes helping others in completing coursework, solving problems in understanding course material, and teaching other students how to learn the course

material. Not only through giving feedback and through helping, this group also shows the highest plane of activities as a mark of responsibility to their obligation as students. For example, their activities include completing all coursework, meeting a minimum class attendance, following lecturer guidance, listening carefully in class, and saying a greeting when meeting a lecturer. In terms of demographic characteristics, they come from private universities, are male, are in the third semester, are less than 30 years old, and pay for their own tuition. Most of them are professionals. The other trait of this group: moderate in tolerance and finding information. In summary, students in this group are the most active in learning. They are not only actively involved in learning with other students but also with themselves. The higher-level co-creation group is an expected profile of students (customers). This profile is congruent with an active engagement customer as discussed by Asperen, de Rooij, & Dijkmans (2017).

The irregular co-creator group has the highest level of activity on tolerance and finding information even though the group is moderate in giving feedback and has the lowest levels of activity when it comes to helping and having responsible behavior. This group exhibits high understanding when a class is rescheduled by a lecturer, patience when a lecturer takes inappropriate actions, and high adjustability when a lecturer postpones a class. Also, the group is the most active in finding information—for instance, asking the lecturer, looking for information from various sources, informing a lecturer of the time they can attend conversations, informing a lecturer about their assignments, and informing whether they have difficulty in understanding a course. In relation to helping and responsible-behavior activities, this group shows the lowest levels of helping with completing coursework, solving problems in learning, teaching others how to learn the course material, doing all coursework, meeting a minimum attendance, following the directions of lecturers, listening carefully in class, and greeting lecturers. Of the demographic characteristics, more than a half of them come from public universities, are female, in the third semester, aged less than 30 years, pay a little for their own tuition, and are mostly professionals. In conclusion, this group tends to permit, allow, understand, or accept something in the learning process and in actively finding information. Universities need to manage the most tolerant group by managing cultural familiarity and service failure, as discussed in previous research (e.g., Trianasari, Butcher, & Sparks, et al. 2018).

The lower-level co-creator group has unique characteristics distinct from the other groups in terms of co-creation activities. The co-creator group is closer to the definition of a passive engagement customer (Asperen et al., 2017). The most important differences with other student groups are that they have the lowest degree of (or fewer) co-creation activities. This includes giving feedback, being tolerant, and finding information—even though they have a moderate degree of helping and responsible behavior. Students in this group are passive in giving feedback; they are less apt to tell the lecturer their ideas, rarely respond to lecturer explanations, and are less likely to inform a lecturer when having problem in learning. Also, this student group is less happy to help others in the learning process; for instance, they seldom help others complete coursework, rarely solve problems in understanding the course material, and almost never teach other students about the course material. Information is not important for them; hence, they are infrequent in asking lecturers, looking for information, or informing lecturers about their assignments and difficulties. As for demographic characteristics, more than half are from public universities, male, less than 30 years old, and pay for their own tuition. Most are professionals and in the second semester. In short, this student group is the most passive of all student groups in co-creation activities.

There are managerial implications for student groupings, which can be used to maintain the higher-level co-creators, develop the irregular co-creator, and motivate the lower-level co-creators. First, university practitioners need to consider the importance of experiential value and social influence in encouraging co-creation activities (Shamim & Ghazali, 2014). We believe that it is important to consider experiential value as a strategic tool in building value for students, including intrinsic values (customer return on investment and service excellence) and extrinsic values (aesthetic values and playfulness). There are strong determinants in developing co-creation activities, not only for student participation but also for citizenship behavior. Moreover, social influence can be a moderating factor in the causal relationship of experiential value and co-creation behavior. Because value co-creation is a social phenomenon, we argue that compliance, internalization, and identification would be strong moderators in the relationships of experiential value and customer value co-creation behavior.

Secondly, lecturers need to enhance their relationship with students and increase student belonging (Cooper & Miness, 2014). Based on the students' characteristics, instructors need to make personal and academic gestures of care through one-on-one and collective interactions with students. They need to use their time with students to develop a personal understanding and make greater efforts to develop and illustrate such behaviors as a virtue. The optimal relationship also means that care must be taken when students have problems. This means taking the initiative, such as inviting students to co-create a feasible solution (Xu, Marshall, Edvardsson, & Tronvoll, 2014).

Finally, universities need to consistently implement models of higher education that both enlighten and empower students to achieve their potential in the long term. The collective goal for lecturers should be to educate students for a long lifetime and not simply train them for an immediate job opportunity (Judson & Taylor, 2014). For example, it may require a shift in lecturer evaluations from the traditional (and often arbitrary) student evaluation of lecturer "performance" to a more general evaluation of efficacy in enhancing the human capabilities of students.

5. CONCLUSIONS, IMPLICATIONS AND LIMITATIONS

The study confirms five factors that underpin co-creation activities for students enrolled in MBA programs in Indonesia. These factors consist of feedback, helping, tolerance, responsible behavior, and information finding. The first three factors are similar to student extra-role behaviors, and the last two factors are student participation behaviors in value creation (Yi & Gong, 2013). The study found three groupings of students based on their co-creation activities: higher-level, irregular, and lower-level co-creator groups. The higher co-creator group has characteristics of students who are the most active in co-creation activities such as giving feedback, helping, and responsible behavior. The irregular group represents students who are the most active in tolerance and information-finding activities, but they are not the most active at helping and with responsible behavior activities. The last group, lower co-creators, includes students who are the least active in co-creation activities among students. They are different in terms of university affiliation, gender, age, occupation, and the method through which they pay tuition fees.

Co-creation activities are needed in order to enhance value in higher education. Students (as customers) are co-creators of value due to the importance of their interaction. Lecturers (as providers) offer value as actors in a service ecosystem (Vargo & Lusch, 2016). At a brand level, the co-

creation activities are similar to the four-dimensional co-creation behavior concept. They highlight that feedback and helping activities influence brand value (France, Grace, Merrilees, & Miller, 2018). To increase value for students, universities need to formulate strategic actions based on managing student co-creation. Actions are needed to: retain higher level co-creators by developing their tolerance and enhancing their information finding; develop the irregular co-creators by enhancing their behaviors of feedback, helping, and being responsible; and motivate lower co-creators by stimulating their information finding, tolerance, and feedback, as well as encouraging their helping and responsible behaviors. Increased co-creator behaviors could be achieved by considering the importance of experiential value and social influence. Through higher education models that enlighten and empower students, co-creation activities could enhance relationships and increase student feelings of belonging. The research suggests that it is important to build customer trust in order to improve quality of life (Halim, 2017) and affinity (Halim & Zulkarnain, 2017). Our findings suggest that this also applies to students in the university context.

Some limitations of this study suggest areas for further research. First, the judgment method used as a sampling technique limited the generalization of this study to other contexts. Second, this study elaborates on co-creation activities as a factor in grouping students via their relationships with lecturers in master's programs. In this context, student personal relationships with a lecturer are relatively equal because the age difference among them is relatively small and because the students have more rational considerations when choosing a program. Further research should also examine the undergraduate program context. This is needed because undergraduate students often have a relatively lower level of maturity, sometimes choose their programs with less rational consideration, and comprise the majority student demographic at most universities. Third, this study focuses only on service learning as a core service for higher education. Future research should elaborate on different higher education offerings, such as administrative, housing, library, and religious services at the university. Fourth, the findings in this study are drawn from only quantitative study. Future research should use qualitative research methods in order to illustrate additional dimensions. Finally, the student groupings revealed co-creation activities based only on demographics (e.g., age, occupation, or gender). We encourage future researchers to pursue other aspects, such as differences in lifestyle, culture, and nationality.

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