Analyzing important factors in e-commerce for sustainable industry

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Abstract. The rapid growth of e-commerce for sustainable industry in Indonesia leads to competition for customer acquisition. Instead of gaining loyalty, customers are trapped in a price war and take advantage to compare and choose the one with the best offer. This study aims to analyze important factors of an online retailer to determine customer loyalty in the productive age group. This study contributes to design a questionnaire that can be utilized in analyzing customer loyalty to a retailer in e-commerce (popularly known as the term e-tailer). The questionnaire can be distributed through the Internet to gather demography, population, and e-loyalty factors. Questionnaire design is proposed containing three parts: Part A – Demography, Part B – Targeted Population, and Part C - e-Loyalty Factors. While Part A records basic information and Part B validates, Part C records respondent’s assessment to an e-tailer. Therefore, the outcome delivers a data engineering method to help e-tailers determine important factors to gain customer loyalty.

Keywords: Sustainable Industry, Important Factors, e-Commerce, Customer Loyalty

1. Introduction

The growth of electronic commerce (e-commerce) in Indonesia developed competition to one another. Based on the analysis from Yuliani, the strength of e-commerce growth in Indonesia relies on the increasing penetration of the internet, thus helping to create unicorn start-ups. From the point of view of investors, the export level of small-medium enterprises (SMEs) products in Indonesia has a great opportunity for entering the global market [1], [2] and support monitoring from financial data [3]. Developing countries have possibility to achieve social and economic development by participating in e-commerce activities. E-commerce has positive effects on the economically and socially, as people do work online and live in the global virtual market[4][5].Unfortunately, the competition between e-commerce constrained by various problems such as the lack of national cybersecurity and the uncertainty of e-commerce tax and regulation from the Ministry of Finance [6], [7].
Based on Michael Porter’s theory of Forces Driving Industry Competition, competition among existing firms developed by interaction of factors, namely bargaining power between buyer and supplier, also threat of new entrants and substitute products/services [8]. In e-commerce, competition is supported by sufficient funding and knowledge to conduct business, and also the rapid development of digital services with appropriate technology [9], [10]. Among those competitions, customers are faced with special offers and promotions. It leads customers to compare the best offer at an e-commerce website [11] to another without creating loyalty in the first place.

To develop customer loyalty in the middle of e-commerce competition, it must begin with data acquisition of customers' behaviour. This paper delivers a questionnaire design as a method to collect data. The questionnaire addressed at productive age groups who frequently shop using e-commerce in Jakarta. The purpose of the questionnaire is to analyze important factors that develop customer loyalty. The questionnaire is expected to reveal the significant variable that can affect the customers' loyalty.

2. Literature Review

2.1. Electronic Loyalty (E-loyalty)

Gommans, Krishnan, and Scheffold popularized the term ‘E-loyalty’. E-loyalty or online loyalty has an understanding similar to the meaning of loyalty in general, where there is behaviour from consumers to visit the store and make purchases repeatedly. In e-commerce people not only serve for themselves but to the entire world through digital literacy [4]. A stronger affective relationship with the brand can be created based on inherently high buyer's involvement in the product design and after that will lead to brand loyalty. To sharpen bidding and prevent competitive breakthroughs, it can be seen from the customer knowledge base accumulated over several transactions. [12]. On the other hand, Pritchard, Havitz, and Howard stated that loyalty is not limited to repeat buying behaviour but also based on how the consumer mentality determines choices or preferences before deciding to make a purchase [13].

According to Kumar, Shah, and Venkatesan, E-loyalty is divided into two types [14]:

- Attitudinal loyalty: Attitudinal loyalty is defined as consumer loyalty to make repeated purchases of products or services of a company or specific brand [15]. Mass media communication is one thing that can be relied on in an effort to develop conventional brand loyalty substantially. There are differences in the emphasis on the cognitive dimension and the affective dimension in e-loyalty. In the cognitive dimension, it places more emphasis on information supply while in the affective dimension, the focus is on the roles of trust, privacy and security [12].

- Behavioural loyalty: Behavioural loyalty refers to character-based loyalty or traits a person has. Behavioural loyalty is defined as the activity of consumers to purchase products or services repeatedly [16]. This repetitive buying behaviour also tends to change due to situational influences. For example, if a company makes changes to a strategy that is not in line with consumer thinking [17]. Joint purchases and the frequency of purchasing a product or service can be a measurement for behavioural loyalty. Time constraints and information deficits are not the main reasons for evaluating customer satisfaction. However, customers whose purchases are due to a brand over time are more likely to determine customer loyalty. The Internet brings this concept to the forefront where the user is able to gather a vast volume of valuable product / store information within a short amount of time, which is likely to have a huge effect on the purchasing decision. In other words, behavioral loyalty is far more complex and difficult to achieve on digital platforms than in the real world, where customers often have to decide on limited information [12], [18].

2.2. Questionnaire Design

Observing each individual in a large-scale observational study would be impossible. Therefore, a set of questions designed for the research can be used to gather information from the observed population.
A questionnaire can represent the participation of each individual who participated in the research [19],[20]. The respondents’ answers are representing the matter researcher want to investigate. The question needs to be designed so that the researcher can quantify the answer. One technique that can be used is the Likert scale. A Likert scale is a question which has a five-point or seven-point scale of answers [21]. The choices range from strongly agree to strongly disagree. The researcher can get a holistic view of respondents’ opinions.

Likert scale is sort and easy to answer. But some studies found that some respondents are more likely to choose the answer choice when they are presented early and some other more likely to choose the answer choice when they are presented last [22]. This kind of respondents could potentially harm the data quality. To solve this problem, the researcher has to choose the respondent carefully. Other options are to add “don’t know” options (DK) or filter to be included in questions answer. This DK options can be chosen by the respondent if they do not have a proper understanding of the question or when they don't have preferences. This option also minimizes the possibility of the respondent lying when answering the questionnaire.

A traditional question which requires the respondents to answer the question in narrative form can also be applied. In this way, the research could get information that contains unexpected variables [19]. However, this kind of question needs a longer time to answer which may discourage some of the respondents to participate in the study. Alternatively, the researcher can combine Likert scale and traditional questions, to make sure that the questionnaire is sort and can get unexpected information.

On questions regarding socially alluring (or unfortunate) matters, nonetheless, there are reason for expecting such distorting. These discoveries propose that wiping out the interviewer (or if nothing else taking out the interviewer's attention to the respondent's answer) may reduce social desirability response bias. Interviewer blunder can limit by a note that review helps must be successful for material that was encoded in memory. At the point when data is encoded in memory, its recovery is firmly influenced by both the data's striking nature and the slipped by time since the data was encoded. Except if the data is both later and notable, it may not come rapidly to mind.

Survey results might be influenced by the phrasing of a question as well as by the setting wherein the question is posed. Accordingly, decisions about the ordering of items in a questionnaire [23], [24] — molding a questionnaire from a bunch of questions — ought to be guided by a similar point that aides phrasing choices — limiting blunder. Question request has two significant aspects: sequential (area in a grouping of things) and semantic (area in an arrangement of implications). Both may influence estimation by impacting the intellectual cycles set off by questions.

Regardless of how intently a questionnaire follows suggestions dependent on best practices, it is probably going to profit by pretesting: a conventional assessment completed before the fundamental study. This is on the grounds that best practice proposals give little direction about most explicit phrasing decisions or question orderings. Also, specific populaces or measures may present exemptions to the guidelines. Accordingly, questionnaire development, albeit educated by science, stays a specialty, and pretesting (itself a blend of science and art) can give significant help with the cycle [25].

In designing e-loyalty questionnaire, Oliver indicated loyalty structure from recognition to action dependent on the pattern of recognition-effect-effort in 1997. This model incorporates progressive phases of Oliver state customers become loyal to recognition feeling and afterward, their loyalty stretches out to the concept of effect, effort and behavioural manner[26].

3. Research Methodology

3.1. Meaning of Questionnaires and The Importance

The study used a questionnaire distribution method to obtain descriptive data. An appropriate questionnaire design is needed to obtain solid research outcomes. Well-designed questionnaires are well structured such that the same kinds of information can be collected in the same way from a wide range of people, and the responses can be analyzed quantitatively and routinely. Developments have
been made in using surveys in a study. Recent years have seen an increase in survey work in economics, sociology, and political science. An important method of data collection is survey research in public opinion, sociology, and psychology. Generally, several findings point to the importance of the social and behavioural science of survey research [27].

Various question arrangements can keep respondents engaged in filling out the questionnaire with a series of semantic differential scales [28]. It is advisable to combine positive questions with negative, compelling questions with tedious, and beneficial questions with worthless. It could give more attention to the respondents and stop the tendency to tick the same answer for each question. Question filters are useful for securing that respondents simply reply to particular questions. Nevertheless, avoid applying complicated filters, and employing the arrows and boxes to clarify [29].

3.2. Designing A Questionnaire
The subject selection is the first choice made to get the data what we need by comparison to the content of the study. The possibilities also depend on the research status provided by the type of problem to be identified. Another important thing is the selection of variables or items to be measured. For example, if a study is measuring customer satisfaction with the e-commerce used, then the question that should be asked is satisfaction with e-commerce. The variables that can cause a relationship between customer satisfaction with e-commerce are used, for example, product quality, service quality, price, and ease of use of applications [30].

3.3. Manners in Designing Questionnaire Questions:
Table 1 lists Stone’s manners in designing questions for a questionnaire [31]. The manners are listed in order to navigate the questionnaire to be accepted and proper data acquisition activity.

| Manner           | Definition                                                                 |
|------------------|-----------------------------------------------------------------------------|
| Appropriate      | The questionnaire is proficient in presenting answers to the research problems. |
| Intelligible     | Questions must be delivered with an understandable language for respondents   |
| Unambiguous      | Both the respondent and the inquirer have the same interpretation of a question. |
| Unbiased         | Questions must be delivered straight to the point to gain one form of response. |
| Omnicompetent    | Questions must capable to deal with all potential answers. In reality, sometimes answers are already given to respondents to limit answer. |
| Appropriately coded | Apply coded answers to each question to speed up and simplify data computerization. Coded answers are also useful for eliminating the possibility of incorrect inputs and saving resources. |
| Piloted          | A trial of the questionnaire should be conducted before employment to decrease design flaws and to carry out a formal evaluation. |
| Ethical          | A questionnaire should be ethical. Ethical committees did not have any interest in questionnaires that potentially contain unethical contents or procedures. |

4. Result
This study produced a design of a questionnaire that can be utilized in data engineering pipeline for analyzing customer loyalty to a retailer in e-commerce (popularly known as the term e-tailer). The
A questionnaire can be distributed through the Internet to gather demography, population, and e-loyalty factors. Table 2 shows the questionnaire design that captures three parts of customer loyalty when interacting with an electronic tailer (e-tailer). Part A (Demography) covers basic information of an e-commerce customer, namely: sex, age, education level, monthly income, and occupation. Although Indonesia’s Central Statistical Bureau stated productive group is ranged between 15 – 64 years old, this questionnaire targeted the more specific productive age group, which is 18 – 55 years old. Part B (Targeted Population) utilized to validate whether the respondent is included in the targeted population or not by questioning the intensity of the online transaction. Part C (e-Loyalty Factor) shows the final part of the questionnaire design to record e-Loyalty factors. In the last part, important factors of an e-tailer are ranked from 1 to 10. The important factors are varied, namely: item price and rating, e-tailer’s responsiveness and attitude, etc. Part C have more follow-up questions that the other parts, such as a repeat order confirmation from an e-tailer and an open answer question of a specific factor.

Table 2. Questionnaire Design

| Part A: Demography |
|---------------------|
| Gender              |
| Male                |
| Female              |
| Age (in years)      |
| Primary School Graduate |
| Jr. High School Graduate |
| Sr. High School Graduate |
| Bachelor or equal   |
| Magister or equal   |
| Doctor or equal     |
| Education Level     |
| Monthly Income (in IDR) |
| < 2 Million         |
| 2 – 5 Million       |
| 5 – 10 Million      |
| 10 – 15 Million     |
| > 15 Million        |
| Occupation          |
| Student             |
| Civil Servant       |
| Private Employee    |
| Entrepreneur        |
| Homemaker           |

| Part B: Targeted Population |
|-----------------------------|
| Have you ever made online transactions (buying) more than 5 times? |
| Yes                         |
| No                          |

| Part C: e-Loyalty Factor |
|--------------------------|
| Factor                   |
| Item Price               |
| Item Rating              |
| e-tailer rating          |
| e-tailer responsiveness  |

| Factor | Rank | More important | Less important |
|--------|------|----------------|----------------|
| Item Price | 1  | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Item Rating |     |       | | | | | | | | |
| e-tailer rating |   |   | | | | | | | | |
| e-tailer responsiveness | | | | | | | | | | |
| e-tailer attitude |  |
|------------------|---|
| Product variety  |  |
| Shipping cost    |  |
| Delivery time    |  |
| How many items have been sold on the e-tailer | |
| The online platform used by the e-tailer | |
| Have you ever bought from the same e-tailer more than once? (item can be same or different items) | • Yes | • No | • Don’t know/don’t care |
| (If no. 2 = Yes) Beside factors from no.1, is there any other factor that made you make transactions more than once from the same e-tailer? | • E-tailer brand | • The items were only sold by this e-tailer | • The previous transaction was a success, there is no reason to change e-tailer | • The e-tailer is my relative |

5. Conclusion
This research designs a questionnaire to discover customers’ loyalty to e-tailers. The designed questionnaire is suitable to be utilized in exploratory research as it can collect and measure characteristics and important factors of a customer that indicate loyalty to an e-tailer. The questionnaire design consists of three parts: demography, targeted population, and e-loyalty factors. From those parts, the questionnaire outputs a dataset that is capable of conducting accurate targeted marketing.

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