Analysis of Purchasing Decisions as a Form of Consumer Brand Responses

P. Dewi Dirgantari[1], Y. M. Hidayat[1] and B. Widjajanta[1]
[1]Faculty of Economics and Business Education, Universitas Pendidikan Indonesia, Bandung-Indonesia

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Abstract: The purpose of this study is to find out and analyze purchasing decisions that are influenced by the factors forming the marketing mix. This research is motivated by the gap in research results so that it needs to be reexamined these factors and/or dimensions. The method used is a meta-analysis by collecting the results of research published online/online about purchasing decisions that are influenced by the marketing mix factors. The results obtained from this study indicate that purchasing decisions are influenced by acceptable marketing mix factors.

1 INTRODUCTION

Marketing is one of the main sources of competitive advantage in a company (Guercini & Runfola, 2015). As stakeholders of marketing activities, consumer behavior must be well understood (Abdeen, Rajah, & Gaur, 2016). Consumer behavior is the study of how individuals, groups and organizations choose, buy, use, and spend goods, services, ideas, or experiences to satisfy the needs and desires of consumers (Kotler & Keller, 2016: 151). Purchasing behavior gets a lot of attention from marketers and researchers because of the significant role it plays in anticipating operational success and achieving competitive advantage (Panasuraman et al., 1985).

Purchasing decisions is a process where consumers know the problem, find information about a particular product or brand and evaluate how well each of these alternatives in solving the problem which then leads to purchasing decisions and greatly influenced perceived risk (Kotler & Keller, 2015). Lack of information and knowledge of a brand and the features of a product can clearly lead to low purchasing decisions, thereby reducing the number of purchases (Kotler & Keller, 2015).

Thus, to overcome the low purchasing decisions, companies must multiply their product information when consumers carry out information seeking stages (Shareef et al., 2008). At the information seeking stage, consumers will seek offline and online referrals (Chaffey & Smith, 2008). Companies must provide marketing stimuli that can be controlled through products, prices, places/locations and integrated promotions (marketing mix) to produce the desired response in the target market (Kotler & Armstrong, 2008). The marketing mix in turn aims to translate brand expressions into actual products or services, at certain prices, which will be sold at certain outlets, to be promoted through communication activities and certain channels, and must be supported by certain services (Sicco Van Gelder, 2005:1)

Research on purchasing decisions has been carried out to date in various industries such as the fashion industry (Eckman, Damhorst & Kadolp, 1990), the automotive industry (Purwani & Dharmmesta, 2002), organic food industry (Balawera, 2013), industry tourism (Khuong, Thi, & Thanh, 2016), the food and beverage industry (Salleh, Ariff, Zakuan, Sulaiman, & Saman, 2016), the industrial industry (Yulindo, 2011) and the telecommunications industry (Kakar et al., 2017).

The results of the study show that certain products with low purchasing decisions make the level of trust in the company low and cause the level of sales to be very dependent on the purchasing decisions of goods and services produced (Eckman et al., 1990). Dewi Pujiani's (2014) showed that the mix marketing (product, price, place, promotion) influence buying decisions and the most dominant dimension is promotion. Whereas Alizar Hasan, Yumi Meuthia, Berry Yuliandra, and Indah Desfita (2014) showed that for places/locations there was no

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significant relationship to purchasing decisions and the most dominant dimension was price and Amelia Tjahjono's, Prof. Dr. Hatane Semuel, MS. and Ritzky Karina M. R. Brahmana, S.E., M.A. (2013) shows that the marketing mix consisting of products, prices, places and promotions affects the decision to purchase women's clothing online as well as the social and psychological environment which is the variable that has the biggest contribution to purchasing decisions.

Based on the above phenomena, there appears to be a research gap so that the factors and/or dimensions need to be reexamined. Thus, it is necessary to do research related to purchasing decisions. This research is limited to the factors that form the marketing mix such as products, promotions, prices, and places that influence purchasing decisions. The assumption used in this study is the amount of research on similar topics, especially research on purchasing decisions but different results.

The purpose of this paper is to obtain findings regarding: the influence of the marketing mix factors on purchasing decisions with a meta-analysis approach, so that the synthesis results can be obtained as a hypothesis for further testing. The results of this study are expected to be used as input for policy makers related to purchasing decisions.

2 METHODOLOGY

A meta-analysis method used to obtain further information about purchasing decisions that influenced by marketing mix factors from articles/studies. Articles/studies are obtained through databases of online journals such as Science Direct, Springer, Ingenta Connect, Sage, and Research Gate, etc. with the year published between 2008 and 2018. The steps of the meta-analysis in this study are as follows:

1. Formulating research questions. The problem in this study is related to purchasing decisions, especially purchasing decisions and marketing mix formers namely products, promotions, prices, and places by formulating the meaning of these two concepts /defining variables including their relevance.
2. Gathering existing empirical studies/research. After formulating research questions, articles/studies was sought using keywords that are relevant to the topic of purchasing decisions that are influenced by the marketing mix factors. A total of 339 articles were obtained from this step.
3. Selecting studies. Studies that not provide sufficient information to calculate general metrics are excluded from the analysis. Researches with different methods is also excluded, although the topic is relevant to the research question. Through this process, 26 studies/studies were obtained that were in accordance with the criteria and metric measures relevant to the research formula.
4. Encoding of selected studies/researches. After a set of studies selected, the next step is encoding, obtain characteristics studies/researches, and input it to a spreadsheet program to manage the processing of statistics from the meta-analysis.
5. Data analysis. At this step, data extracted from studies/researches can be the basis for various calculations to get a summary of the results in the literature.
6. Interpret and present results.

3 RESULTS AND DISCUSSION

After formulating the research questions and collecting empirical studies/research a total of 339 articles were subsequently obtained:

1. Transform the value of F_{count} and t_{count} to the size of the correlation (r). F_{count} and t_{count} obtained from 26 selected studies are transformed into correlation values with the following formula (Hunter & Schmidt, 2004)

$$t = \sqrt{F}$$

$$r = \frac{t}{\sqrt{t^2 + (N-2)}}$$

the results are shown in table 1.

Table 1: Transformation to r value.

No.	Author	N	F	T	r
1.	(Ahmad, et al., 2012)	50	13.530	3.678	0.4689
2.	(Andreti, et al., 2013)	300		5.962	0.3264
3.	(Saidani & Ramadhan, 2013)	100	21.406	4.627	0.4234
4.	(Ahmadi, et al., 2010)	100		12.545	0.7850
5.	(Agustim, 2010)	69	19.141	4.375	0.4714
6.	(Purnomo, et al., 2014)	98	16.977	4.120	0.3876
7.	(Mughal, et al., 2014)	200			0.2090
8.	(Malombeke, et al., 2014)	75		5.221	0.5214
9.	(Hasan, et al.,	160			0.2380

No.	Author	N	F	T	*r*
	2014)				
10.	(Imelda & Sangen, 2013)	219			0.7800
11.	(Miharja, 2013)	96	33.235	5.765	0.5111
12.	(Yazia, 2013)	100	16.162	4.020	0.3763
13.	(Tajik & Gorji, 2014)	400		4.280	0.2098
14.	(Yosep, 2013)	200	44.099	6.641	0.4268
15.	(Wibowo & Karimah, 2012)	110	9.087	3.014	0.2786
16.	(Abdullah, et al., 2013)	150	28.161	5.307	0.3998
17.	(Citrawati & Sulistiono, 2014)	100	217.684	14.754	0.8304
18.	(Moorthy, et al., 2014)	71	19.707	4.439	0.4713
19.	(Perdana & Nanang, 2018)	100			0.4700
20.	(Yu, et al., 2017)	173			0.4100
21.	(Kenning, 2008)	276	4.009	2.002	0.1201
22.	(Nawawi & Ikhaz, 2015)	200	22.693	4.764	0.3207
23.	(Aras, et al., 2017)	100		8.119	0.6341
24.	(Astuti & Wijaya, 2015)	100	68.216	8.259	0.6406
25.	(Sipayung & Sinaga, 2017)	384	275.661	16.603	0.6474
26.	(Hasan, et al., 2016)	94	23.259	4.823	0.4492

2. Calculate estimated population correlation average ($\bar{r}$). Estimated average population correlation is obtained by dividing the average correlation from the selected studies by the number of samples (Hunter & Schmidt, 2004) or written in the formula

$$\mathrm{\bar{r}} = \frac{\sum(\mathrm{N_i r_i})}{\sum \mathrm{N_i}}$$

with $\mathrm{N_i}$ is the number of samples in study i and $\mathrm{r_i}$ is the correlation in the study i.
From the Table 1, an estimate of the average population correlation is obtained

$$\mathrm{\bar{r}} = \frac{1{,}699.142}{4{,}025} = 0.422$$

3. Calculates the variance of the population average. Similar to calculate population correlation averages, the variance of population averages is obtained by weighted it with the sample size (Hunter & Schmidt, 2004)

$$\mathrm{\sigma_r}^2 = \frac{\sum(\mathrm{N_i}(\mathrm{r_i} - \mathrm{\bar{r}})^2)}{\sum \mathrm{N_i}}$$

Calculation of variance from population averages is obtained through the following table

Table 1: Calculation of Variances of Average Population.

No.	N	r_i	$(r_i - \bar{r})$	$(r_i - \bar{r})^2$	$N(r_i - \bar{r})^2$
1	50	0.469	0.047	0.002	0.109
2	300	0.326	(0.096)	0.009	2.747
3	100	0.423	0.001	0.000	0.000
4	100	0.785	0.363	0.132	13.168
5	69	0.471	0.049	0.002	0.167
6	98	0.388	(0.035)	0.001	0.117
7	200	0.209	(0.213)	0.045	9.086
8	75	0.521	0.099	0.010	0.739
9	160	0.238	(0.184)	0.034	5.426
10	219	0.780	0.358	0.128	28.045
11	96	0.511	0.089	0.008	0.759
12	100	0.376	(0.046)	0.002	0.211
13	400	0.210	(0.212)	0.045	18.043
14	200	0.427	0.005	0.000	0.004
15	110	0.279	(0.144)	0.021	2.267
16	150	0.400	(0.022)	0.000	0.075
17	100	0.830	0.408	0.167	16.667
18	71	0.471	0.049	0.002	0.172
19	100	0.470	0.048	0.002	0.229
20	173	0.410	(0.012)	0.000	0.026
21	276	0.120	(0.302)	0.091	25.183
22	200	0.321	(0.101)	0.010	2.060
23	100	0.634	0.212	0.045	4.494
24	100	0.641	0.218	0.048	4.773
25	384	0.647	0.225	0.051	19.487
26	94	0.449	0.027	0.001	0.069
Total	4025				154.123

From the table 2 Calculation of variance from population averages is obtained

$$\sigma_r{}^2 = \frac{154.123}{4{,}025} = 0.0383$$

4. Calculates the variance of sampling errors

$\sigma_r{}^2$ that obtained from previous step is a combination of variance in population correlation and variance in sampling errors, so that the variance in population correlation must be corrected by variance in sampling errors. The variance of sampling errors was formulated as follows (Hunter & Schmidt, 2004)

$$\sigma_e{}^2 = {(1 - \bar{r}^2)^2}\Big/{(\bar{N} - 1)}$$

then the sampling error variance is obtained

$$\sigma_e{}^2 = {(1-0.422^2)^2}/{(154.807-1)} = 0.0044$$

then, the impact of sampling errors is obtained

$$\frac{\sigma_e{}^2}{\sigma_r{}^2} = \frac{0.0044}{0.0383} x100\% = 11.488\%$$

Calculate corrected population correlation variances. After obtaining the sampling error variance ($\sigma_e{}^2$)), then the population correlation variance is calculated by using the formula

$$\sigma_\rho{}^2 = \sigma_r{}^2 - \sigma_e{}^2 = 0.0383 - 0.0044 = 0.0339$$

5. Calculates measurement error correction Y
Measurement errors in a general study occur, this level of measurement error is measured by the reliability coefficient of each research study. The greater reliability coefficient will produce a small measurement error. Therefore the population correlation value ($\bar{r}$) obtained in the second step of analysis needs correction by involving reliability coefficient in this case on variable Y. The formula used is

$$\bar{A} = Ave(a)$$

with:
$\bar{A}$ = average measurement error correction
(a) = square root reliability coefficient
Ave(a)= average(a)
to simplify the calculation process, it is presented in the following table:

Table 3: Reliability Coefficient.

No.	r_{yy}	a
1	0.718	0.847
2	0.824	0.908
3	0.721	0.849
4	0.896	0.947
5	-	-
6	-	-
7	0.639	0.799
8	0.867	0.931
9	0.583	0.764
10	-	-
11	0.867	0.931
12	-	-
13	0.916	0.957
14	-	-
15	0.822	0.907
16	-	-
17	-	-
18	0.606	0.778
19	-	-
20	-	-
21	0.891	0.944
22	0.774	0.880
23	-	-
24	-	-
25	-	-
26	0.729	0.854
Total		12.296
Average ($\bar{A}$)		0.878

6. Calculate corrected population correlations
Next is to calculate the actual or corrected population correlation values, namely by using the following formula (Hunter & Schmidt, 2004)

$$\begin{aligned}\rho &= Ave(\rho_i) \\ &= Ave(r)/\bar{A} \\ &= 0.422/0.878 \\ &= 0.48\end{aligned}$$

so that the corrected population correlation obtained is equal to 0.48

7. Calculate corrected variance.

The next step is to calculate the number of squared coefficients of variation (V) using the following formula (Hunter Schmidt, 2004)

$$\begin{aligned}V &= SD^2(a)/Ave^2(a) \\ &= 0.449^2/0.878^2 \\ &= 0.261\end{aligned}$$

Furthermore, variance is calculated due to variations in artifacts

$$\begin{aligned}S_2^2 &= \bar{\rho}^2\bar{A}^2V \\ &= 0.480^2\, 0.878^2\, 0.261 \\ &= 0.047\end{aligned}$$

Corrected population correlation variances are as follows

$$Var(\rho) = \left[Var(\rho_0) - \overline{\rho}^2 \overline{A}^2 V\right] / \overline{A}^2$$
$$= \left[0.0339 - 0.047\right] / 0.878^2$$
$$= 0.014$$
$$SD = \sqrt{0.014}$$
$$= 0.1187$$

assuming the correlation effect size is normally distributed with the confidence level of 95%, the interval is

$$\rho \pm 1.96\,SD$$
$$\rho_{upper} = \rho + 1.96(0.1187) = 0.713$$
$$\rho_{lower} = \rho - 1.96(0.1187) = 0.248$$

The meta-analysis study found that the corrected population correlation (ρ) between purchasing decisions and marketing mix factors was estimated at 0.48, the variance of the population was 0.014 and the standard deviation was 0.1187. With a confidence level of 95%, the acceptance limit is $0.248 < \rho < 0.713$, then the corrected population correlation (ρ) of 0.48 enters the acceptance limit.

Thus, referring to the results of the analysis of meta-analysis study data regarding the influence of the marketing mix factors on acceptable purchasing decisions.

The purchase process occurs when consumers search for information, compare existing alternatives, then make purchasing decisions for a product (Neha & Manoj, 2013), because consumers before making a purchase decision, will usually spend time evaluating by looking at suggestions, reviews or reviews. what consumers have done before on the product or service that will be bought (Sciences, 2013). This is where the right time the company provides marketing stimuli that can be controlled through products, prices, places and integrated promotions (marketing mix) to produce the desired response in the target market (Kotler & Armstrong, 2008).

4 CONCLUSIONS

Referring to the results of analysis of meta-analysis study data on the influence of the marketing mix (the forming factors & marketing mix such as product, price, place and promotion) on purchasing decisions shows that the hypothesis states that there is an influence of the marketing mix (products, prices, places and promotions) towards purchasing decisions.

Whereas to minimize the impact of sampling errors, it is recommended that in future studies be able to pay attention to the characteristics of the manufacturing or service industry as well as offline or online.

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