

The Influence of Product Design and Quality of the Decision to Purchase Glasses in Purwakarta District

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Abstract: *This research aims to analyze the influence of product design and quality on glasses purchasing decisions. The sample in this study was 200 people from a population of 400 people, using the Slovin formula. The method used in this research is Structural Equation Modeling with Amos's software. Based on the research results, it was found that design has no effect on the decision to purchase glasses; and product quality also has no influence on the decision to purchase glasses. This happens because people buy glasses based on their needs and the benefits of using glasses or do not buy glasses because of the design and not because of the quality of the product, but because the glasses provide benefits for themselves to be used, especially when looking or reading, so that the design and quality of the product did not matter. Main choice in glasses purchasing decisions.*

Keywords: Design, Product Quality, Purchasing Decisions

1. Introduction

Glasses have now become a necessity for human life, apart from protecting their nature; they also support a lot in everyday appearance and all activities and events in it, not only are they a necessity; the design of glasses is now in great demand among many young people. Design can be interpreted as a process of planning forms with the aim that the object being designed has a function and has aesthetic value. Design is the totality of features that influence the appearance, taste and function of a product based on customer needs.

The history of glasses can be traced back to the 13th century in China. At that time, glasses were first discovered as a vision aid by a scholar named Salvino D'Armate. Glasses were originally made of glass lenses mounted in frames made of materials such as wood or bone. As technology developed, glasses began to be mass produced and became more affordable for the general public. In 1784, Benjamin Franklin, an American scientist, succeeded in inventing bifocal glasses, namely glasses that can be used to see both long and short distances. In this way, Benjamin has succeeded in perfecting the form and function of glasses in the modern era [1].

Glasses are optical devices consisting of lenses and eyeglass frames. Today's society, especially young people, more often wear glasses not only to help their vision but also for style reasons. Consumers often experience difficulty in choosing frames according to what consumers need, the large variety makes consumers less satisfied in choosing good glasses. Consumers often choose glasses that are widely sold in optics.

Diens Optik is one of the optics located in the Purwakarta city area. This optical shop serves and provides optical services and products such as free eye examinations, accepting doctor's prescriptions, providing frames and contact lenses of various brands and models with varied choices and at relatively affordable prices. However, based on the results of interviews with shop owners in recent

months, Diens optics has experienced a decline in the number of consumers.

Many people do not care about the negative impacts of using glasses that do not comply with procedures, because they prioritize appearance, plus there is a lack of information provided to the public, and also types or brands of glasses that do not comply with predetermined quality standards have emerged. This is what makes retail glasses sellers increasingly popular and popular among young people, due to the relatively significant price comparison, various designs according to the style of today's young people, and making several optics, one of which is Optik Diens, which provides quality glasses according to certain standards. determined to experience a decline in sales, from 2019 to 2023, as shown in Table 1 (appendix 1).

Based on table 1 above, it can be seen that the total sales of glasses at Diens Optik Purwakarta from 2019 to 2023 are fluctuating and tend to decline every year, especially in 2023. This very significant decline certainly has a big impact on Diens Optik. Of course, this needs attention and will be interesting to research. The problems that occur at Diens Optik cannot be separated from the purchasing decisions of consumers or potential consumers at Diens Optik.

Based on the description above, the author is interested in studying in more depth the influence of product quality and design on purchasing decisions. The author will examine this problem by conducting research with the title "The Influence of Product Design and Quality on the Decision to Purchase Glasses at the Diens Optik Shop, Purwakarta Regency".

2. Methods

The type of research used in this research is quantitative research. Quantitative research is research carried out by collecting data in the form of numbers. The data in the form of numbers is then processed and analyzed to obtain scientific information behind the numbers (Sekaran Roger, 2013). In this research, a survey was carried out by distributing questionnaires, then the data or information

obtained will be processed using statistical methods using Structural Equation Modeling (SEM) with the AMOS application [2].

Population is a combination of all elements in the form of events, things or people who have similar characteristics, which is the center of attention of a researcher because it is seen as a research universe [3]. Population is a generalization area consisting of objects or subjects that have certain qualities and characteristics determined by researchers to be studied and then conclusions drawn [3]. The populations in this study were 400 consumers or customers who made purchasing decisions at Diens Optik during the last 3 months, while the sample was 200 people using the Slovin formula.

$$n = \frac{N}{1 + N(e)^2} = \frac{400}{1 + 400(0,05)^2} = 200 \text{ person}$$

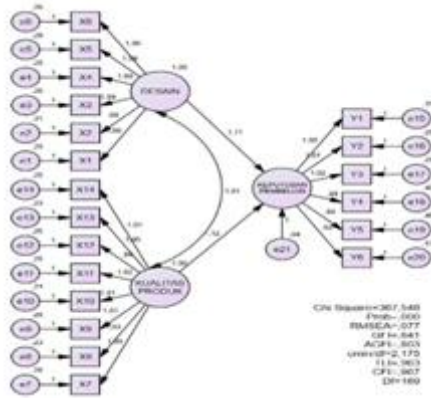
n = sample

N= population

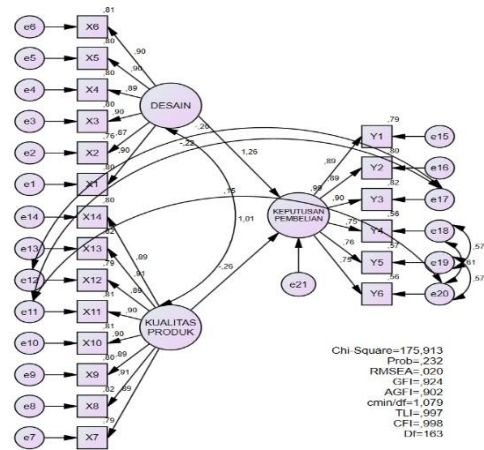
e = probability 5%.

3. Results and Discussion

There were 200 questionnaires distributed in this study according to the number of samples. From distributing these questionnaires, all questionnaires can be returned and filled in completely. So that the sample used in this study can be determined regarding the effect of Product Design and Quality on Decision to Purchase Glasses in Purwakarta Regency. Techniques and data processing using the Structural Equation Modeling method with the help of AMOS 24 software. The structural model in this study can be seen in Figure 1:



(a) Before running Amos



(b) After running Amos

Figure 1: Structural Research Model

From the Figure 1, it can be explained that: The Product Design is measured by 6 indicators X₁, X₂, X₃, X₄, X₅, X₆; The Quality is measured by 8 indicators, X₇, X₈, X₉, X₁₀, X₁₁, X₁₂, X₁₃, dan X₁₄; The Decision to Purchase is measured by 6 indicators, Y₁, Y₂, Y₃, Y₄, Y₅, Y₆ [4].

Convergent Validity and Reliability Test of the Measurement Model

Based on the Table 2, all indicators meet the requirements of the Convergent Validity Test and Measurement Model Reliability (appendix 2) [5].

Normality Test

Based on Table 3, the Multivariate cr value is -1.572. This shows that the data is normally distributed because the Multivariate value cr is less than 2.58 (appendix 3).

Table 4: Goodness of Fit Confirmatory Factor Analysis

Goodness of fit indeks	Cut of value	Result	Information
	X ² table df		
Chi Square	(0.05,163)= 193.791	175.913	Fit
Probability	≥ 0.05	0.232	Fit
RMSEA	≤ 0.08	0.02	Fit
GFI	≥ 0.90	0.924	Fit
AGFI	≥ 0.90	0.902	Fit
CMIN/DF	≤ 2.00	1.079	Fit
TLI	≥ 0.90	0.997	Fit
CFI	≥ 0.95	0.998	Fit

Based on Table 4 Godness Of Fit Confirmatory Factor Analysis above, it is known the value of Chi-Square, Probability, DF, GFI, AGFI, TLI, CFI, RMSEA. ChiSquare

has a value of 175.913, so the theoretical model and sample model are said to be appropriate because the smaller the Chi-Square indicates that the input covariance matrix

between predictions and actual observations is not significantly different. The probability value is 0.232 and the positive df is 175.913. This means that the hypothesized

model has matched the observation data.

Hypotesis Test

Table 5: Hypotesis Test

	Estimate	S.E.	C.R.	P	Information
The Decision To Purchase <--- Product Design	1,254	0,722	1,736	0,083	Not Sig.
The Decision To Purchase <--- Quality	-0,260	0,722	-0,361	0,718	Not Sig.

Based on Table 5 the CR and P values, it is found that the variable Product Design, and Quality are not dominantly influential because they have a CR value < 1.64 and P > 0.05. The results of this study indicate that all of the variables do not affect Decision to Purchase Glasses in Purwakarta Regency.

4. Conclusion

Based on the discussion and results from the research that has been done, the following conclusions can be drawn:

Testing the Product Design variable has no positive and insignificant effect on Decision to Purchase Glasses where the CR value is 1.736 > 1.64 and P 0.083 > 0.05 with an estimated value to the effect of Product Design on Decision to Purchase Glasses variable of 1.254. This shows that there is no effect of Product Design on Decision to Purchase Glasses.

Testing the Quality variable has no positive and insignificant effect on Decision to Purchase Glasses where the CR value is - 0.361 > 1.64 and P 0.718 > 0.05 with an estimated value to the effect of Quality on Decision to Purchase Glasses variable of -0.260. This shows that there is no effect of Quality on Decision to Purchase Glasses.

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Author Profile

Sutardjo graduated with a Bachelor of Engineering from Industrial Engineering and Management from Jenderal Achmad Yani University, Bandung, Indonesia (1996) and a Masters Program from Mercubuana University, Jakarta, Indonesia (2014). Currently a lecturer at the Wastukencana College of Technology, Purwakarta, West Java, Indonesia.

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References

Appendix 1:

Table 1: Diens Optik Glasses Product Sales Data for the 2019-2023 Period

Month	Years				
	2019	2020	2021	2022	2023
	(Rp)	(Rp)	(Rp)	(Rp)	(Rp)
Jan	33,570,000	23,750,000	22,850,000	30,800,000	31,650,000
Feb	50,265,000	30,550,000	62,750,000	20,250,000	30,800,000
Mar	41,300,000	23,250,000	30,480,000	40,000,000	20,450,000
Apr	70,650,000	51,350,000	31,200,000	40,550,000	20,900,000
May	29,450,000	41,700,000	43,760,000	21,650,000	32,250,000
Jun	35,850,000	27,750,000	50,350,000	31,350,000	31,300,000
Jul	53,750,000	31,400,000	51,000,000	21,450,000	20,800,000
Agt	42,250,000	33,750,000	24,450,000	31,000,000	21,750,000
Sep	54,550,000	60,350,000	22,750,000	31,750,000	21,700,000
Okt	60,165,000	52,390,000	23,600,000	32,650,000	20,650,000
Nov	73,875,000	61,750,000	43,750,000	41,000,000	20,450,000
Dec	81,450,000	70,650,000	51,500,000	33,150,000	20,150,000
Total	627,125,000	508,640,000	458,440,000	375,600,000	292,850,000

Source : Diens Optik, 2023



Appendix 2:

Table 2: Convergent Validity and Reliability Test of the Measurement Model

The Measurement Model	Indicators	Convergent Validity		Reliability Test
		<i>Factor Loadings</i>	AVE	<i>Composite Reliability</i>
		> 0.7	> 0.5	> 0.7
Product Design	X1	0.895***	0.880***	0.978***
	X2	0.870***		
	X3	0.896***		
	X4	0.895***		
	X5	0.896***		
	X6	0.900***		
Quality	X7	0.891***	0.887***	0.932***
	X8	0.905***		
	X9	0.894***		
	X10	0.899***		
	X11	0.900***		
	X12	0.891***		
	X13	0.908***		
	X14	0.894***		
The Decision to Purchase	Y1	0.891***	0.795***	0.932***
	Y2	0.894***		
	Y3	0.904***		
	Y4	0.747***		
	Y5	0.756***		
	Y6	0.750***		

Source: AMOS Version 24 Output

Appendix 3:

Table 3: Normality Test

Variable	min	max	skew	c.r.	kurtosis	c.r.
Y6	1,000	5,000	-,098	-,563	-1,189	-3,433
Y5	1,000	5,000	-,097	-,559	-1,126	-3,249
Y4	1,000	5,000	-,162	-,935	-1,156	-3,336
Y3	1,000	5,000	-,143	-,823	-1,058	-3,055
Y2	1,000	5,000	-,170	-,979	-1,084	-3,130
Y1	1,000	5,000	-,196	-1,129	-1,065	-3,073
X14	1,000	5,000	-,138	-,799	-1,042	-3,009
X13	1,000	5,000	-,152	-,879	-1,087	-3,138
X12	1,000	5,000	-,135	-,781	-,984	-2,839
X11	1,000	5,000	-,229	-1,324	-1,128	-3,257
X10	1,000	5,000	-,274	-1,581	-1,132	-3,268
X9	1,000	5,000	-,117	-,676	-1,018	-2,940
X8	1,000	5,000	-,175	-1,009	-1,074	-3,101
X7	1,000	5,000	-,177	-1,025	-1,116	-3,222
X6	1,000	5,000	-,203	-1,171	-1,161	-3,352
X5	1,000	5,000	-,171	-,985	-1,196	-3,454
X4	1,000	5,000	-,203	-1,174	-1,073	-3,098
X3	1,000	5,000	-,079	-,454	-1,027	-2,965
X2	1,000	5,000	-,195	-1,123	-1,051	-3,034
X1	1,000	5,000	-,151	-,871	-1,044	-3,014
Multivariate					-6,595	-1,572