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Optimization of two-dimensional advertising design with persuasion aspects using Value Engineering and Hierarchy Process Analysis (Project: Xyz Singosari Car Salon)

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	ABSTRACT
Keywords: Ad Design, Persuasion, Car Salon.	XYZ Car Salon optimizes advertising to increase the company's turnover. Making advertisements requires expertise and understanding of graphic design and interesting content. Attractive design and content become the initial concern affecting customer psychology in purchasing decisions. The more beautiful it is, the more effective the ad will be. This research includes a type of qualitative research, sampling using non-probability sampling methods with sampling techniques using purpose sampling, from a population of 45 experts obtained from a sample of 31 respondents. The combination of design elements and persuasion elements obtained 12 advertising designs. Rankings and weights are calculated using the zero one and value matrices to get alternative design choices. The recommended option is an A32 ad with a value of 0.85854545, costing IDR 165,000; A34, with a value of 0.81218182, costs Rp 110.000; A31, with a value of 0.37515789, costs Rp 95.000 and A21 with a value of 0.09916168 costs Rp 501.000.

Introduction

The development of digitalization technology in business operations today is increasingly rapid and widespread. The internet is the basis of digital technology to promote digital marketing (Adil & Sumarni, 2022). Digital marketing is a marketing activity including branding that uses various media, for example, blogs, websites, e-mail, AdWords, and different kinds of social media networks (Iqbal, Fazri, & Gusti, 2022). Based on the results of the 2022 survey, it was found that out of a total of 277.7 million people in Indonesia, as many as 204.7 million people use the internet, and 191.4 million of them are active social media users (Efendi, Harianto, & Nugraha, 2021). Digital marketing has a significant influence on increasing MSME business income. Digital marketing that MSME players most widely use is e-commerce, Facebook, and Instagram as product catalogs, while WhatsApp business is the main medium for communication with customers (Khadragy et al., 2022).

Digital marketing as a promotional medium to attract the attention and interest of customers to buy the products offered. Promotion is an element of the marketing mix or marketing mix that is interrelated (Afandi, 2018). The marketing mix has four elements: product, promotion, place, and price. Promotion is communication between sellers and buyers that comes from the right information. It aims to change the attitude and behavior of buyers who previously did not know to know so that they become buyers and still remember the product (Amri, Fatimah, & Inda, 2021). Promotion is a tool or activity companies use to communicate customer value (Arrizqi, Rahmawati, & Roziq, 2022). A good form and advertising model are needed for maximum results in promotional activities. Advertising is a form of promotion that uses print media to communicate to consumers, usually through banners, posters, etc. In another quote, it is said that good promotion requires advertising that can encourage consumers to buy the promoted product and successfully form a strong brand perception in the minds of target consumers (Ariska, Evanterianus, & Thamrin, 2022). Advertising has an important role in influencing consumers to make purchasing decisions. Some of the factors that influence purchasing decisions are lifestyle factors, online promotion, brand trust, and price. Previous research explained that the most important factors affecting decision-making in purchasing are online promotion factors and consumer behavior (Iswahyuni, 2020).

Advertising models widely used are brochures/e-brochures, images, videos or a combination of models in one ad. In previous research, two-dimensional advertising in brochures has a more efficient and effective value. According to Imam Safi'i et al. 2023, the e-brochure design is very effective as an advertising medium that can increase buying interest in QY Mendoan Malang and is supported by calculations using EPIC and AIDA. According to (Ermerawati, Subekti, Kurniawati, Susyetina, & Wati, 2022), brochures or two-dimensional advertisements in the form of posters, e-brochures, and pamphlets have five advantages. Namely, information is easier to digest, there is no risk of missing details, eyes are more focused on listening, it is more practical to listen to, and images are easier to understand. Research on the effectiveness of advertising in the form of two dimensions in the form of photos, e-brochures, and pictures using the EPIC model method with the dimensions of Empti (empathy), Persuasion (persuasion), impact (impact), and communication (communication) shows the highest value results of the four dimensions of EPIC in the two-dimensional advertising model is the element of persuasion. Some of these studies are "Analysis of the Effectiveness of Poster Redesign as Promotional Media" (Bulan, 2019); "Measurement of ITDA Promotion Effectiveness through Facebook Media Using EPIC Model" (Dewi & Pardosi, 2022), "Analysis of Empathy, Persuasion, Impact, and Communication (EPIC Model) in Increasing Public Trust"; (Fahrozi, 2016), "Analysis of the Effectiveness of Poster Redesign as Promotional Media (Case Study: AMDK MADA)" by Anthika Dwi Wiji Utami, 2021, and "Measurement of the Effectiveness of Marketing Communication for Micro, Small and Medium Enterprises in Medan City during the New Normal Period" by (Chandra, Anggraini, & Hutabarat, 2022). Persuasion is the process of communication to invite or persuade others to change attitudes, beliefs, and opinions according to the wishes of the communicator

(Cornaleus, Diana, & Achadiani, 2022). In this definition, 'solicitation' or 'persuasion' is done without threat/coercion. In conducting persuasive messages, there are six principles of persuasive message strategies to guide audience decision-making consisting of reciprocation, commitment & consistency, social proof, liking, authority, and scarcity strategies.

Researchers are interested in developing what kind of advertising model is suitable for businesses in the field of car salon business. The design pays attention to graphic design elements/factors to optimize persuasion, which is the main element in advertising. The object of this research was carried out in the car salon business with car coating products. This is based on the productivity of the car salon business workshop, which seems to be declining despite advertising. This performance is shown in Table 1 Sapphire Coating Customer Data 2023.

Table 1
Data Pelanggan Coating Sapphire 2023

Achievement of the 2023 Monthly Customer Target			
No	Moon	Target Customer (Unit)	Achievement %
1	January	20	9	45
2	February	20	6	30
3	Maret	20	8	40
4	April	20	12	60
5	From	20	9	45
6	June	20	4	20
7	July	20	2	10
8	Agustus	20	4	20
9	September	20	3	15
10	October	20	3	15

The elements of persuasion and graphic design elements and the costs that may exist in the design process and the resulting advertising process need to be taken into account because it affects finances, and the car salon business. For this reason, it is necessary to design, evaluate, and select the appropriate design model. This research uses the Value Engineering method to obtain designs that have good value and are relevant. At the same time, persuasion and graphic design have elements or factors that need to be selected. Researchers use the Analysis Hierarchy Process (AHP) method to get weights and rankings 1-3 or 1-4 as a basis for designing advertising designs.

Table 2
Previous Research

No	AUTHOR	METHOD	RESULT	DISCUSSION OF GAP
1	Naomi Miryam & Ferdi Antonio (2022)	Measuring marketing techniques with Social Media	The study results show customer engagement affects continuous usage intention and the	To increase customer interest to come, good

"The Effect Of Social Media Content On Customer Engagement and Its Impact on Customer Intention"	Content by dividing the variables Social interaction (SI), service provider interaction (SPI), self-concept (SC), functional information (FI), and entertaining information (EI) on customer engagement and the influence on continuous usage intention and positive electronic word of mouth (E-WOM) by using PLS-SEM (Partial Least Square-Structural Equation Modeling)	tendency to spread positive E-WOM.	management is needed Suggestion: holding events or gathering activities among customers to provide promo2 specifically as a follow-up to making content on social media

The purpose of this study is to know the application of design elements and persuasion elements as the best form of psychological communication in designing two-dimensional advertising brochures that have high value.

Research Methods

Chapter III discusses the research methodology that will be used in the research process or scientific way to obtain data that will be used for researchers in achieving the desired target. The methods in the research used are value engineering and process hierarchy analysis (AHP) methods. The discussion details in this chapter are the type of research, research object, population and sample, research instruments, data collection techniques, data analysis techniques, and research flow charts.

Types of Research

This type of research is qualitative research, which is a research method with a philosophical research approach, which is used to study scientific settings (experiments) where researchers as instruments, data collection procedures, and qualitative analysis emphasize meaning (Sugiono, 2018).

Object of Research

The object of this research was carried out in a car salon business that has a car paint coating service field located in Singosari district, Malang Regency. The study was done in the marketing department with advertising design activities to improve ad quality. In designing two-dimensional advertisements, car salons collaborate with advertising services, psychology consulting agencies, digital marketing services, and XYZ car salon

customers. Optimization of two-dimensional advertising designs that have been running needs to be improved in accuracy by applying value engineering and process hierarchy analysis. Information on the object of research of two-dimensional advertising design is limited to determining graphic elements (visual design) and elements of persuasion (psychology of persuasion).

Population and Sample

Sugiono (2017) explained that a population is a generalized area consisting of objects or subjects with certain quantities and characters that researchers will later determine and study to conclude. The population is taken from the number of employees or personnel of each designated object with 45 people. By adjusting data needs using the Analysis Hierarchy Process method, a non-probability sampling analysis method is used with purposive sampling techniques, also called judgment sampling (certain considerations), where researchers choose samples based on an assessment of several characteristics of sample members (Firmansyah, 2022) with expert categories. Sampling using the Slovin formula with a margin of error of 10% so that a sample of 31 respondents who will be the object of research is obtained.

Research Instruments

Research instruments are tools used to measure specific observed natural and social phenomena; this phenomenon is called a research variable (Sugiono, 2019: 102).

Data Collection Techniques

Sugiyono (2016) explained that data collection techniques can be done in various sources and ways. The data collection can use primary and secondary sources when viewed from the data source.

Data Analysis Techniques

This study has two stages in conducting data analysis: Process Hierarchy Analysis (AHP) and design selection according to the design morphology and physical advertising using the Zero One Matrix Analysis method.

Results and Discussion

Analysis Phase

This stage has three parts: morphological analysis, persuasion analysis, and cost analysis. First, morphological analysis of graphic design is carried out to find out the position model that will be used as material for making ad image layouts. The second is persuasion analysis, which aims to determine alternative models of persuasion choices used in implementing advertising images. Third is the cost analysis stage arising from the alternative model applied. Cost analysis of design elements and persuasion elements in the implementation of ad design aims to determine the cost of the impact of ad implementation later. The discussion in detail is as follows.

Design Morphology Analysis Stage

In the graphic design stage, it is necessary to understand the morphology of design; the word morphology (morphology) can be interpreted as the shape and structure of objects or, in other information called, the arrangement and relationships between parts

of an object (Febri Oky Wicaksono, 2018). Design methodology is a systematic and structured approach to planning, designing, and developing products, services, or experiences that meet user needs (Dian Cahyadi, 2023).

Table 3
Morphology of the four elements of graphic design

Morphology of Advertising Element Design	
Content	Model & Weight of Call to Sentence
	Clarity of Information Submitted
	Text type/font used
Identity	Brand Clarity
	Brand distinctive features (dominant color)
Arrangement and Position Patterns	Eye Vision Flow
	Image Placement &; Information
Propose	Image Size
	Post Size

From the morphology above, it can be a model of the appearance of the brochure layout that each designer wants and, according to the interests of the interested, some concepts of arrangement patterns, positions, and purpose that will be used as a basis for making ad layouts.
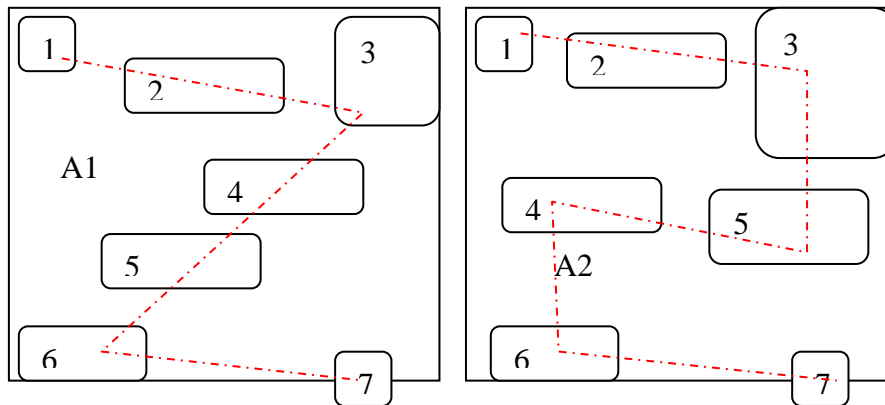
Figure 1
Choice of Ad Design Layout Patterns

Persuasion Element Analysis Stage

Three types of persuasion are selected in the element of persuasion: Scarcity Effect, Social Proof &; Small Commitment. To have a great effect, persuasion elements are implemented in promos on each advertising image design with time limits such as time presses.

Table 4
Table of implementation of the form of persuasion elements

No	Description	Alternative Forms	Image Symbol
1	Scarcity Effect	Promo 25% (1st-10th)	A11
		Promo 30% (20th-25th)	A12
		Promo 40% (10th-15th)	A13
		Promo 50% (25th-30th)	A14
2	Social Proof	One year warranty	A21
		Two years warranty	A22
		Three years warranty	A23
		Four years warranty	A24
3	Small Commitment	Voging	A31
		Detailing Machine	A32
		Glass Poles	A33
		Free 1 x maintenance	A34

The stage of analysis of costs arising from implementing "Persuasion."

In this stage, all aspects of expenses resulting from the implementation of persuasion advertising are calculated according to existing standards in the Company (XYZ car salon), while the calculation analysis data is as follows:

Table 5
Cost analysis table of a persuasion advertising implementation

No	Persuasive	Understanding	Model	Application	Cost (Medium Car)
1	Scarcity Effect	Marketing techniques that use the concept of scarcity or limitation to increase the value of a product or service	Special promo restrictions	Promo 25% (1st-10th) Promo 30% (20th-25th) Promo 40% (11th-15th) Promo 50% (25th-30th)	Rp. 1.000.000 Rp. 1.200.000 Rp. 1.600.000 Rp. 2.000.000
2	Social proof	In situations or phenomena, a person tends to believe/follow the actions or opinions of others when	Provision of Warranty Card and Service Treatment Note :	One year warranty *Basecode = 1 layer (75rb)* *Maincoat = 1 layer (400rb)* *Foudationcoat = 1 layer(50rb)* Two years warranty	Card: Rp. 36.000 Treatment: RP 400.000 Maintenance : Rp 40.000 *Total Cost = Rp 476.000*

| faced with uncertain situations. In digital marketing, social proof refers to using social proof to influence consumer behavior. | The coating treatment process has three stages, namely:
 - Basecoat
 - Main Coating
 - Foundation Coat | *Basecode = 1 layer (75rb)*
 Maincoat = 2 layer (800rb)
 Foudationcoat = 1 layer (50rb)

 Three years warranty
 Basecode = 1 layer (75rb)
 Raincoat = 3 layer (1,2jt)
 Foudationcoat = 1 layer (50rb)
 Four years warranty
 Basecode = 1 layer (75rb)
 Raincoat = 3 layer (1,2jt)
 Foudationcoat = 2 layer(100rb) | Card: Rp. 36.000
 Treatment: RP 800.000
 Maintenance : Rp 40.000
 Total Cost = Rp 876.000

 Card: Rp. 36.000
 Treatment: Rp 1.200.000
 Maintenance : Rp 40.000
 Total Cost = Rp 1.276.000
 Card: Rp. 36.000
 Treatment: Rp 1.200.000
 Maintenance : Rp 100.000
 Total Cost = Rp 1.336.000 |

Cost analysis of design elements and persuasion elements in the application of advertising design

The description of the design elements and persuasion analysis is then combined into one analysis to obtain price composition and used as a reference for making advertising designs for the combined analysis data of design elements and persuasion elements.

Recommendation Stage

This stage aims to provide recommendations by finding the weight of graphic design elements and persuasion advertising elements by ranking using the zero-one method.

Selection of design elements or preferred design criteria

Stages in the zero-one matrix analysis method by entering into the evaluation matrix. According to Hutabarat (1995), an evaluation matrix is a decision-making method combining qualitative and quantitative criteria. The weight index of each criterion can be known using the function matrix. The requirements in this study were reviewed based on the criteria previously described. Determine the object of analysis, namely the A11-A34 advertising image/design, and determine the design assessment criteria. Using the morphology of visual graphic design in Table 6 by taking the following criteria.

Table 6
Criteria Table of Design and Initial Morphology

No	Graphic Design Criteria (morphology)	Initial
1	Model & Weight of Call to Sentence	K1
2	Clarity of Information Submitted	K2
3	Types of writing used	K3
4	Brand Clarity	L1
5	Brand distinctive features (dominant color)	I2
6	Eye gaze	PP1
7	Clarity of image placement & information	PP2
8	Image size	P1
9	Writing size	P2

The results of filling out the survey were obtained by 31 respondents with Paired Turnover Ad Index 1-12; the following is attached Paired Comparison Indesks ad one.

Table 7
Paired Comparison Brosur 1

Criterion	K1	K2	K3	I1	I2	PP1	PP2	P1	P2	Score	Percentage
K1	X	1	0	0	0	1	1	1	1	5	13.89
K2	0	X	1	0	0	1	0	0	1	3	8.33
K3	1	0	X	0	1	1	1	1	0	5	13.89
I1	1	1	1	X	1	0	1	0	0	5	13.89
I2	1	1	0	0	X	1	1	1	1	6	16.67
PP1	0	0	0	1	0	X	0	1	0	2	5.56
PP2	0	1	0	0	0	1	X	1	0	3	8.33
P1	0	1	0	1	0	0	0	X	1	3	8.33
P2	0	0	1	1	0	1	1	0	X	4	11.11
Total										36	100

From the Paired Comparison matrix table of ads 1-12, the matrix table analyzes the following functions.

Table 8
Function Analysis Matrix

| Brochure | Function | Brochure | | | | | | | | | TOTAL |
		K1	K2	K3	I1	I2	PP1	PP2	P1	P2	
	Weight	0.22	0.14	0.19	0.11	0.08	0.06	0.17	0.03	0.0	
1	Index	0.14	0.08	0.14	0.14	0.17	0.06	0.08	0.08	0.11	

											Total
	Index x Weights	0.03	0.01	0.03	0.02	0.01	0.00	0.01	0.00	0.00	11.81
2	Index	0.14	0.11	0.17	0.19	0.17	0.06	0.08	0.03	0.06	
	Index x Weights	0.03	0.02	0.03	0.02	0.01	0.00	0.01	0.00	0.00	13.19
3	Index	0.17	0.11	0.11	0.08	0.14	0.11	0.08	0.06	0.14	
	Index x Weights	0.04	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	11.65
4	Index	0.22	0.11	0.11	0.08	0.11	0.11	0.11	0.08	0.06	
	Index x Weights	0.05	0.02	0.02	0.01	0.01	0.01	0.02	0.00	0.00	13.19
5	Index	0.14	0.14	0.11	0.08	0.11	0.08	0.17	0.06	0.11	
	Index x Weights	0.03	0.02	0.02	0.01	0.01	0.00	0.03	0.00	0.00	12.42
6	Index	0.22	0.11	0.11	0.17	0.11	0.03	0.08	0.11	0.06	
	Index x Weights	0.05	0.02	0.02	0.02	0.01	0.00	0.01	0.00	0.00	13.27
7	Index	0.17	0.14	0.14	0.08	0.14	0.14	0.03	0.06	0.11	
	Index x Weights	0.04	0.02	0.03	0.01	0.01	0.01	0.00	0.00	0.00	11.81
8	Index	0.14	0.11	0.14	0.14	0.11	0.08	0.03	0.11	0.14	
	Index x Weights	0.03	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.00	11.03
9	Index	0.14	0.17	0.14	0.14	0.14	0.08	0.03	0.06	0.11	
	Index x Weights	0.03	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.00	11.88

Table description:
1. In the table is presented each weight of each brochure design.
2. Giving a value to the weight based on the importance of the criteria of each brochure with the paired comparison method.
3. From each index multiplied by the weight of the criteria.
4. Total results are the sum of index multiplications with weights and top 4 results, namely in the ads of Brochure 10 (A32), Brochure 12 (A34), Brochure 11 (A33), and Brochure 6 (A21)

Selection of elements of persuasion or alternative persuasion

The selection of persuasion ads uses the zero one method to find out the ranking of each ad by using a questionnaire using 12 brochures in the format of the choice of

questionnaire as an object. Analysis of respondents before selecting or filling out questionnaires obtained 31 respondents with a zero one matrix of 31.

Reporting Phase

This stage is to evaluate performance based on the costs incurred by ad implementation; performance is the multiplication between weight (design analysis) and rating (persuasion analysis) obtained in zero one analysis, while the evaluation matrix is as follows:

Table 9
Evaluation Matrix

No Ads	Persuasive	Advertisement	Performance		Cost (Rp)	Value	Rank (Value)
			I.Bobot	Ranking			
A11	*Scarcity Effect* Alternative 1 Deadline Date 1-10 Diskon 25%		11.81	12	1.025.000	0.000013826	7
A12	*Scarcity Effect* Alternatif 2 Deadline Date 20-25 Diskon 30%		13.19	11	1.225.000	0.000011844	8
A13	*Scarcity Effect* Alternatif 3 Deadline Date 11-15 Diskon 40%		11.65	5	1.625.000	0.000003584	12

No Ads	Persuasive	Advertisement	I.Bobot	Ranking	Cost (IDR)	Value	Stage (Value)
A14	*Scarcity Effect* Alternatif 4 Deadline Date 25-30 Diskon 50%		13.19	9	2.025.000	0.000005862	11
A21	*Social Proof* Alternatif 1 1 Year Warranty		12.42	4	501.000	0.0916168	4

Table 10
Evaluation Matrix (Advanced)

No Ads	Persuasive	Advertisement	Performance		Cost (IDR)	Value	Stage (Value)
			I.Bobot	Ranking			
A34	*Small Commitment* Alternative 4 Free Maintenance Worth RP 450RB		14.89	6	110.000	0.81218182	2

The discussion of the research above shows that graphic design elements, persuasion elements, and cost analysis are needed in making a good advertising design. These costs are based on the costs arising from the process of creating advertisements and the impact of ads that will be made; the effect of making advertisements can be in the form of discounts, promos, or other commitments, which will be given or installed as a

form of persuasive advertising appeal in advertising practices. From the results of the evaluation matrix, the results of advertisements that have high value are advertisements by provide elements of persuasion with alternative small commitments that are proven to dominate choice and high value.

Conclusion

Based on the results of selecting graphic design elements and persuasion elements in two-dimensional advertising using value engineering and process hierarchy analysis (AHP), selected graphic design elements were obtained: content, identity, arrangement pattern & proportion, and position. Persuasion elements, including scarcity effect, social proof, and small commitment from the combination of design elements and persuasion elements, formed 12 alternative advertising design options. Using the zero one method and the value matrix, four ads are recommended for use, namely (1). Advertisement/brochure code A32 has a rank of 9 and a weight index of 15.74 with persuasion elements free maintenance (Engine Detailing) for IDR 400,000, result value 0.85854545 with a cost of IDR 165,000. (2). Advertisement/brochure code A34 has a rank of 6 and a weight index of 14.89 elements of persuasion free maintenance (Glass Coat) for IDR 450,000, result value 0.81218182 with a cost of IDR 110,000. (3). A31 advertisement/brochure has a rank of 3 and a weight index of 11.88 with persuasion elements free maintenance (Coating Maintenance) for Rp 400,000; the result value is 0.37515789 with a cost of Rp 95,000. (4) The A21 advertisement/brochure has a rank of 4 and a weight index of 14.42 with persuasion elements. Warranty with a warranty length of 1 year, result value 0.09916168 with a cost of Rp 501,000.

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