



Identification and clustering internal stimuli on the effectiveness of advertisement by using Delphi method and perceptron neural network (Case study on sports retailers)

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Abstract

Jay Conrad Levinson describes in his book 20th-century marketing that the Application and the real purpose of Guerrilla marketing advertisements are to use simple and modern Tools and ideas for Audience absorption by spending less money to reach more Profitability. Effectiveness of Guerrilla marketing detected by studying distinctions through recognizing internal stimuli. The intention of the Article is Identification and clustering internal stimuli on the effectiveness of advertisement by using the Delphi method and perceptron neural network. The method of research combined in terms of functional goal, Descriptive survey performance, and it's nature. twenty-person from the Qualitative part of the Statistical Society of the professors and Activists in the field of advertisement and marketing chosen to be Panel members through purposeful and non-random sampling. components recognized After getting Kendall coefficient 0/95 in the third round by using the Delphi method. Respectively attitudinal variables with Psychological Motivations Indicators, namely, hedonism, and sectarianism, also from a technical prospect with components namely convenience and accessibility, perceived usefulness, and personality variable by recognizing personality types by using Myers- Briggs Type Indicator from panel members point of view is efficient on the effectiveness of Guerrilla marketing advertisements in sports retailers. In order to design and rank recognized components in the Quantitative research section, sports retailers' customers in Tehran province, which numbered 1000 people, and their information already registered in the system, chosen as Statistical Society. by taking advantage of Cochran formula and Class sampling, 277 people finally chosen as samples. At the binging Myers-Briggs Type Indicator with 70 specialized and close-ended questions has been used in order to determine personality types and then, after determining personality types, the intended questionnaire containing 25 specialized and close-ended questions with 5-point Likert scale given to model members. Through using Perceptron Neural Networks with %92 fit, two Hidden neuron layers, and an outer layer with 4 neurons, based on the linear relation between Guerrilla marketing advertisements, attitude, and personality with four separate strategies, the relation between Attitude components and personality types clustered.

Keywords: Attitude, Guerrilla Advertising, Internal Stimuli, Myers-Briggs Personality Test, Perceptron Neural Network.

Introduction

Guerrilla advertising pays particular attention to Audiences Internal stimuli and through being aware of their exact desires can create guerrilla advertising. Go sport is a French company, and by its 40-year background is one of the largest sports retailers (Ayari & Erfani, 2017). This company works as a dedicated store to provide Sports equipment to everyone, from the amateur level to professional for all ages at a reasonable price. in Iran, it has two branches in Tehran and Isfahan, which founded in 2011 (Malekirad, 2017). from 2016 This company also started to use guerrilla advertising and modern tools for audience attraction. In 2018, the company invested five-hundred Million Tomans, advertising budget in order to use guerrilla advertising in the social media and famous endorsers on the internet but it was not effective on audience attraction, in 2019 followed the same strategy and because of the budget deficit, one of the branches in Tehran shut down (Momeni et al., 2014). Without the understanding of guerrilla advertising and its audience behavior, go sport invested a huge amount of money on designing a guerrilla advertising strategy based on social media, by buying fake Instagram user accounts. The other problem was the lack of categorizing the costumers by their buying habits and behaviors and designing a comprehensive and united system to gather their data and relation-oriented marketing, which caused the company to lose 2500 customers in Tehran branches. In 2019 the company used environmental guerrilla advertising and

participated in major sports events, which led to using a new way of the Communication mix, and it has played a major role for the company to known, but it hasn't affected on customer attraction and the sale. In 2019 by reviewing financial portfolio it had been determined that the most damage came from the enormous budget invested in advertising, which only the name of guerrilla advertising used, but none of the properly mixed communicational strategies used for the effectiveness of guerrilla advertising (Levinson, 2018). According to surveys in 2019, the number of authentic users on the internet that were the costumers of go sport was nearly 75 thousand people, but this number has decreased to 10 thousand in April 2020. The main goal and function of guerrilla advertising are to use modern advertising tools with innovative means by paying minimum expense and maximum effectiveness, which not conducted in go sport company. Despite the fact that in many countries it's been years since guerrilla advertising designed and conducted, but in our country, it is quite an unknown term. Under the circumstances that the advertising expenses have estimated several thousand billion tomans, guerrilla advertising can produce huge and significant effects through costing a little amount of money and creative means and new ideas (Torkaman, 2018). Internal stimuli in audiences and costumers become more important by considering that the part of this attitude has shaped by the internal personality of a person. Categorizing the audience based on



internal stimuli is one of the classifications means in guerrilla advertising (Howkins, 2000). According to surveys done about the relation between different internal stimuli and guerrilla advertising, none of those topics relate to individual psychology and guerrilla advertising in business as a unity.

In the following survey through using neural network internal stimuli has been clustered, and it defines effective strategies for guerrilla advertising. The main inquiry in this survey is that what are the effective internal stimuli on guerrilla advertising?, So the main goal of the survey is to recognize and cluster the effect of internal stimuli on guerrilla advertising in sports retailers to create room for improvement of management in this field.

The main inquiries of survey

- 1: what are the effective internal stimuli on guerrilla advertising?
- 2: how is the clustering of internal stimuli on guerrilla advertising?
- 3: how is the relationship between internal stimuli on guerrilla advertising?

An overview of surveys record

Theoretical record

Guerrilla advertising

Every business understands the fact that marketing and advertising is a starter of any activity. The contest for absorbing the audience never ends, and one can achieve the special advertising goals by ideal strategies. Marketing managers frequently use many modern advertising tools at low cost such as guerrilla advertising, and such modern tools are vital as a supplement to traditional tools (Mirabi & Saeedi, 2014).

Tresten in 2010 mentioned the dual tools of guerrilla advertising, the main way of companies' concentration to absorb audiences by using innovative solutions and creating effective and unprecedented impressions. One of those tools is modern media, which includes social media, phone ads and website ads (banner), also the other tool of guerrilla advertising is based on cost reduction, which is a strategy for pricing based on the goal for advertising activities and advance sale with an inclination to reduce huge costs (Bthaei, 2014). The tools like viral marketing and WOM (World of Mouth) and the idea of using guerrilla advertising by the purpose to make profits from the internet and mobile phone, which the most effective new platforms in the field social media are Instagram and Pinterest, Also by providing a system of customer conversation with each other by insertion of information belonging to them, and mobile phone messages and sending different advertisement as videos (video cast) on internet, by using social media are the effective tools on guerrilla advertising based on modern media.

Attitude

By distinctive beliefs and emotions, people receive and respond to the advertisement. Attitude is the amount of passivity, good or bad feeling towards a stimulus, as whole attitudes are emotional feelings that people have towards the environment phenomenon (ras, 2019). The theory of value, hedonism is extended based on the origin of needs from a social and psychological perspective and it

investigates the motivation of users for attending to the advertisement. The main purpose of the theory is to explain and specify the psychological needs, which shape the reasons for using guerrilla advertising in people, moreover, their explanation and perception of the reasons for an advertisement is dependent on fulfilling the inner needs (fagerling, 2018). Sectarianism has defined in terms of people’s desire to make contact with old friends and keep in touch with new friends and meet new people (Len & Kao, 2014). In 2017 according to the research conducted by Chang & Zhang on pre-approval and post-approval of guerrilla advertising by using modern media in china, they discovered that meeting new people has a positive effect on both groups attitude and keeping the old friends has also a positive effect on the post-approval group (Chang & Zhang, 2017).

Personality

American psychologists in their studies and researches by using Myers- Briggs Type Indicator divided the personality types into sixteen classes; those tools finally leave peoples preferences to result in behavioral differences, types of communication and conflict and relationship management. In this test four pairs are defined against each other, which leads to forming of people’s personality types at the end. I/E (Introverted, Extraverted) are the indicator of data gathering preference. S/N (Sensation, Intuition) is the perception of people from the outside world and the way of receiving the information, which is important because we must be aware hoe to give people the information in a perceptible way. T/F (Thinking, Feeling) is being used in the phase of making decision by using different hemispheres of the brain. J/P (Judgment, Perceptual) Are different in terms of final decision making based on gathered data (Table 1).

Table 1. Sixteen Different aspects of personality types is shown by considering four combination of traits that already have been mentioned.

Intuition -Introverted Thinking - Judgment	-Intuition Extraverted - - Judgment Thinking	Feeling -Introverted - Thinking -Judgment	Feeling -Extraverted - Judgment - Thinking
Intuition -Introverted - Judgment - Feeling	Intuition - Extraverted - Judgment - Feeling	Feeling -Introverted - - Judgment - Feeling	Feeling -Extraverted - Judgment - Feeling
Intuition -Introverted - - Sensation -Thinking	Intuition - Extraverted - - Sensation -Thinking	Feeling -Introverted - - Sensation -Thinking	Feeling -Extraverted - Sensation -Thinking
Intuition - Extraverted - Sensation -Thinking	Intuition - Extraverted - Sensation -Thinking	Intuition -Introverted - Sensation -Feeling	Intuition - Extraverted - Sensation -Feeling

Reference (Raymond & Barons, 2015)

Empirical record



In April 2001 IBM Company was trying to depict the picture of a penguin, which was the logo of the Linux computer program in lofty buildings of San Francisco city to attract people's attention to this computer program (Bthaei, 2014). Red-cross organization in 2005 discovered that the past advertisements were not so effective, hence tried to design a guerrilla advertising about the danger of landmines for children in order to attract parents and politicians' attention. by placing hundreds of dolls and toys in one of the city's squares and leaving few kids there, aimed the advertisement at very slogan: think about that if those dolls were mains, then what would have happened to those kids? (Therstone & Rass, 2017). In 2017 the amnesty international organization by using individual differences tests about the execution of criminals, the organization took advantage of guerrilla advertising in Spain's television and mass media and they portrayed a person on a bus station bench and the illustration is trying to show the bench as an electric chair (Bohem, 2016). In 2009 Patles et al. used guerrilla advertising based on modern media to share the subservient chicken video for Berger king; in this advertisement, a man by wearing chicken cloths was appearing on users computer screens and he was doing every action based on users desires, this advertisement plan had attracted 16 million viewers to their website in a short period and each one of them was about to ordering to subservient chicken, and it achieved 442 million viewers within a week in the time of advertising (Patles et al., 2018). one of the successful guerrilla advertising based on

modern media is was the video of pigeon and ford car company(ford ka pigeon). In this advertisement, a pigeon is being seen on a tree bench and trying to drop his wastes on the car and suddenly by a rapid reaction opens the sportka model car opens the hood, and puts the pigeon on the ground. Ford was the first car company that used guerrilla advertising based on modern media to attract audiences to their brand. In 2014 a research entitled the aspects of personality effect by using Myers-Briggs Type Indicator on purchase tendency done by meimand, and it surveyed 16 sorts of Myers-Briggs personality types as an independent variable on the attitude of people towards the subjective vision of the brand and the knowledge of the brand and eventually the desire for purchase. According to results, people's personality types make more difference, and affect their attitude towards the subjective vision of the brand and eventually the desire for purchase (Meymand, 2015). in 2016 Heydarian & Rezaeyan done another survey named effect and ranking of internal stimuli on the amount of efficiency between personnel of NIORDC (national Iranian oil refining and distribution company) and according to results, attitude and sensation have the most influence on personnel efficiency, also motivation and personality are in the second standing has a positive and sensible influence on personnel efficiency (Heydarian & Rezaeyan, 2017). In 2016 malekirad done a survey entitled comparison between personality aspects and emotional intelligence and job motivation between male and female personnel in Tehran

municipality in district 17, and then results shows that there is not much difference amongst male and female personnel by considering all intended three variables (malekirad, 2016).

Survey method

The survey's intention is applied and based on the implementation method and data gathering, it is a descriptive survey and its mixed in its nature. By considering that the topic of the survey is identification and clustering internal stimuli on the effectiveness of the advertisement, the nature of the survey is mixed, in the qualitative part to identifying individual differences, the delphi method used, and descriptive survey method along with questionnaire tool for gathering data used in quantitative part.

Survey tools

Effective internal stimuli on guerrilla advertising are extracted by searching and studying and surveying the books and articles and scientific reports related to internal stimuli and guerrilla advertising, which used in preparing the record of the survey for writing both empirical and theoretical principles. In the qualitative part according to extracted components and variables from survey record, 20 specialized questions with a 5-point Likert scale along with 2 open-ended questions are designed for panel members to determine their comments about the other effective internal stimuli on guerrilla advertising. in the quantitative part, two questionnaires used

for gathering the data. In the first section of the Myers-Briggs Type Indicator questionnaire sample, persons have been given 70 close-ended questions with two-point scales. After identifying their personality types, a specialized questionnaire including 25 specialized questions with 7 general questions has been given to them to survey about the relation of internal stimuli with guerrilla advertising. For surveying content validity of resulted questionnaire carcass coefficient is used in the quantities' part. Twenty people from sample persons were chosen for the Content Validity Ratio and Content Validity Index. The whole Content Validity Ratio of the questionnaire is 0/78 and Content Validity Index for ease is 0/86, also exclusion criteria is 0/86, and clarity criteria is 0/88, which shows the sufficiency of the questionnaire. Because of translation from the original English version to Persian, Content Validity is being checked. According to results, The Content Validity Ratio is 0/88, and also exclusion criteria is 0/89, and clarity criteria is 0/86, which shows the translation sufficiency of the questionnaire. Reliability is done in the qualitative part for questionnaires with a pre-exam for fifteen people. Since Cronbach's alpha is usually a good index to calculate reliability and internal harmony of components, over 70% Cronbach's alpha is considered acceptable and it is good above 80% (sarmad, 2010). All results in components of Cronbach's alpha are over 70%, which is acceptable.



Statistical society

Three groups have been chosen as Statistical society to identify personal differences in the effectiveness of guerrilla advertising. The first group are professors in university faculties and all of them have a doctrine in business management with an interest in the field of business, they are over 5 degree and had conferences, books, and articles in the field of individual psychology and various guerrilla advertising. The second group is advertising agencies, which are active over five years in both traditional and modern advertisements and do advertising for small and large companies. And the third group are advertising agencies, which are devoted to the field of sports advertising. The whole statistical society in the qualitative part is the costumers of Go sport, which their information stored in their customer relationship management system and the information is accessible. By considering registered information, Statistical society is limited to 1000 persons.

Sampling method and sample volume

The sampling method in the qualitative part is none-random and purposeful, and judgmental, and the number of panel members is twenty. The first group are

professors in university faculties and all of them are over 5 degree and had conferences, books, and articles in the field of guerrilla advertising and individual psychology. The third group contains three experts from advertising agencies with 5 years' experience in this field. In the quantities' part, sampling is by class and random based on demographic characteristics of age. Due to the differences between people from internal stimuli perspective, and studying individual differences for designing a proper strategy to make guerrilla advertising effective and in order to generalize the results to Statistical society of the people that are relatively close to each other in age because it has very little dissonant, thus the company can effectively design a better guerrilla advertising for them based on their individual differences. Because of limited Statistical society and specified society volume and so much dissonance and having the information of any person in any class to determine differences between classes and avoid dissonance as much as possible, stratified sampling used. The sample volume is 227 people by using the Cochran formula in which the sampling amount of each class shown (Table 2).

Table 2. Class sampling based on age index

Statistical index/class (age)	28-18	38-28	38-48	48-58	total
Class frequency (fi)	360	320	250	70	1000
Society to society ratio	0.36	0.32	0.25	0.07	1
Amount of samples in each class	100	89	69	19	277

**Data analyses in the qualitative part
Components identification by Delphi
method**

By using theoretical and empirical record, variables and initial components are extracted and given to panel members in the qualitative part. So the results of every analysis in each round are given to panel members. In the first round by using Myers-Briggs Type Indicator, five components namely hedonism, sectarianism, convenience, accessibility, perceived usefulness, and personality surveyed. through analyzing components by the arithmetic mean and frequency, standard deviation and also by using Shannon entropy for weighting in each round, the components in which the average is less than 4, and frequency is less than %70, and the standard deviation is more than one, the analysis of each round eliminated for the next round. Due to the extracted results in

the first round of the Delphi was used SPSS software, all components analyzed in the second phase. according to extracted results in the first round of Delphi, the second round resembles the previous one and all the components in which the average is less than 4, and frequency is less than %70, and the standard deviation is more than one, will be analyzed in the third round of Delphi method. Because of determining the amount of Delphi method rounds in order to achieve a viable unification, Kendal Coefficient used. Due to the assumptions of the test, the more Kendal Coefficient is close to 1, the better accordance and unification between sample members is. The result of the Kendal Coefficient is 0.95, which shows a rather viable unification between sample members, with that result, Delphi analysis ended after three rounds. In every round of the Delphi method, by using SPSS software and Shannon Entropy, the weight of each component determined (Table 3).

Table 3. The results of the three rounds of Delphi method

Round number	component	average	standard deviation	Frequency ratio	component Weight
1	hedonism	4.10	0.55	65%	0.1029
	sectarianism	4.15	0.52	95%	0.1532
	convenience and accessibility	4.10	0.55	85%	0.1038
	Perceived profit	4	0.95	70%	0.1235
	personality	4	0.82	80%	0.1481
2	hedonism	4	0.47	85%	0.18
	sectarianism	4.50	0.50	95%	0.150
	convenience and accessibility	4.30	0.50	90%	0.1261
	Perceived profit	4.30	0.74	85%	0.1585
	personality	4.50	0.66	95%	0.1313
3	hedonism	4.70	0.33	95%	0.1937



	sectarianism	4.72	0.32	95%	0.1628
	convenience and accessibility	4.68	0.41	90%	0.1598
	Perceived profit	4.68	0.41	90%	0.1598
	personality	4.65	0.41	90%	0.157

With regard to results, internal attitude variables namely hedonism, sectarianism, convenience and accessibility, and Perceived profit, and also personality variables in Myers-Briggs types from panel members prospect has the most profound effect on guerrilla advertising.

Analyzing data in the quantitative part Clustering in the Perceptron Artificial Neural Network

Perceptron Artificial Neural Network is one of the usual networks, which is very good for processing and future prediction. The back propagation neural network is a multi-layer mapping network that minimizes the errors in a recessive manner (Zing & Will, 2019).

The steps of neural network performance:

First step: the number of clustering people was 277 and from 277 given questionnaires, 270 correct and complete questionnaires given back. 270 gathered data from sample persons are as input clusters.

Second step: process benchmarking clustering to specify individual differences, which contain psychological motivations namely hedonism and sectarianism, and technical perspective namely convenience and accessibility and Perceived profit and also identifying personality types by using Myers- Briggs Type Indicator about

guerrilla advertising based on cost reduction and social media.

Process benchmarking for attitude and guerrilla advertising

Matlab 2017 software used to cluster attitude components and guerrilla advertising. Input data for clustering designed and completed through questionnaires with 25 sample questions.

GNGN (Growth Neural Gas Network) is used for clustering and it contains the following steps:

1, begging with two random neurons namely w_a , w_b

2, creating an input ξ signal based on (ξ)

3, finding the closest neuron to s_1 and s_2

4, age enhancement of all edges, which derived from s_1 , calculating the square of distance between input signal and the closest neuron in input space

$$\text{Equation (1): } (s_1) = \|w_{s_1} - \xi\|$$

6, moving s_1 and its direct neighbors to \boxplus side, respectively by ξ and ϵ_b and ϵ_n proportion

$$\text{Equation (2): } \Delta w_{s_1} = \epsilon_b (\xi + w_{s_1})$$

$$\text{Equation (3): } \Delta w_n = \epsilon_n (\xi + w_n)$$

7, if s_1 and s_2 adjoin with a single edge, the edge age will be zero, and if there is not such edge, it will be created.

8, eliminating the edges, which their age is more than $\alpha_{max} \dots \dots$

Clustering attitude indexes show on guerrilla advertising based upon cost reduction and social media shown (Figure 1).

The figure shows the utmost difference, which exists in the attitude components, and it is the result of the sample members that answered the questionnaire. Clusters are

determined by the blue hexagonal, and the space between them determined with various colors. If the color gets darker between clusters, separation goes up. On the other hand, if it is lighter, namely, there is a possibility of a combination between them.

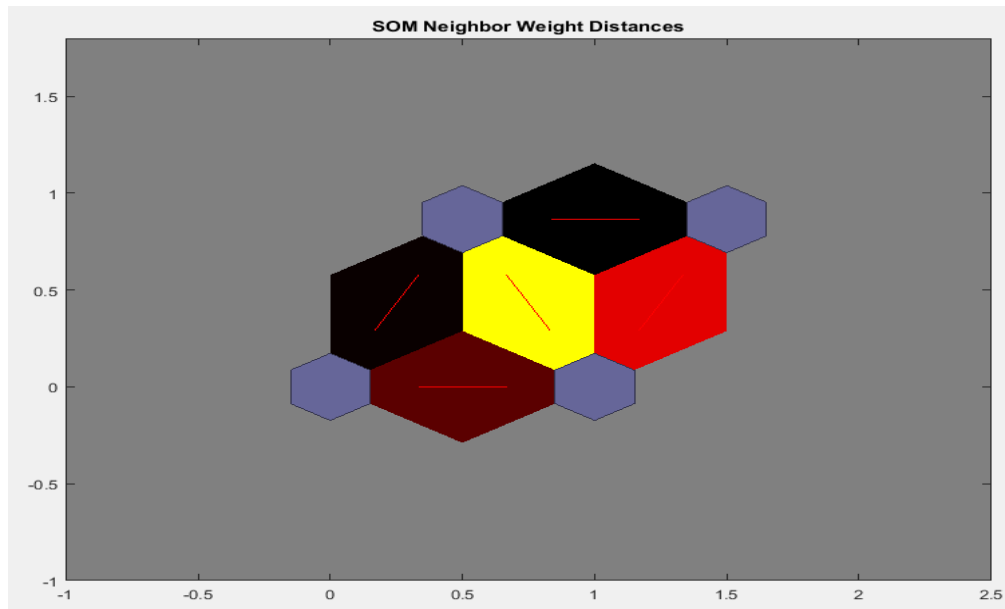


Figure 1. Clustering attitude indexes on guerrilla advertising

In each one of polygons Clustering attitude indexes clustered and based on four blue colored hexagonal, the relation of each one with various guerrilla advertising shown.

The number of every sample person based on questionnaire data separately shown (Figure 1).

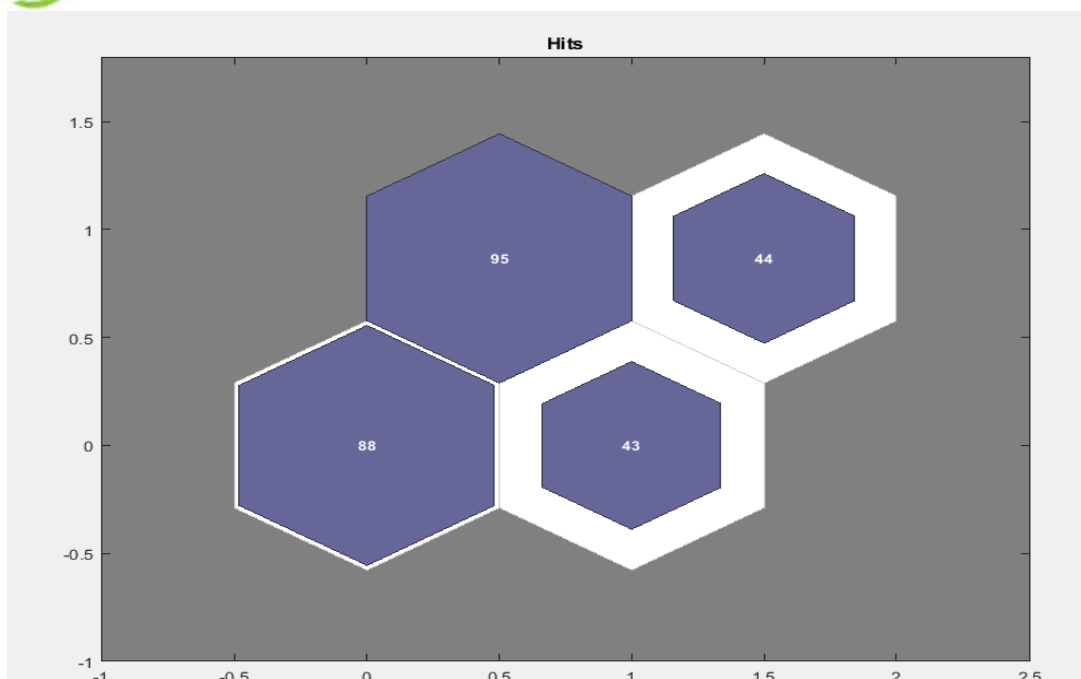


Figure 2. separation of sample persons in clusters

In (Figure 2), concerning the answers to the specialized questions in questionnaires related to each attitude components, the number of sample persons introduced

separately in the clusters. The number of people in each cluster was shown plus the relation of each component with guerrilla advertising (Table 4).

Table 4. Separation of attitude components based on clusters colors

Cluster number	Component name	number	color
1	hedonism	44	red
2	sectarianism	43	purple
3	convenience and accessibility	95	black
4	perceived usefulness	88	black

Reference: researcher's discoveries

The relation of each separated component with guerrilla advertising, which in (Figure 1) shown, explained here (Table 5).

Table 5. The relation of components with guerrilla advertising

Hexagonal number	relation	color
1	The impression of psychological motivations on guerrilla advertising based on cost reduction	blue
2	The impression of psychological motivations on guerrilla advertising based on social media	blue
3	The impression of technical prospect on guerrilla advertising based on cost reduction	blue
4	The impression of technical prospect on guerrilla advertising based on social media	blue

Reference: researcher’s discoveries

Clustering personality types on guerrilla advertising

After analysis of Sixteen Different aspects of personality types by 70 standard and close-ended Myers- Briggs type, components analyzed about designing effective strategies for guerrilla advertising

by 25 questionnaire questions. Clustering personality types showed (Figure 3).

According to the results of clustering sample persons, cluster numbers 1 and 12 chosen as personality types for strategies based on social media, and cluster numbers 4 and 2 chosen as personality types for designing strategies based on cost reduction.

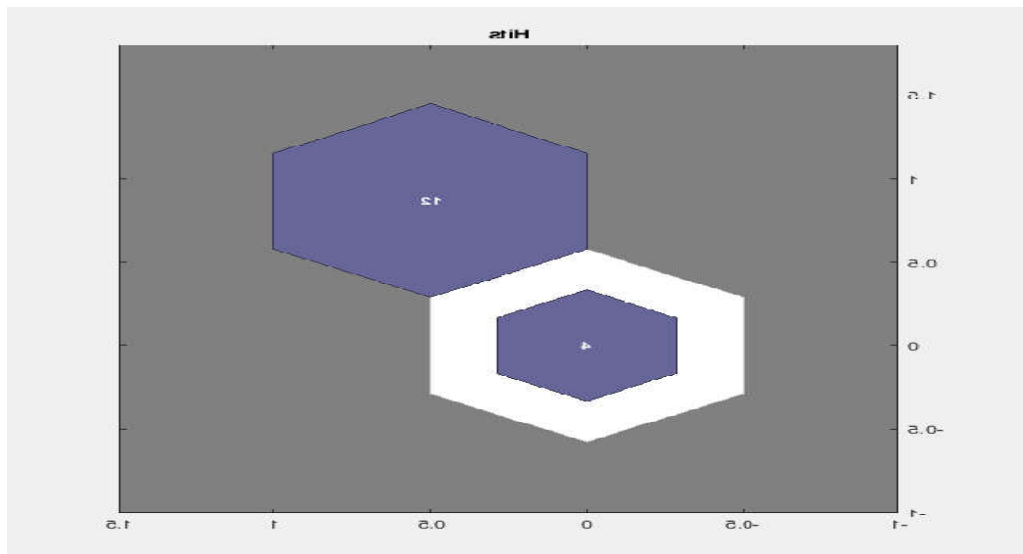


Figure 3. Clustering personality types

Each one of the personality types depicted in (Figure 3), shown separately (Table 6).



Table 6. Members of each clusters based on guerrilla advertising

Cluster number	Personality types	Advertising types
1	Judgment -Feeling- Intuition –Extraverted	Social media
	Judgment -Feeling- Sensation –Extraverted	
	Perceptual -Thinking -Intuition- Extraverted	
	Judgment - Thinking -Intuition- Extraverted	
	Perceptual -Feeling- Intuition –Extraverted	
	Perceptual -Feeling - Sensation - Extraverted	
	Perceptual -Thinking - Sensation - Extraverted	
	Perceptual -Feeling - Sensation - Introverted	
	Perceptual -Feeling - Sensation - Introverted	
	Perceptual -Thinking - Intuition - Introverted	
	Perceptual -Thinking - Sensation - Introverted	
Judgment - Thinking - Intuition - Introverted		
2	Judgment - Thinking - Sensation - Extraverted	Cost reduction
	Perceptual -Feeling - Intuition - Introverted	
	Judgment - Thinking - Sensation - Introverted	
	Judgment - Thinking - Intuition - Introverted	

Designing internal stimuli neural networks on various guerrilla advertisings

According to the results of clustering by using the neural gas network, the perceptron network defined in order to design and cluster determined components with the least errors. To instruct proper neural networks, data resulted from the questionnaire divided into three groups, namely, instruction group, validation group, and examination group, also their ratio is respectively, %70, %15, and %15. The division is accidental and it is equal for all presentations of neural networks with different structures. Concerning the above model and defined data, the process of recurrent neural network with different permutations based on instruction algorithm, the number of layers, and neurons and the

number of delays done. Ten hidden neuron layers contain a Log-Sigmoid function core, and fifteen hidden neuron layers contain Hyperbolic function due to minimizing the errors of questionnaire parameters. For covering transfers and decreasing anticipation errors, fifteen Hyperbolic function neurons regarded. by using game theory, neuron cores extracted in order to enhance instruction notion. Hence to avoid non-linear results, output layers used linear function in neuron core to the linearization of results. So the output of a neuron in fundamental layers will be an input neuron in the hidden layers.

Finally, the outputs of hidden neuron layers would be the inputs of neurons in the outer layers. In the following survey about personal traits based on guerrilla advertising strategies is non-linear. The amount of mean square error is based on the Minimum

standard deviation, and the establishment of goal quantity is based on the Value distribution function. Meaning the amount of mean square has the least errors, thus the amount of standard deviation to be minimum in pattern selection and also the numbers of validity and test to be fit in pattern anticipation graph.

Such precision means that the created pattern is identifiable with the precision of

%98. Also by using game theory, the neuron core instructed and tested with different hidden, input layers in every stage. So The model has the least standard deviation, namely, it is the capability of anticipation in terms of neural networks, and as a fitness of the model with the least error for anticipating new data.

Table 7. Report of average errors in different presentations

Instruction	MSE	Amount of test precision	Amount of validity precision	Amount of instruction precision	delay	Hidden layer's neuron			
LM	6.5489	15	15	70	2	10			
LM	6.549	10	10	80	2	20			
LM	7.3159	5	5	90	2	30			
LM	8.1635	15	15	70	4	10			
LM	6.2549	10	10	80	4	20			
LM	7.3694	5	5	90	4	30			
LM	5.1694	15	15	70	6	10			
LM	8.3056	10	10	80	6	20			
LM	4.0964	5	5	90	6	30			
LM	6.3499	15	15	70	8	10			
LM	5.3349	10	10	80	8	20			
LM	4.1532					5	90	8	30
LM	1.3649	Designed network							

Reference: researcher's discoveries

Based on the designed network in (Table 7), functions and the image of the functions, which are non-linear in the hidden layer, and linear in the output layer showed. Structure of the neural network with two hidden layers based on the designing of neuron core

explained in the following part. But before going through that, the topology of the designed network for process benchmarking of the intended network must be determined. The topology of the neural network has shown (Figure 4).

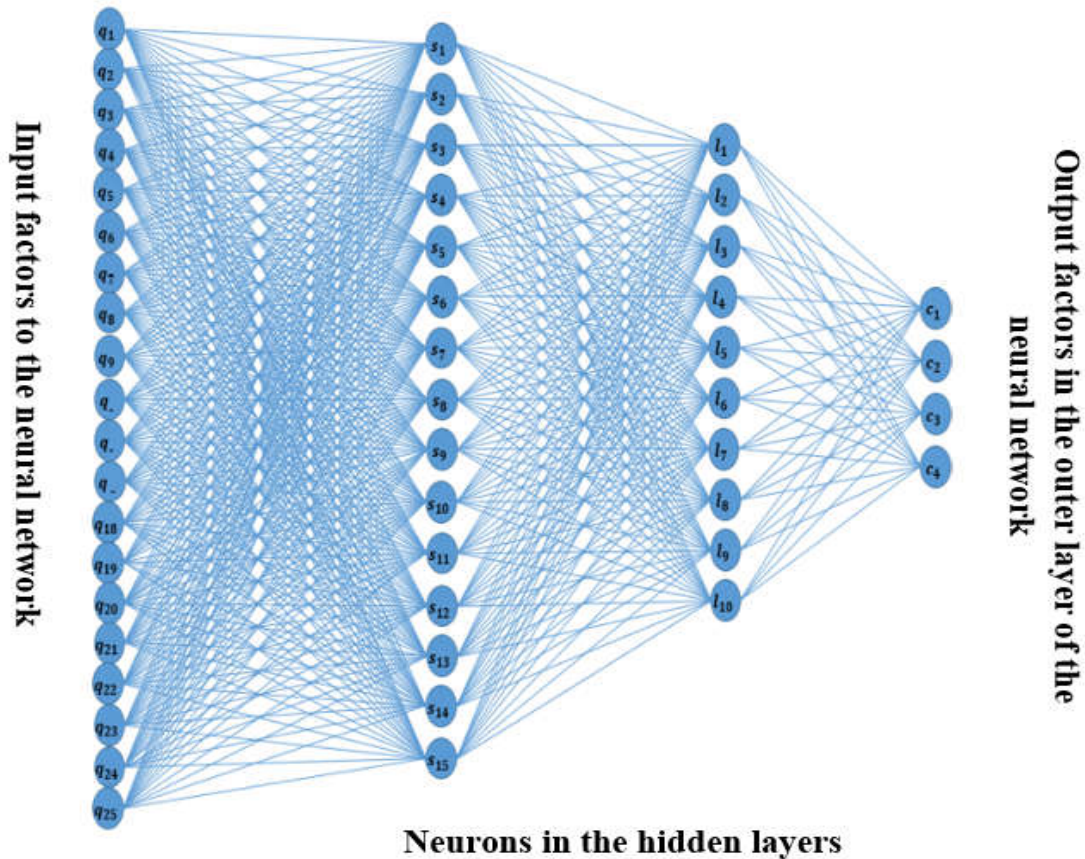


Figure 4. Designed neural network based on clustering internal stimuli and guerrilla advertising

As the (Figure 4) suggests, the number of inputs from 1q to 25q enters the designed network as input factors (The number of specialized questions in the questionnaire). Those factors include given data such as

individual difference testes, which used as input factors for clustering. Respectively, 10 and 15 hidden neurons and the relation with the outer layer shown, and the separation of each component based on (Table 8).

Table 8. Separation of components based on designed neural network

Variable name	function
hedonism	S1,s2,s3
sectarianism	S3,s4,s5
convenience and accessibility	S6,s7
perceived usefulness	S8,s9,s10
Personology by using MBTI test	S11,s12,s13,s14,s15
Linear relation of attitude and guerrilla advertising based on cost reduction	C1
Linear relation of attitude and guerrilla advertising based on social media	C2
Linear relation of personality types and guerrilla advertising based on cost reduction	C3
Linear relation of personality types and guerrilla advertising based on cost reduction	C4

Reference: researcher's discoveries

Conclusion

According to reports of the mobile telecommunication company of Iran in the spring of 2020, among 80 million Iranians, 75 million people have smart phones, and 35 million of them use social media such as Instagram, so this number leads to the creation of various guerrilla advertisings. As already in the introduction and record of the survey mentioned, one of the effective factors in guerrilla advertising is the knowledge of individual psychology. Hence the purpose of the survey is to identify and rank those factors based on guerrilla advertising. The dolphi method used three rounds in the section of identifying the internal stimuli. according to the results from sample members, attitude components, namely, hedonism and sectarianism, and, also technical indexes with components, namely, convenience and accessibility, perceived usefulness, and personality by using Myers- Briggs Type Indicator, are effective on guerrilla advertising. Because of converting non-linear and uncertain relations between individual differences and guerrilla advertising into linear and certain relations by using nuclear functions, the Perceptron neural network used in the rank section for Statistical society. Designing neural networks to plan effective guerrilla advertising, by attitude and personality components with two hidden neuron layers, and one obvious neuron based on four relations between internal stimuli and guerrilla advertising done. Results show that people with Extraverted-Intuition and judgment type, are prone to guerrilla advertising based on social media, on the

other hand, the people with Introverted-Feeling-thinking and judgment type prefer guerrilla advertising based on cost reduction. According to the results, it's recommended to sports retailers to consult with clinical psychology specialists, in order to design a unified management system for customer conversation, to identify their personality types and design a customized guerrilla advertising. Attitude with technical indexes with components, namely, convenience and accessibility, perceived usefulness has the most influence on guerrilla advertising based on social media. It's recommended to sports retailers to develop fundamentals and having more influence on technological communication in order to shift the audience's attitude by better usage of social media. According to results in the relation of internal stimuli on guerrilla advertising and their effects on the decision of business managers and the importance of this matter on keeping costumers, it also recommended surveying the relationship between variables and gender segregation in business in the future.

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