

The Relationship between Demarketing and Customers' Perception toward Reducing Water Consumption

“An applied study”

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Abstract:

This study aims to identify the effect of demarketing mix (product, price, place and promotion) on customers' perception toward reducing water consumption in Mansoura. It adopts post positivism philosophy, deductive approach and quantitative method. Data were collected from 390 customers in Mansoura. Path Analysis was employed to test the research hypotheses using Amos 24. The research results revealed that demarketing mix significantly influenced customers' perception toward reducing water consumption.

Keyword: Demarketing, Product, Price, Place, Promotion, Customers' Perception.

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1. Introduction:

Water is one of the most important elements for people to survive (Wang et al., 2018). According to the problem of Al- Nahda Dam and reducing amount of water available, government does its best to improve customers' perception toward reducing water consumption.

For example, government changes farmers' perception to save water that affects natural resources and economy (Withanachchi et al., 2018). Interestingly, many researches are concerned about the role of demarketing in reducing smokers' intention to quit smoking or rationalizing electricity consumption (Mcelrath et al., 2005; Shiu et al., 2009). Furthermore, there are many harmful or unhealthy products that customers need to reduce demand for them (Coulter et al., 2001).

Demarketing is an aspect of marketing that tries to reduce customers' demand (Kotler & Levy, 1971). For example, Christopher (1988) uses advertising campaigns that affect customers' intention to reduce demand. Traditionally, providing extra fees should be paid by customers who misuse water in order to rationalize their consumption.

However, previous studies explained the effect of demarketing on customers' perception to quit smoking such as (Hanifi & Wandebori, 2015; Tang et al., 2015; Shirari, 2017; Liligeto, 2014; Shiu et al., 2009). Furthermore, Yousif (2014) focused on measuring the impact of demarketing on Jordanian behavior to reduce their consumption of water. So, there are no previous studies have discussed the effect of demarketing mix on customers' perception to reduce water consumption. Hence, the research question is:

What is the effect of demarketing on customers' perception to reduce water consumption?. To answer the above question, this study aims to determine the effect of demarketing mix on customers' perception toward reducing water consumption.

2. Theoretical background:

2.1 Demarketing:

Kotler and Levy (1971) define demarketing as the aspect of marketing that

tries to reduce the customers' demands, temporary or permanently. Furthermore, Cullwick (1975) and Nicholas (2014) state that demarketing is an integral part of general marketing. Indeed, the development of marketing orientation is the vital part of the demarketing concept. Kern (2006) outlines demarketing as a way or direction of marketing that is used to discourage the customer's needs.

Therefore, demarketing can be used to increase the customers' awareness about the negative effects of unhealthy product, product use and product impact on the environment (Sodhi, 2011).

In addition, demarketing should play an important role in changing the customers' behavior in order to reduce their consumption of unhealthy products (Yousif, 2014). Furthermore, demarketing is an active tool that is used to reduce customer consumption of a specific product or service, such as fuel, water, and electricity because of the scarcity of the resources and is also used to reduce the consumption of unhealthy products like smoking and nutrition (Elsamydai, 2015).

Based on the above discussion, the researchers adopt the definition suggested by Elsamydai (2015). Also, demarketing mix includes four elements as follows:

2.1.1 Product:

Cullwick (1975) defines product substitutes as the product that deals with raw material in order to achieve price stability. Marketers should also choose the best alternative according to price trends, product quality and supply. Additionally, Clements (1989) adds manipulation of the product that prevents using the physical attributes such as nightlife, quality control in each restaurant and service levels.

Definitely, consumption is a way of exploring customers' identity and how their purchases look to others. Marketers should play a vital role in changing product sales through increasing product packaging to buy and consume more. Thus, the marketer will need to know the amount of quantity offered at the market (Sodhi, 2011).

Obviously, government and Drinking Company should introduce a new idea for customers in order to help them in rationalizing their consumption. For

example, they provide automatic taps that are available anywhere with fewer prices. Also, government informs people about how to use water in their home. It installs auxiliary parts to help customers to save water. For instance, customers can use water of washing foods or ablution water in order to irrigate their garden. Furthermore, customers can use water of washing fruits in washing car. Additionally, customers should close tap as fast as possible after using water.

2.1.2 Price:

Higher price and manipulation of the price can discourage customers and can also provide a positive resort image (Clemets, 1989). Indeed, high price has a greater impact on the customers' demands (Varian, 1993).

Both, Maxwell (2002) and Levy et al. (2004) confirm that paying taxes on cigarettes can reduce smokers' ability to buy cigarettes by at least 10% and can affect the smokers' intention to quit smoking. Xia et al. (2004) also reveal that imposing taxes can affect the customers' intention to purchase a product or to quit a habit.

Clearly, government and Drinking Company can impose taxes and fees on those who misuse water (Clements, 1989; Beeton 2001; Kern, 2006; Beeton & Pinge, 2003). Government can cancel financial support on water. Furthermore, it can impose extra fees on water bills through setting fees on sanitation, services and sustainability threshold to help customers rationalize their water because they will pay more money.

2.1.3 Place:

Today, the concept of distribution channels is under pressure. So, marketers should look after developing and planning the restructure of distribution channels, which require time and flexibility for the short term changes (Cullwick, 1975).

Thus, demarketing place strategy is used to discourage tobacco, restrict places where customers can smoke, set access controls on such products and limit the availability of such products (Giesbrecht, 1999; Wall, 2007; Roets et al., 2013). Remarkably, one of the important demarketing strategies is to

restrict smoking in public, work and open places. These efforts provide a negative picture of smoking and a negative stereotyping of smokers (Pechmann & Knight, 2002; Chauhan & Setia, 2016).

Furthermore, the company's positioning requires controlling demarketing, reducing demand and recognizing alternate objectives (Cullwick, 1975).

Evidently, government and Drinking Company should provide customers with periodic maintenance of water pumps and network. Furthermore, they can provide customers with prepaid card for charging counter of water like electricity. Moreover, customers should maintain tap of water to prevent leakage of water.

2.1.4 Promotion:

Certainly, the promotion strategy of demarketing focuses on reducing customers' consumption of alcohol and tobacco through reducing advertising campaigns on unhealthy products and increasing their promotional efforts in order to provide information about how customers reduce their excessive consumption such as excessive alcohol drinking and excessive water consumption (Giesbrecht, 1999).

Additionally, the most important role in promoting smoking related attitudinal and behavioral modification is the emotional reactions (fear, sadness and anger) (Wakefield et al., 2005). The findings showed that the youth is unlikely to respond to tobacco advertising made by Tobacco and Pharmaceutical companies and Tobacco control agencies through comparing 50 different anti-smoking advertising on 278 youth in order to reduce their intention to quit smoking (Wakefield et al., 2005).

Finally, such campaigns have a direct negative effect on customers' attitude and intention to change their habits and also to reduce their consumption of such a product (Andrews et al., 2004; Shiu et al., 2009; Roets et al., 2013; Chauhan & Setia, 2016). Also, Chung (2016) reveals that smokers may resist antismoking advertisement campaigns based on social disapproval and fear related themes. Apparently, government and Drinking Company should make a conference and advertising campaigns to highlight the importance of reducing water consumption. Also, government can make awareness campaigns to

provide customer with information about how to rationalize their consumption and realize the importance of saving water.

2.1.5 Customers' perception toward reducing water consumption:

Barber and Legge (1976) state perception as the process that consists of receiving, selecting, transforming and organizing information. Hence, Berelson and Steiner (1964); Kotler and Armstrong (2001) and George (2011) define perception as a complex process where people need to select, interpret, acquire, transform and organize stimuli into a meaningful picture through using their senses and experience. Thus, perception plays a major role in selecting which product to buy (Phanthong & Settanaranon, 2011). Therefore, perception is very important to gain profit.

Moreover, Withanachch et al. (2018) explore the effect of water quality on food production. Farmers' perception toward reducing their consumption is an important element affecting food production. If customers know the risk of misusing water, they will change their perception toward saving water. Yang et al. (2018) find that customers' perceptions toward reducing water encourage customers to save water.

Finally, Fan et al. (2018) reveal that farmers' perceptions of water problem encourage them to reduce their consumption in order to save water. Thus, the researchers adopt the definition of Kotler and Armstrong (2001); Berelson and Steiner (1964) and George (2011).

3. The relationship between demarketing mix and customers' perception toward reducing water consumption:

Zeithaml (1988) concludes that products' labeling, promotion strategy, Advertising, products' packaging and products' quality significantly influenced customers' perception. Additionally, Grewal et al. (1998) reveal how advertising, products' quality and price affected customers' perception to purchase a specific product through employing questionnaires on 309 respondents who have a bicycle out of 335. Also, they test two types of store bicycles (K mart, Ken's bicycle shop) and set price comparison advertising for respondents. Furthermore, they stated that advertising, products' quality and

prices are directly correlated with customers' perception toward store name and brand quality.

Also, Coulter et al. (2001) confirm that the advertising of unhealthy or harmful products (smoking) or harmful societal issues (crime) and health related issues and advertising evaluation should influence consumer perception. Furthermore, Lowe (2010) demonstrates how perceived risk moderates the relationship between advertising, price discount and customers' perception. Results show that perceived risk, price discount and customer attributes have a significant direct effect on customers' perception.

While, Raut and Pawar (2010) state that demarketing of tobacco products plays a significant role in changing smokers' perception to smoke cigarettes. Results suggest that product has a significant positive effect on smokers' perception to reduce smoking cigarettes. Likewise, Phanthong and Settanaranon (2011) reveal that advertising (media channels like television and internet) is significantly and positively related to customers' perception.

Additionally, Ramirez and Tajdini (2016) demonstrate how advertising campaigns affect customers' perception, attitude and behavior in order to reduce their consumptions. Also, advertising campaigns affect customers' perception, attitude and actual behavior. Moreover, results reveal that efforts and distribution (place) have a significant impact on customers' perception, attitude and actual behavior through using two experimental studies.

Gerstner et al. (1993) propose that distribution (place) is an important factor that associates profits, market share, consumers' perception and total customer welfare through making 13 interviews (lasting between 45-60 minutes). Additionally, Kern (2006) and Alsamydai (2015) adopt demarketing mix (product, price, place and promotion) in order to reduce tourist' demand at Australian national park. The finding reveals that the demarketing mix is an important factor that associates with reducing number of visitors. Additionally, Shiu et al. (2009) show that demarketing mix impacts customers' attitude and customers' intention to quit smoking cigarettes.

Likewise, Mcelrath et al. (2005) examine the effect of antismoking campaigns on youth perception. Results reveal that antismoking campaign

positively influenced smokers' perception and smokers' intention to quit smoking cigarettes through using empirical longitudinal data. Besides that, demarketing plays an essential role in reducing demand through reducing spending tourism expenses (Beeton & Pinge, 2003). Wakefield et al. (2005) demonstrate that antismoking advertising campaigns are significantly correlated with smokers' attitudes.

Shiu et al. (2009) and White and Thomas (2016) confirm that demarketing mix indirectly affects smokers' intention and directly influences smokers' perception to quit smoking. But, Sarwar et al. (2013) declare that the aim of their research is to understand the effects of Chinese products on customers' perception in Malaysia through employing survey on 300 respondents, only 194 surveys were valid. Results show that the product' quality has a non-significant effect on customers' perception but a significant impact of pricing on customers' perception toward buying Chinese products in Malaysia.

In addition, Liligeto (2014) focuses on knowing the effect of advertising media (TV and newspaper) and personal characteristics on customers' perception toward advertising. So, results reveal that the advertising campaign has a significant direct effect on consumer perception.

Tang et al. (2015) also reveal that product packaging and product labeling significantly influenced customers' perception through using explanatory research. Furthermore, Shirai (2017) demonstrates how pricing tactics (temporal reframing of prices, measure based unit pricing and usage based unit pricing) affected consumers' perceptions. Results suggest that only usage based unit pricing was significantly related to customers' perception.

Finally, Hanifi and Wandebori (2015) show that antismoking campaigns (advertising) essentially impacted smokers' perception to smoke cigarettes. According to the literature review discussed above: traditionally, the marketing mix (product, price, place and promotion) refer to the controllable variables of the marketing mix and as we know demarketing is used to reduce demand of the consumer which is the opposite function of marketing. Thus, this study proposes the following hypothesis:

H1: Demarketing mix has a significant effect on customers' perception

toward reducing water consumption.

This hypothesis is divided into the following sub hypotheses:

- H1a: Demarketing for product has a significant effect on customers' perception toward reducing water consumption.
- H1b: Demarketing for price has a significant effect on customers' perception toward reducing water consumption.
- H1c: Demarketing for place has a significant effect on customers' perception toward reducing water consumption.
- H1d: Demarketing for promotion has a significant effect on customers' perception toward reducing water consumption.

Thus, the researchers propose the conceptual framework as shown in figure (1):

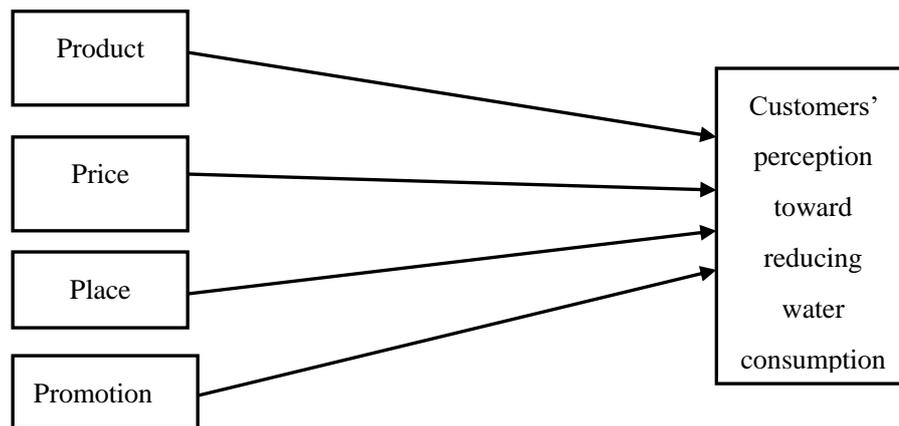


Figure (1)
Conceptual framework

4. Research Method:

4.1 Sample and procedures:

This research adopted a post positivism philosophy, deductive approach and quantitative method. Convenience sample is employed to perform this research. The sampling unit is customers of water consumption in Mansoura. Sample is divided into three categories. The first category consists of the west district (200 questionnaires) for example: Samia El-Gamal Area, Samy El-Gamal, Ahmed Maher Street, Mashaya etc... The second category is the east district (155 questionnaires) for instance: Mubarak City Street, Governorate,

Al-Estad Street, Al-Salam City etc. The last one includes Drasat and Kufir Badmas (35 questionnaires).

The sample size is determined at a confidence level of 95%, with a standard deviation of 5% which is mostly used in marketing research. Saunders et al. (2016) confirmed the required size for the sample equal 384, if the size of population is more than 10,000,000.

Also, Saunders et al. (2016) recommended that researchers should distribute to more than 384 respondents. Thus, the researchers distributed 550 questionnaires. 390 questionnaires out of 550 return to the researcher (Response rate= 70.9 %). The researchers perform a pilot study using 50 customers. Cronbach alpha for all constructs is more than 0.7.

4.2 Measures:

Each variable of this study is measured using a five likert scale ranging from strongly disagree (1) to strongly agree (5). The scale for measuring demarketing mix (product, price, place and promotion) used 27 items developed from Yousif (2014); Beeton and Benfield (2002); Beeton and Pinge (2003); Clemets (1989) and Benfield (2001) with slight modifications. Also, 15 items for measuring customers' perceptions were derived from Parsuraman et al. (1988) with minor revisions. Thus, 42 items are used to measure the whole study. The measurement scale should be reshaped to be suitable to this study. The questionnaire's form is divided into the two subsequent parts as shown in appendix (A).

5. Data analysis and results:

In this part the researchers test the research hypotheses:

5.1 Measurement model:

The measurement model evaluates the correlation between observed and latent variables. Also, this study used AVE test to measure convergent validity. Furthermore, table (1) shows cronbach alpha, Composite reliability (CR) and AVE. Results revealed that cronbach is more than 0.70 and AVE is above 0.

Table (1)
Reliability and validity of measurement model

Factors	Code of Items	Loading	α	CR	AVE
Product	a.2	0.820	0.879	0.888	0.533
	a.1	0.775			
	a.4	0.794			
	a.5	0.709			
	a.6	0.658			
	a.3	0.717			
	a.7	0.583			
Promotion	d.1	0.650	0.825	0.945	0.636
	d.2	0.785			
	d.3	0.830			
	d.4	0.788			
	d.5	0.874			
	d.6	0.873			
	d.7	0.892			
	d.8	0.789			
	d.9	0.812			
	d.10	0.636			
Price	b.1	0.885	0.799	0.924	0.709
	b.2	0.847			
	b.3	0.845			
	b.4	0.772			
	b.5	0.856			
Place	c.2	0.885	0.702	0.782	0.500
	c.3	0.760			
	c.4	0.757			
	c.5	0.122			

Continue

Perception	g.12	0.926	0.928	0.929	0.815
	g.9	0.925			
	g.3	0.816			
	g.4	0.657			
	g.13	0.676			
	g.7	0.935			
	g.10	0.931			
	g.1	0.839			
	g.2	0.771			
	g.8	0.963			
	g.11	0.903			
	g.5	0.543			
	g.14	0.492			
	g.15	0.825			
	g.6	0.914			

5.1.1 Discriminant validity:

Tarling (2008) states discriminant validity as “a degree to which each constructs differ from other construct”. Construct is unique when discriminant validity is high (Hair et al., 2010). Thus, the researchers use AVE square root in order to measure discriminant validity. Moreover, results reveal that there was a significant correlation ($P < 0.001$) between variables through adopting correlation matrix (see table 2).

Table (2)

Correlation matrix and square root of AVE

	CR	AVE	promotion	product	perception	Price	place
promotion	0.698	0.541	0.755				
product	0.880	0.515	0.059				
perception	0.929	0.815	0.105	0.132			
price	0.835	0.504	0.044	0.138	0.073		
place	0.805	0.510	0.059	0.033	0.382	0.152	

5.2 Structure modeling and hypotheses testing:

There is a significant effect of demarketing mix (product, price, place and promotion) on customers' perception toward reducing water consumption. Product, place and promotion have significant positive effects on customers' perception ($\beta= 0.01$, $P < 0.01$), ($\beta= 0.44$, $P < 0.01$), ($\beta= 0.16$, $P < 0.01$) respectively, but price has a significant negative effect on customers' perception ($\beta= -0.1$, $P < 0.01$). Therefore, H1 is accepted (see Figure 2).

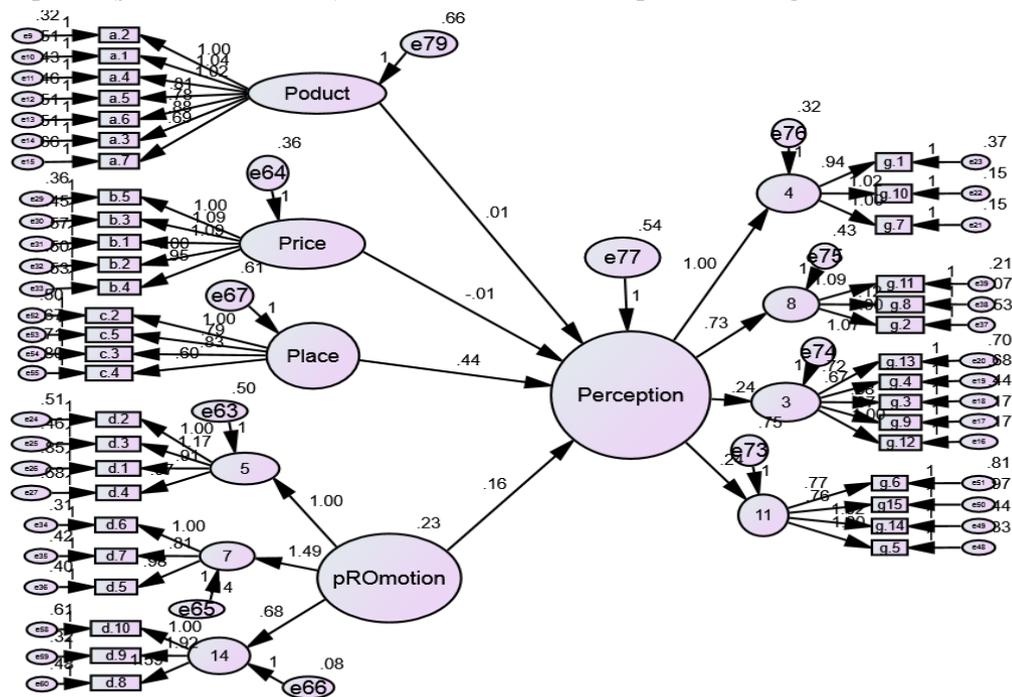


Figure (2)

The effect of demarketing on customers' perception to reduce water consumption

6. Discussion:

The research result reveals that product has a significant positive impact on customers' perception to reduce water consumption. Therefore, H1a is accepted. This result is consistent with the study of Raut and Pawar (2010). It mentioned that reducing the quality of tobacco affects smokers' perception toward quitting smoking cigarettes. Also, Zeithamel (1988), Grewel et al. (1998) and Coulter et al. (2001) agree with the current study. They confirm

that product quality has a significant effect on customers' perception toward reducing customers' demand. Thus, government introduces a new idea for people to improve customers' perception toward reducing water consumption. For example, the government reduces the amount of water pumped by the Drinking Company. Also, the government provides automatic water taps to reduce the amount of waste.

Moreover, this research finds that price has a significant negative effect on customers' perception toward reducing water consumption. Therefore, H1b is supported. This point is questionable as previous studies are against this result. This finding is consistent with Lowe (2010); Shirai (2017) and Dodds et al. (1991). They prove that price discount has a significant direct effect on customers' perception toward reducing customers' demand. For example, increasing the reserve ticket will change visitors' perception toward visiting the reserve. According to this study, increasing the cost of water will encourage and motivate customers to reduce their consumption in order to pay less or save money and improve quality of service provided by the Drinking Company. Moreover, government should set restrictive pricing policy and transferring customers' consumption from one slice to another in order to change customers' perception toward saving water.

Also, this research reveals that there is a significant positive effect of place on customers' perception toward reducing water consumption. Therefore, H1c is supported. . This result is consistent with Ramirez and Tajdini (2016), Kern (2006) and Alsamydai (2015). They demonstrate that distribution has a significant impact on customers' perception toward reducing customers' demand. Also, maintaining water system periodically will help the government and the Drinking Company to respond to customers' complains about saving water. Moreover, using and synthesizing prepaid counters, treating wastewater and reusing it will provide customers with a good service.

Lastly, research results reveal that there is a significant positive effect of promotion on customers' perception toward reducing water consumption. Thus, H1d is supported. Obviously, increasing promotion about how to save water will increase customers' perception toward reducing water consumption. Some scholars confirm that advertising campaign of unhealthy products (such as cigarettes) positively affects customers' perception to quit smoking or reducing customers' demand (Kern, 2006; Alsamydai, 2015; Phanthong & Settanaranon, 2011; Mcelrath et al., 2005, Mcelrath et al., 2005; Ramirez & Tajdini, 2016; Coulter et al., 2001; Zeithamel, 1988). Also, TV advertising campaigns that provide facts about the problem of Egyptian water consumptions will improve customers' perception toward reducing their consumption.

Finally, results prove that the four dimensions of demarketing mix are significantly related to customers' perception toward reducing water consumption. Therefore, H1 is accepted.

7. Limitations and future researches:

This study has some limitations which should be addressed in the future.

First, this study focuses only on developing countries. Thus, future researches should apply on developed countries. Furthermore, this study is applied on water consumption. So, future research can collect data from unhealthy food or cosmetics. Moreover, this study adopts cross sectional data by using questionnaire. So, future research can adopt longitudinal data to know and identify the changes happened in the effect of demarketing on customers' perception toward reducing water consumption.

Second, this study focuses only on the effect of demarketing mix on customers' perception toward reducing water consumption. Future research should examine the direct and indirect effect of demarketing on customers' intention to reduce water consumption.

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Appendix (A)

NO.	Statement	Reference
	Product (A)	
A1	Government introduces new ideas about rationalizing water.	(Yousif, 2014)
A2	I accept any practical idea about rationalizing water.	
A3	Rationalizing water is a comfortable idea for me.	
A4	I follow the ideas of rationalizing water.	(Beeton & Pinge, 2003)
A5	Ideas about rationalizing water introducing from the drinking company or government are applicable to use.	(Clements, 1989)
A6	Ideas about rationalizing water benefit both, individual and society.	(Beeton, 2001)
A7	Ideas about rationalizing water are characterized as new.	(Beeton, 2001)
	Price (B):	(Koltler & levy, 1971);
B1	Increasing price of water plays an important role in affecting my decision to rationalize my consumption.	(Clements, 1989); (Yousif, 2014)
B2	Reducing support on water prices providing from the drinking company play an important role in rationalizing my consumption.	(Yousif, 2014)
B3	If the drinking company imposes fine about misusing water, it will motivate customers to rationalize their consumption.	
B4	Increasing water fees play an important role in rationalizing my consumption.	(Clements, 1989); (Beeton ,2001); (Beeton& Pinge ,2003)
	Place (C):	
C1	If customers increase their consumption (moving from one slice to another), it will motivate them to rationalize.	(Beeton &Benfield,2002)
C2	Installation of automatic taps motivates me to rationalize.	(Beeton &Benfield, 2002); (Clements, 1989); (Beeton, 2001); (Beeton& Pinge ,2003)
C3	Installation of the prepaid counter motivates me to rationalize.	
C4	Treatment of wastewater to reuse in garden motivates me to rationalize.	

No.	Statement	Reference
C5	Maintenance of water network periodically motivates me to rationalize.	(Beeton & Benfield, 2002); (Clements,
C6	Maintenance of water counter periodically motivates me to rationalize.	1989); (Beeton, 2001); (Beeton & Pinge ,2003)
	Promotion (D):	
D1	Promotional campaigns convince me to rationalize.	
D2	Promotional campaigns affect the amount of water available for me.	(Yousif , 2014)
D3	Media programs motivate me to rationalize.	
D4	My family and friends encourage me to rationalize.	
D5	Announcing intensive promotional campaigns about saving water on radio and TV motivate me to rationalize.	
D6	Providing campaigns and awareness conferences about saving water motivate me to rationalize my consumption.	
D7	Providing me with information about how to rationalize water on different media motivate me to rationalize my consumption.	(Beeton & Pinge,
D8	Announcing facts about reducing the amount of water available for Egypt motivate me to rationalize.	2003)
D9	Announcing information about the problem of water in Egypt motivate me to rationalize.	
D10	When I know that wasting water is forbidden, it motivates me to rationalize more.	
	Customers' perception toward reducing water consumption (G):	
G1	The drinking company has advanced types of equipment to know my consumption.	(Parsuraman et al.,
G2	Increasing switching off water will motivate me to reduce my consumption.	1988)

No.	Statement	Reference
G3	Announcing the time of switching off water will help me to improve my perception toward rationalizing.	(Parsuraman et al., 1988)
G4	The accurate recording of my bill will encourage me to rationalize.	
G5	Trusting my bill will affect my decision to rationalize.	
G6	If the drinking company responds to my complaint, I will rationalize my consumption.	
G7	The type of services provided by the drinking company will encourage me to rationalize.	
G8	Providing services on time will encourage me to rationalize.	
G9	If I receive good services for water collectors, customers will rationalize my consumption.	
G10	Helpful employees of the drinking company motivate me to rationalize.	
G11	If Employees of the drinking company are too busy to respond to customer requests, it will affect my decision to rationalize.	
G12	If I feel safe when I deal with employees of the drinking company, it will affect my decision to rationalize.	
G13	Trusting collectors of the drinking company will affect my decision to rationalize.	
G14	Ignorance and unawareness from employees of the drinking company will affect my decision to rationalize.	
G15	Operating hours of the drinking company aren't convenient to me.	