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AN EXAMINATION OF PURCHASE BEHAVIOR VERSUS PURCHASE ATTITUDES FOR ENVIRONMENTALLY FRIENDLY AND RECYCLED CONSUMER GOODS

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INTRODUCTION

In recent years, more and more people have noticed physical changes in the environment. This new awareness has led to a growing trend of public concern toward environmental issues. The environmental awareness or "green" movement has prompted many industries to examine the possibility of using more environmentally friendly ways of conducting business (Castro, 1990; McIntosh, 1991) that include product, production, and packaging redesign in an effort to reduce emissions and waste (Neace, 1990). Continued consumer interest in the environmental movement has made developing environmentally friendly products (or "greening") an important issue for managers and marketers. Since consumers' environmental concerns affect all aspects of a firm's operations, the environmental movement is emerging as a fundamental business issue that must be dealt with by industry (Ottman, 1992). Environmental marketing is expected to become an integral part of corporate life and has been elevated to a major element of the marketing mix (Coddington, 1990), affecting everything from product and packaging through positioning and promotion (Vandermerwe and Oliff, 1990).

Despite the trend toward increased environmental awareness, many business leaders have been disappointed by the fact that, for the most part, consumer purchases of environmentally friendly products have been much less than anticipated (Riell, 1991; Wasik, 1992). In an attempt to examine an apparent lack of enthusiasm on the part of the consumer, this paper proposes to compare consumer claims of a willingness to purchase environmentally friendly products to consumer reports of actual purchase activity. Comparisons are also made between consumer perceptions of environmentally friendly products in general and recycled consumer goods, and between attitudes and behaviors regarding product packaging. These comparisons are made to determine if consumer perceptions and purchase behavior regarding recycled products and product packaging differ from perceptions and purchase behavior of environmentally friendly products in general.

DEFINING ENVIRONMENTALLY FRIENDLY PRODUCTS

Although no solid definition exists, environmentally friendly products are generally considered to be those types of products that reduce harm or impact to the environment in comparison to their "non-green" counterparts. This paper will refer to environmentally friendly or "green" products as those non-recycled goods that are designed to be beneficial to the environment or at least reduce environmental impact as compared to their "non-green" counterparts. Recycled products will be considered separately, since they may be perceived to have a lesser impact on the environment by default. Environmentally friendly product packaging is packaging made from more environmentally friendly materials (e.g., cardboard rather than styrofoam). As an additional category, environmentally friendly product packaging may also itself be made from recycled material.

The Focus of Environmental Consumerism

As consumers have begun to give increasing concern to environmental factors, many companies have started to look to the green market for new growth opportunities. To date, most industry efforts at capitalizing on this market have been focused on recycled products and environmentally friendly consumer products and packaging. Producers have placed the most emphasis on consumer products that are of a relatively high profile and that can be easily used to communicate a message of the product's environmental attributes (Peattie and Ratnayaka, 1992).

Because of the expected sales potential of environmental products, numerous studies have been conducted to determine who the potential consumers for environmentally friendly products are (e.g., Anderson and Cunningham, 1972; Balderjahn, 1988; Kinnear and Taylor, 1974; Kinnear, Taylor and Ahmed, 1974). Most of these studies are aimed at determining the willingness of consumers to accept environmentally friendly products if and when they are introduced. Few studies have attempted to compare the intentions claimed by consumers to the actual purchase behavior of consumers regarding environmentally friendly products. The bulk of research to date tends to focus on the consumers' willingness to purchase products in the future, or the hypothetical willingness of consumers to purchase particular types of products.

GREEN CONSUMERISM: A REVIEW OF PAST RESEARCH

During the late 1960's and early 1970's, environmental issues increasingly became important to industry. Lavage (1970) was possibly one of the first to address the issue that marketing may have the ability to make a contribution to the resolution of social and economic problems. The timing of Lavage's message coincided with a growing public interest over the quality of the nation's air and water. A later study by Kassarian (1971) examined several consumer attitudes toward air pollution. This study found that those consumers concerned with environmental issues were also interested and receptive to environmental information contained in advertising. It was found that respondents indicated a willingness to pay higher prices for products that offered a lesser degree of damage to the environment. Henion (1972) examined the influence of brand preference while manipulating the presence of environmental information about the product. He found that market share for environmentally friendly products increased when consumers were given information about the products' environmental attributes.

Anderson and Cunningham (1972) provided one of the earliest studies attempting to establish a profile of the environmentally responsible consumer. Their research suggested that the demographic variables of occupation, socioeconomic status, and age of the head of household were primary determinants of socially responsible purchasing. They also discovered that the sociopsychological variables of dogmatism, conservatism, status consciousness, and cosmopolitanism were the most effective measures of socially responsible purchase intentions. This research by Anderson and Cunningham led to a new area of interest about the environmental consumer, and later studies in this area focus on the demographic profiles of the environmental consumer (i.e., Kinnear et al., 1974; Kinnear and Taylor, 1974; Webster, 1975; Murphy et al., 1978).

Belch (1979) compared the lifestyles of environmentally concerned consumers with those of lesser concerned individuals. Again, results suggested that young, highly educated individuals high in social status were most likely to be concerned about environmental issues. Similar results were found in following studies aimed at determining the demographic profiles which characterize environmentally concerned consumers (i.e., Gill et al., 1986; Balderjahn, 1988).

From a behaviorist perspective, Maloney and Ward (1973) developed a study suggesting that the environmental crisis is a crisis of human behavior. The implications of this study were that problems with pollution were related to maladaptive behavior and that environmentally concerned behavior belonged in the realm of psychology. As part of their research, Maloney and Ward found that most

persons exhibited a high verbal commitment to environmentally related concerns but exhibited a low actual commitment to those same concerns. In other words, most of the individuals studied were quite emotional about supporting environmental issues but their actual behavior did not support their verbal commitments. Based on this research, Weigel (1977) sought to establish an improved scale of pro-ecological orientation. Weigel examined measures of sociopolitical ideology and demographic attributes and compared these to reported participation in environmental projects. Results suggested that groups exhibiting greater levels of participation tended to be more liberal in their social, economic, and religious philosophies. These individuals were also better educated and higher in occupational status than the general population.

Another noteworthy trend in environmental research stems from a stream of research indicating that consumers want environmentally related changes and will theoretically repay industry investments by accepting higher prices (i.e., Dagnoli, 1990). In a survey by Dagnoli (1990), 77 percent of those surveyed reported that a company's environmental reputation influenced their choice of brands. Environmentalism was listed as enough of a concern that 78 percent of the respondents claimed they would switch to an environmentally friendly container if it were priced as much as five percent higher than a less environmentally friendly container. Another 47 percent of the respondents said they would pay as much as 15 percent more for environmentally friendly packaging.

As stated previously, when the concept of green marketing began to take shape, many of the earliest questions researched were aimed at determining who the potential customers of environmentally friendly products might be. Amongst the latest in this research, Schwartz and Miller (1991) have identified five behavioral segments of American consumers based on their environmentally friendly behaviors. These behaviors include the purchase of biodegradable items, the purchase of products made from or packaged in recycled materials, the practice of recycling household packaging, and the contribution of money to environmental groups. The five consumer groups identified by Schwartz and Miller are: (1) True-Blue Greens, (2) Greenback Greens, (3) Sprouts, (4) Grouzers, and (5) Basic Browns (Table 1).

TABLE 1*

	True-Blue Greens	Greenback Greens	Sprouts	Grouzers	Basic Browns
Percentage of U.S. Adult Population	11%	11%	26%	24%	28%
Median Education	Above Average	High	High	Below Average	Below Average
Median Income	\$32,000	\$31,500	\$32,000	\$24,900	\$24,000
Willingness to Pay More for Green Products	Above Average	High	Average	Low	Extremely Low

*Taken from:

Adrian, Mitchell and Kenneth Dupré. "The Environmental Movement: A Status Report and Implications for Pricing," *Sam Advanced Management Journal* 59, no. 2 (Spring 1994): 35-40.

Of the groups listed, the True-Blue Greens are those individuals most dedicated to the environmental movement. They are likely to inspire and support environmental legislation and they make up a small but vocal part of the total population. True-Blue Greens tend to participate in environmental projects, contribute to environmental support groups, and are active in government legislation. They are the oldest of the groups measured, with a median age of forty-four.

The Greenback Greens are environmentally concerned, but not typically willing to sacrifice convenience or time. This group is most likely to pay more for green products or packaging (up to 20 percent more). The Sprouts are typically uncertain about environmental products. They have an interest, but are uncertain about the trade-offs between environmental protection and economic development. The Sprouts account for a significant portion of the population and are considered a significant swing group by managers and marketers.

The Grouzers and the Basic Browns are the non-environmental groups. The Grouzers tend to be environmentally indifferent. The Basic Browns believe that it is not their problem and that their contributions would be insignificant. Either of these groups will only purchase environmentally friendly products when they are perceived to be the best priced or quality alternative (Schwartz and Miller, 1991).

The Impact of Green Consumerism

Those businesses that are currently involved in the environmental movement are looking to attract an increasing number of consumers in one or more of the aforementioned segments (i.e., True-Blue Greens, Greenback Greens, Sprouts, Grouzers, and Basic Browns) hoping that the green movement can boost their profits in the long run (Adrian and Dupré, 1994). Proactive companies are attempting to take leadership roles regarding environmentally friendly products in order to gain a competitive advantage (Smyth, 1991). Many of the businesses that were quick to embrace environmentally oriented products were looking to these products as potential premium priced goods. The research geared toward discovering the pro-environmental consumer outlined several basic implications for marketers, namely that green consumers ranked high in education and income and were willing to financially support the availability of environmentally friendly products.

Contrary to research findings, many of those businesses producing and distributing green products have found the market to be less receptive than originally expected (Wasik, 1992). Procter and Gamble, Lever, and Coca-Cola were all early entrants into the environmental movement (Wasik, 1992). Despite good intentions and early customer acceptance, they and other producers have found that customer concerns about the environment are not always as strong or stable as research might indicate. Many retailers found that few customers are willing to sacrifice convenience for the environment (Larson, 1990; Riell, 1991; Schlossberg, 1992).

As customer attitudes about the environment change, so do levels of acceptance for certain types of products and packaging. Most supermarkets have begun to offer more recycled and recyclable products and more items packaged with less material. Wal-Mart established an in-store labeling program for environmentally friendly products based on early research of customer attitudes toward these types of products. Shortly after the program was implemented, Wal-Mart decided to lower the program's priority within the company. This decision was based on a lack of customer attention after the initial implementation of the program (Wasik, 1992).

Early Attempts at Selling Green Products

Despite consumer claims of a willingness to support environmentally friendly products, the initial sales of environmentally friendly products and packaging have been slow (Reitman, 1992). The rush to gain attention for environmentally friendly products led to a great deal of confusion concerning the specifics of what constitutes an environmentally friendly product. The confusion of what is and what

is not environmentally friendly and the competition for the green product market have been increasing (Winski, 1991). This increased confusion parallels recent trends indicating a lack of willingness for consumers to actually pay higher prices for such products. Sales suggest that price, quality, convenience, and availability are the major barriers to buying green products (Wasik, 1992), forcing many marketers and manufacturers to rethink the process of accommodating the environmental consumer (Schlossberg, 1990).

It has become evident to marketing experts that consumers will not always pay a premium price for environmentally friendly goods (Klein, 1990). Americans may not be as concerned about the environment as many of the initial surveys indicated and many people will not act in an environmentally friendly fashion unless they are compelled to do so. Schlossberg (1991) has brought attention to this fact by indicating that despite all the claims of environmental concern, Americans now put out more waste per day per person than they have in the last three decades. The inconsistency of attitudes and behavior toward environmental products may be explained in part by the concept of Socially Desirable Responses.

SOCIALLY DESIRABLE RESPONSES

Contradictions in the claimed behavior reported by early research and the actual behavior currently found by many marketers may be due in part to the concept of Socially Desirable Responses (SDRs). SDRs are answers given by a respondent that reflect what the respondent feels is socially desirable or correct, even though it is not consistent with the true actions of the respondent (Ross and Mirowsky, 1984). This behavior was noticed by Maloney and Ward (1973) when they discovered that consumer verbal commitments were not supported by consumer actions.

Giving socially desirable responses and agreeing with statements regardless of their content is an adaptive strategy for presenting a good impression of oneself and is often used as a strategy of impressions management (Kumar and Beyerlein, 1991). It is more common in social settings where there can be little or no negative impact on the user or in settings that stress the importance of a proper image. SDRs are most often given when the questions examined indicate some degree of perceived normative behavior and when there is relatively little to gain or lose in the situation (Ross and Mirowsky, 1984). These situations occur during the polling process, when individuals are being questioned about their attitudes or behavior. The respondents may be inclined to give good impressions by indicating the answer they feel is most socially desirable. In these situations, the respondents have nothing to gain or lose by their actions. Socially desirable responding is a relatively stable trait rather than a situation-specific one and can be expected to occur when general attitude tests are used (Furnham, 1986). This finding does not attempt to imply that respondents lie to researchers but rather that the beliefs of the individuals tend to comply to the normative values of the group. Despite this compliance of beliefs, behavior may not be so strongly influenced. SDRs become a major problem for researchers taking polls by eroding the reliability of a survey (Spanier and Cole, 1976; Crumbaugh and Henrion, 1988). Early research by Kinnear and Taylor (1974) did find that it was socially desirable for persons to appear concerned about environmental quality.

RECYCLED PRODUCTS AS A UNIQUE TYPE OF PRODUCT

At this point of the study it becomes important to offer some clarification and distinction between environmentally friendly and recycled consumer products. Environmentally friendly goods are those types of products aimed at preventing harm to the ecosystem. Examples of these types of goods include bio-degradable goods and products that use non-CFC (chlorofluorocarbon) propellant or refrigerants. Although recycled goods are aimed at reducing harm, recycled goods may also be perceived differently by consumers. Since recycled consumer products and product packaging are a significant part of the

consumer oriented green market, these types of products may deserve attention separate from other types of environmentally friendly products.

Two out of three Americans currently believe that recycling will solve most of the country's environmental problems and most consumers feel that recycled products should be less expensive than their virgin produced counterparts. In reality, the average consumer does not realize how costly it is to reuse materials (Ettorre, 1992). One problem surrounding the applicability of recycled products is that for most materials the technology and reclamation infrastructure has not kept pace with product demand (Bowtell, 1991; Kemelov, 1992). Early attempts at expanding the number of commonly recycled materials met with overwhelming success from consumers. This success led to an overabundance of many recyclable materials and drove down the price of returned waste. Except for aluminum recycling, material recovery facilities have never gained a strong financial foothold and the ability to expand facilities has been slow in developing (Naude, 1992). In most cases (except for aluminum), it is still cheaper to produce goods from virgin raw materials rather than from recycled materials (Ettorre, 1992).

METHODOLOGY

To test for socially desirable responses involving environmentally friendly and recycled products, two separate groups of questionnaires were administered asking similar questions from different perspectives. The test subjects in one group were instructed to respond according to their attitude toward each question, including expected future behavior. The test subjects in the second group were instructed to indicate their actual past behavior in relation to each question.

Sample Selection

A convenience sample of two independent groups of subjects was randomly chosen from the list of alumni at a large southern university. This sample was chosen because most research has determined that high levels of education are a common demographic characteristic for purchasers of environmentally friendly products. It was also hoped that a desire to reply to researchers at their Alma Mater might outweigh possible biases of attitudes toward environmentally friendly products. A sample of 600 alumni was chosen with dates of graduation ranging from the 1940's to 1992.

Questionnaire Administration

A pretest consisting of 50 subjects was administered by telephone. This allowed for some measure of two-way interaction between the interviewer and the respondent and provided a check for respondent comprehension of the instrument (Eden and Kinnar, 1991). Questions that were too ambiguous or confusing were rewritten. The primary test was then conducted by a mailed questionnaire to the 600 selected in the sample. Of the questionnaires mailed, 346 usable responses were returned for a response rate of 57.7 percent. Of the usable responses collected, 193 reported consumer attitudes and 153 reported actual purchasing behavior. Postmarks on the returned questionnaires indicated that sixteen states were represented in the sample: Alabama, California, Colorado, Florida, Georgia, Illinois, Kentucky, Louisiana, Maine, Mississippi, North Carolina, North Dakota, Ohio, Tennessee, Texas, and Washington. Of those responses collected, approximately 64 percent were from southern states.

THE QUESTIONNAIRES

As part of a larger study, the questionnaires were administered to the two groups, one questionnaire to each household. Instructions requested that the questionnaire be filled out by the family member who was responsible for most household purchasing decisions. Respondents were given a working definition

of environmentally friendly and recycled products and packaging and were instructed to consider these groups independently. The members of one group received instructions to respond according to their beliefs regarding each question or statement. Those in the second group were asked to respond according to past behavior. A summary of results is given in Tables 2 and 3.

TABLE 2
CONSUMER ATTITUDE SURVEY

1 = strongly agree

2 = agree

3 = neither agree or disagree

4 = disagree

5 = strongly disagree

n=193

	<u>Mean</u>	<u>Std. Dev.</u>	<u>Cronbach's Alpha</u>
1. Do you feel that people should attempt to purchase recycled products instead of new products?	1.99	.88	.87
2. Do you feel that people should look for products that utilize recycled packaging materials?	1.99	.94	.84
3. Are you willing to pay more for recycled products?	3.53	1.02	.83
4. Are you willing to pay more for products that use packaging made from recycled materials?	3.46	1.05	.84
5. Do you feel that people should attempt to purchase products that claim to be environmentally friendly?	1.92	.94	.84
6. Do you feel that people should look for products that utilize environmentally friendly packaging?	1.94	.90	.84
7. Are you willing to pay more for environmentally friendly products?	3.15	1.09	.83
8. Are you willing to pay more for products that use packaging made from environmentally friendly materials?	3.16	1.08	.83

TABLE 3
CONSUMER ACTUAL BEHAVIOR SURVEY

1 = almost always
2 = often
3 = sometimes
4 = rarely
5 = never

n=153

	<u>Mean</u>	<u>Std. Dev.</u>	<u>Cronbach's Alpha</u>
1. When shopping, how often do you attempt to purchase recycled products instead of new products?	3.34	1.04	.84
2. When shopping, how often do you look for products that utilize recycled packaging materials?	3.45	1.05	.83
3. How often do you pay more for recycled products instead of a lower priced counterpart?	4.01	.97	.83
4. How often do you pay more for products that use packaging made from recycled materials?	3.86	.99	.83
5. When shopping, how often do you attempt to purchase products that claim to be environmentally friendly?	2.94	1.0	.83
6. When shopping, how often do you attempt to purchase products that utilize environmentally friendly packaging?	3.00	1.02	.82
7. How often do you pay more for environmentally friendly products instead of a lower priced counterpart?	3.67	1.05	.82
8. How often do you pay more for products that use packaging made from environmentally friendly materials?	3.62	1.10	.82

RESULTS

Reliability

Cronbach's Alpha was used to assess the reliability of the administered scale. Tables 2 and 3 show the alpha values of the responses. The alpha values associated with each response all exceed 0.820. These findings lend support to the concept that the items comprising each dimension share a common core (Churchill, 1979). The item-to-total correlation for each item did not suggest item deletion. The overall Cronbach's Alpha was .84.

Hypotheses and ANOVA Results

Analysis of Variance (ANOVA) was used to test the hypotheses of interest. ANOVA is a statistical technique used to determine if samples come from populations with equal or different means (Hair et al., 1987). The one-factor ANOVA is an appropriate statistical tool when we wish to examine differences among predictor variables and a single dependent variable (Hair et al., 1987; Brightman and Schneider, 1992).

As discussed earlier, many disparities seem to exist between early studies of proposed consumer behavior regarding the purchase of environmentally friendly products and the results noticed by manufacturers and retailers. If the actual behavior of consumers is different from their attitudes toward that behavior and some measure of socially desirable responding occurs, then the means of the responses of the two groups should be significantly different. A consideration of the theory of socially desirable responding and its potential impacts on previous studies leads to the formation of the first set of test hypotheses (in the null form):

Hypothesis 1: Purchase behavior regarding environmentally friendly products does not differ from purchase attitudes regarding environmentally friendly products.

Hypothesis 2: Purchase behavior regarding recycled products does not differ from purchase attitudes regarding recycled products.

ANOVA results suggest that Hypothesis 1 can be rejected ($F=19.33$; $p=0.0001$). It appears that the purchase behavior regarding environmentally friendly products does differ from purchase attitudes regarding environmentally friendly products. Results suggest that Hypothesis 2 can also be rejected ($F=31.99$; $p=0.0001$). The purchase behavior regarding recycled products also differs from purchase attitudes regarding environmentally friendly products. The rejection of Hypotheses 1 and 2 suggests that the occurrence of socially desirable responses may occur for both environmentally friendly and recycled products.

The sample was then reduced to those who reported their actual purchasing behavior. This group consisted of 153 of the 346 respondents. This subsample was tested to determine if purchasing behavior between recycled products and other types of environmentally friendly products differ.

Hypothesis 3: Purchase behavior toward recycled products does not differ from purchase behavior toward other types of environmentally friendly products.

ANOVA results suggest that Hypothesis 3 can be rejected ($F=19.15$; $p=.0001$). It appears that purchase behavior regarding recycled products does differ from purchase behavior regarding other types of environmentally friendly products.

To further examine consumer behavior of this subdivided sample, behavior regarding product packaging as a separate attribute of the product was tested.

Hypothesis 4: Purchase behavior of environmentally friendly products does not differ from purchase behavior regarding environmentally friendly product packaging.

Hypothesis 5: Purchase behavior regarding recycled products does not differ from purchase behavior regarding recycled product packaging.

ANOVA results suggest that Hypothesis 4 can be rejected ($F=106.00$; $p=0.0001$). It appears that the purchase behavior regarding environmentally friendly products does differ from purchase behavior regarding environmentally friendly product packaging. Results suggest that Hypothesis 5 can also be rejected ($F=70.34$; $p=0.0001$). The purchase behavior regarding recycled products also differs from purchase behavior regarding recycled product packaging.

CONCLUSION

From the results of this survey, it can be concluded that the purchase behavior regarding environmentally friendly products does differ from purchase attitudes regarding environmentally friendly products. The purchase behavior regarding recycled products also differs from purchase attitudes regarding environmentally friendly products. These results suggest that the occurrence of socially desirable responses may influence how subjects respond to tests regarding purchase behavior of environmentally friendly and recycled products.

It also appears that recycled goods may be considered by consumers as a separate and unique category for environmentally friendly products. According to test results, it appears that purchase behavior regarding recycled products does differ from purchase behavior regarding other types of environmentally friendly products.

Consumer behavior regarding product packaging as a separate attribute of the product was also tested. It appears that the purchase behavior regarding environmentally friendly products does differ from purchase behavior regarding environmentally friendly product packaging. Results also suggest that the purchase behavior regarding recycled products also differs from purchase behavior regarding recycled product packaging.

DISCUSSION AND MANAGERIAL IMPLICATIONS

Results suggest that socially desirable responses may have been a problem with many studies in the past. The popularity and impact of the environmental movement have been such that many people may feel compelled to consider the environment as a high priority in their shopping habits, even if they do not exhibit behavior to substantiate their claims. This research also suggests that recycled products may be perceived differently than non-recycled environmentally friendly products and should be considered as a separate product category from other environmentally friendly products. It would appear that business leaders should also consider environmentally friendly product packaging as an attribute separate from an environmentally friendly product. Future research in this area may seek to determine whether consumers place more emphasis on environmentally friendly products or packaging. Also, future research may seek to better understand possible consumer perceptions of differences between environmentally friendly and recycled consumer products.

Despite a slow start for many green products, industry should not abandon the concept of producing and marketing environmentally friendly products (Wasik, 1992). For consumer goods, what constitutes green at any moment keeps changing. This dynamic consumer market influence suggests that the brands

that adapt fastest to consumer demands will be future leaders in the market (Ottman, 1992). These test results suggest that producers should consider the product and the packaging as separate and distinct attributes and that recycled products should be considered separate from non-recycled green products as organizations measure their "green quotient" of environmental friendliness.

To stay competitive in the dynamic green market, producers should be prepared to follow several pricing strategies for their products. Green products can be divided into at least two groups, 1) those of environmentally friendly products and 2) recycled consumer goods. These groups should be based on consumer perceptions of the products and packaging and separate pricing strategies should be evaluated for each (Adrian and Dupré, 1994). It is hoped that this research can encourage others to investigate specific relationships between various potential categories of environmentally friendly products. It is likely that, due to the social desirability of environmental consciousness, environmentally friendly behavior by industry is a necessary but insufficient condition for achieving a competitive advantage in an increasingly global economy.

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