

HOW ARE ADOLESCENT ECO-FRIENDLY PURCHASE DECISIONS INFLUENCED?

— *An analysis of parent, peer, and normative influence*



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ABSTRACT: This study evaluates the influence of parents, peers, and descriptive social norms on adolescent purchase decisions of recycled and recyclable products, which has not been examined specifically in the context of products that are perceived to have a direct impact on the natural environment. Social power theory is adopted to analyze the influence adolescents perceive when making purchase decisions of four exhaustive categories of recycled and recyclable products (plastic, paper, glass, and metal). The results has demonstrated that the existence of dominating parent expert power in adolescent purchases may account for the close adherence of the perceived purchase frequencies of parents to that of the public. Finally, implications and interpretation of findings are discussed.

Implications: This study extends previous understanding regarding parent, peer, and normative influence on adolescent purchase decisions to recycled and recyclable products. The strengths of the studied influences are identified. The authors aim to understand the logics of how these influences pass on to affect adolescents, and made hypotheses to explain the observed pattern in the results at the end of the study. The results indicate that for recycled and recyclable products with relatively high market availability (recycled and recyclable plastic and paper products), adolescents will tend to adhere to, or even surpass that of, the perceived purchase frequency of their parents. Putting into consideration the overarching importance of parental social power, marketers manufacturing or selling such recycled or recyclable products should place parental acceptance as a potential marketing goal.

1. INTRODUCTION

Adolescents take up a huge share of the global market, yielding \$264,038,000,000 buying power in the United States in 2016 alone (Statistic Brain, 2017). The purchase preferences and frequencies of adolescents regarding eco-friendly products, specifically recycled and recyclable products, can thus have a huge impact on the economy and the natural environment. It is consequently important that we better understand what influences adolescent purchase decisions on recycled and recyclable products, how strong such influences are, and what effects they have on the market of eco-friendly products.

The purpose of this study is to evaluate adolescent perception of parent, peer, and normative influence on adolescent purchase decisions regarding recycled and recyclable products. This study's conceptual model incorporates results from research on parental influence, peer influence, normative influence, and social power. Literature related to the aforementioned topics will be reviewed in the next section.

2. LITERATURE REVIEW

2.1 Social power theory

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Originally defined by French and Raven (1959), further interpreted by Goodrich and Mangleburg (2010) regarding the perceived influence on adolescents, the five types of social power which can be employed to exert influence on other social members are enumerated as below,

1. Expert power: the adolescent assumes that the parent or peer is an expert, has expert knowledge, or possesses special information;
2. Legitimate power: adolescents perceive parents or peers to have a legitimate right to impose behavioral requirements on them;
3. Referent power: the adolescent personally identifies with the parent or peer;
4. Reward power: adolescents perceive parents or peers as having the ability to confer rewards on them;
5. Coercive power: adolescents perceive parents or peers as having the ability to confer punishment upon them.

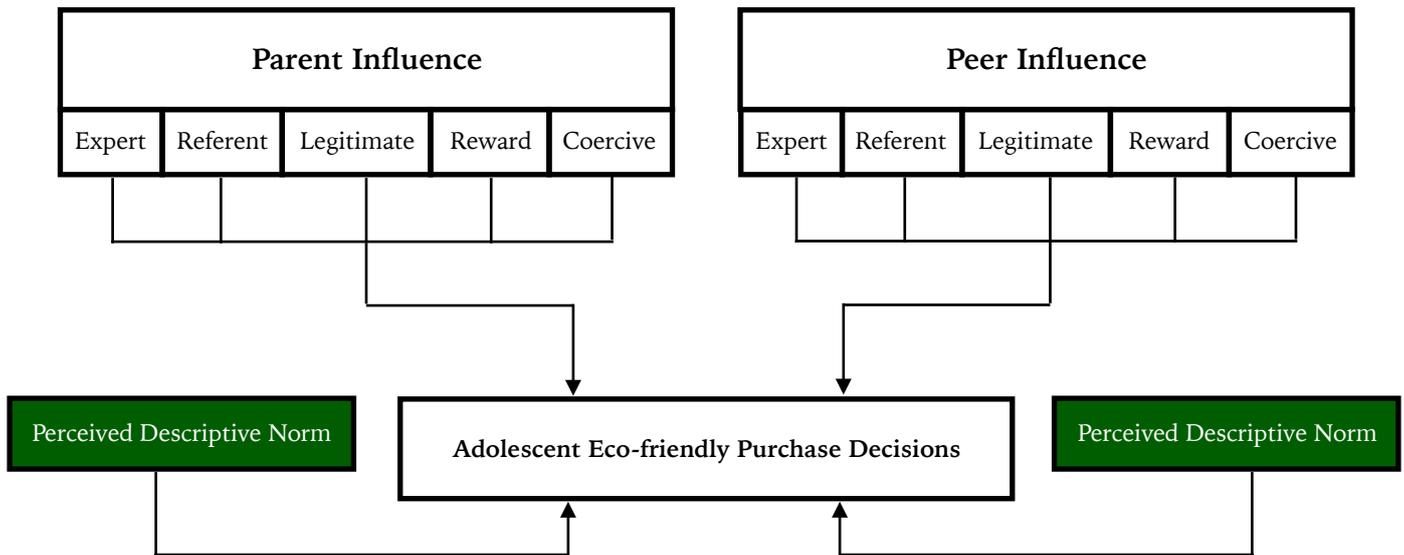
The meaning of expert power, is that the adolescent in this relationship under such power will think their parents or their peers have expert knowledge or they are experts in the specific field, so that they will follow their instructions. For example, your mother, who is a doctor, told you that the paper cup is bad for our stomach and you will get stomachache after using it, you believe her and stop using paper cups. In this condition, you are considered as in an expert power with your parents. However, in the referent power, the adolescents will just consider they need to do the same as their parents or peers. In the real life, it is common to see that one of the classmates begins to use a kind of pen, later several more students begin to use it; at last, almost all the students are using this kind of pen. Therefore, if you buy this kind of pen as well, you are considered to be in the referent power with your peers. Then, there is the legitimate power. Just as its name goes, the adolescents in this kind of power will consider their parents or peer have the legitimate power and will to put requirements on them. Another example, in the daily life, whether you are willing or not, your parents will require you to buy one specific kind of paper every time, and you followed; in this condition, you can be considered in a legitimate power with your parents. The last two kinds of the power are just in the opposite sides. The reward power means that the adolescents in this power consider their parents or peers have the power and will to provide them something as a reward when they do the things; in comparison, the adolescents in the coercive power will consider the parents or peers will have the power or will to give them punishment when they do such things. Use an example in school life: two students both got 80 in the exam, but one is in the reward power, when is in the coercive power. Thus, the student in the reward power will get rewards like money; in contrast, the student in the coercive power may receive punishments like extra homework.

In this study, social power will be used to classify different parent and peer influences on adolescent eco-friendly purchase decisions. The conceptual model of this research is presented in (Figure 1).

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Figure 1 Conceptual Model of the Effects of Parent, Peer, and Normative Influence on Adolescent Eco-friendly Purchase Decisions



2.2 Parent/peer influence

Both parents and peers are known to strongly affect adolescent purchase decisions. Previous research suggests potentially powerful parental influence on adolescent purchase (Martin and Bush, 2000). This discovery was refined by newer research, in which parents and peers are identified as the two most significant sources of influence of adolescent purchase decisions (Childers and Rao, 1992), and under certain circumstances the purchase influence of peers may surpass that of parents (Lueg et al., 2006). Certain research also draws analogy between superior and subordinate relationships in organizations with parent-adolescent and peer-adolescent relationships (Goodrich and Mangleburg, 2010).

2.3 Normative influence

Descriptive social norms (norms that describes what behaviors are normally done) are also recognized as influential in shaping people's decisions (Cialdini, 2006). Especially with behaviors that are perceived to possess explicit impacts on the natural environment, descriptive social norms may serve as enhancements, or inhibitions, of environmental-friendly behaviors (Cialdini et al., 2010).

3. METHODS

For this study, data were collected via a original survey (see Supplements) of volunteer adolescents attending high school in Pan-Yangtze River Delta in China. Surveys of Chinese versions were distributed in the form of online questionnaires via popular social media apps, and the volunteer respondents were informed that the purpose of the research was to "better understand what influences adolescent eco-friendly purchase decisions." They were also informed that their responses would remain anonymous and confidential.

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3.1. Sample and data collection

In total fifty students participated in the study. However, in order to minimize the confounding factors that may influence the results, the authors have selected twenty-eight respondents who are 1) between the age of fifteen to eighteen, 2) lives only with both parents, and 3) are the only child in the family. The average grade of students was 10.96, and the average age was 16.71.

3.2 Measurement and scale design

To observe the existence of any correlations between adolescents', parents', and peers' purchases of recycled and recyclable products, the authors adopted a 5-point scale to measure the frequency of purchases made regarding the target product, listed as below,

1. The person never purchases such product;
2. The person seldom purchases such product;
3. The person purchases such product on a moderate frequency;
4. The person often purchases such product;
5. The person always purchases such product.

3.3 Category of products

In order to analyze the effects of parental, peer, and normative influence on adolescent eco-friendly purchase decisions, the authors decided to categorize recycled and recyclable products into four exhaustive categories:

- a. Recyclable or recycled plastic products;
- b. Recyclable or recycled paper products;
- c. Recyclable or recycled glass products;
- d. Recyclable or recycled metal products.

In the questionnaire, the respondents are told that in each option, “product” includes those that contain the subject product as part of the content or packaging. They are further given examples for each category of recycled and recyclable products. For each category of recycled and recyclable products, they are asked to provide the perceived purchase frequencies of themselves, their parents, and their peers. Finally, they are asked to provide a perceived purchase frequencies of the public on each category of product, representing the perceived normative influence. In addition, the respondents are asked to identify the most influential power perceived from their parents and peers, respectively, when purchasing each category of product listed above.

Reminded of all the variables to consider in this study, also aware that the purchase decisions of parents and peers may also shape the descriptive norm perceived by the respondents, the authors decided to adopt an expanded conceptual model, following the flow of which the effects of parent, peer, and normative influences on adolescent eco-friendly purchase decisions are analyzed (see Figure 2).

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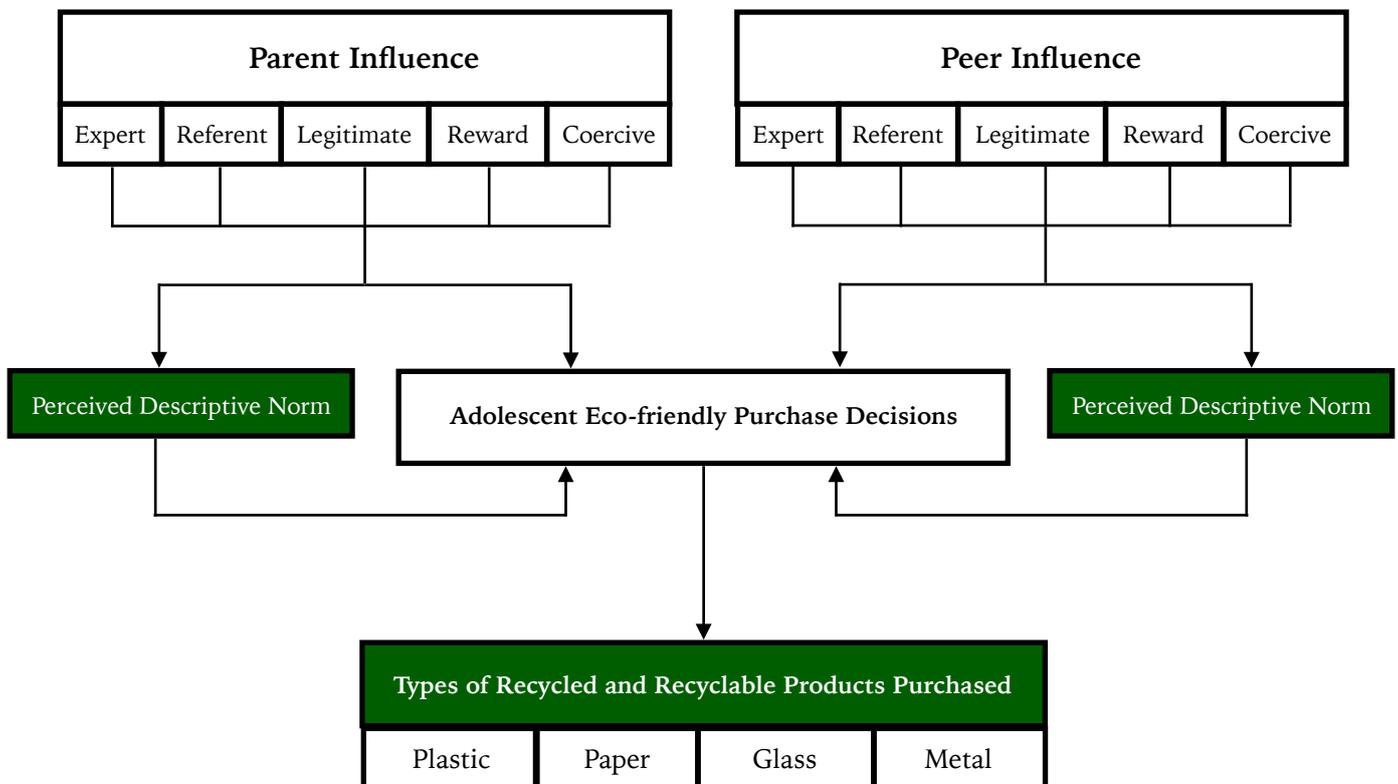
4. RESULTS AND DISCUSSION

The collected data was first selected using standards stated in section 3.1. The aggregate average statistics are presented in (Table 1).

4.1 Discussion

Analyzing the data shown in Table 1, the authors observed that there is a general decreasing mean perceived purchase frequencies (PPF) from plastic to paper, to glass, and then finally to metal for each of respondents, parents, peers, and the public. A similar trend of median PPF shown in Figure 3 was observed, which, for each section (Respondents, Parents, Peers, Public), down the rows, the median PPF tend to get closer to the conjunction between 2 and 3, if not decreasing. The authors speculate that this ubiquitous reduction may be related to the differences in the availability in the market for different types of products researched. It is possible that PPF for all of respondents, parents, peers, and the public reduces because the availability of the products in the market is reduced down the rows from plastic to metal, naturally inducing smaller purchase frequencies.

Figure 2 Expanded Conceptual Model of the Effects of Parent, Peer, and Normative Influence on Adolescent Eco-friendly Purchase Decisions



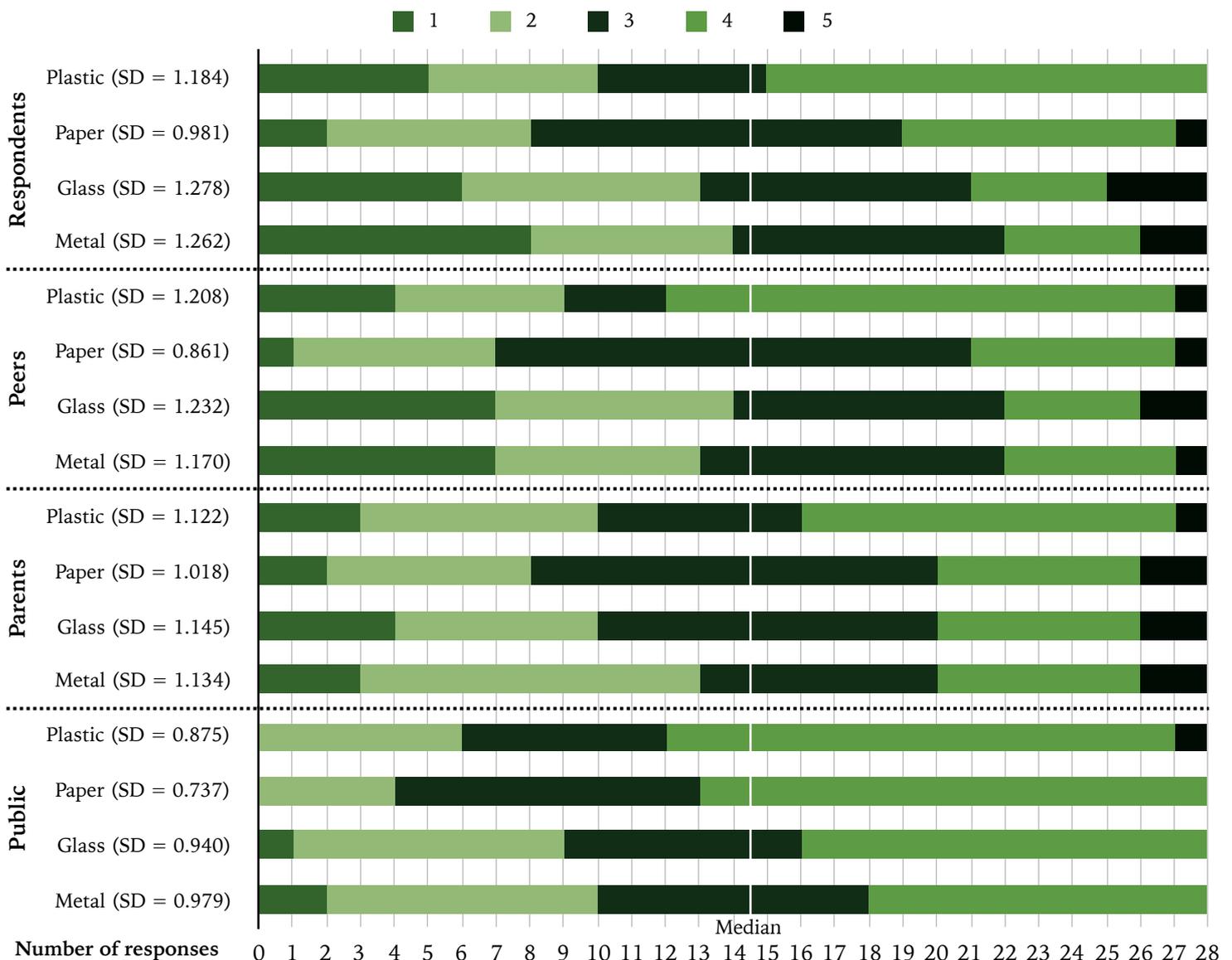
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Table 1 Mean Perceived Purchase Frequencies (PPF) of the Respondents, Parents, Peers, and the Public: Using a 5-Point Scale

| Product | Dominant Social Power | PPF of Respondents | PPF of Peers | PPF of Parents | PPF of Public | Parent / Public |
|---------|-----------------------|--------------------|--------------|----------------|---------------|-----------------|
| Plastic | Parent Expert | 3.07 | 3.14 | 3.00 | 3.39 | 0.884 |
| Paper | Parent Expert | 3.00 | 3.00 | 3.00 | 3.39 | 0.884 |
| Glass | Parent Expert | 2.68 | 2.54 | 2.86 | 3.07 | 0.930 |
| Metal | Parent Expert | 2.50 | 2.54 | 2.79 | 2.93 | 0.951 |

Figure 3 Distribution of Perceived Purchase Frequencies (PPF) of the Respondents, Parents, Peers, and the Public: Using a 5-Point Scale



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The majority of the respondents perceived that parent expert power is the most dominating social power that influence their purchase choices of recycled and recyclable products. This is confirmed by how the respondents perceive their parents' mean PPF to be closely adhering to the perceived mean public PPF, ranging from the lowest of 0.884 for recycled and recyclable plastic and paper products to the highest of 0.951 for recycled and recyclable metal products. The authors conjecture that the effect of parent expert power is more strongly revealed in products less frequently purchase by the respondents, which may have caused significantly higher ratio of mean PPF of parents to that of the public for recycled and recyclable glass (0.930) and metal products (0.951).

On the other side of the spectrum, parent expert power affect the PPF of the respondents very differently for products whose market prices are lower, whose market availabilities are higher, which are also the ones more frequently purchased by the types of people researched. For such products, the existence of dominating parent expert power may have elevated the PPF of the respondents, raising them to reach 3.07 and 3.00 for recycled and recyclable plastic products and paper products, respectively, which are both equal or higher than a moderate perceived purchase frequency.

Responses on the PPF of recycled and recyclable plastic and paper products show lower standard deviation among the four types of products, with that of recycled and recyclable paper products being the lowest. The authors speculate that it means the market availability of the products may be negatively related with the dispersion of PPF for the researched products. Products of higher market availability induce PPF at higher levels, and meanwhile, with less scattered dispersion.

It is also worth noticing that the respondents have relatively consistent perception on the PPF of the public on all four types of products, with the standard deviation for each lower than 1. Few outliers are observed in the "Public" category: only one response indicated a PPF of 5, and three responses indicated a PPF of 1. This means that our respondents are consistently aware that the public PPF of recycled and recyclable products are high, and that eco-friendly purchases are made frequently in the society. The PPF of the public also confirms the speculation made in the paragraph above, with its PPF significantly higher than those of the respondents, parents, and peers for all types of products researched.

4.2 Limitations and future research

There are several potential limitations of this study. Firstly, the effects of the existence of peer social power could not be analyzed through the data collected in this study, since the respondents did not report that any type of peer social power as the dominant influence they perceived when making eco-friendly purchase decisions, thus no statistically significant conclusions can be drawn. Secondly, the direct effect of normative influence could not be isolated from parental and peer influence, either, which also constitutes a significant drawback of this study. Moreover, the recruitment strategy adopted by the authors came with inherent biases, causing the responses collected in this study to be more likely made by those sharing similar living areas, study experiences, and extracurricular interests with the authors. Finally, this study only reveals the correlations between the PPF of the respondents, parents, peers, and the public, but the interpretations of the results are made based on conjectures, and the direction of the effects

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cannot be determined. Future research should be conducted to more thoroughly analyze the effects of the existence of other types of parent social powers and peer social powers, possibly through analyzing data from respondents living away from parents and to compare them with those living with parents, and working with responses that identify other social powers as the dominating power in influencing their eco-friendly purchase decisions. Also, future research could use sample data from other regions and countries, in order to compare the differences in the results for different parts of the countries and the world. They should also strive to evade biases in the recruitment strategy to ensure random sampling, and to seek for further justification for interpretations made in this study through literature review or through conducting original studies.

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5. SUPPLEMENTS

5.1 Questionnaire

Part I. Respondent Information

1. City:
2. Grade:
3. Age:
4. Number of parents in household:
5. Number of siblings:

Part II

Please answer the following questions using the scale below,

1. The person never purchases such product;
2. The person seldom purchases such product;
3. The person purchases such product on a moderate frequency;
4. The person often purchases such product;
5. The person always purchases such product.

Note:

1. We understand that your observation and perception may deviate from the actual frequency. Please choose the option that most accurately describes what you have OBSERVED /PERCEIVED.
2. In each option, "product" includes those that contain the subject product as part of the content or packaging. For example, recyclable or recycled paper products include products that use recyclable or recycled paper as their content or packaging.

1. How often do you, your parents, and your peers purchase the types of products listed below, according to your observation? (Using the numbers 1, 2, 3, 4, and 5)

- A. Recyclable or recycled paper products (e.g. recyclable or recycled corrugated cardboard, paper egg cartons, napkins, drink cartons, newspapers, magazines, books, envelopes):
You:
Your Parents:
Your Peers:
- B. Recyclable or recycled plastic products (e.g. recyclable or recycled plastic bag, plastic bottles, plastic containers, cups, food trays, plastic egg cartons):
You:
Your Parents:
Your Peers:
- C. Recycled or recycled glass products (e.g. recyclable or recycled lightbulbs, sheet glass, mirrors, pyrex):
You:
Your Parents:
Your Peers:
- D. Recycled or recycled metal products (e.g. aluminum, steel, copper, bronze, brass, food cans, aluminum cans, aluminum foil, foil packaging, paint cans, steel strings):
You:
Your Parents:
Your Peers:

2. How often do you consider the PUBLIC normally purchase the types of products listed below? (Using the numbers 1, 2, 3, 4, and 5)

- A. Recyclable or recycled paper products:
- B. Recyclable or recycled plastic products:
- C. Recycled or recycled glass products:
- D. Recycled or recycled metal products:

Part III

Part III consists of 10 multiple choice questions, each with 5 choices. You may choose **one or more** choice for each question that most accurately describe your observation or perception.

Note: We understand that your observation and perception may deviate from the actual frequency. Please choose the option that most accurately describes what you have OBSERVED / PERCEIVED.

1. When do you think your PARENTS influence your purchase decisions BECAUSE you consider them as an expert, has expert knowledge, or possess special information?

- A. When purchasing recyclable or recycled paper products;
- B. When purchasing recyclable or recycled plastic products;
- C. When purchasing recyclable or recycled glass products;
- D. When purchasing recyclable or recycled metal products;
- E. None of the above.

2. When do you think your PEERS influence your purchase decisions BECAUSE you consider them as an expert, has expert knowledge, or possess special information?

- A. When purchasing recyclable or recycled paper products;
- B. When purchasing recyclable or recycled plastic products;
- C. When purchasing recyclable or recycled glass products;
- D. When purchasing recyclable or recycled metal products;
- E. None of the above.

3. When do you think your PARENTS influence your purchase decisions BECAUSE you perceive that they have a legitimate power or right to impose purchase requirements on you?

- A. When purchasing recyclable or recycled paper products;
- B. When purchasing recyclable or recycled plastic products;
- C. When purchasing recyclable or recycled glass products;
- D. When purchasing recyclable or recycled metal products;
- E. None of the above.

4. When do you think your PEERS influence your purchase decisions BECAUSE you perceive that they have a legitimate power or right to impose purchase requirements on you?

- A. When purchasing recyclable or recycled paper products;
- B. When purchasing recyclable or recycled plastic products;
- C. When purchasing recyclable or recycled glass products;
- D. When purchasing recyclable or recycled metal products;
- E. None of the above.

5. When do you think your PARENTS influence your purchase decisions BECAUSE you personally identifies with the purchase decisions of your parents?

- A. When purchasing recyclable or recycled paper products;
- B. When purchasing recyclable or recycled plastic products;
- C. When purchasing recyclable or recycled glass products;
- D. When purchasing recyclable or recycled metal products;
- E. None of the above.

6. When do you think your PEERS influence your purchase decisions BECAUSE you personally identifies with the purchase decisions of your parents?

- A. When purchasing recyclable or recycled paper products;
- B. When purchasing recyclable or recycled plastic products;
- C. When purchasing recyclable or recycled glass products;
- D. When purchasing recyclable or recycled metal products;
- E. None of the above.

7. When do you think your PARENTS influence your purchase decisions BECAUSE you perceive your parents have the will and ability to confer rewards on you?

- A. When purchasing recyclable or recycled paper products;
- B. When purchasing recyclable or recycled plastic products;
- C. When purchasing recyclable or recycled glass products;
- D. When purchasing recyclable or recycled metal products;
- E. None of the above.

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8. When do you think your PEERS influence your purchase decisions BECAUSE you perceive your parents have the will and ability to confer rewards on you?

- A. When purchasing recyclable or recycled paper products;
- B. When purchasing recyclable or recycled plastic products;
- C. When purchasing recyclable or recycled glass products;
- D. When purchasing recyclable or recycled metal products;
- E. None of the above.

9. When do you think your PARENTS influence your purchase decisions BECAUSE you perceive that they have the will and ability to confer punishment upon you?

- A. When purchasing recyclable or recycled paper products;
- B. When purchasing recyclable or recycled plastic products;
- C. When purchasing recyclable or recycled glass products;
- D. When purchasing recyclable or recycled metal products;
- E. None of the above.

10. When do you think your PEERS influence your purchase decisions BECAUSE you perceive that they have the will and ability to confer punishment upon you?

- A. When purchasing recyclable or recycled paper products;
- B. When purchasing recyclable or recycled plastic products;
- C. When purchasing recyclable or recycled glass products;
- D. When purchasing recyclable or recycled metal products;
- E. None of the above.

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