ATP Final: Research Report

Demystifying Experience and Impacts of Price Anchors

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Abstract

The aim of this research was to determine how high school student's price perception and Willingness-To-Pay (WTP) are affected by random anchors and whether or not experience mitigates the influence of anchors. It was hypothesized that because students lack much prior purchasing experience, they would rely more heavily on anchors to make a price judgment and because adults have experience they will rely on that information to make decisions over anchors. The population in this experiment was students from high socioeconomic class, private, high school institutions and the participants were 16 students and teachers from Singapore American School. It was found that while adults were able to make more accurate price judgments, they were almost equally impacted by anchors as students. This has major implications on everyday consumer behavior and student purchasing decisions.

Introduction

The sale sign on a shop window or red bolded 50% off that people see on Amazon are innocent yet effective strategies used by businesses called price anchors. Price anchors is the phenomenon where businesses initially position their products at higher prices then lower them through controlled negotiations and sales in order to make the actual price of the goods more attractive for consumers to purchase (Chernyak, 2025).

The use of price anchoring often leads to a skewed consumer price perception, shifts in the consumers Willingness-To-Pay (WTP), and coherent arbitrariness. *Anchors* are random numbers that are freshly introduced to your mind so that when you make a decision regarding the value of

a good, it will be influenced. *Price anchoring* is a similar idea but instead of using random numbers, the consumer is given an initial price of the product that may be higher or lower than the actual price. The initial number skews consumers' *price perception* which is how much the consumer thinks that product is worth. Once consumers are exposed to anchors and have a price perception for the good, their *WTP* also changes. The consumer's WTP is the highest dollar amount they are willing to purchase a good/service for. This entire process can be defined as *coherent arbitrariness*. This is the idea that the consumers initial valuation of the good is based on completely random factors then all subsequent decisions made around the same good are internally consistent with the initial, arbitrary foundational choice (Ariely, Lowenstein, Prelec, 2003, 74-75).

Many studies have been conducted around the phenomenon of anchoring with Tversky's and Khaneman's (1974) study being one of the most prominent ones. In this study, participants spun a wheel - completely random - with numbers 0-100 on it and then were asked whether the number of African nations in the United Nations was higher or lower than the number they spun. After this, they were asked what they thought the actual number was. Results found that people who spun a higher number on the wheel said the number of African nations were closer to that higher number and vice-versa despite them seeing the number was completely random. In this case, the random anchors were the numbers on the wheel and the subject matter that was influenced by the anchors were the number of African nations participants thought were in the United Nations. The findings from this study were then applied to others more closely related to business psychology and price anchoring (Tversky and Kaneman, 1974).

One study done to find the correlation between price anchoring and consumers WTP was done by Ariely, Lowenstein, and Prelec in 2003. In this study, 55 students from the Sloan School MBA program were shown six products (computer accessories, wine bottles, luxury chocolates, and books) with the average retail price of the items being $70 US. Once shown the products and given a short description, participants were asked whether they would buy each product for the price equal to the last two digits of their social security number (Yes/No) then asked what their WTP for the product was. The study separated the Social Security number (random anchor) distribution into 5 quantiles and it was found that people in the 5th quantile always had higher WTP as compared to people in the 1st quantile. One example was where people in the 1st quantile were willing to purchase a cordless trackball for the average price of $8.64 while people in the 5th quantile were willing to purchase it for $26.18, nearly a **65%** difference in WTP. These studies indicated that the random anchors do have major impacts on consumers' valuation of goods and other valuations.

While these studies have explored the impacts of anchors on consumer's WTP and other aspects of daily life, they have failed to address two important components: how high school students are affected by price anchors and whether the prior purchasing experience that adults have reduces the impacts of price anchors. Studying student's price perception is especially important because students make up a large portion of consumers, yet they often lack an understanding of how business strategies influence their decisions. There is little information available that helps students recognize how their purchases are being influenced. In addition, it is important to study adults because experience may not eliminate the influence of anchors. If

experienced consumers are still affected by price anchors, they may approach purchases with a false sense of confidence and fail to make the most informed decisions.

The aim of the study was to determine how high school student's WTP for a product is impacted by random anchors and whether experience mitigates the influences of said anchors. It was hypothesized that international students in high schools will be more influenced by price anchors than adults.

A study conducted by Brian Wansink, Robert J. Kent, and Stephen J. Hoch (1998) found that internal anchors nullified the impacts of external anchors. In other words, with experience, people have an idea of how much they have paid for products that are similar and that number acts as an internal anchor. Their study highlighted that when consumers have this number in their minds, regardless of what external anchors were presented, that experience would prevent external influence. The concept of coherent arbitrariness by Ariely, Lowenstein, and Prelec (2003) also supports this hypothesis because they stated that once consumers have made an initial decision, all following decisions would be consistent. Applying this rationale, because adults have purchased similar products in the past, they will perceive the price of the product in a similar manner to past purchases. Students who haven't likely made many purchases in the past will also for this reason rely on the anchor number as their baseline.

In this investigation, the independent variable was the high/low anchor groups as well as age (adults vs students). The dependent variable was the consumer's WTP for the products shown to them.

Methodology

Study Design

This study employed the survey method in order to collect data. In this experiment, participants were randomly given one of two packets where they either had the high student number or the low number. Both surveys asked participants to confirm their number and then answer questions based on the products that they saw. Having two kinds of surveys with random sampling allows the experimenter to draw conclusions on how high and low anchors impact the responses given by the participants and draw a cause and effect relationship.

Participants

In this experiment, the population was students from high socioeconomic class, private, high school institutions. The participants were 16 students and teachers from Singapore American School with student ages ranging between 14 and 18. The teachers were selected based on a sample of convenience and the students were selected utilising the method of approaching every 3rd student seen. This was intended to increase the randomness of the sample. There were ethical concerns regarding deception, however a thorough debrief (see appendix 4) and time for participants to withdraw from the experiment, mitigated any additional risk.

Materials

The following materials were used in this experiment: a briefing script (see appendix 2), a packet given to participants - this packet contained their random student number, the consent

form, and the questions for the survey - (see appendix 1), a slideshow that contained the images and a short vague description of the products that participants would be making price judgments on (see appendix 3), a debrief script (see appendix 4) and a spreadsheet for overall data collection (see appendix 5).

Procedure

To gather participants, the experimenter approached teachers that they have had or currently have from Singapore American School and during free blocks approached every third student they saw to collect data. Once the participant confirmed that they were willing to participate in the study, the experimenter must give them the packet that is randomized (see appendix 1 for packet information) between the high and low anchor then ask them to read over and sign the consent form. After signing the consent form (also in appendix 1), the experimenter will read the briefing script for the participants (see appendix 2). After that, participants will confirm their student numbers which will act as their anchors then look at the product slideshow (see appendix 3) and answer the questions in their student packet. Once participants complete this for all three products, the experimenter will collect their packets and read the debrief script (see appendix 4). If the participants have any questions or concerns once learning of the true purpose of the study, they can choose to withdraw and their packets will be returned while the data will not be considered during final analysis. Finally, the experimenter must gather all packets and transfer the responses given into a master spreadsheet (see appendix 5) for final analysis.

Results

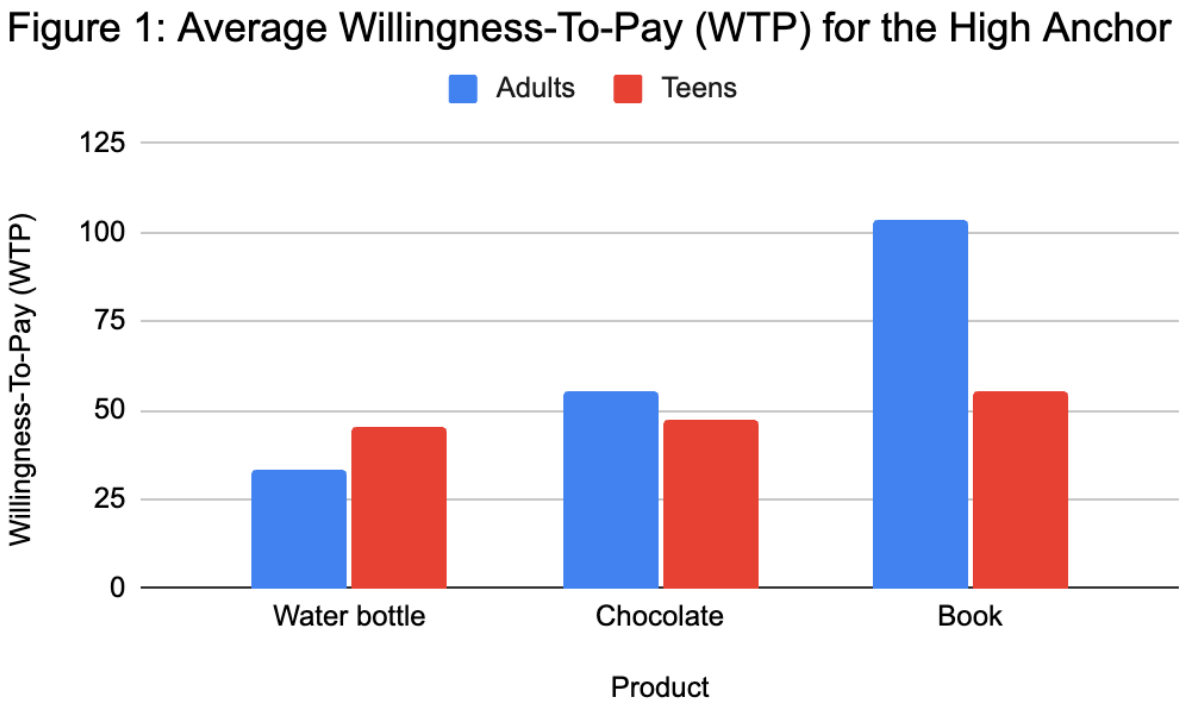


Figure 1 label: The graph above shows the average adult and teen WTP for each of the product categories when they were exposed to the high anchor. For a metal water bottle (see appendix 3 for more information on product categories), adults had a max WTP of $33.13 and students had a max WTP of $45. For the luxury chocolate, adults had a max WTP of $55.63 while students had a max WTP of $47.13. In the final category of school textbooks, adults had a WTP of $103.75 while students $55.13.

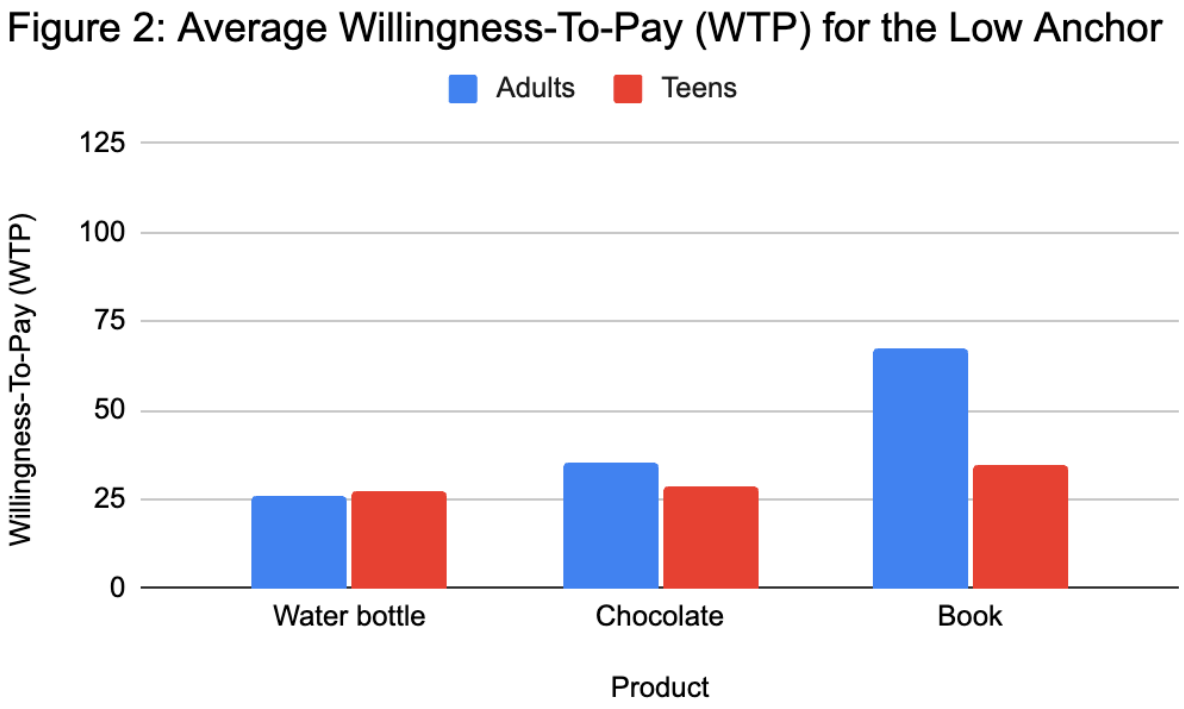


Figure 2 label: The graph above shows the average adult and teen WTP for the same product categories but instead when they were exposed to the low anchor. Adults had a WTP of $26.25 for the water bottle while teens had a WTP of $27.50. For the luxury chocolate, adults had an average WTP of $35.63 while teens had a WTP of $28.75. Finally, for the school textbook, teachers had an average WTP of $67.50 while students had an average WTP of $34.38.

Figure 3: Percent Difference Between Adult and Teen WTP for High and Low Anchors

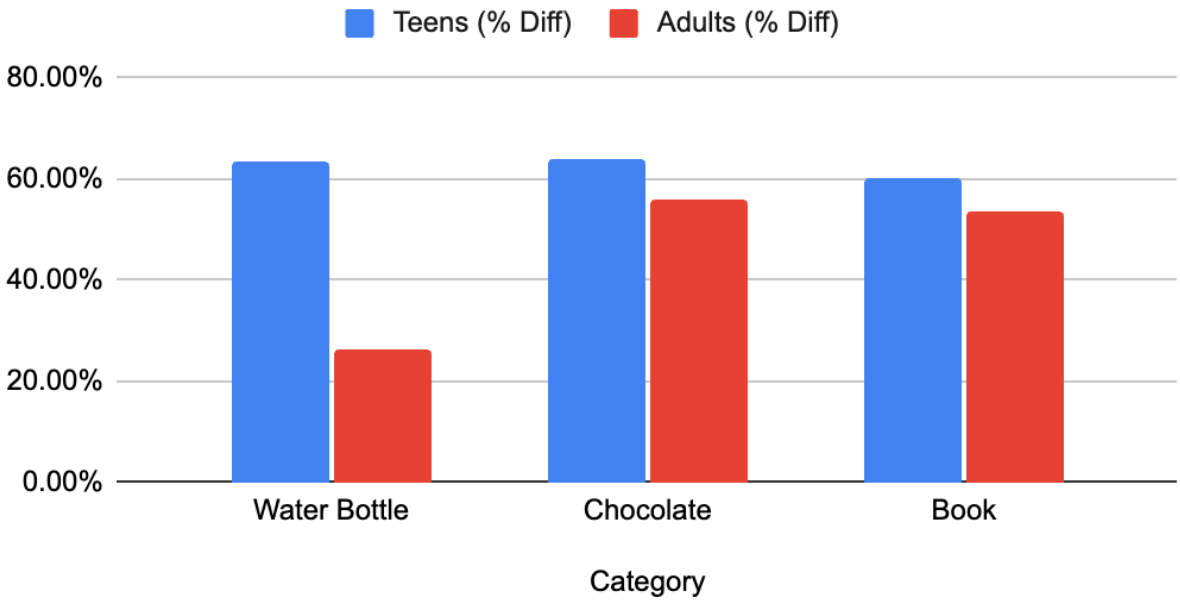


Figure 3 label: The graph above shows the percent difference between the WTP of adults and teens for the high and low anchor. This number was calculated by using the formula as stated, $\frac{Mean\ High\ \ WTP\ Response - Mean\ Low\ WTP\ Response}{Mean\ Low\ WTP\ Response} \times 100$. In the water bottle category, the percent difference between responses for teens was 63.64% while teachers was 26.19%. In the luxury chocolate category, the percent difference for teens' response was 63.91% while for teachers was 56.14%. In the final category, school textbooks, students' responses had a 60.36% difference while teachers had a 53.70% difference.

The statistical significance of average WTP for teens with high and low anchors in chocolate, water bottle, and book yielded p-values of 0.054, 0.063, and 0.145 respectively. The statistical significance of average WTP for adults with high and low anchors in the same categories yielded p-values of 0.019, 0.105, and 0.078. This means the data was only statistically significant for

adults WTP with chocolate and our conclusions cannot be deemed valid as a large majority of data was not statistically significant (p-value ≥ 0.05).

Discussion

The aim of this study was to investigate the impact of arbitrary anchors on a consumer's WTP. More specifically, we hypothesized that because students at Singapore American School are not the primary holders of money, they would not have an accurate perception of how much a product is worth and would be more influenced by arbitrary anchors than adults who have more market experience. This hypothesis was not supported but findings from the data have actually indicated the exact opposite. Trends have shown a clear indication that arbitrary anchors actually influence all age groups around the same amount while experience has allowed consumers to make more accurate price judgments.

Referring to figure 1 and 2 as shown above, the results clearly highlight a trend between high anchors leading to a high WTP and low anchors leading to a low WTP. One example from the data was chocolates: the average adult WTP for a box with the high anchor was $55.63 while the average WTP for the same chocolates and the low anchor was $35.63. Students shared a similar trend with the average WTP with the high anchor being $47.13 and low anchor being $28.75. This trend was consistently observed across the other product categories as well. Furthermore, from figure 3, it can be determined that the anchors impacted both age groups relatively the same amount because the percent difference between the mean WTP for the high and low anchors across all categories were highly comparable.

Addressing the second component of the hypothesis, trends in the results have also indicated a positive relationship between experience and accurate price perception. This connection is distinctly highlighted in the data for school textbooks where the teacher's WTP at the high anchor was $103.75 and student's WTP was $55.13. At the low anchor for books, teachers still had a higher average WTP with a mean valuation of $67.50 and students $34.38. This is consistent with what is expected because many teachers that were surveyed had to purchase textbooks for their respective classes and the price of these books often exceeded $150. In fact, the textbook that was shown was worth around $250 (see appendix 3). This idea is also supported by trends seen in the data collected for chocolates where teachers (and adults in general) have more experience buying high-end, luxury chocolates for gifting while students tend to buy the relatively cheaper chocolates found at the local convenience stores. To summarize, although experience allows adults to make better price judgements, anchors still have a relatively the same amount of impact on them as it has on students.

These findings must be taken with a grain of salt because of the lack of statistical significance with our data. The trends that we identified have lined up with some past literature as well contradicted. The experiment conducted by Ariely, Lowenstein, Prelec (2003) determined that consumer's WTP was founded through the process of coherent arbitrariness where the subsequent decisions made by consumers are consistent with their initial purchase of a similar product. Furthermore, the study conducted by Brian Wansink, Robert J. Kent, and Stephen J. Hoch found that internal anchors - in this case the number that came to the minds of adults with experience was the internal anchor - mitigated all influence from external anchors; however, we

determined that while internal anchors and the prior purchases made by adults allowed them to make better price judgments, they were still relatively similarly affected by anchors as students without prior experience. A study conducted by Rao and Sieben (1992) found that experience increases the range of the consumer's WTP; therefore, it can be hinted that because experience increases the range of acceptable prices, anchors that adults see could fall into that range and lead to them being just as influenced as students because the anchor number fits their expectations. While there isn't a direct correlation, the study by Rao and Sieben does set up space for further research regarding the factors that lead to adults being influenced by anchors as much as students.

Within this research study, there were a few limitations. One limitation was the study's sample size. This study was conducted with a limited sample of 16 students and 16 teachers which was extremely small when compared to the average study sample size. This limitation was also the cause of us not reaching statistical significance which is required in every study for a researcher's hypothesis to be supported. Additionally, the students and teachers selected to participate in this study were a sample of convenience. Although the experimenters tried to use a random sampling procedure on students by only approaching every fourth one, it is highly likely that the experimenters used self-serving bias to make themselves think that the fourth person was their friend or someone they were antiquated with. This strategy was suggested by Dr. Vehedi, a psychologist at the university of Syracuse. The teachers in this study had to be a sample of convenience because there wasn't enough time or enough teachers to use the same method as mentioned above. In order to overcome this limitation, experimenters can employ a survey

method in order to make the sample acquired more random and reach a larger audience. Both of these combined can lead to better results and statistical significance.

This research study also had the limitation of experimenter bias. In order to conduct this experiment, the experimenter had to hand participants a packet and verbally deliver the instructions. While the anchor number was hidden on the second page, where the experimenter could not see, if the participants had any questions or concerns it could have led to the experimenter seeing the number on accident and therefore adjusting the way they respond based on the results they are expecting. Overcoming this limitation is not a major difficulty as the future experimenters can employ a double-blind procedure. The double blind procedure is where the experimenter hires a third-party to conduct the experiment for them without knowing the hypothesis or expected results - this would increase the reliability of the data because of more accurate consumer decisions coming through.

To conclude, trends in the data have shown that anchors impact everyone relatively the same amount despite adults with more experience making better, more accurate price judgments. These conclusions, however, require further research to be deemed fully valid and generalisable. One avenue of further research would be a better selection of products because the selection of a water bottle didn't give the researcher any new insights and instead, it would make more sense to replace it with a product that has a lower market price than the anchor. This would allow the experimenter to see if experience instead leads to a lower average WTP. The issue with just having expensive books and chocolates is that adults could just have a higher WTP for products and it isn't actually experience that is allowing them to make better price judgments. As alluded

to above, this study was conducted with the top 1% of high school students around the world with very selective experiences and backgrounds. The trends found were highly promising but in order to generalise the results, further research must be done with a much larger sample and people from a more diverse background to draw final conclusions.

Everything discussed above also has major implications on adults because experienced consumers need to be aware that just being experienced is not enough to prevent anchoring from influencing them. This understanding will lead to better purchases and more fair consumer, vendor interactions. These findings will also help high school students because understanding that price anchors make an impact on their purchasing decisions will allow them to be more aware of how much they are spending and whether they truly accept the price that is given to them as fair.

Works Cited

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Appendices

Appendix 1 - Study Packet (given to participants)

Appendix 2 - Briefing Script

Appendix 3 - Product Slideshow

Appendix 4 - Debrief Script

Appendix 5 - Spreadsheet Sample for Data Collection

Appendix 1 - Study Packet (given to participants)

AT Psych Study

Name: _____

Email: _____

Consent Form

Investigators:

Minna, Anoushka, Rishabh, Veer
Faculty Supervisor: Mrs. Summerton

Purpose of the Study

We are studying how people form price judgments for unfamiliar products. This project is part of a psychology research investigation at SAS.

What You Will Do

- The activity takes about 5-10 minutes.
- You will see a few images and short descriptions of unfamiliar products.
- You will answer a few brief questions about what you think about the product and how much you might be willing to pay.
- There are no right or wrong answers.

Use of Partial Disclosure

To keep the study valid, we cannot describe one aspect of the procedure in detail beforehand. After participation, you will receive a full explanation (debrief) of the study's true purpose and procedure. At that point, you may choose to withdraw your data if you prefer.

Risks and Discomforts

Minimal. Some participants may feel mildly surprised when learning the full purpose of the study, but no lasting discomfort is expected.

Benefits

You may enjoy seeing how psychological research is conducted. The results may help demonstrate how people form price judgments.

Consent Form

Confidentiality

Your responses will be recorded anonymously. No identifying information will appear in any report. Data will be stored on a secure, school-supervised account and deleted by June 30, 2026. Only the student researchers and Mrs. S will access the data.

Voluntary Participation and Withdrawal

Participation is voluntary. You may stop at any time without consequence. After debrief, you may decide whether your responses can be kept or deleted.

Contact

Questions about the study: Mrs. S,

csummerton@sas.edu.sg

Questions about your rights: contact the SAS Psychology Department.

Consent

I have read and understood this information and agree to take part in the study.

Name: _____

Signature: _____

Date: / / 2025

After Debrief (researcher completes):

□ Participant chose to keep data
□ Participant chose to withdraw data

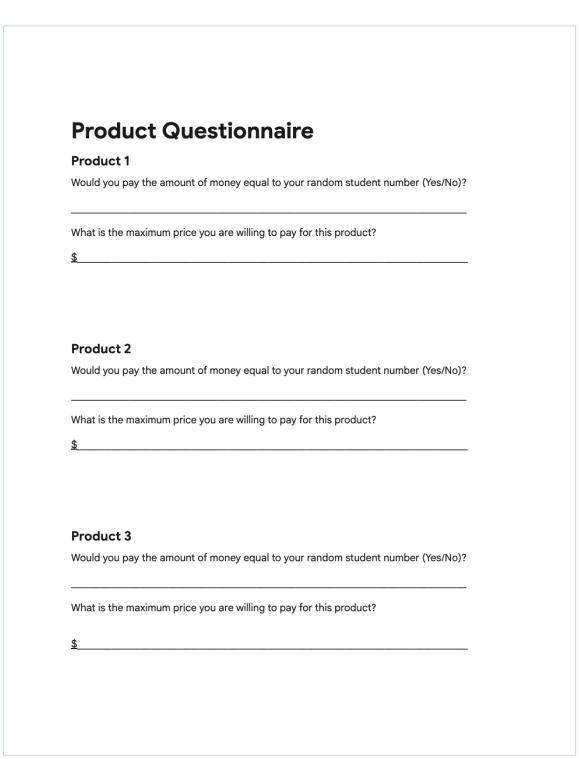
Participant Confirmation Number

The random student number assigned to you is:

27/72

Please rewrite your random student number on the line below to confirm:

_____



Product Questionnaire

Product 1

Would you pay the amount of money equal to your random student number (Yes/No)?

_____

What is the maximum price you are willing to pay for this product?

$_____

Product 2

Would you pay the amount of money equal to your random student number (Yes/No)?

_____

What is the maximum price you are willing to pay for this product?

$_____

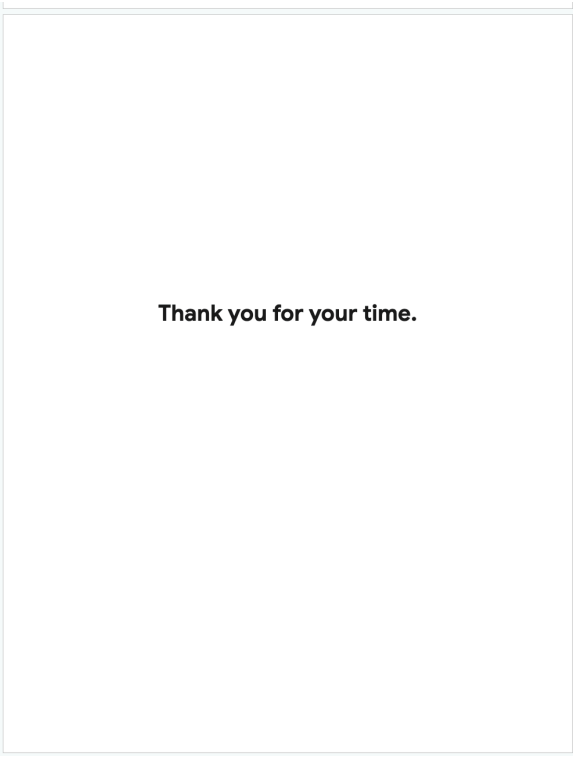
Product 3

Would you pay the amount of money equal to your random student number (Yes/No)?

_____

What is the maximum price you are willing to pay for this product?

$_____



Thank you for your time.

Appendix 2 - Briefing Script

Thank you for taking the time to participate in this experiment, your participation will give us valuable insights into consumer behavior. I want to let you know that consent that you have given to be part of this study is ongoing - you can pull out at any time and your data will be removed. I also want to let you know that your data will remain completely anonymous and completely confidential and be logged on a school supervised account and will be deleted by June 30, 2026. We will give you a full debrief as soon as the study is completed. Please go through the packet provided to you and let me know if you have any issues or don't understand a particular part of the question.

Appendix 3 - Product Slideshow

Metal Water Bottle

This matte grey insulated bottle features a convenient black carry-handle lid, perfect for maintaining drink temperature on the go.



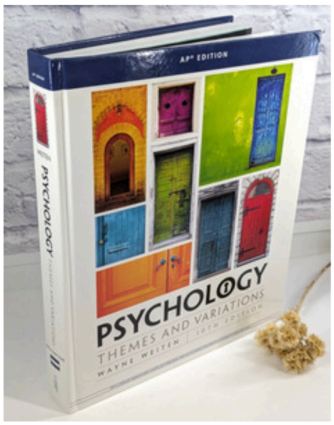
Luxury chocolates

This elegant box of chocolates contains a varied selection of dark and milk chocolate truffles, clusters, and candies ideal for sharing or gifting.



Hardcover Textbook

This "Psychology: Themes and Variations, 10th Edition" textbook is a core academic resource used in our schools AT Psychology course.



Appendix 4 - Debrief Script

Thank you for taking part in our study. The purpose of this research is to examine how people's price perceptions are influenced by anchors - arbitrary numbers which are presented before you make a decision about how much something is worth. In the experiment, you were asked if a price of a product was higher or lower than your random student number, that number served as the "anchor" - a tool that studies how our minds use reference points to make judgments. We didn't tell you the real purpose of the anchor during the experiment because if we had, you might have changed your answers and valuations of products based on that information. The "anchor" you were shown wasn't related to the product's true value. Our goal was to see whether your estimate of how much you would pay for a product was influenced by the number shown earlier.

This information really helps us understand how people develop spending habits and how different types of marketing tactics shape how we perceive price. Thank you for your time!

Appendix 5 - Spreadsheet Sample for Data Collection

	Anchor Type (Low/High)	**Book**(would you buy it for their anchor price?)	**Book** (Max WTP?)	**Chocolate** (would you buy it for your anchor price?)	**Chocolate** (Max WTP?))	**Water bottle** (would you buy for your anchor price?)	**Water Bottle** (Max WTP?)
Student 1	High	No	50	No	20	No	50
Student 2	Low	Yes	30	No	15	Yes	40
Student 3	Low	No	50	No	10	No	18
Student 4	Low	Yes	60	Yes	30	No	20
Teacher 1	Low	Yes	30	Yes	30	Yes	30
Teacher 2	High	No	35	No	50	No	40
Teacher 3	High	Yes	115	Yes	80	No	50
Teacher 4	Low	Yes	50	Yes	50	No	20
	Anchor Type	**Book**(would you buy it for their anchor price?)	**Book** (Max WTP?)	**Chocolate** (would you buy it for your anchor price?)	**Chocolate** (Max WTP?))	**Water bottle** (would you buy for your anchor price?)	**Water Bottle** (Max WTP?)
Student 1	Low	Yes	50	Yes	35	No	25
Student 2	Low	No	20	No	20	No	10
Student 3	High	No	150	No	40	No	35
Student 4	High	No	0	No	15	No	20
Teacher 1	High	Yes	100	No	50	No	30
Teacher 2	High	Yes	150	No	60	No	40
Teacher 3	Low	Yes	75	Yes	30	No	25
Teacher 4	Low	Yes	65	Yes	40	No	20
	Anchor Type	**Book**(would you buy it for their anchor price?)	**Book** (Max WTP?)	**Chocolate** (would you buy it for your anchor price?)	**Chocolate** (Max WTP?))	**Water bottle** (would you buy for your anchor price?)	**Water Bottle** (Max WTP?)
Student 1	High	Yes	100	Yes	85	No	35
Student 2	Low	No	25	Yes	50	Yes	40
Student 3	High	Yes	75	No	70	Yes	72
Student 4	High	no	16	no	50	yes	100
Teacher 1	Low	Yes	120	Yes	30	No	20
Teacher 2	High	Yes	250	No	30	No	40
Teacher 3	Low	Yes	50	Yes	50	Yes	35
Teacher 4	High	No	30	Yes	80	No	30