

# Master Thesis

**The joint effect of goal framing and anchoring on online  
shopping behavior**

by Tri Dung Huynh

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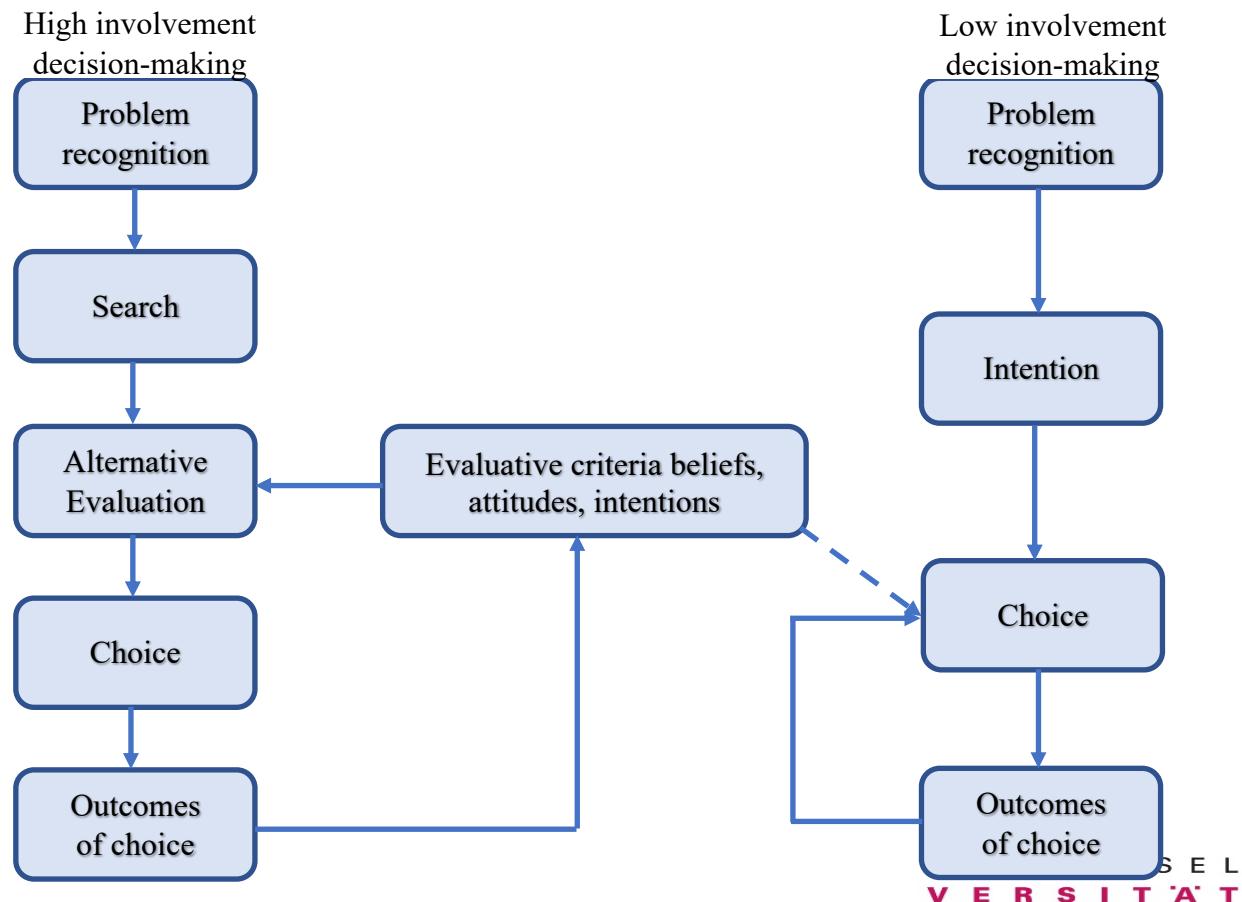
- online consumers reach 1.623 billion in 2018 from 1.079 billion in 2013
- 2.3 trillion US dollars in 2017 and e-retail revenues are forecasted to grow to 4.88 trillion US dollars in 2021 (Statista, 2019)
- behaviour of online shopping customers: combination of influencing factors such as marketing efforts, socio-cultural influences, psychological factors, experience (Smith & Rupp, 2003)
- no way to measure and analysis the effects of all possible influencing factors at the same time
- How can psychological factors be applied in website design and changing the buying behavior of customers?

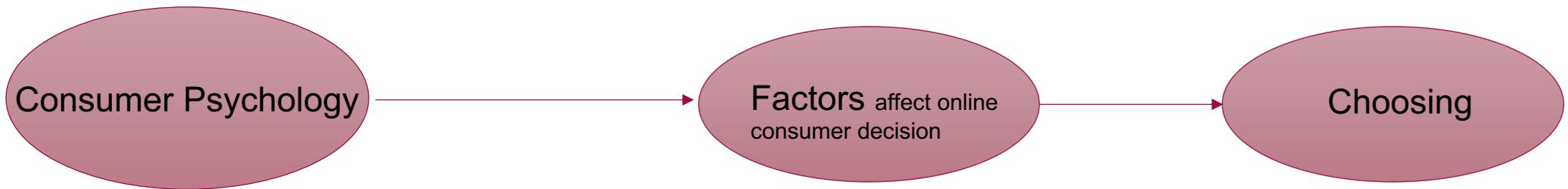


## 2. Literature review



- ❖ Draw attention from mid-late 1960s
- ❖ From rational decision: *maximize their utility* to complex and *focus on the contexts of decisions*

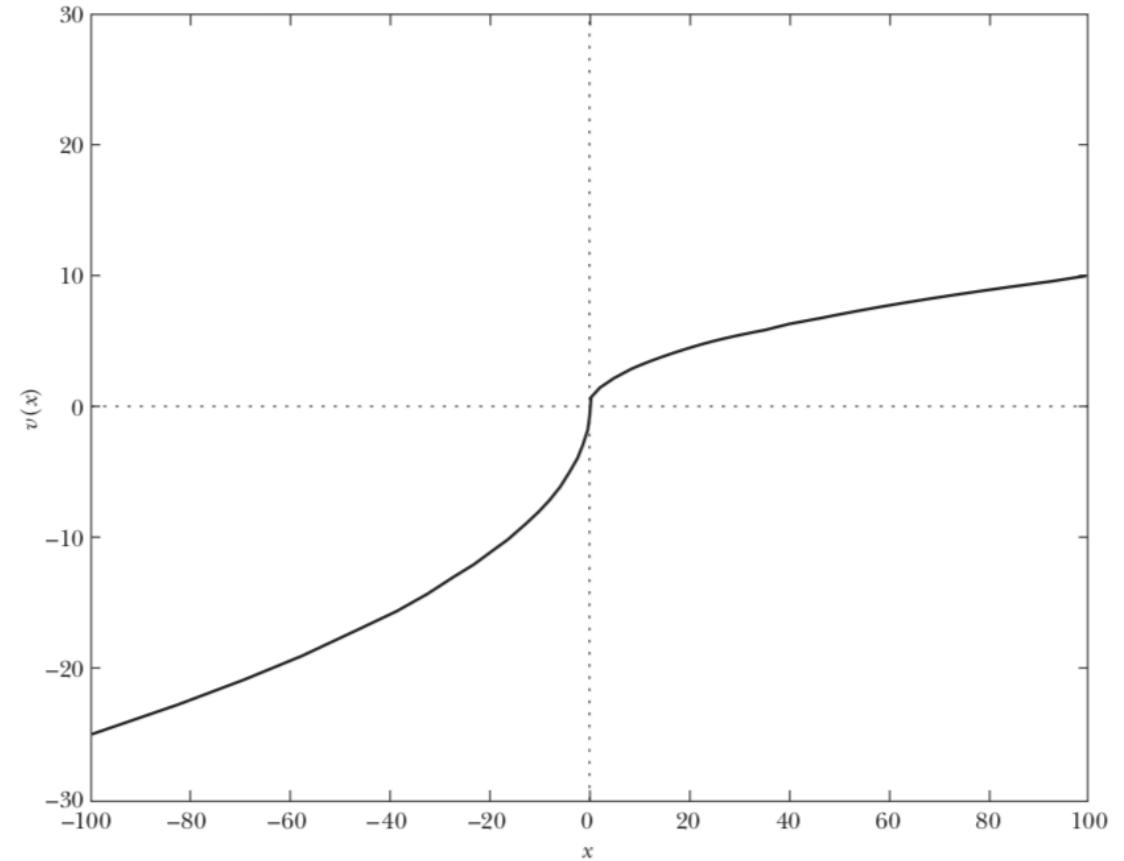




- ❖ “applied psychology” (1900s) → “scientific advertising” → “consumer psychology” at the late 1950s
- ❖ Alter Dill Scott (1908) combined new irrational aspects of consumer behavior with the mentalist perspective
- ❖ early research: often focused to the respond to advertising
- ❖ sensory factor: *smell, state, hearing, touch and sight*
- ❖ Knowledge, risk aversion

# Prospect theory

- ❖ Explains the framing a in term of the value function for goods derived utility from gains and losses measured relative to a reference point



# Framing effect

❖ Levin, Schneider & Gaeth (1998)

## *Risky choice framing*

Tversky and Kahneman (1981)

- (1) If Problem A is adopted, 200 people will be saved.
- (2) If problem B is adopted, there is 1/3 probability that 600 people will be saved, and 2/3 probability that no people will be saved

## *Attribute framing*

- Levin and Gaeth (1988): ground beef as either “75% lean” or “25% fat”

- Wu & Cheng (2011): electric translator as “80% translation accuracy” or “20% error rate”

## *Goal Framing*

- Persuasive messages show as positive consequences or the negative consequences of choices

- **Unique features of goal framing: the susceptibility of goal frames to linguistic and contextual variations**

### Anchoring

- ❖ find an initial point and set it as a reference to make their judgments
  - ❖ stick on their anchor point and will not add many options to change their product configuration
- the adjustments are usually insufficient

#### ❖ Hypothesis 1: Effect of Goal framing on buying behavior

- 1a. Consumers have more positive attitude for the product provided positive goal information than for the product with negative goal information.
- 1b. Consumers have more intention to buy the product provided positive goal information than for the product with negative goal information.
- 1c. Consumers are willing to pay for the product provided negative goal information than for the product with positive goal information.

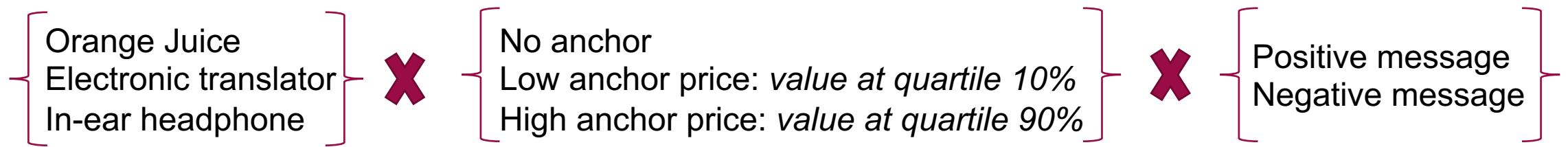
#### ❖ Hypothesis 2: Effect of Anchoring on buying behavior

- 2a. Consumers in high anchor condition will have more positive attitude toward the target product than their counterparts in the low anchor condition or with no anchor condition.
- 2b. Consumers in high anchor condition will reveal a higher intention to buy the target product than their counterparts in the low anchor condition or with no anchor condition.
- 2c. Consumers in high anchor condition will reveal a higher willingness to pay than their counterparts in the low anchor condition or with no anchor condition.

#### ❖ Hypothesis 3: The joint effect of goal framing and anchoring

- 3a. The joint effect of goal framing message and anchoring point are positive significant on online-shopping consumers' behavior attitude toward the target product.
- 3b. The joint effect of goal framing message and anchoring point are positive significant on intention to buy on online-shopping consumers' behavior toward the target product.
- 3c. The joint effect of goal framing message and anchoring point are positive significant on willingness to pay on online-shopping consumers' behavior toward the target product.

3(products) x 3(anchors) x2 (frames)



## 4. Experimental Designs

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The screenshot shows an Amazon product page for orange juice. At the top, the search bar contains "Grocery & Gourmet Food". The main search result is for "Tropicana 100% Orange Juice (10 oz. bottles, 24 pk.)". The product image shows a 24-pack of 10 oz bottles. A callout bubble labeled "Framing area" highlights the text "Vitamin C strengthens your immune system and repairability of your cells." To the right, there is an "Anchoring area" showing a smaller image of IZZE sparkling juice with the text "IZZE Refreshing Fruit Juice".

**Tropicana 100% Orange Juice (10 oz. bottles, 24 pk.) Tropicana**

★★★★★

**Vitamin C strengthens your immune system and repairability of your cells.**

**About the product**

- 100% juice from real, fresh oranges
- Good source of potassium and folic acid
- 100% daily value of vitamin C
- No added sugar
- Ideal for vending, concessions, lunches and office break rooms

**Framing area**

**IZZE Refreshing Fruit Juice**

IZZE Sparkling Juice, 4 Flavor Variety Pack (Pack of 24)

★★★★★ \$55.19 \$0.23 / Fl Oz) ✓prime

**Anchoring area**

## 4. Experimental Designs

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The screenshot shows a product listing on Amazon.com. The product is a black, rectangular device with a circular button on top and a speaker grille at the bottom. It is labeled "PULOMI". The listing includes the following details:

- Title:** TT Easy Trans Smart Language Translator Device Electronic Pocket Voice Bluetooth 52 Languages for Learning Travel Shopping Business White Red Black
- Price:** \$118.99 & FREE Shipping
- Color:** Black
- Ratings:** ★★★★☆ (3 customer reviews) | 15 answered questions
- Description:** This voice translator with super mini design, very easy to portable for talking speaking, you can put it in your pocket, wallet etc. it can also be used as a wireless bluetooth speaker with crystal clear sound. With high sensitive and fidelity speaker, push the button on the device and hold it till you finished your speech, it will recognize what you said and speak out loud the translation result. let you no worry about the noise from party etc. when it translates it translates it audibly, but into text, on your phone as well and can replay. this helpful for learning more words in other languages and to practice pronunciation. And, if who you are talking with has limited hearing, that is helpful to them, as well.
- Features:** 52 languages (Chinese, English, Hindi, Russian, Spanish, Thai, Korean, Japanese, German, French, Italian, Arabic, Portuguese, Danish, Czech, Iceland, Croatian, Afrikaans, Indonesian, Tamil, Catalan, Basque, Filipino, Galician, Zulu, Lithuanian, Hungarian, Dutch, Norwegian, Polish, Romanian, Slovak, Slovenia, Finnish, Swedish, Vietnamese, Turkish, Greek, Bulgarian, Serb, Ukrainian, Hebrew, farsi, Armenian, Bengalese, Khmer, Latvian, Nepali, Sinhalese, swahili, Tamil). Use for Learning, Travel, Shopping, Business ....
- Usage Instructions:** Just three steps, you can use it well. 1. Connect the translator and mobile phone through bluetooth. 2. iPhone: search "TT fayuo" in APP Store, Android: search "TT fayuo" in google play. 3. Enter APP, wait for the top of the interface to turn green (or use manual connection is more fast). Then choose the language in which you speak to each other. On the left is the language of your own speech, and on the right is the language of the other person.
- Notes:** It has three modes to choose for more convenient to use. (1) Single machine mode. (2) dual machine mode (manual). (3) Dual machine mode (automatic). The details see instruction. The reaction time usually takes about 1-2 seconds, mostly depends on the network speed. APP and office user manual is English so that you can use it well. No damage to human factors, one year warranty, life-long maintenance.

**Other Information:**

- Share buttons: Email, Facebook, Twitter, Pinterest.
- Price: \$118.99 & FREE Shipping
- Qty: 1
- Add to Cart button
- Turn on 1-Click ordering for this browser
- Deliver to Germany
- Add to List button
- Have one to sell? Sell on Amazon
- IFLYTEK Easy trans 600 Voice Translator electronic foreign language translation Chi... \$72.99 prime

**Text at the bottom:**

Not using local language could bring problems with misunderstanding, scamming, or transportation while traveling.

New (1) from \$118.99 & FREE shipping.

## 4. Experimental Designs

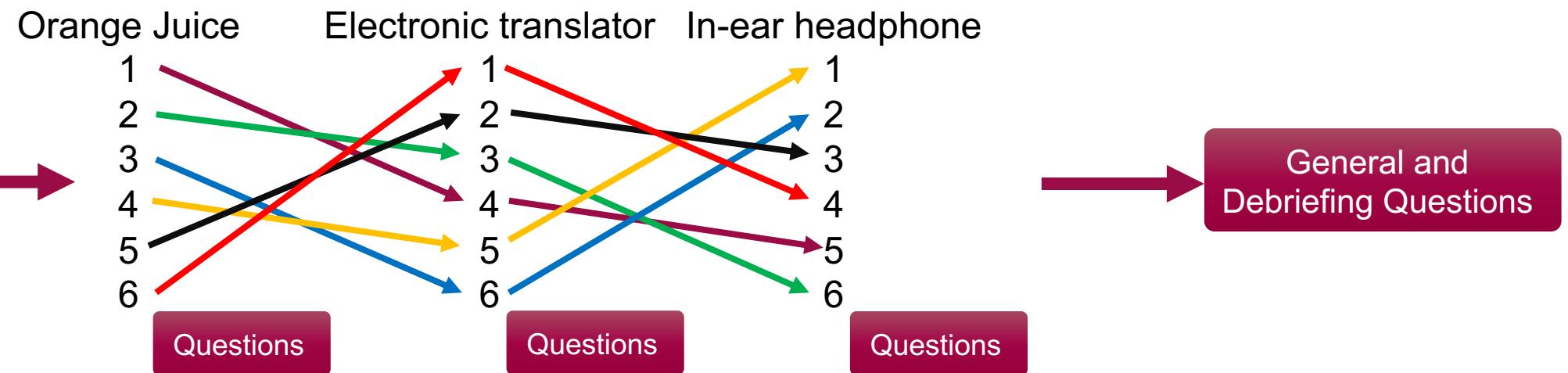
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The screenshot shows an Amazon product page for 'In Ear Headphones Earbuds with Mic & Volume Control' by Humixx. The product is shown in two views: a pair of earbuds with a coiled black cable on the left, and a close-up of the earbuds and their inline remote with a 3.5mm jack on the right. The product title is 'Humixx In Ear Headphones Earbuds with Mic & Volume Control,Apple Headset,Humixx-OperaSeries Earphone For iPhone iPad Samsung Galaxy LG HTC with 3.5mm Jack,Inline Earphones'. It has a price of \$13.99, 43 customer reviews, and 7 answered questions. The color is Metal Black. The product description highlights features like Bass EQ Mode, iPhone Microphone Headset, Ergonomic Design, and Quality Warranty & Lifetime Guarantee. A note indicates it's new from \$13.99 with free shipping over \$25.00. The page includes standard Amazon navigation and purchase options.

Using good headphones will enable you to have the best sounding experience and comfort.

## 4. Experimental Designs

	Framing	
	Positive	Negative
High Anchoring	1	2
Low Anchoring	3	4
No Anchoring	5	6



## 5. Results

Experiment Subjects: 380

Ethnicity			Gender		Age				
Vietnamese	German	Others	Male	Female	15-20	21-25	26-30	31-35	36 or above
330	17	30	239	141	71	125	151	23	8
86.84%	4.47%	7.89%	62.89%	37.11%	18.78%	33.07%	39.95%	6.08	2.12%
%									
Variable codes									
0	1	1	0	1	1	2	3	4	5

Variable	Obs	Mean	Std. Dev.	Min	Max
$Interest_i$	1,140	4.33	1.68	1	7
$Intention_i$	1,140	3.66	1.83	1	7
$Willingness\_to\_pay_i$	1,140	0.29	0.45	0	1
$Product_i$	1,140	2.00	0.82	1	3
$AH_i$	1,140	0.33	0.47	0	1
$AL_i$	1,140	0.33	0.47	0	1
$Framing_i$	1,140	0.50	0.50	0	1
$Knowledge_i$	1,113	3.87	1.80	1	7
$Risk\_aversion_i$	1,140	3.94	1.52	1	7
$Gender_i$	1,140	0.63	0.48	0	1
$Age_i$	1,140	2.40	0.93	1	5
$Ethnicity_i$	1,140	0.15	0.35	0	1

Inferential statistic: *Independent sample t-test of Interest, Intention, Willingness\_to\_pay by Framing*

	Positive Framing	Negative Framing	<i>t-value</i>	<i>prob</i>
Obs	575	565		
<i>Interest</i>	Mean	4.58	4.09	-4.9968
	Std. Dev.	0.07	0.07	0.000***
<i>Intention</i>	Mean	3.76	3.56	-1.8498
	Std. Dev.	1.84	1.82	0.065*
<i>Willingness to pay</i>	Mean	0.38	0.19	-7.3607
	Std. Dev.	0.49	0.39	0.000***

→ Hypothesis 1a, 1b, 1c supported: consumers have more positive attitude/  
Intention/ Willingness to pay for the product provided positive goal information than  
for the product with negative goal information.

Inferential statistic: *One-way Analysis of Variance of Interest, Intention, Willingness\_to\_pay by Anchoring*

	Source	df	SS	MS	F	p
Interest	Between groups	2	54.05	27.02	9.78	0.0001***
	Within groups	1137	3141.62	2.76		
	Total	1139	3195.67	2.81		
Intention	Between groups	2	38.1	19.05	5.71	0.0034***
	Within groups	1137	3791.52	3.33		
	Total	1139	3829.62	3.36		
Willingness to pay	Between groups	2	20.96	10.48	55.92	0.0000***
	Within groups	1137	213.09	0.19		
	Total	1139	234.05	0.21		

→ Hypothesis 2a, 2b, 2c supported: consumers have more positive attitude/  
Intention/ Willingness to pay for the product provided high price anchoring than for  
the product with low price anchoring

The Proportional odds models:

$$(1) \Pr(\text{Interest}_i \leq j | 1, 2, \dots, 7) = \Lambda(AH_i, AL_i, \text{Framing}_i, AH_i * \text{Framing}_i, AL_i * \text{Framing}_i)$$

$$(2) \Pr(\text{Interest}_i \leq j | 1, 2, \dots, 7) = \Lambda(AH_i, AL_i, \text{Framing}_i, AH_i * \text{Framing}_i, AL_i *$$

$\text{Framing}_i, \text{Knowledge}_i, \text{Risk\_aversion}_i, \text{Gender}_i, \text{Age}_i, \text{Ethnicity}_i, \text{Product}_i)$

$$(3) \Pr(\text{Intention}_i \leq j | 1, 2, \dots, 7) = \Lambda(AH_i, AL_i, \text{Framing}_i, AH_i * \text{Framing}_i, AL_i * \text{Framing}_i)$$

$$(4) \Pr(\text{Intention}_i \leq j | 1, 2, \dots, 7) = \Lambda(AH_i, AL_i, \text{Framing}_i, AH_i * \text{Framing}_i, AL_i *$$

$\text{Framing}_i, \text{Knowledge}_i, \text{Risk\_aversion}_i, \text{Gender}_i, \text{Age}_i, \text{Ethnicity}_i, \text{Product}_i)$

$$(5) \Pr(\text{Willingness\_to\_pay}_i = 1) = \Lambda(AH_i, AL_i, \text{Framing}_i, AH_i * \text{Framing}_i, AL_i * \text{Framing}_i)$$

$$(6) \Pr(\text{Willingness\_to\_pay}_i = 1) = \Lambda(AH_i, AL_i, \text{Framing}_i, AH_i * \text{Framing}_i, AL_i *$$

$\text{Framing}_i, \text{Knowledge}_i, \text{Risk\_aversion}_i, \text{Gender}_i, \text{Age}_i, \text{Ethnicity}_i, \text{Product}_i)$

## 5. Results

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	Coef. (Std. Err.)					
$AH_i$	0.488 (0.185)***	0.584 (0.191)***	-0.270 (0.185)	-0.189 (0.189)	-0.379 (0.249)	-0.314 (0.274)
$AL_i$	-0.362 (0.177)**	-0.390 (0.181)**	-0.685 (0.179)***	-0.744 (0.185)***	-1.109 (0.280)***	-1.247 (0.304)***
$Framing_i$	0.447 (0.181)**	0.499 (0.185)***	-0.186 (0.181)	-0.208 (0.186)	-0.330 (0.241)	-0.350 (0.266)
$AH_i * Framing_i$	-0.261 (0.257)	-0.237 (0.264)	0.437 (0.256)*	0.479 (0.263)*	2.612 (0.342)***	3.117 (0.388)***
$AL_i * Framing_i$	0.369 (0.256)	0.511 (0.261)**	0.632 (0.257)**	0.865 (0.263)***	1.060 (0.380)***	1.273 (0.416)***
$Knowledge_i$		0.464 (0.034)***		0.483 (0.034)***		0.501 (0.052)***
$Risk\_aversion_i$		0.079 (0.037)**		0.130 (0.036)***		0.274 (0.056)***
$Gender_i$		0.013 (0.112)		-0.017 (0.111)		-0.115 (0.167)
$Age_i$		-0.125 (0.059)**		-0.089 (0.058)		0.152 (0.087)*
$Ethnicity_i$		0.399 (0.157)**		0.015 (0.157)		0.020 (0.249)
$Product_i$		0.179 (0.066)***		0.126 (0.065)**		0.036 (0.100)
Number of obs	1140	1113	1140	1113	1140	1113
LR chi2	(5) 47.74	(11) 282.82	(5) 20.06	(11) 283.51	(5) 213.76	(11) 373.85
Prob > chi2	0.000	0.000	0.001	0.000	0.000	0.000
Pseudo R2	0.011	0.068	0.005	0.067	0.156	0.279

- ❖ The influence of money incentive in researching behavior in the market: *interest* - no clear differentiation of trends between/among groups but became obvious in decision-making stage
- ❖ The impact of price anchoring: significant negative impacts in low price anchoring
- ❖ Goal framing: impact on customer attitude → Product information depends heavily on the language and context → space for marketing creator
- ❖ The decisive impacts of how joining effect of goal framing and anchoring influences customer purchasing behavior

## 6. Discussion and Conclusion

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Thank you for your Attention!