



Warby Parker Funnel Analysis

Data analysis with SQL
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Introduction

- Warby Parker, founded in 2010, offer designer eyewear in a socially conscious business where for every pair of eyewear sold, a pair is donated to someone in need.
- Warby Parker has a novel selling technique whereby potential customers fill out a questionnaire before getting sent a range of suitable glasses to trial at home
- The owners have two funnel analyses that they would like to investigate:
 - 1) The conversion rates as potential customers progress through the questionnaire
 - 2) A/B test to determine the optimum number of glasses to send to the customers

Conversion rates of questionnaire

- Questions:

1. "What are you looking for?"
2. "What's your fit?"
3. "Which shapes do you like?"
4. "Which colors do you like?"
5. "When was your last eye exam?"

Conversion rates of questionnaire

- High conversion rates (95-100 %) were found for questions 1, 2 and 4
- A low conversion rate (75 %) was observed for question 5 which suggests that customers don't like to answer this question or haven't had a recent eye test.
- In total 46 % of potential customers are lost throughout the questionnaire.

Question	COUNT (question)	Conversion rate (%)
1. What are you looking for?	500	100
2. What's your fit?	475	95
3. What shapes do you like?	380	80
4. Which colors do you like?	361	95
5. When was your last eye exam?	270	75

SQL code

```
SELECT question, COUNT(question)
FROM survey
GROUP BY question;
```

Results from the questionnaire

- 1. What are you looking for?

Response	COUNT(response)	Proportion (%)
Men's Styles	242	48.4
Woman's Styles	209	41.8
I'm not sure. Let's skip it	49	9.8

- 2. What's your fit?

Response	COUNT(response)	Proportion (%)
Narrow	208	43.8
Medium	132	27.8
Wide	88	18.5
I'm not sure. Let's skip it	47	9.9

SQL code

```
SELECT question, response, COUNT(response)
FROM survey
GROUP BY question, response
ORDER BY question, COUNT(response) DESC;
```

Results from the questionnaire

- 3. What shapes do you like?

Response	COUNT(response)	Proportion (%)
Rectangular	141	37.1
Square	119	31.1
Round	91	23.9
No preference	29	7.6

- 4. What colors do you like?

Response	COUNT(response)	Proportion (%)
Tortoise	117	32.4
Black	112	31.0
Crystal	69	19.1
Neutral	36	10.0
Two-time	27	7.5

SQL code

```
SELECT question, response, COUNT(response)
FROM survey
GROUP BY question, response
ORDER BY question, COUNT(response) DESC;
```

Results from the questionnaire

- 5. When was your last eye test?

Response	COUNT(response)	Proportion (%)
< 1 Year	141	52.2
1-3 Years	56	20.7
3+Years	37	13.7
Not Sure. Let's Skip It	36	13.3

- There is a relatively even split between men's and women's styles
- Narrow and either rectangular or square frames were the most popular
- Customers preferred tortoise or black frames.
- Most of the customers had had an eye test in the last year.

SQL code

```
SELECT question, response, COUNT(response)
FROM survey
GROUP BY question, response
ORDER BY question, COUNT(response) DESC;
```

Purchase funnel analysis

- The purchase funnel is:

Take the style quiz → Home try-on → Purchase the perfect pair of glasses

- A/B Test on the home try-on stage:
 - 50 % of users will get 3 pairs to try on
 - 50 % of users will get 5 pairs to try on

Purchase funnel analysis – complete analysis

- Only 75 % of those who took part in the quiz selected to have glasses at home to try on
- Only 66 % of those trying on glasses at home made a purchase
- In total 50.5 % of potential customers are lost throughout the funnel.
- This is in addition to the 46 % of customers that were lost through the questionnaire

Funnel	COUNT (stage)	Conversion rate (%)
Quiz participants	1000	100
Number home try on	750	75
Number purchased	495	66

SQL code

```
WITH funnels AS (  
    SELECT DISTINCT q.user_id, h.user_id IS NOT  
        NULL AS 'home_try_on', p.user_id IS NOT NULL  
        AS 'purchased', h.number_of_pairs  
    FROM quiz AS 'q'  
    LEFT JOIN home_try_on AS 'h'  
        ON q.user_id = h.user_id  
    LEFT JOIN purchase AS 'p'  
        ON h.user_id = p.user_id)  
SELECT COUNT(*) AS 'quiz_participants',  
    SUM(home_try_on) AS 'num_home_try_on',  
    SUM(purchased) AS 'num_purchased', 100 *  
    SUM(home_try_on) / COUNT(*) AS  
    quiz_to_home_try_on, 100 * SUM(purchased) /  
    SUM(home_try_on) AS 'home_try_on_to_purchased'  
FROM funnels;
```

Purchase funnel analysis – A/B analysis

- Giving customers 5 pairs of glasses to try on at home resulted in a greater percentage of purchases
- 79.3 % of customers trying on 5 pairs purchased glasses whereas only 53.0 % of customers made a purchase when trying on 3 pairs.

Funnel	home_try_on	purchased	purchased (%)
3 pairs	379	201	53.0
5 pairs	371	294	79.3

SQL code

```
WITH funnels AS (  
    SELECT DISTINCT q.user_id, h.user_id IS NOT  
        NULL AS 'home_try_on', p.user_id IS NOT NULL  
        AS 'purchased', h.number_of_pairs  
    FROM quiz AS 'q'  
    LEFT JOIN home_try_on AS 'h'  
        ON q.user_id = h.user_id  
    LEFT JOIN purchase AS 'p'  
        ON h.user_id = p.user_id)  
SELECT number_of_pairs, SUM(home_try_on) AS  
    'num_home_try_on', SUM(purchased) AS  
    'num_purchased', 100 * SUM(purchased) /  
    SUM(home_try_on) AS 'home_try_on_to_purchased'  
FROM funnels  
GROUP BY number_of_pairs;
```

Further purchase analysis

- There was a roughly even split between men's and women's style.
- Interestingly, although more people were interested in men's styles in the questionnaire this didn't lead to the same ratio of glasses purchased

Style	COUNT(style)	Style(%)	Average price
Men's Styles	243	49.1	111.63
Women's Style	252	50.9	113.77

SQL code

```
SELECT style, COUNT(style), ROUND(AVG(price),2)
FROM purchase
GROUP BY style;
```

Further purchase analysis

- Jet black glasses were marginally favoured with 17.4 % of purchases.
- Elderflower Crystal, Endangered Tortoise and Sea Glass Gray were the least popular colors.

Color	COUNT(color)	Color(%)	Average price
Driftwood Fade	63	12.7	150
Elderflower Crystal	44	8.9	150
Endangered Tortoise	41	8.3	50
Jet Black	86	17.4	150
Layered Tortoise Matte	52	10.5	95
Pearled Tortoise	50	10.1	95
Rose Crystal	54	10.9	95
Rosewood Tortoise	62	12.5	95
Sea Glass Gray	43	8.7	95

SQL code

```
SELECT color, COUNT(color), ROUND(AVG(price),2)
FROM purchase
GROUP BY color;
```

Further purchase analysis

- Glasses priced at \$95 were the most favoured.

Price	COUNT(price)	Price(%)
50	41	8.3
95	261	52.7
150	193	39.0

SQL code

```
SELECT price, COUNT(price)
FROM purchase
GROUP BY price;
```

Conclusions

- High conversion rates were found for questions , 2 and 4, however a low conversion rate was found when consumers were asked when their last eye test was.
- 46 % of potential customers were lost throughout the questionnaire
- Only 75 % of those who took the questionnaire selected to have glasses to try on at home and only 66% of those made a purchase
- Giving customers 5 pairs (79.3 %) of glasses to try on resulted in a greater number of purchases than 3 pairs (53.0 %)