



# Warby Parker Usage Funnels

Analyze Data with SQL

Caitlin Thorn

17 May 2020

# Table of Contents

1. Quiz Funnel
  - 1.1. Data Exploration
  - 1.2. Reponses
  - 1.3. Completion Rates
2. Home Try-On Funnel
  - 2.1. Data Exploration
  - 2.2. Joining Tables
  - 2.3. Actionable Insights

# **1. Quiz Funnel**

# 1.1 Data Exploration

To help users find their perfect frame, Warby Parker has a Style Quiz. The users' responses are stored in a table called `survey`.

*What columns does the table have?*

The table has three columns: `question`, `user_id`, and `response`.

Example below (first four rows only).

question	user_id	response
1. What are you looking for?	005e7f99-d48c-4fce-b605-10506c85aaf7	Women's Styles
2. What's your fit?	005e7f99-d48c-4fce-b605-10506c85aaf7	Medium
3. Which shapes do you like?	00a556ed-f13e-4c67-8704-27e3573684cd	Round
4. Which colors do you like?	00a556ed-f13e-4c67-8704-27e3573684cd	Two-Tone

```
-- Select all columns from the first 10 rows
```

```
SELECT *  
FROM page_visits  
LIMIT 10;
```

## 1.2 Responses

Users will “give up” at different points in the survey. Let’s analyze how many users move from Question 1 to Question 2, etc.

*What is the number of responses for each question?*

Counts are presented in the table below. It appears as if most users drop off after questions 2 and 4.

question	answered
1. What are you looking for?	500
2. What's your fit?	475
3. Which shapes do you like?	380
4. Which colors do you like?	361
5. When was your last eye exam?	270

```
-- Create a quiz funnel using the GROUP BY command.
```

```
SELECT question,  
       COUNT(DISTINCT user_id) as 'answered'  
FROM survey  
GROUP BY question;
```

# 1.3 Completion Rates

*Which question(s) of the quiz have a lower completion rates?*

Question 3 (which shapes do you like?) and question 5 (when was your last eye exam?) have lower completion rates. Question 3 has a completion rate of 80%, while question 5 has the lowest completion rate of 74.8%. This is a lot lower than questions 2 and 4 - the other funnel questions - which both have completion rates of 95%.

*What do you think is the reason?*

I think these questions are more difficult for customers to answer. For example, in question 3 they may not what shapes they like or what would suit them. They would have to go through shapes and consider how they'd look in relation to their own face. I think question 5 could have a lower completion rate as customers may not know when their last eye exam was, or they may be afraid to state if it was a long time ago.

question	answered	completion rate
1. What are you looking for?	500	100%
2. What's your fit?	475	95%
3. Which shapes do you like?	380	80%
4. Which colors do you like?	361	95%
5. When was your last eye exam?	270	74.8%

## **2. Home Try-On Funnel**

## 2.1 Data Exploration

Warby Parker's purchase funnel is:

Take the Style Quiz → Home Try-On → Purchase the Perfect Pair of Glasses

During the Home Try-On stage, we will be conducting an A/B Test:

- 50% of the users will get 3 pairs to try on
- 50% of the users will get 5 pairs to try on

The data will be distributed across three tables:

quiz  
home\_try\_on  
purchase

*What are the column names?*

- quiz is made up of user\_id, style, fit, shape, and color.
- home\_try\_on is made up of user\_id, number\_of\_pairs, and address.
- purchase is made up of user\_id, product\_id, style, model\_name, color, and price.

```
-- Examine the first five rows of each table
```

```
SELECT *  
FROM quiz  
LIMIT 5;
```

```
SELECT *  
FROM home_try_on  
LIMIT 5;
```

```
SELECT *  
FROM purchase  
LIMIT 5;
```



## 2.2 Joining Tables

To create a funnel the three tables need to be combined. Each row will represent a single user and provide information on their try on and purchase data, including which A/B test group they fell into. This can be used to then calculate funnels based on A/B testing.

A sample of data after combining these tables is presented below.

```
-- Use a LEFT JOIN to combine the three tables, starting with the top of the funnel (quiz) and ending with the bottom of the funnel (purchase).
```

```
SELECT
  DISTINCT q.user_id,
  CASE WHEN h.user_id IS NOT NULL
    THEN 'TRUE'
    ELSE 'FALSE'
  END AS 'is_home_try_on',
  h.number_of_pairs,
  CASE WHEN p.user_id IS NOT NULL
    THEN 'TRUE'
    ELSE 'FALSE'
  END AS 'is_purchase'
FROM quiz q
LEFT JOIN home_try_on h
  ON q.user_id = h.user_id
LEFT JOIN purchase p
  ON q.user_id = p.user_id
LIMIT 10;
```

user_id	is_home_try_on	number_of_pairs	is_purchase
4e8118dc-bb3d-49bf-85fc-cca8d83232ac	TRUE	3 pairs	FALSE
291f1cca-e507-48be-b063-002b14906468	TRUE	3 pairs	TRUE
75122300-0736-4087-b6d8-c0c5373a1a04	FALSE	NULL	FALSE
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	TRUE	5 pairs	FALSE

## 2.3 Actionable Insights

Here, the purchase rates are compared between the A/B test groups - where customers either received 3 pairs or 5 pairs of glasses to try on, before deciding whether to make a purchase.

The results show that customers who tried on 3 pairs of glasses made a purchase 53% of the time, while customers who tried on 5 pairs of glasses made a purchase 79% of the time.

This is a large increase in purchase rate, showing that customers presented with more options are 26% more likely to find something they like, and make a purchase. Based on this insight alone, it appears more valuable to provide customers with 5 pairs of glasses to try on, and Warby Parker should consider changing their model to send customers 5 pairs of glasses to try on as this could make a considerable impact on sales.

number_of_pairs	num_tryon	num_purchase	tryon_to_purchase
3 pairs	379	201	53%
5 pairs	371	294	79%

```
-- Calculate the difference in purchase rates between
customers who had 3 number_of_pairs with ones who had
5.
```

```
WITH funnels AS (SELECT
  DISTINCT q.user_id,
  h.user_id IS NOT NULL
    AS 'is_home_try_on',
  h.number_of_pairs,
  p.user_id IS NOT NULL
    AS 'is_purchase'
FROM quiz q
LEFT JOIN home_try_on h
  ON q.user_id = h.user_id
LEFT JOIN purchase p
  ON q.user_id = p.user_id)
SELECT
  number_of_pairs,
  SUM(is_home_try_on) AS 'num_tryon',
  SUM(is_purchase) AS 'num_purchase',
  ROUND(100 * SUM(is_purchase) / SUM
    (is_home_try_on)) AS 'tryon_to_purchase'
FROM funnels
WHERE number_of_pairs IS NOT NULL
GROUP BY number_of_pairs
ORDER BY number_of_pairs;
```