



Usage Funnels w/ Warby Parker

Learn SQL from Scratch

[Pedro] [Bustillo]

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1. Warby Parker' Funnel model

1 Warby Parker (WP)' Funnel Model

The Warber Parker's Funnel model is based on three stages of customer interaction and experience:

- Quiz → home_try_on → purchase
- At the WP's website the customer is invited to respond a survey (Quiz) that covers multiple questions to help WP assess the model of glasses (styles, colors, etc.) that the customer could enjoy and like and, as a result, originate a sale order. The next step is for the customer to try on 3 or 5 different pair of glasses (home_try_on) covering an spectrum of what the customer responded in the survey.
- The final step is for the customer to make a purchase order (purchase).

Note:

Each one of the above steps is independent from the previous one. A customer that tries on a pair of glasses is not obliged to make any purchase.

1.1 Tables originated by each one of the funnel's stages

Survey 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?"

The survey fits the table Quiz, with the exception of question 5.

user_id = a number per customer

Sample table of Survey		
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
1. What are you looking for?	00a556ed-f13e-4c67-8704-27e3573684cd	I'm not sure. Let's skip it.
2. What's your fit?	00a556ed-f13e-4c67-8704-27e3573684cd	Narrow
5. When was your last eye exam?	00a556ed-f13e-4c67-8704-27e3573684cd	<1 Year
3. Which shapes do you like?	00bf9d63-0999-43a3-9e5b-9c372e6890d2	Square
5. When was your last eye exam?	00bf9d63-0999-43a3-9e5b-9c372e6890d2	<1 Year
2. What's your fit?	00bf9d63-0999-43a3-9e5b-9c372e6890d2	Medium

Sample table of Quiz				
user_id	style	fit	shape	color
4e8118dc-bb3d-49bf-85fc-cca8d83232ac	Women's Styles	Medium	Rectangular	Tortoise
291f1cca-e507-48be-b063-002b14906468	Women's Styles	Narrow	Round	Black
75122300-0736-4087-b6d8-c0c5373a1a04	Women's Styles	Wide	Rectangular	Two-Tone
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	Women's Styles	Narrow	Square	Two-Tone
ce965c4d-7a2b-4db6-9847-601747fa7812	Women's Styles	Wide	Rectangular	Black

Sample table of home Try on		
user_id	number_of_pairs	address
d8addd87-3217-4429-9a01-d56d68111da7	5 pairs	145 New York 9a
f52b07c8-abe4-4f4a-9d39-ba9fc9a184cc	5 pairs	383 Madison Ave
8ba0d2d5-1a31-403e-9fa5-79540f8477f9	5 pairs	287 Pell St
4e71850e-8bbf-4e6b-acc0-49a7bb46c586	3 pairs	347 Madison Square N
3bc8f97f-2336-4dab-bd86-e391609dab97	5 pairs	182 Cornelia St

The **Purchase** table contains information related to the pair of glasses bought by each customer (user_id)

Sample table of Purchase					
user_id	product_id	style	model_name	color	price
00a9dd17-36c8-430c-9d76-df49d4197dcf	8	Women's Styles	Lucy	Jet Black	150
00e15fe0-c86f-4818-9c63-3422211baa97	7	Women's Styles	Lucy	Elderflower Crystal	150
017506f7-aba1-4b9d-8b7b-f4426e71b8ca	4	Men's Styles	Dawes	Jet Black	150
0176bfb3-9c51-4b1c-b593-87edab3c54cb	10	Women's Styles	Eugene Narrow	Rosewood Tortoise	95
01fdf106-f73c-4d3f-a036-2f3e2ab1ce06	8	Women's Styles	Lucy	Jet Black	150

1.2 The survey respond trend

The first step to analyze WP's funnel performance is to measure the number of responses for each question of the survey. This lets us understand the percentage of people who started the survey but gave up, or did not finish it.

SQL CODE:

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

SQL OUTPUT:

question	COUNT(DISTINCT user_id)
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

From Excel we calculate the completion rate per question:

- Questions number 3 and 5 represent the major drop in responses. Being the number 5 the lowest. With 80% and 75% respectively.
- Question 3: could be more difficult to answer without trying on the pair first
- Question 5: could reflect the fact that people don't check their eyes as often as they should.

question	Number of Users	% of Users Who Answers Each Question
1. What are you looking for?	500	
2. What's your fit?	475	95.0%
3. Which shapes do you like?	380	80.0%
4. Which colors do you like?	361	95.0%
5. When was your last eye exam?	270	74.8%

1.3 Master table analysis

Next: Funnel performance analysis is about measuring how many people who answered the quiz, accepted to try on some pair of glasses and finally made a purchase order.

SQL CODE:

```
SELECT DISTINCT q.user_id,
  h.user_id IS NOT NULL AS 'is_home_try_on', q.style, q.fit, q.shape, q.color,
  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 p.user_id = q.user_id
LIMIT 10;
```

Below a sample of the output limited to 10 rows.

These LEFT JOIN tables will be used as temp tables (WITH ... AS(SELECT ...)) to arrive to very interesting conclusions:

user_id	is_home_try_on	style	fit	shape	color	number_of_pairs	is_purchase
4e8118dc-bb3d-49bf-85fc-cca8d83232ac	1	Women's Styles	Medium	Rectangular	Tortoise	3 pairs	0
291f1cca-e507-48be-b063-002b14906468	1	Women's Styles	Narrow	Round	Black	3 pairs	1
75122300-0736-4087-b6d8-c0c5373a1a04	0	Women's Styles	Wide	Rectangular	Two-Tone		0
75bc6ebd-40cd-4e1d-a301-27ddd93b12e2	1	Women's Styles	Narrow	Square	Two-Tone	5 pairs	0
ce965c4d-7a2b-4db6-9847-601747fa7812	1	Women's Styles	Wide	Rectangular	Black	3 pairs	1
28867d12-27a6-4e6a-a5fb-8bb5440117ae	1	Women's Styles	Narrow	Rectangular	Black	5 pairs	1
5a7a7e13-fbcf-46e4-9093-79799649d6c5	0	Women's Styles	Wide	Rectangular	Tortoise		0
0143cb8b-bb81-4916-9750-ce956c9f9bd9	0	Women's Styles	Wide	Rectangular	Two-Tone		0
a4ccc1b3-cbb6-449c-b7a5-03af42c97433	1	Women's Styles	I'm not sure. Let's skip it.	Square	Tortoise	5 pairs	0
b1dded76-cd60-4222-82cb-f6d464104298	1	Women's Styles	Narrow	Rectangular	Crystal	3 pairs	0

1.4 Funnel Conversion Ratio

Funnel conversion ratio measures how many customers out of the total responders accepted to try on pair of glasses and then how many made a purchase order.

SQL CODE:

```
WITH conversion AS
(SELECT DISTINCT q.user_id,
 h.user_id IS NOT NULL AS 'is_home_try_on', q.style, q.fit, q.shape, q.color,
 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 p.user_id = q.user_id
)
SELECT COUNT(DISTINCT user_id) AS '# of Quiz Responders',
SUM(is_home_try_on), 1.0 * sum(is_home_try_on)/COUNT(DISTINCT user_id)
AS 'Try_on_to_quiz_ratio', SUM(is_purchase), 1.0 * SUM(is_purchase)
/SUM(is_home_try_on) AS 'Trying_on_Purchase_Ratio'
FROM conversion;
```

OUTPUT:

of Quiz Responders	SUM(is_home_try_on)	Try_on_to_quiz_ratio	SUM(is_purchase)	Trying_on_Purchase_Ratio
1000	750	0.75	495	0.66

Conclusion:

We can see that 75% of the people who responded the quiz, accepted to try on pairs of glasses. And 66% of the people who tried on pairs of glasses made a purchase order.

1.5 3-pairs vs. 5-pairs conversion rates

How many customers made a purchase after having tried on either 3-pairs or 5-pairs:

SQL CODE:

```
WITH conversion AS
(SELECT DISTINCT q.user_id,
  h.user_id IS NOT NULL AS 'is_home_try_on', q.style, q.fit, q.shape, q.color,
  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 p.user_id = q.user_id
)
SELECT number_of_pairs, SUM(is_home_try_on) AS 'home_try_on_by_pairs',
SUM(is_purchase) AS 'purchaser_by_pairs', ROUND((1.0 * SUM(is_purchase)
/ SUM(is_home_try_on)),2) AS 'conversion_rate'
FROM conversion
GROUP BY number_of_pairs;
```

OUTPUT CODE

Conclusion:

Out of the total 495 people who made a purchase (previous slide), the 5-pairs-try-on sampling showed a much higher conversation rate: 79% vs. 53%. !!

mber_of_pairs	home_try_on_by_pairs	purchaser_by_pairs	conversion_rate
	0	0	
3 pairs	379	201	0.53
5 pairs	371	294	0.79

1.6 Conversion rates by style, fit, shape and color

How many customers made a purchase after having tried on by style, fit, shape and color.

CODE (home try on to purchaser by style)

```
WITH conversion AS
(SELECT DISTINCT q.user_id,
 h.user_id IS NOT NULL AS 'is_home_try_on', q.style, q.fit, q.shape, q.color,
 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 p.user_id = q.user_id
)
SELECT style, SUM(is_home_try_on) AS 'home_try_on_by_style',
SUM(is_purchase) AS 'purchaser_by_style', ROUND((1.0 * SUM(is_purchase) /
SUM(is_home_try_on)),2) AS 'conversion_rate'
FROM conversion
GROUP BY style;
```

Note: the code for the analysis by fit, shape and color is almost the same. The only that changes is the column to use as aggregate (words in bold /GROUP BY); by using the words: **fit, shape or color**

Conclusion:

It looks like style (Men's or Women's), fit /wide , shape /round and color / black and tortoise drive higher conversion rates..

Being style the highest driver

<u>style</u>	home_try_on_by_style	purchaser_by_style	conversion_rate
I'm not sure. Let's skip it.	69	0	0.0
Men's Styles	320	243	0.76
Women's Styles	361	252	0.7
<u>fit</u>	home_try_on_by_fit	purchaser_by_fit	conversion_rate
I'm not sure. Let's skip it.	64	45	0.7
Medium	234	152	0.65
Narrow	302	193	0.64
Wide	150	105	0.7
<u>shape</u>	home_try_on_by_shape	purchaser_by_shape	conversion_rate
No Preference	71	53	0.75
Rectangular	288	189	0.66
Round	140	95	0.68
Square	251	158	0.63
<u>color</u>	home_try_on_by_color	purchaser_by_color	conversion_rate
Black	220	150	0.68
Crystal	165	104	0.63
Neutral	79	48	0.61
Tortoise	213	144	0.68
Two-Tone	73	49	0.67