Warby Parker conversion rates

Learn SQL from scratch

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June 10, 2019

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1. What is Warby Parker and what is our study?

- Warby Parker was founded with a rebellious spirit and a lofty objective: to offer designer eyewear at a revolutionary price, while leading the way for socially conscious businesses
- Warby Parker has asked us to examine how a new A/B test impacts conversion of home try-ons
  - One set of users will receive 3 glasses to try on
  - Other set of users will receive 5 glasses to try on

2. How does Warby Parker's style quiz work?

What are the component parts?

- Quiz composed of 5 questions shown at the right

What is the number of responses to each question?

- Overall, conversion is extremely strong at 75%+ between questions on 500 responses as shown at the right

What question(s) of the quiz have a lower completion rate?

- Question 3 (what shapes do you like?) has an 80% conversion rate
- Question 5 (when was your last eye exam?) has a 75% conversion rate

```sql
-- Get the number of responses to each question by user
select question,
       count(distinct user_id) as 'Responses'
 from survey
 group by question;
```

1. What are you looking for?	
500 responses	–
2. What's your fit?	
475 responses	95% conversion from prior question
3. Which shapes do you like?	
380 responses	80% conversion from prior question
4. Which colors do you like?	
361 responses	95% conversion from prior question
5. When was your last eye exam?	
270 responses	75% conversion from prior question
Overall 54% conversion	

Rationale for lower completion

- Question 3
  - People may not have given shape a lot of thought, or they could believe fit is the same as shape, which could cause them to think the quiz is redundant and leave
- Question 5
  - People may not have had an eye exam or not know when they had one; they may not want to admit this fact which drives them to leave

3. What are the results of the A/B funnel test?
50% of users get 3 pairs to try on, 50% get 5 pairs

How are the different data sets defined?

- All three sets have the user_id
- Quiz:
  - Style (men/women)
  - Fit (narrow/medium/wide)
  - Shape
  - Color
- Home_try_on:
  - Number of pairs (3/5)
  - Address
- Purchase:
  - Product_id
  - Style (men/women)
  - Model_name
  - Color
  - Price

```sql
-- Understand the data sets we have to analyze
select *
from quiz
limit 5;

select *
from home_try_on
limit 5;

select *
from purchase
limit 5;
```

3. What are the results of the A/B funnel test? (cont'd)

50% of users get 3 pairs to try on, 50% get 5 pairs

How are the conversion rates impacted by the number of pairs a customer is allowed?

- First have to create a data set to show if a user tried on glasses at home, how many pairs they tried on, and if they purchased a pair
- Code shown at the right for this, with results limited to 10 rows to demonstrate effectiveness

```
-- create the custom table to show whether or not home try on happend (1/0), number of pairs for A/B test (3,5, "N/A" if no try on, and if a purchase was made (1/0)); then show the first 10 rows to check
with combined_table as(
  select
    substr(distinct(q.user_id),1,8) as user_id,
    h.user_id IS NOT NULL as is_home_try_on,
    Case
      when h.number_of_pairs IS NOT NULL
      then substr(h.number_of_pairs,1,1)
      else 'N/A'
      end as number_of_pairs,
    p.user_id IS NOT NULL as is_purchase
  from quiz as q
  left join home_try_on as h
     on q.user_id = h.user_id
  left join purchase as p
    on q.user_id = p.user_id)
select *
from combined_table
limit 10;
```

user_id	is_home_try_on	number_of_pairs	is_purchase
4e8118dc	1	3	0
291f1cca	1	3	1
75122300	0	N/A	0
75bc6ebd	1	5	0
ce965c4d	1	3	1
28867d12	1	5	1
5a7a7e13	0	N/A	0
0143cb8b	0	N/A	0
a4ccc1b3	1	5	0
b1dded76	1	3	0

3. What are the results of the A/B funnel test? (cont'd)

50% of users get 3 pairs to try on, 50% get 5 pairs

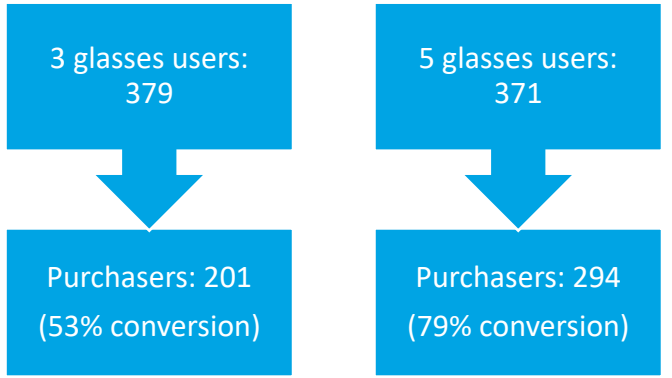
How are the conversion rates impacted by the number of pairs a customer is allowed?

- First must get the number of users that received 3 and 5 pairs to try on
- Use same code as prior page, but replace the select portion with the code shown at right
- Then must determine how many of these users purchased the glasses
- Code again shown at the right to get count of 3 and 5 glasses users

```
-- Code to add to get number of users with each glasses count
select count(user_id), number_of_pairs
from combined_table
group by number_of_pairs;
```

```
-- Code to add to get number of users with each glasses count that made a purchase
select sum(is_purchase)
from combined_table
where number_of_pairs = '3'
```

```
-- Code to add to get number of users with each glasses count that made a purchase
select sum(is_purchase)
from combined_table
where number_of_pairs = '5'
```



Overall, home try-ons have a 66% conversion rate, but the conversion rate jumps over 25% when customers are offered 5 glasses to try on rather than 3

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4. What are some additional insights for the company?
What is the overall conversion rate?

What is the conversion rate between the quiz, trying pairs on, and purchasing?

- Make sure to join each data set using the distinct user_id from the quiz data set so that only users from the quiz set are tracked through for conversion purposes

```sql
-- Compare conversion from quiz to home try on
--- First get number of quiz takers
Select count(distinct(user_id)) as 'Quiz takers'
from quiz;

--- Get number of quiz users in the home try on set
Select count(distinct(q.user_id)) as 'Home try on users'
from quiz as q
join home_try_on as h
  on q.user_id = h.user_id;

--- Get number of quiz users that did home try ons in the purcase set
Select count(distinct(q.user_id)) as 'End purchasers'
from quiz as q
join home_try_on as h
  on q.user_id = h.user_id
join purchase as p
  on q.user_id = p.user_id;
```

1. Quiz takers: 1,000

2. Home try on users: 750
(75% conversion)

End purchasers: 495
(66% conversion)

Overall~50% conversion

Warby Parker should seek to increase the number of users that purchase glasses once they commit to trying them on at home, most likely by offering them 5 pairs

Potential area for further study is on ideal number of pairs to offer; For example, does 7 pairs lead to choice paralysis and a lower conversion?

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4. What are some additional insights for the company?
What model and gender style of glasses sell most frequently?

Model	# of pairs sold	Percent
Eugene Narrow	116	23%
Dawes	107	22%
Brady	95	19%
Lucy	86	17%
Olive	50	10%
Monocle	41	8%

```sql
-- what model of glasses sell most frequently
select model_name as 'Model', count(*) as 'Number of pairs sold'
from purchase
group by model_name
order by count(*) desc;

-- what gender style of glasses sell most frequently
select style, count(*) as 'Number of pairs sold'
from purchase
group by style
order by count(*) desc;
```

Style	# of pairs sold	Percent
Women's	252	51%
Men's	243	49%

Combined, The Olive and Moncole models of glasses sell about the same frequency as the Lucy, a model much more in line with the other sales patterns observed

It may make sense to retire the olive and the monocle model to try out new styles that sell better

Overall~50% conversion from each gender style

Potential area for further study is how this compares the gender of the quiz taker; Are men or women more likely to complete a purchase cycle? Can advertising dollars shift to either close that gap or take advantage of it (based on company preference)?