



Doctor Reviews

A Deductive Study Describing Positive Effects of Online Reviews

Introduction

DrSocial is a health website founded by expertise in different market backgrounds. The unique blend has developed a modern concept of doctor review website. The project is not only rooted in the medical field but also on other markets influenced by “customers’ reviews”.

There are several articles and studies describing how internet users are rating doctors and other experiences of their lives, thus focusing on different aspects:

(article -<http://www.cbc.ca/news/health/online-doctor-reviews-not-commonly-checked-by-patients-1.2543301>)

article - <http://medicaleconomics.modernmedicine.com/medical-economics/news/doctor-review-websites-are-growing-factor-patients-choosing-providers>)

(article - <http://www.softwareadvice.com/medical/industryview/how-patients-use-online-reviews/>)

Reviews from 50 hotels have been catalogued. Each hotel had 15-25 rooms and approx 3000 rooms sold per year.

The study aims to describe the interaction between level of service in the hotel industry and quality of reviews received on Tripadvisor.

It has also being developed to clarify the behavioural changes of users that engage review websites as Tripadvisor.

Outcomes suggest that an active engagement of the hotel increases the overall rank and therefore Tripadvisor leverages hotels authority.

Similar results could be achieved in the doctor review market. Doctors should follow hotels strategies, engage review websites and promote their profession to increase their reputation. Those who will follow this theory will be rewarded by patients community in terms of reputation improvement.

Users behaviour on Tripadvisor

We have catalogued different behaviours of Tripadvisor’s customers using past experience in the hotel business and peers interviews. 10 main categories of users have been defined:



Probability of writing review (%)	Motivation to write review	Review trigger	Trigger	Review grade	Increase of quality on positive reviews	Increase of quality on negative reviews
0-10	None	Very great experience	None	5	Very great increase with excellent service	none
10-20	Very little	Great experience	Service	5	Great increase with excellent service	none
20-30	Very little	Great/Bad experience	Big Details	5,1	Small increase	100% Reviews reduction
30-40	Little	Average experience	All details	5,1	Small increase	100% Reviews reduction
40-50	Aware	Average experience	Overall experience	5,1	Small increase	100% Reviews reduction
50-60	Aware and little active	Average experience	Semiconscious evaluation	5,4,1	Increase	100% Reviews reduction
60-70	Aware and active	Average experience	Conscious evaluation	5,4,3,2,1	Medium increase	100% Reviews reduction with excellent service
70-80	Aware and very active	Average experience	Understanding the project	5,4,3,2,1	Great increase	100% Reviews reduction with excellent service
80-90	Aware and very active	Any Experience	Feeling part of the project	5,4,3,2,1	Very great increase	100% Reviews reduction with excellent service
90-100	On a mission!	Any experience	Committed to Tripadvisor	5,4,3,2,1	Very great increase	Only misleading reviews stay

Chart.1 – User behaviour analysis on Tripadvisor

1. Customers with 0-10% probability to post – These customers are unaware of Tripadvisor and its services. They never write a review under normal circumstances. Only an very great experience and hotel proactiveness in explaining Tripadvisor project and service will make them write a very positive review.
2. Customers with 10-20% probability to post – These customers are not totally unaware of Tripadvisor, however they tend not to write a review. If they have a nice experience and hotel is reminding them to do so they can write a positive review on services received.
3. Customers with 20-30% probability to post – These customers trigger their review also with bad experiences and t focus on big details. The hotel requesting to post a review is generating positive and negative results. As services improve, bad reviews tend to disappear and positive reviews slightly increase.
4. Customers with 30-40% probability to post – These customers can write a review, even if they are not much motivated, with an average experience and focusing on all details either for good or bad reviews. They know about Tripadvisor and its authority. As services improve, bad reviews tend to disappear and positive reviews slightly increase.
5. Customers with 40-50% probability to post – These customers are aware of Tripadvisor and when they write a review they fully analyze the overall experience, however they still make



strong judgements and rate very good or very bad reviews. As services improve, bad reviews tend to disappear and positive reviews slightly increase.

6. Customers with 50-60% probability to post – These customers are aware and active of Tripadvisor and they can write about positive and negative experiences. As they know the importance of their content, they can give suggestion on how to improve services. They appreciate higher quality and reward hotels by changing negative reviews in good ones or writing excellent ones. Positive reviews increase in number and quality.
7. Customers with 60-70% probability to post – This is the first category that uses all 5 evaluation stars. This behaviour shows a full understanding of Tripadvisor. They do perceive service improvements and reward them with significant increase in number and quality of reviews. With excellent service levels, negative reviews tend to disappear.
8. Customers with 70-80% probability to post – These customers are long time writers on Tripadvisor or well informed new ones. They understand Tripadvisor . When they decide to contribute, they do it properly. Their reviews are valuable. They really appreciate service improvements and reward with a significant increase in positive reviews. If hotel is committed to excellence, bad reviews tend to disappear.
9. Customers with 80-90% probability to post – They are very active on the site because they fully understand what Tripadvisor is about. They will review any experience and appreciate service improvements. They feel like an active part in the quality process. They reward with a very great increase in positive reviews. If hotel is committed to excellence, bad reviews tend to disappear.
10. Customers with 90-100% probability to post – They are “Tripadvisor proctors”. They will review any experience and greatly appreciate service improvements as they know they are influential reviewers. When a hotel owner reads one of them he reads it carefully. It usually contain a lot of valuable information. Sometimes there are also some misleading reviews. Service improvements is rewarded with a very great increase in positive reviews. If hotel is committed to excellence, bad reviews tend to disappear and only misleading reviews stay.

In our hypothesis all customers are uniformly spreaded across the cathegories listed.

A hotel with 3000 customers, has 300 potential reviews for each cathegory.

Each hotel review has been examined together with users’ profiles and determined compatibility with one of the cathegories in Chart 1. Each review has been assigned to one of the them. This work identifies the exact position of a review in the system. Let’s explain outcomes with a numerical example:

With a service level as shown in Chart.2, all 5 star reviews counted with a probability of 20-30% were 60.

LEVEL OF SERVICE 50-50					
Probability of writing review	Star review 1	Star review 2	Star review 3	Star review 4	Star review 5
0-10					3
10-20	3				2
20-30	60				60
30-40	65		3		65
40-50	70		5		70
50-60	75		6		75
60-70	80	80	4	80	80
70-80	85	85	3	85	85
80-90	90	90	5	90	90
90-100	95	95	8	95	95

Chart.2 –Normalized* reviews allocated for each



*The total number of allocated reviews is above 2000. The total sum of data contained in Chart.2 is 1982. The difference is given by the fact that each number has approximated to the closest between number 0 and number 5. Number 90 in the chart could have been 88,89, 91,92 reviews and number 95 could have been 93,94,96,97.

Therefore dividing this numbers by the number of hotels (50) the result is the average number of review for that area. This value has been defined “**rectangle density**”.

Rectangle Density

The rectangle density is a weighted average of reviews within a given probability of writing it and gives a numerical outcome of actual reviews in a certain group. Let’s say it in other words: if a rectangle has a density value of 1, the outcome of written reviews for that area is 1. It means that we have found only 1 review relevant with that area according to parameters shown in Chart 1.

Please also see a practical example taken from Fig.2..4

Look at Fig.2 (scenario 1). The rectangle having $3 < X < 4$ e $50 < Y < 60$ represents a group of clients with 50-60% probability of writing a 4 star review. Among all clients belonging to this group there will be 1.50 (rectangle density) reviews written.

When services improve (scenario 2) the same group of people will have 1.80 written reviews as shown in Fig.3.

Scenario 3 displays an additional increase of written reviews up to 2.00. See Fig.4.

Visual Layout Describing Data Collected

These data have been used to describe quantity and quality of reviews vs. total number of rooms sold.

We have assigned:

X= n Star review

Y = Probability of writing review

Function limits:

$0 < X < 5$

$X=0 \Rightarrow$ Star review =0

$X=5 \Rightarrow$ Star review =5

$0(\%) < Y < 100(\%)$

0=0% probability of writing a review

100=100% probability of writing a review

In order to facilitate the comprehension of the function read the following example:

X=4 Y=20% with level of service 50-50%. This function value represents 4 star reviews written by clients having at least 20% probability to write them. For this level of service there are no reviews displayed as shown in Chart.2 and Fig.2.

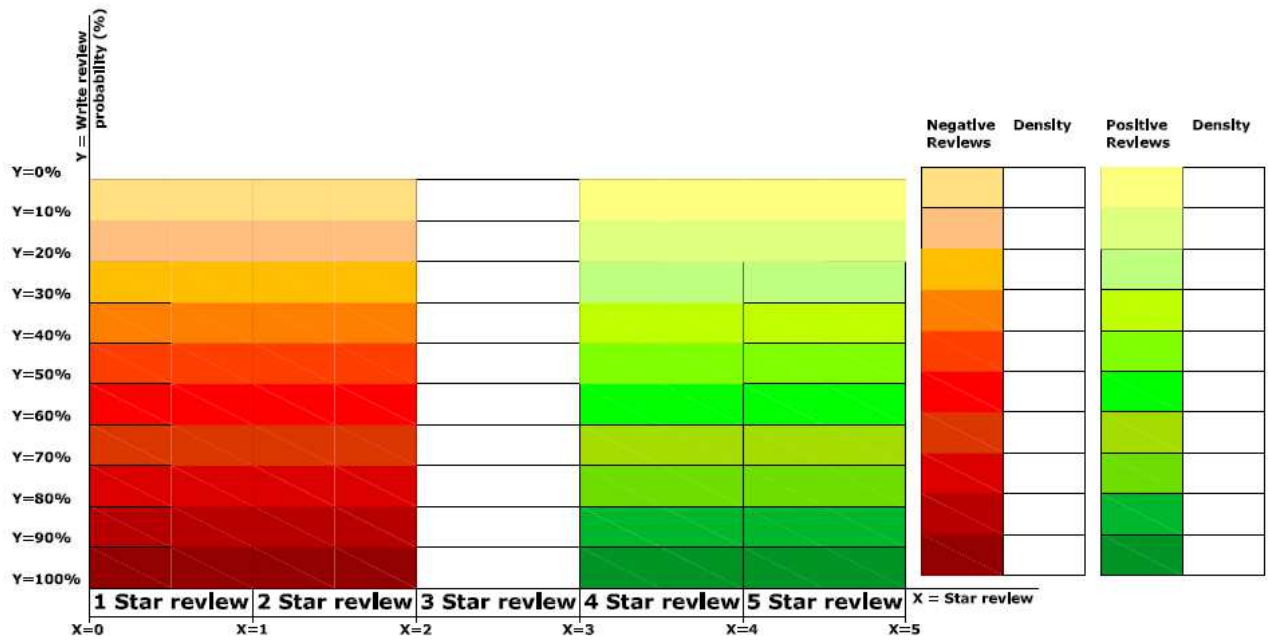


Fig. 1 Reference System & Visual Layout

The value displayed by TripAdvisor is considered as the overall rate of the hotel value. This assumption is based on our previous experiences in the hotel market as well as TripAdvisor's authority.

A peculiar element that has been noticed is 3 Star reviews on TripAdvisor. 3 stars, which indicates mediocre service, is not used by clients as much as the remaining 4 options, which describe a better defined opinion on the experience: good, very good, bad, or very bad (5, 4, 2, 1). Clients are either very satisfied or very unsatisfied. Clients that have experienced slightly positive or negative service do not have a strong enough opinion to share and tend not to post any review. The positive effects of a better service offered during the second year will increase overall number of 3 star reviews. Based on our past professional experiences we've learned that it's more difficult to give a bad review to someone who positively committed to offer a better service. As a reaction, the customer rates his/hers experience with higher stars. Please see scenario 2 and 3 for a better understanding (Fig.3 and Fig.4).

Level of Services Provided

We have split our study in 3 different scenarios depending on the level of service provided by the hotels:

1. 50% good services, 50% not good services – standard density
2. 80% good services, 20% not good services – medium density
3. 100% good services, 0% not good services – high density



SCENARIO 1 - 50% good services, 50% bad services – standard density

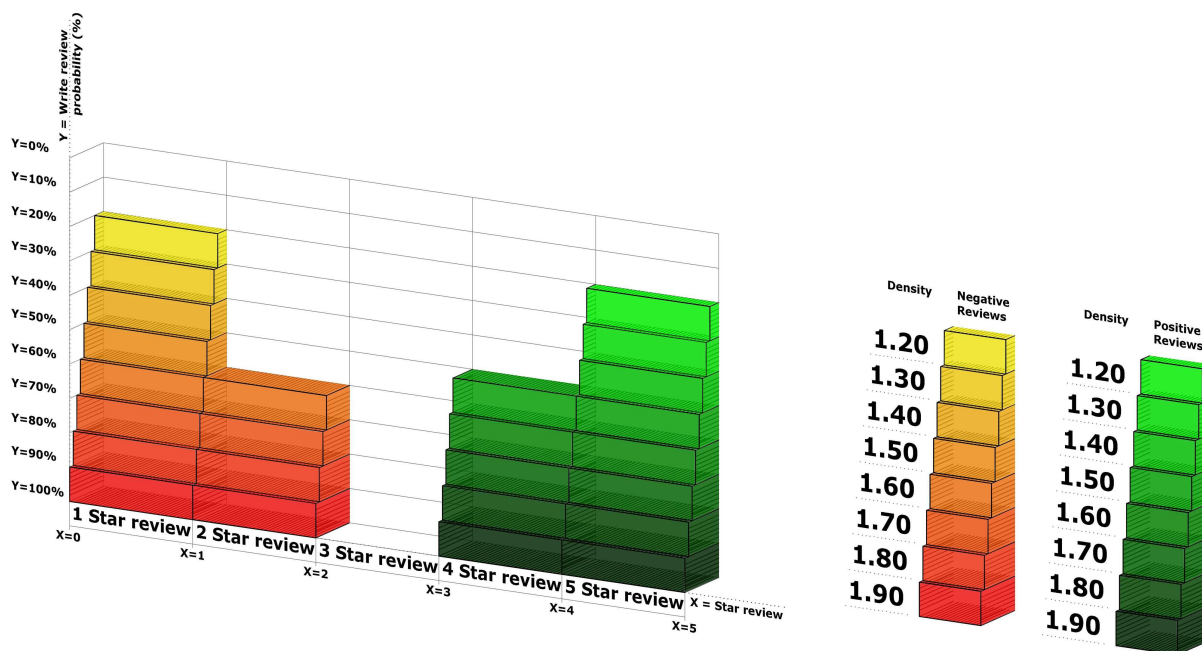


Fig. 2 Scenario 1: Good service/Bad service 50%-50%

5 star review $-1.20+1.30+1.40+1.50+1.60+1.70+1.80+1.90=12.40$

4 star review $-1.50+1.60+1.70+1.80+1.90=8.50$

3 star review -0.00^{**}

2 star review $-1.60+1.70+1.80+1.90=7.00$

1 star review $-1.20+1.30+1.40+1.50+1.60+1.70+1.80+1.90=12.40$

The result of multiplying star values (A) by their total number of reviews (B), is the weight of each star value (C). If we divide this value by the total number of reviews we have the weighted average (WA) that closely approximates the displayed value on Tripadvisor.

STAR VALUE (A)	NUMBER OF REVIEWS (B)	AxB = WEIGHT OF STAR VALUE (C)
5	12.40	62.00
4	8.50	34.00
3	0.00 **	0.00
2	7.00	14.00
1	12.40	12.40
TOTAL	40.30	122.40

**A small percentage of hotels have 1-2 reviews, which are not enough to justify visualization at this stage.

WA (C/B) = 3.04



SCENARIO 2 - 80% good services, 20% bad services – medium density

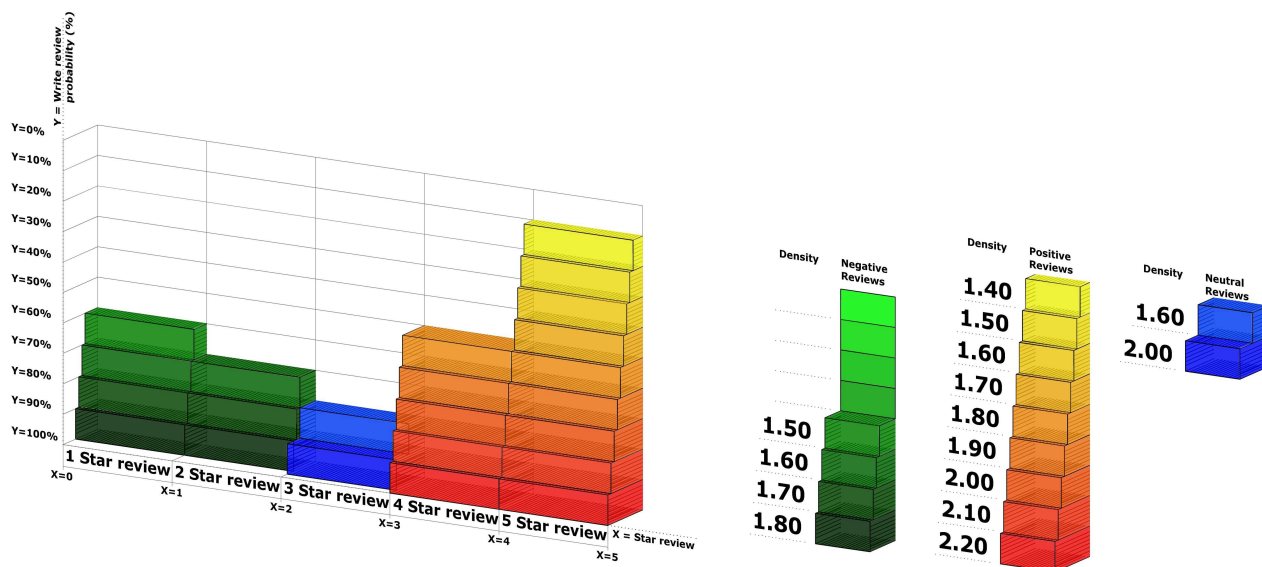


Fig. 3 Good service/Bad service 80%-20%

5 star review - $1.40+1.50+1.60+1.70+1.80+1.90+2.00+2.20+2.40=16.50$

4 star review - $1.40+1.50+1.60+1.70+1.80=10.30$

3 star review - $1.60+2.00=3.60$

2 star review - $1.60+1.70+1.80+1.90=5.10$

1 star review - $1.20+1.30+1.40+1.50+1.60+1.70+1.80+1.90=6.60$

STAR VALUE (A)	NUMBER OF REVIEWS (B)	AxB = WEIGHT OF STAR VALUE (C)
5	16.50	82.50
4	10.30	41.20
3	3.60	10.80
2	5.10	10.20
1	6.60	6.60
TOTAL	42.10	151.30

$$WA (C/B) = 3.59$$



SCENARIO 3 - 100% good services, 0% bad services – high density

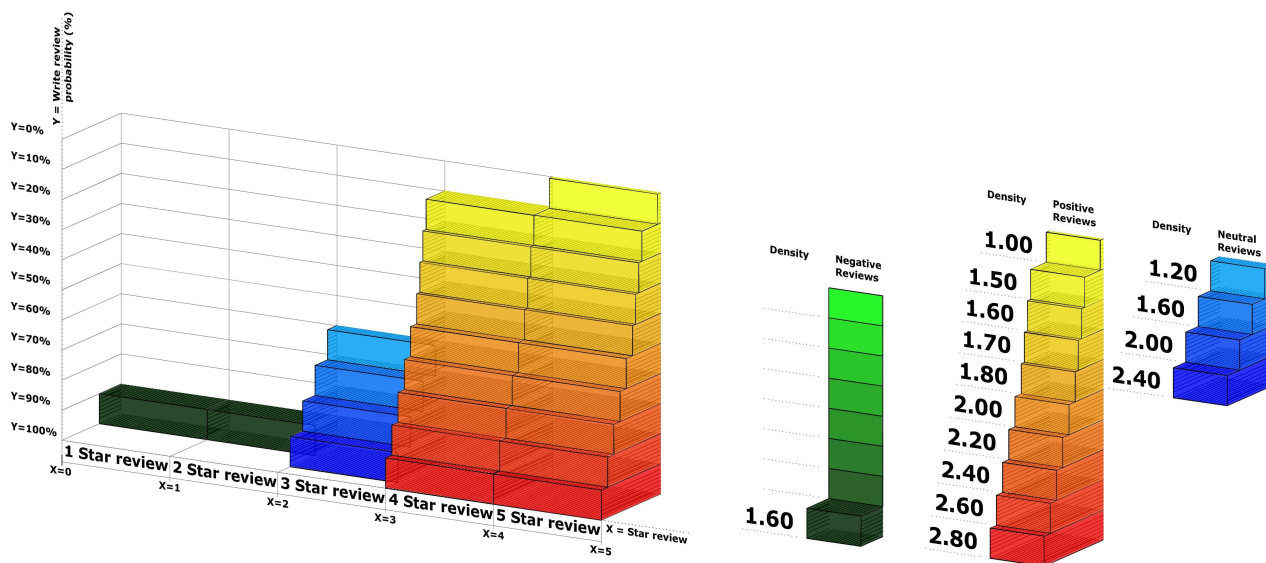


Fig. 4 Good service/Bad service 100%-0%

5 star review - $1.00+1.50+1.60+1.70+1.80+2.00+2.20+2.40+2.60+2.80=19.60$

4 star review - $1.50+1.60+1.70+1.80+2.00+2.20+2.40+2.60+2.80=18.60$

3 star review - $1.20+1.60+2.00+2.40=7.20$

2 star review - 1.60

1 star review - 1.60

STAR VALUE (A)	NUMBER OF REVIEWS (B)	AxB = WEIGHT OF STAR VALUE (C)
5	19,60	98,00
4	18,60	74,40
3	7,20	21,60
2	1,60	3,20
1	1,60	1,60
TOTAL	48,60	198,80

$$WA (C/B) = 4.09$$

Results Analysis

Less than 2% of clients write a review. This is a very important value. Infact with such a small amount of reviews each hotel is able to monitor its work and improve its services. If we apply the same concept to doctors, by visiting 1000 patients per year and promoting his/hers profile on a review website, MDs should easily receive 20 reviews in one year.

Based on data collected there seem to be two elements influencing reviews densities:

1. Probability of writing review – Rectangles on higher probabilities have greater values of density and increase quantity and quality of positive reviews faster. Bad reviews on high probability areas can be difficult to avoid, however they are positively affected by service offered.



2. Service offered – Density values increase on positive reviews as service improves, while negative ones decrease. This rule applies for all probability intervals.

Tripadvisor plays a double role in this process: collecting valuable customer feedback from clients and offering a measuring tool to monitor increased appreciation. By working with this strategy every review received is an important information on the service offered. When you keep seeing the same complaint that towels are dirty, you start checking laundry orders and deliveries. The same strategy applied by doctors can increase overall level of service for the patient and eliminate the usual problem of having doctor profiles with very few reviews.

Hotels asking their clients to write a review and share their experience are teaching them the importance of their feedback. Clients increase awareness and start feeling part of a meaningful project. This is the biggest lack in the doctor review model. Only a minority of doctors are actively promoting themselves on review websites, ignoring that the main issue for the poor data is their lack of participation.

Hotels that offer excellent services still receive negative reviews.

Most of negative reviews obtained when service is at the top can be explained by defining “misleading reviews.” Such reviews are written by clients that have received excellent service and have perceived the opposite because of unfortunate experiences, Act of God etc... This event happens with clients with high expectations, low level of service knowledge, and a negative attitude or bad mood. In an outstanding environment, this type of review is not harming the hotel’s reputation, as it represents a strong minority compared to good/excellent number of reviews; therefore, misleading reviews slander themselves because they are not consistent.

The reader who is willing to see an example can check any hotel that has majority of 4 and 5 star reviews and 1-2 reviews with 1 star.

Conclusions

Doctors who criticize the “review concept” and do not engage with these sites could harm their profession more than those who choose to actively participate. If a doctor is not engaging a review website, chances of getting negative/misleading reviews might increase. This is happening on several doctors’ profiles.

The Internet-based mind set of rating every interaction of our social life is already in place, and ignoring it is a bit like an ostrich that sticks its head in the sand when scared. It will not stop patients from writing reviews.

On top of this professional issue for doctors, there is a larger issue: without doctors’ engagement, review websites will never be able to display complete data, and there will remain a strong limitation on valuable outcomes for the community.