MGT 6463 01-03 Quant Methods for Marketing (2026S) RestaurantGrades Case Study Writeup.

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Based on the One Way ANOVA statistical test[Ex1], RestaurantGrades should adopt the proposal for the alternate design because the statistical analysis shows that there is a significant difference between treatment group 1 and 2 in both calls and reservations ($p<0.001<0.05$)[Ex1]. However, there is a significant decrease in page views (Post Hoc Tukey- $p <0.001<0.05$), implying that the alternate design leads to increase in the quality of leads (due to higher calls & reservations whilst having lower page views). Also, there is no significant difference between reservations between the control group and treatment group 1 ($p=0.818>0.05$)[Ex1], showcasing another downside of the original ad design. We can also verify that these results are largely applicable as the minimum and maximum page views/calls/reservations are not vastly different from each other (descriptive statistics)[Ex1] suggesting that there are no large outliers skewing the data and the fact that the sample size for each group was 10000 restaurants further reinforces that, as it's nearly impossible for 10000 restaurants to receive more calls/reservations due to an extraneous variable while another group of restaurants being advertised at the same time doesn't benefit from the same.

Restaurant Pricing would be the single most important element to add to better inform my decision. There are a variety of restaurants, having various tiers of pricing. I believe the effectiveness of the advertisement design can vary significantly considering the pricing of a restaurant. For instance, a high-end restaurant may benefit from the new ad design as it focuses on advertising specific dishes, which a high-end restaurant may be good at or known for. Whilst a low-end pricing restaurant may lose customers as it doesn't have the best specific dishes and is known for its cuisine. This extra variable would allow us to determine if a hybrid ad structure is needed specific to each restaurant's pricing. It is also to be noted that the current analysis is concrete, as mentioned earlier, therefore while collecting clicks and impressions would strengthen our argument, they would not be necessary.

It is difficult to say with full confidence whether these results would extrapolate to businesses who have advertised or not since they are not entirely homogenous with those who haven't, therefore their applicability is questionable. However, logically, it would be a **no.** The applicability will depend upon when a restaurant had advertised. If the restaurant had advertised a month prior and their ad was seen again by the same customer, the customer could either have a positive or negative reaction. He/she may think that the restaurant is not doing well and therefore form a negative perception while on the other hand the second advertisement might be the nudge he/she needed to try the restaurant out. Both scenarios would lead to unusual results. However, if the restaurant decides to advertise a year later, it might see similar results to restaurants who haven't advertised before as customers would essentially discover them for the first time, inducing trial.

Another factor to consider is that businesses who have advertised before will likely have some reviews and ratings on their page. This factor is of key importance as reviews and ratings significantly impact consumer behaviour. A restaurant with good reviews in the past might see unusually high results leading to the researcher to believe the new ad design to be very effective while a restaurant with low reviews might see less than ideal results. Lastly, another important factor to consider is the search ranking algorithm. The current algorithm of RestaurantGrades is like that of Google[Ex2]. Additionally, each restaurant who wishes to advertise pays an advertisement package cost of $300 flat[Ex2], therefore, restaurants who have advertised before may receive a search rank priority over those who have not. They may rank higher on the sponsored results leading to more traffic to their pages. This again would undermine the current research's applicability by skewing the results.

Overall, RestaurantGrades should adopt the new ad design (as it works well for new businesses who haven't advertised), conduct another research with a new element i.e. restaurant pricing (to determine if they should adopt a hybrid ad strategy) and should be vary of considering the extrapolation of these results to businesses who have advertised before.

Exhibits

1. One Way ANOVA Test (with Post-hoc Tukey)

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
pageviews	0	10000	419.78	153.348	1.533	416.77	422.79	145	766
	1	10000	501.19	163.021	1.630	498.00	504.39	209	929
	2	10000	483.21	176.327	1.763	479.75	486.67	188	918
	Total	30000	468.06	168.162	.971	466.16	469.96	145	929
calls	0	10000	34.02	6.602	.066	33.89	34.15	17	58
	1	10000	37.39	7.116	.071	37.25	37.53	20	63
	2	10000	41.71	8.147	.081	41.55	41.87	19	77
	Total	30000	37.71	7.965	.046	37.62	37.80	17	77
reservations	0	10000	33.96	6.591	.066	33.83	34.09	15	58
	1	10000	34.02	6.504	.065	33.89	34.15	18	59
	2	10000	41.68	8.153	.082	41.52	41.84	18	79
	Total	30000	36.55	7.992	.046	36.46	36.64	15	79

ANOVA

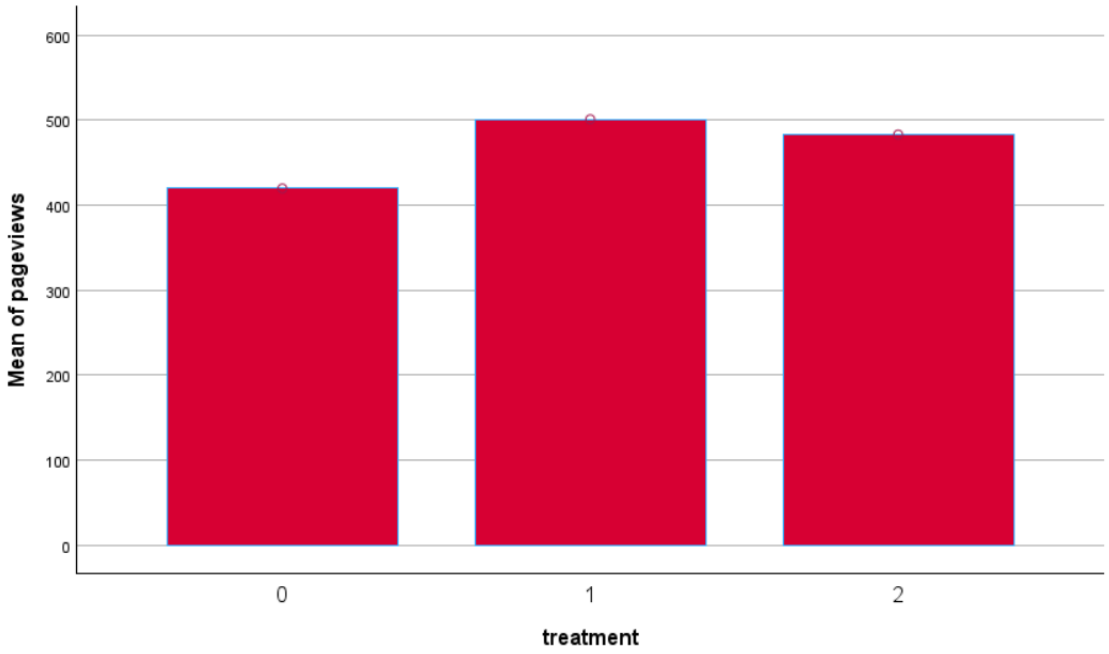
		Sum of Squares	df	Mean Square	F	Sig.
pageviews	Between Groups	36582190.455	2	18291095.228	675.925	<.001
	Within Groups	811743988.10	29997	27060.839		
	Total	848326178.56	29999			
calls	Between Groups	297584.164	2	148792.082	2779.684	<.001
	Within Groups	1605691.733	29997	53.528		
	Total	1903275.897	29999			
reservations	Between Groups	394228.390	2	197114.195	3884.865	<.001
	Within Groups	1522018.022	29997	50.739		
	Total	1916246.412	29999			

Multiple Comparisons

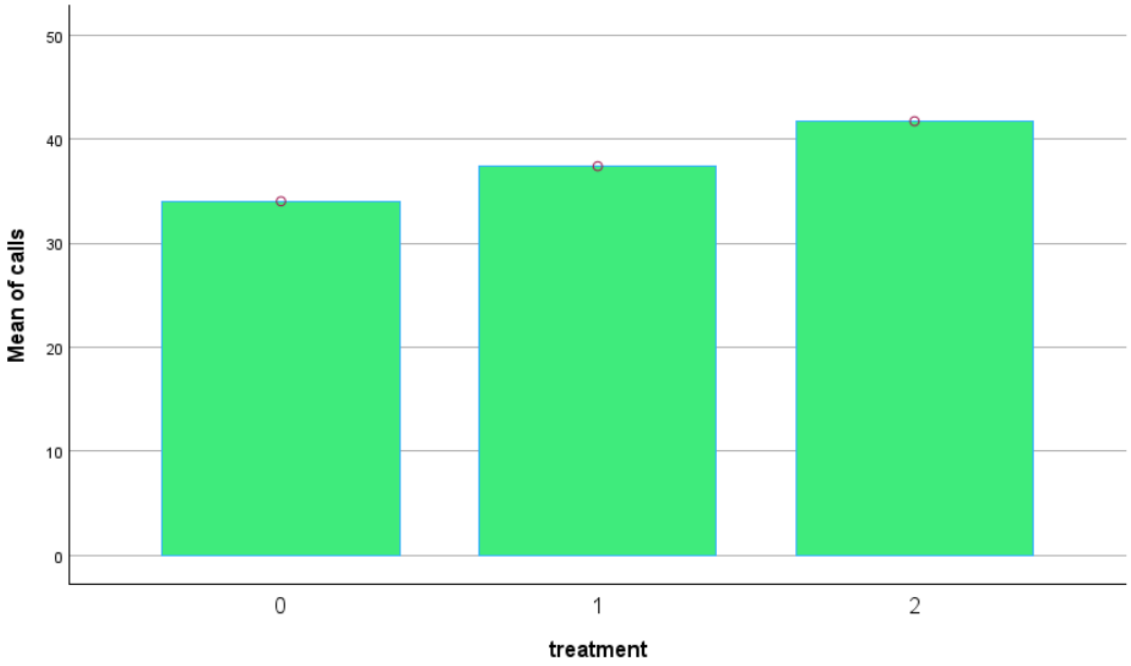
Tukey HSD

Dependent Variable	(I) treatment	(J) treatment	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
pageviews	0	1	-81.411*	2.326	<.001	-86.86	-75.96
		2	-63.432*	2.326	<.001	-68.88	-57.98
	1	0	81.411*	2.326	<.001	75.96	86.86
		2	17.980*	2.326	<.001	12.53	23.43
	2	0	63.432*	2.326	<.001	57.98	68.88
		1	-17.980*	2.326	<.001	-23.43	-12.53
calls	0	1	-3.369*	.103	<.001	-3.61	-3.13
		2	-7.695*	.103	<.001	-7.94	-7.45
	1	0	3.369*	.103	<.001	3.13	3.61
		2	-4.326*	.103	<.001	-4.57	-4.08
	2	0	7.695*	.103	<.001	7.45	7.94
		1	4.326*	.103	<.001	4.08	4.57
reservations	0	1	-.061	.101	.818	-.30	.18
		2	-7.720*	.101	<.001	-7.96	-7.48
	1	0	.061	.101	.818	-.18	.30
		2	-7.659*	.101	<.001	-7.90	-7.42
	2	0	7.720*	.101	<.001	7.48	7.96
		1	7.659*	.101	<.001	7.42	7.90

Treatment Group 1 has more Pageviews than Treatment Group 2 and Control Group



Treatment Group 2 has more calls than Treatment Group 1 and Control Group



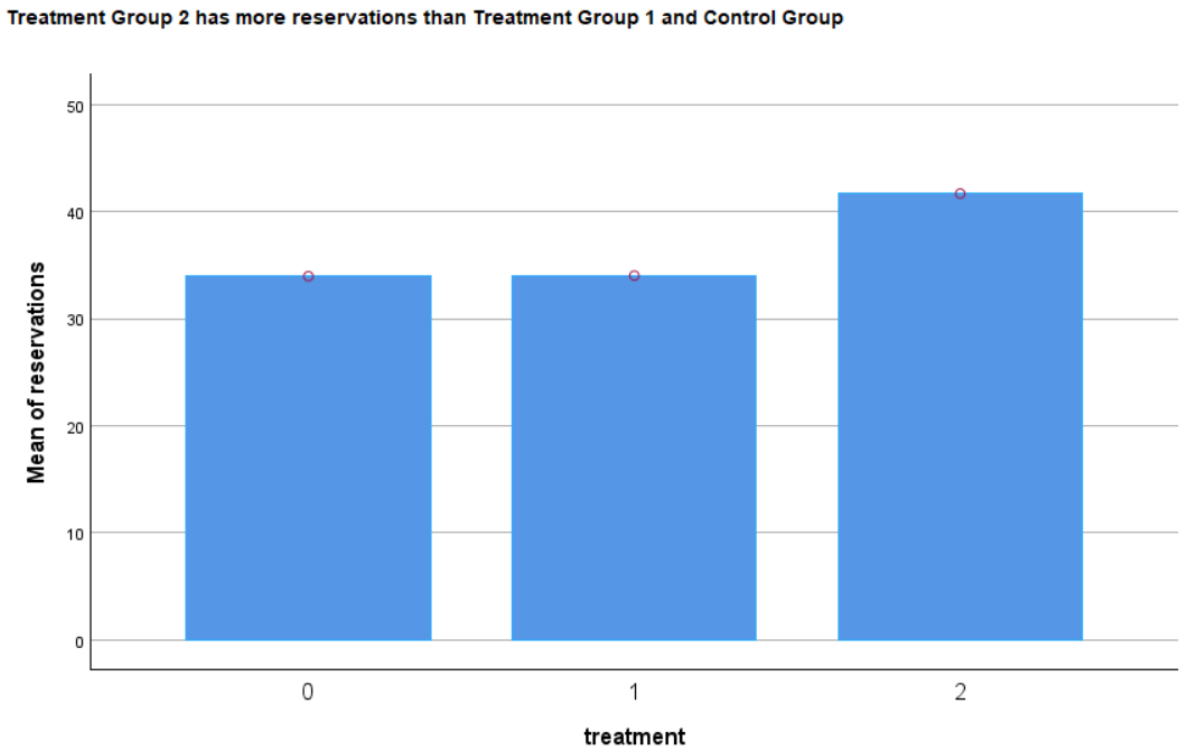


Exhibit 2: RestaurantGrades has a similar search algorithm. **(**Pg 1, Para 3)

"Packages of ads were purchased for about $300 per month. While RG used a search algorithm much like Google's that determined when and which ads were shown…"