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Question 3: What conclusions can you draw from the results from the changes to the quote form?

- Baseline: 32 quotes out of 595 viewers
- Variation 1: 30 quotes out of 599 viewers
- Variation 2: 18 quotes out of 622 viewers
- Variation 3: 51 quotes out of 606 viewers
- Variation 4: 38 quotes out of 578 viewers

I assume that you wish to find out if the results indicate the changes to the quote form are statistically significant in either improving or degrading the success rate in generating a quote for the customer.

I will assume that the number of quotes generated will follow a normal distribution.

I will examine each of the variations individually compared to the baseline to see which if any indicate a significant change. I'll define significant change as 95% confidence that there is either an improvement or degradation in the rate of quotes being issued to the viewer.

I am also going to assume that the factors which may have biased the results have been held as much as possible common across all the samples so that the cause of difference in quote rates is the use of the different quote forms.

Let's start with variation 1.

Here is a table showing the combined results of the baseline and variation 1.

	Base	V1	Total
Quote	32	30	62
None	563	569	1132
Total	595	599	1194

Using the totals for whether or not a quote was issued
The expected rate for a quote is 62/1194 = .052
For Baseline the expected number of quotes is .052* 595 = 30.9

Using the value I redo the table using the totals and the expected rates:

	Base	V1	Total
Quote	30.90	31.10	62
None	564.10	567.90	1132
Total	595	599	1194

Now I compute the variance of the results from the expected;

	Base	V1	Total
Quote	0.04	0.04	0.08
None	0.00	0.00	0.00
Total	0.04	0.04	0.083

The total variance is 0.083. From the ch-squared table for 95% confidence the variance required is 3.841 so the change in rate of quotes issued is not statistically significant.

Doing the same for Versions 2,3,4 in the following tables

	Base	V2	Total
Quote	32	18	50
None	563	604	1167
Total	595	622	1217

	Base	V2	Total
Quote	24.92	25.08	50
None	570.08	573.92	1167
Total	595	599	1194

	Base	V2	Total
Quote	2.01	2.00	4.01
None	0.09	1.58	1.66
Total	2.10	3.58	5.679

The total variance is 5.679. This is greater than 3.841 indicating version 2 has a 95% confidence of change quote rate. Unfortunately the change is a reduction in quite rate.

	Base	V3	Total
Quote	32	51	83
None	563	555	1118
Total	595	606	1201

	Base	V3	Total
Quote	41.36	41.64	83
None	553.64	557.36	1118
Total	595	599	1194

	Base	V3	Total
Quote	2.12	2.10	4.22
None	0.16	0.01	0.17

Total	2.28	2.11	4.391

The total variance is 4.381. This is greater than 3.841 indicating version 3 has a 95% confidence of change quote rate and indicates and increase in quote rate.

	Base	V4	Total
Quote	32	38	70
None	563	540	1103
Total	595	578	1173

	Base	V4	Total
Quote	34.88	35.12	70
None	560.12	563.88	1103
Total	595	599	1194

	Base	V4	Total
Quote	0.24	0.24	70
None	0.01	1.01	1103
Total	0.25	1.25	1.501

The total variance is 1.501. This is less than 3.841 indicating version 4 does not have a 95% confidence of change quote rate.

My conclusions are that Version 3 of the change in the quote form is the only change showing an improvement in the rates of quotes being issued with a 95% confidence level.

The changes in rates for Versions 1 and 4 is not statistically significant.

Version 2 shows a reduction in the rate of quote generation at a 95% confidence level..

Acme Corp should consider using Version 3 of the quote form in order to increase the rate of quotes being issued to customers. Avoid the changes used in version 2.