

Statistics for Marketing MGT 6469

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SPSS Case #2 Yarn Shop Assignment

Questions: Please conduct the following analyses, and describe in words what they mean for the Yarn Shop:

1. One-way ANOVAs with groups based on the store location (Green Hills, Germantown, Brentwood) for the five scale variables (amount purchased, store satisfaction, yarn selection satisfaction, salespeople satisfaction, and recommendation likelihood).
2. Repeated measures ANOVA with the three satisfaction variables (store, yarn, and salespeople)
3. Factorial ANOVA (GLM: Univariate) with knit vs. crochet as one factor and rewards member as the second factor and recommendation likelihood as the DV.

Your entire SPSS output may be too much to print. Please include only the relevant test output. Be sure to highlight which tests were significant and how you know that.

Be sure to include a managerially relevant interpretation of what these results mean. Your managerial insights can be extremely brief (as in a sentence or two per finding).

Means can be made into charts for extra credit. Remember to use “action titles.”

Answer 1: One-way ANOVAs with groups based on the store location (Green Hills, Germantown, Brentwood) for the five scale variables (amount purchased, store satisfaction, yarn selection satisfaction, salespeople satisfaction, and recommendation likelihood)

		N	Mean
Amount Purchased	Green Hills	30	92.0133
	Germantown	37	71.2324
	Brentwood	33	113.0118
	Total	100	91.2539
Store Satisfaction	Green Hills	30	5.20
	Germantown	37	4.62
	Brentwood	33	6.06
	Total	100	5.27
Yarn Selection Satisfaction	Green Hills	30	4.57
	Germantown	37	3.76
	Brentwood	33	5.55
	Total	100	4.59
Satisfaction with Salespeople	Green Hills	30	3.20
	Germantown	37	2.78
	Brentwood	33	3.94
	Total	100	3.29
Willing to Recommend	Green Hills	30	7.10
	Germantown	37	5.95
	Brentwood	33	7.45
	Total	100	6.79

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Amount Purchased	Between Groups	30471.522	2	15235.761	13.400	<.001
	Within Groups	110291.587	97	1137.027		
	Total	140763.109	99			
Store Satisfaction	Between Groups	36.329	2	18.164	9.608	<.001
	Within Groups	183.381	97	1.891		
	Total	219.710	99			
Yarn Selection Satisfaction	Between Groups	55.831	2	27.915	13.651	<.001
	Within Groups	198.359	97	2.045		
	Total	254.190	99			
Satisfaction with Salespeople	Between Groups	23.641	2	11.820	5.008	.009
	Within Groups	228.949	97	2.360		
	Total	252.590	99			
Willing to Recommend	Between Groups	43.816	2	21.908	7.359	.001
	Within Groups	288.774	97	2.977		
	Total	332.590	99			

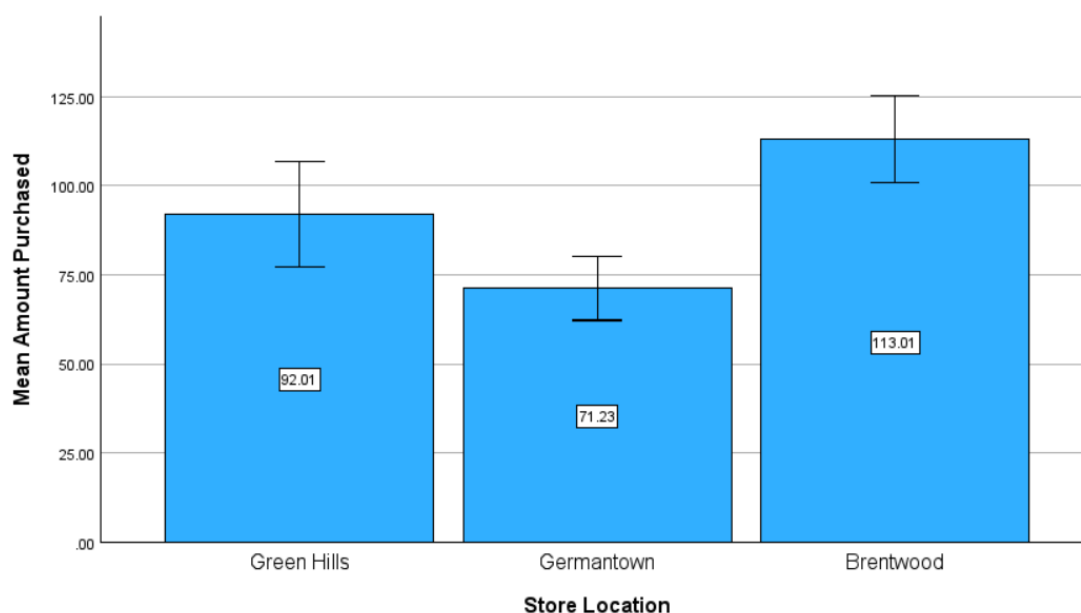
(i) Amount Purchased

Germantown	Green Hills	-20.78090 [*]	8.28440	.036
	Brentwood	-41.77939 [*]	8.07377	<.001
Brentwood	Green Hills	20.99848 [*]	8.50625	.040
	Germantown	41.77939 [*]	8.07377	<.001

There is a significant difference between amount of products purchased based on the store location (Green Hills, Germantown, Brentwood) as $F(2, 97) = 13.4$ and $p < 0.001 < 0.05$.

Specifically, as per our **post-hoc Tukey test**, the significant differences are between Brentwood and Germantown $p < 0.001 < 0.05$.

People buy the least amount of product at the Germantown Store and the most at the Brentwood Store.



Managerial Recommendation

We can clearly see from our descriptive statistics the mean amount purchased is the least in Germantown (\$71) and most in Brentwood (\$113). The Germantown store needs to be focused on and improved.

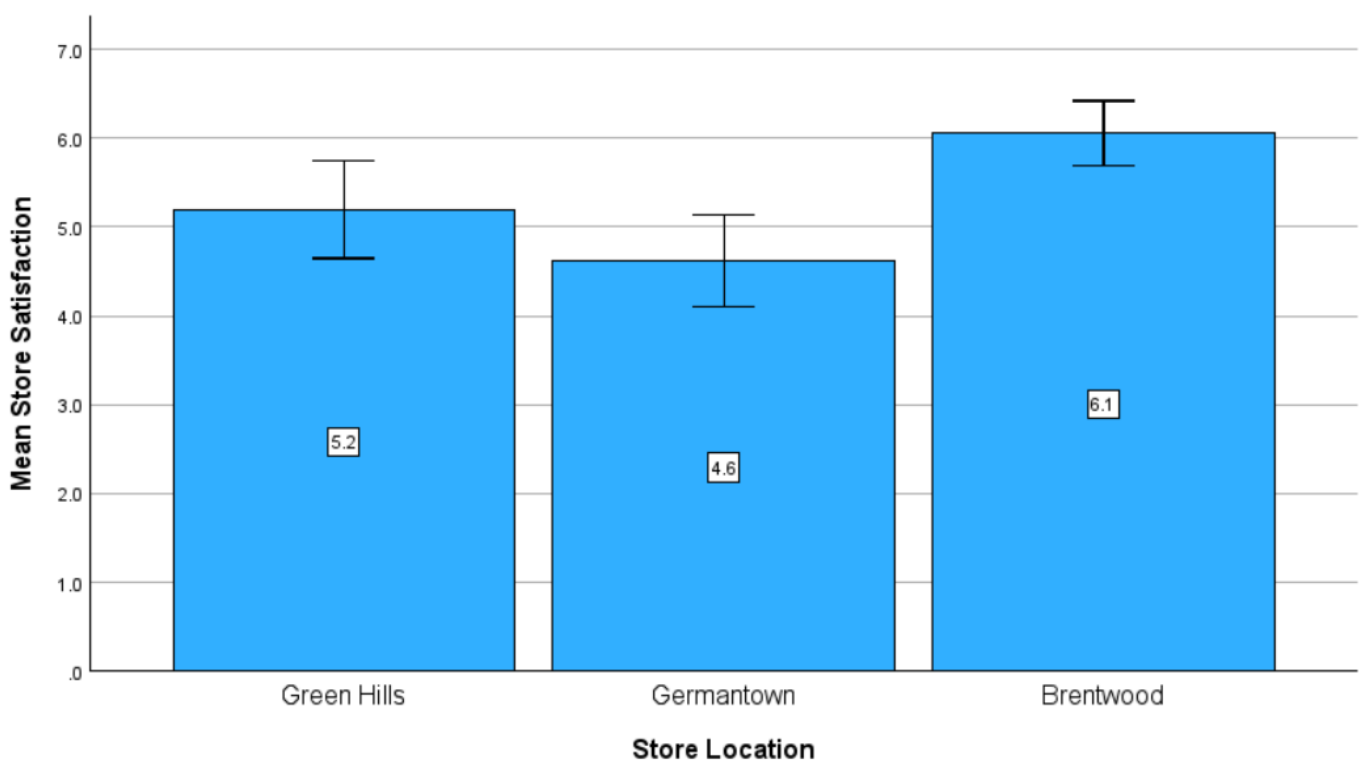
(ii) Store Satisfaction

Germantown	Green Hills	-.578	.338	.206
	Brentwood	-1.439*	.329	<.001
Brentwood	Green Hills	.861*	.347	.039
	Germantown	1.439*	.329	<.001

There is a significant difference between store satisfaction based on the store location (Green Hills, Germantown, Brentwood) as $F(2,97)=9.608$ and $p < 0.001 < 0.05$

Specifically, as per our **post-hoc Tukey test**, the significant differences are between Brentwood and Germantown $p < 0.001 < 0.05$.

People are most satisfied with the store at Brentwood and the least with the store at Germantown.



Managerial Recommendation

Again, Germantown has the least mean store satisfaction (4.62) and Brentwood has the most (6.06) on a 7 point scale. This further reinforces that the Germantown store needs to be focused on and improved.

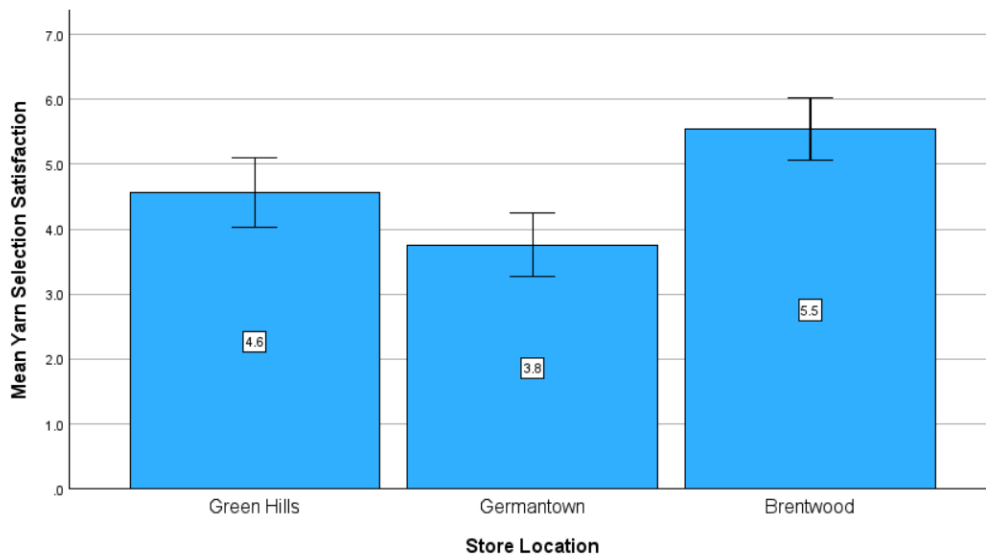
(iii) Yarn Selection Satisfaction

Germantown	Green Hills	-.810	.351	.060
	Brentwood	-1.789*	.342	<.001
Brentwood	Green Hills	.979*	.361	.021
	Germantown	1.789*	.342	<.001

There is a significant difference between the yarn selection satisfaction based on the store location (Green Hills, Germantown, Brentwood) as $F(2,97)=13.651$ and $p < 0.001 < 0.05$.

Specifically, as per our **post-hoc Tukey test**, the significant differences are between Brentwood and Germantown $p < 0.001 < 0.05$.

People are most satisfied with the yarn selection at the Brentwood Store and least at the Germantown Store.



Managerial Recommendation

Germantown has the worst mean yarn selection satisfaction (**3.76**), being below the scale midpoint (4.0). The yarn selection at Germantown needs to be improved greatly.

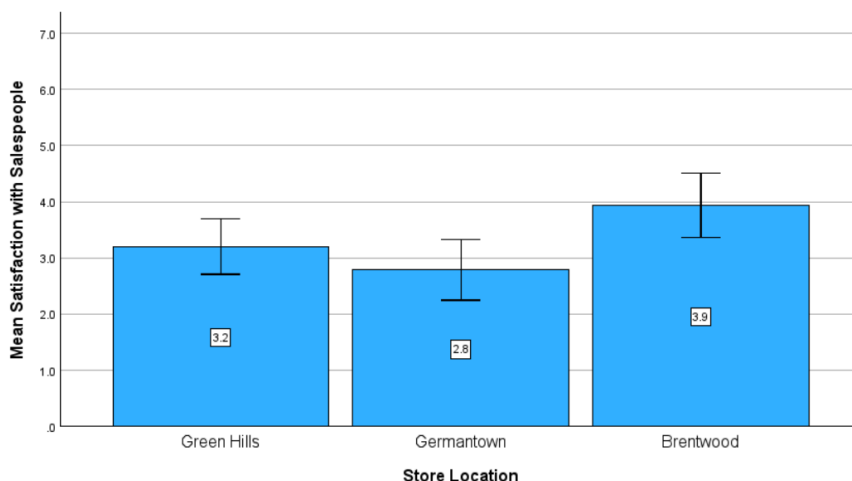
(iv) Satisfaction with Salespeople

Germantown	Green Hills	-.416	.377	.515
	Brentwood	-1.156*	.368	<u>.006</u>
Brentwood	Green Hills	.739	.388	.142
	Germantown	1.156*	.368	<u>.006</u>

There is a **marginally significant** difference between the satisfaction of salespeople based on the store location (Green Hills, Germantown, Brentwood) as $F(2,97)=5.008$ and $p = 0.009 > 0.05$

Specifically, as per our **post-hoc Tukey test**, the marginally significant differences are between Brentwood and Germantown $p = 0.006 > 0.05$

Salespeople satisfaction is nearly the same across all stores but worst at the Germantown store and best at the Brentwood store.



Managerial Recommendation

Salespeople need to be trained across all store locations. However, it is to be noted that Germantown has the worst salespeople satisfaction (**2.78**) – therefore it should be prioritized first.

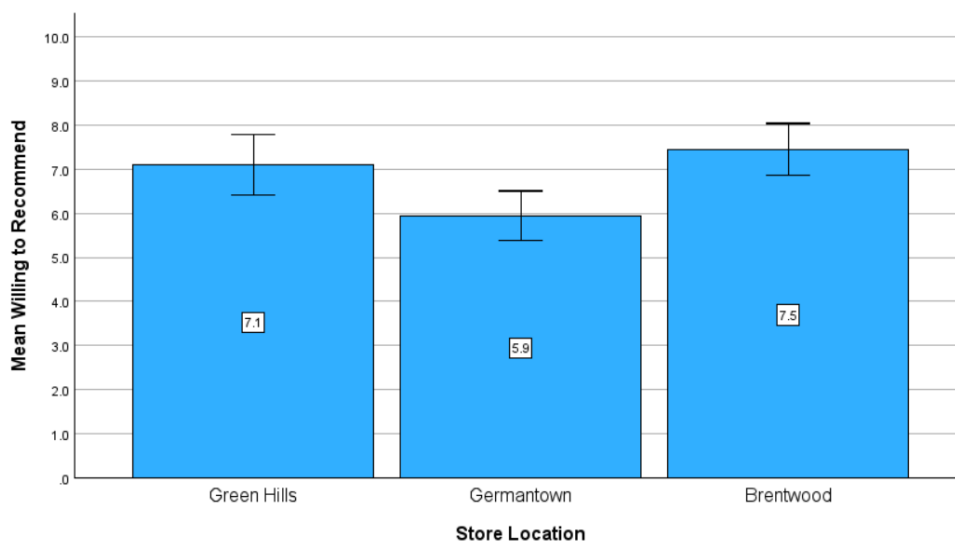
(v) Willing to Recommend

Germantown	Green Hills	-1.154 [*]	.424	.021
	Brentwood	-1.509 [*]	.413	<u>.001</u>
Brentwood	Green Hills	.355	.435	.695
	Germantown	1.509 [*]	.413	<u>.001</u>

There is a significant difference between willingness to recommend based on store location (Green Hills, Germantown, Brentwood) as $F(2,97)=7.359$ and $p = 0.001 < 0.05$.

Specifically, as per our **post-hoc Tukey test**, the significant differences are between Brentwood and Germantown $p < 0.001 < 0.05$.

People are least willing to recommend our store if they shop at the Germantown store and the most if they shop at the Brentwood store



Managerial Recommendation

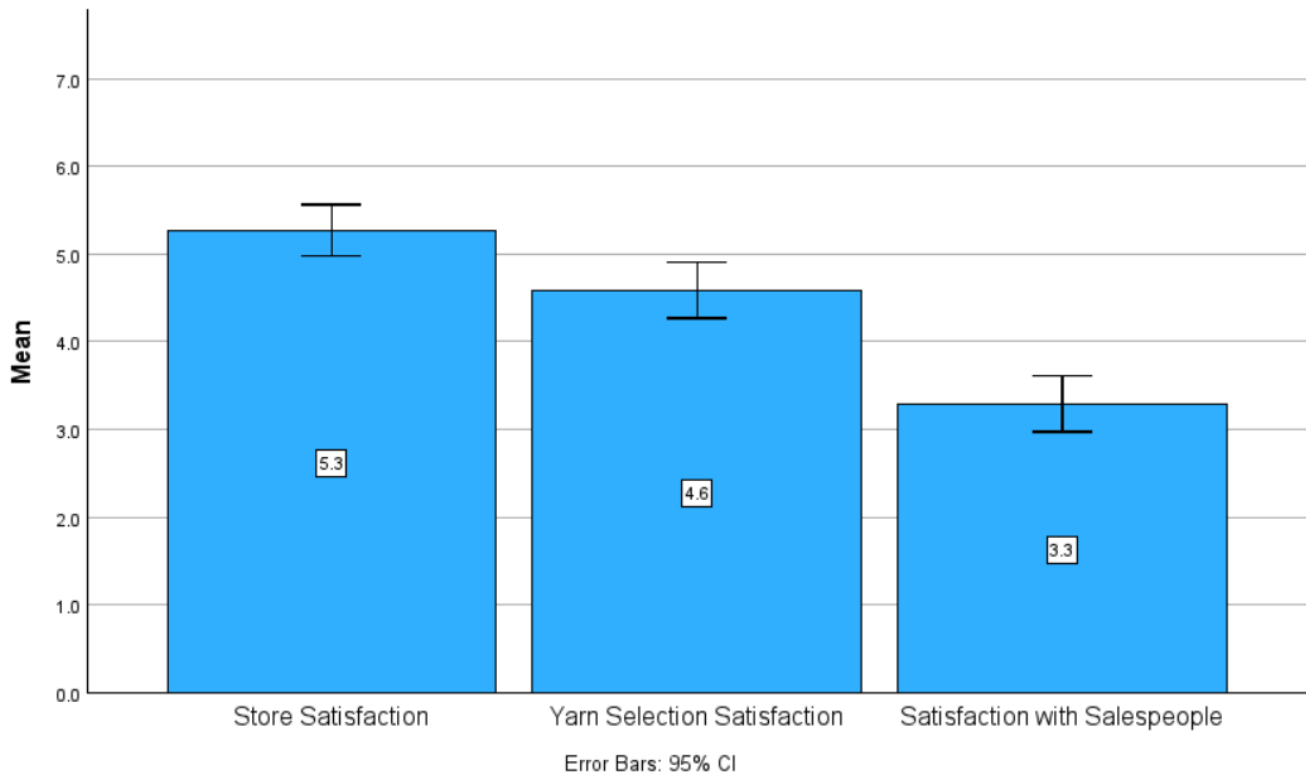
The customer experience at the Germantown store needs to be improved as customers there have the least mean willingness to recommend the store (**5.95**) on a 10-point scale.

Answer 2: Repeated measures ANOVA with the three satisfaction variables (store, yarn, and salespeople)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
SatisfactionTypes	Sphericity Assumed	202.427	2	101.213	144.271	<.001
Error(SatisfactionTypes)	Sphericity Assumed	138.907	198	.702		

Store, yarn and salespeople satisfaction – all these 3 types of satisfaction are significantly different from each other as $F(2,198)=144.271$ and $p < 0.001 < 0.5$

Customers have different levels of satisfaction with different aspects of the store.



Managerial Recommendation

This graph helps us to identify what factor to prioritize first. The owner should first focus on training salespeople, then on improving yarn selection, and then improving the overall store.

Answer 3: Factorial ANOVA (GLM: Univariate) with knit vs. crochet as one factor and rewards member as the second factor and recommendation likelihood as the DV.

Descriptive Statistics

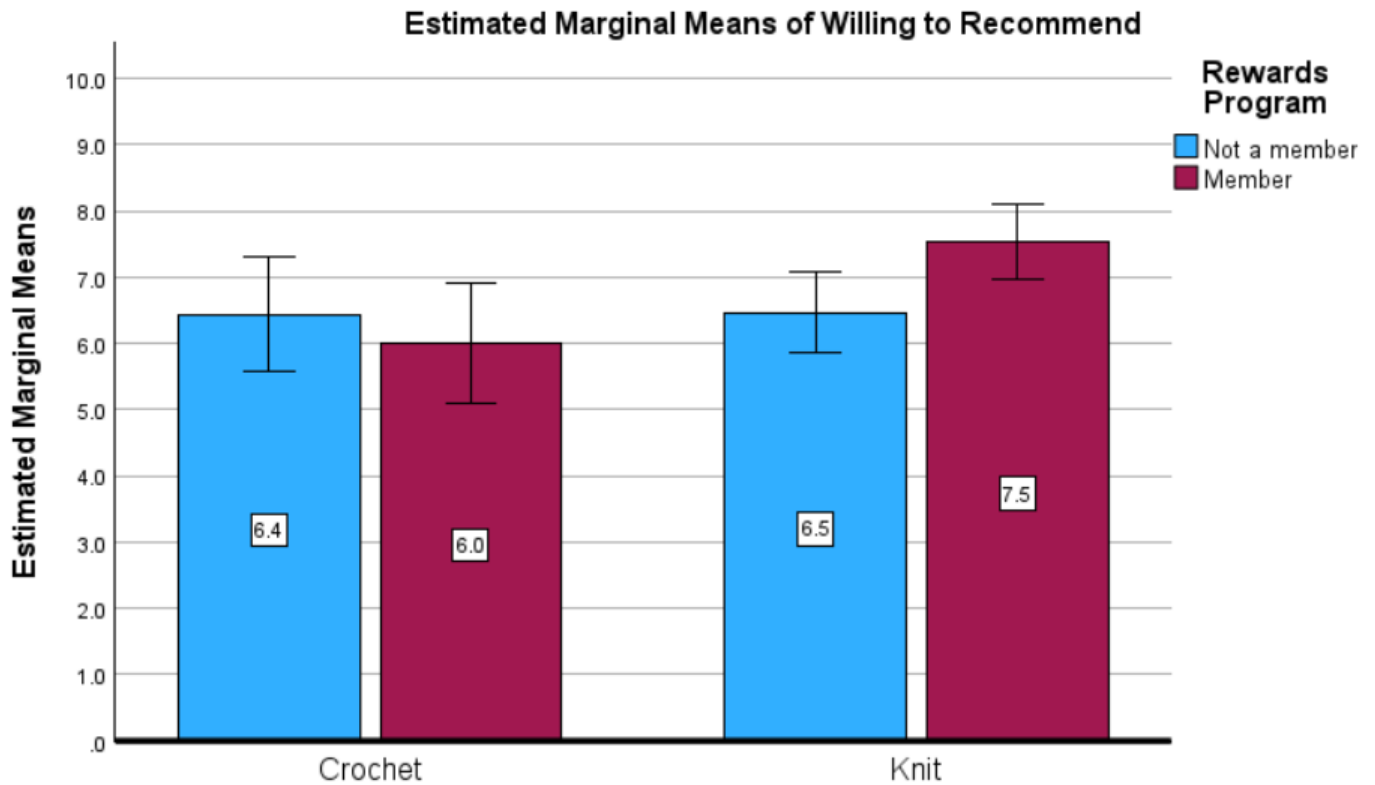
Dependent Variable: Willing to Recommend

Hobby Type	Rewards Program	Mean	Std. Deviation	N
Crochet	Not a member	6.44	1.750	16
	Member	6.00	1.558	15
	Total	6.23	1.647	31
Knit	Not a member	6.47	1.704	32
	Member	7.54	1.880	37
	Total	7.04	1.866	69

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Model	4645.905 ^a	4	1161.476	375.306	<.001
KnitorCrochet	13.180	1	13.180	4.259	.042
RewardsMember	2.146	1	2.146	.694	.407
KnitorCrochet * RewardsMember	12.153	1	12.153	3.927	.050
Error	297.095	96	3.095		
Total	4943.000	100			

1. Being a knitor or a crocheter has a significant impact on willingness to recommend as $F(1,96)=4.259$ and $p = 0.042 < 0.05$.
2. Being a rewards member or a non-rewards member has no significant impact on willingness to recommend as $F(1,96)=0.694$ and $p = 0.407 > 0.05$
3. Interaction between both rewards member and knitor crochet is significant as $F(1,96)=3.927$ and $p = 0.05 \leq 0.05$

Knitters who are also reward club members are much more likely to recommend the store



Managerial Recommendation

From the graph we can clearly see that knitters who are reward club members will recommend the store much better. We should prioritize providing a good experience to Knitters and try to sell them memberships.