



IOWA CITY BIKE LIBRARY KEY FINDINGS

Carlos Navarro, Justice Jones, Ryan Murray

Awareness Residuals

Services	19-25	26-40	Over 40
Bike Check Out	-16.59%	-3.10%	19.69%
Public Bench	-6.86%	12.75%	-5.88%
WTF Tuesday	9.69%	3.18%	-12.86%
Wednesday Night Salvage	3.96%	-3.02%	-0.94%
Outspoken Teens	1.37%	-3.73%	2.35%
Friday Night Rides	7.02%	2.63%	-9.65%
Cycling Without Age	-1.92%	-3.02%	4.94%
Saturday Stay Cozy	9.22%	-1.76%	-7.45%
Mujeres en Bici	7.25%	-3.73%	-3.53%
Bike-In Beats	-4.59%	2.31%	2.27%
Farm Cycle	-8.59%	-1.45%	10.04%
Witches Take Flight	0.04%	-1.06%	1.02%

[Bike Check Out]

- 19-25 **unaware**
- Over 40 **aware**

[Public Bench]

- Only 26-40 **aware**

[WTF Tuesday]

- 19-25 **aware**
- Over 40 **unaware**

[Friday Night Rides]

- Over 40 **unaware**

[Farm Cycle]

- 19-25 **not aware**
- Over 40 **aware**

Interaction Residuals

Services	19-25	26-40	Over 40
Volunteered	0.88%	-3.71%	2.84%
Donated	-7.05%	-5.52%	12.56%
Checked Out a Bike	2.92%	-1.91%	-1.01%
Purchased a Bike	-10.26%	0.92%	9.35%
Purchased Bike Accessories	-3.20%	10.33%	-7.12%
Donated a Bike	-3.05%	-1.75%	4.80%
Public Bench	8.64%	-1.59%	-7.05%
Group Ride	-6.34%	-1.05%	7.39%
Outspoken Teens	6.84%	2.01%	-8.85%
WTF Night	4.17%	7.35%	-11.52%
Cycling Without Age	4.88%	0.05%	-4.93%
Salvage Night	1.58%	-5.12%	3.54%

[Donated]

- Over 40 **donated**

[Purchased a Bike]

- 19-25 did **not** purchase
- Over 40 **did** purchase

[Purchased Bike Accessories]

- 26-40 **did** purchase
- 19-25 and 40+ did **not** purchase

[Group Ride]

- 19-25 did **not** ride
- Over 40 **did** ride

[WTF Night]

- Over 40 did **not** attend

Interest Residuals



Services	19-25	26-40	Over 40
Donating Financially	-12.66%	1.71%	10.95%
Donating Bike	-20.05%	6.82%	13.22%
Volunteering	4.39%	-4.77%	0.39%
Checking Out Bike	6.89%	-2.09%	-4.80%
Public Bench	11.92%	4.23%	-16.15%
Group Rides	0.65%	-2.63%	1.98%
Social Events	8.24%	-0.18%	-8.06%
Cycling without age	-0.32%	0.57%	-0.25%
WTF Tuesdays	-2.53%	10.86%	-8.33%
Wed Night Salvage	-5.12%	-2.34%	7.46%
Gatos en Ronda	14.10%	-10.99%	-3.10%
Outspoken Teens	-5.51%	-1.19%	6.70%

[Donating Financially]

- 19-25 are **not** interested
- Over 40 **are** interested

[Donating Bike]

- 19-25 are **not** interested
- Over 40 **are** interested

[Public Bench]

- 19-25 **are** interested
- Over 40 **not** interested

[Gatos en Ronda]

- 19-25 **are** interested
- 26-40 **are not** interested

[Outspoken Teens]

- 19-25 are **not** interested
- Over 40 **are** interested

InfoSource Residuals



	19-25	26-40	41-64
Facebook	-0.35%	2.47%	-2.12%
Instagram	-10.94%	17.76%	-6.82%
Twitter/X	-2.08%	0.04%	2.04%
TikTok	-3.41%	2.71%	0.71%
Email	-6.71%	-14.24%	20.94%
Posters/flyers	16.12%	-12.82%	-3.29%
Community bulletin	9.61%	0.20%	-9.80%
Word of mouth	11.33%	-3.25%	-8.08%
Local media	-10.08%	4.27%	5.80%
Other local events	-3.49%	2.86%	0.63%

[Facebook, X, TikTok]

- No age significant

[Instagram]

- 19-25 and 41-64 **not** used
- 26-40 **used**

[Email]

- 26-40 **not** used
- 41-64 **used**

[Posters/flyers]

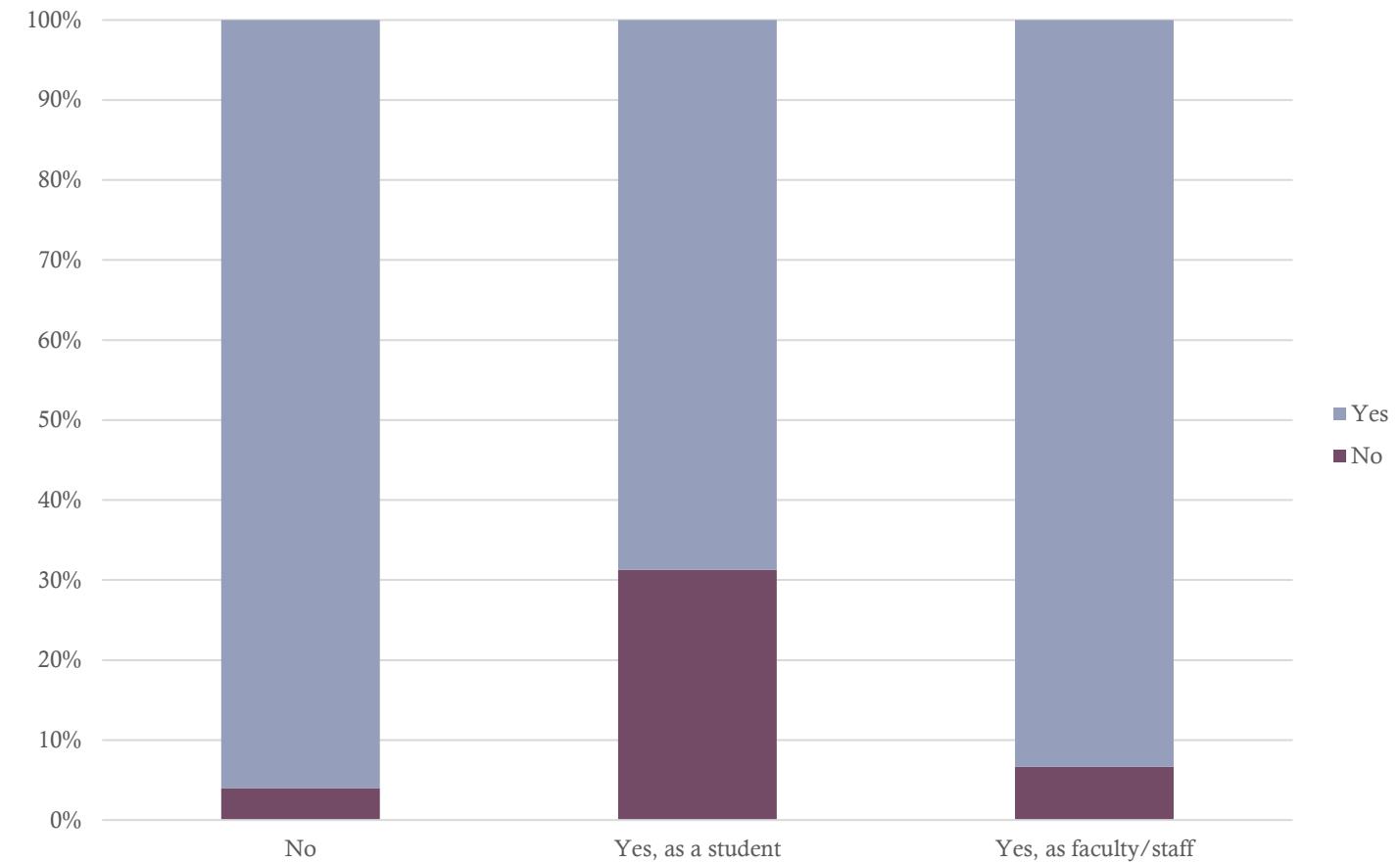
- 19-25 **used**
- 26-40 **not** used

[Community bulletin]

- 19-25 **are** interested
- 41-64 **are not** interested

AWARENESS VS. UIOWA AFFILIATION

- Significant relationship between Awareness and UIowa Affiliation
- Students are less aware
- Community is very aware
- What this means for marketing...
 - What is your goal?
 - Reinforce community engagement
 - Focus on repeat customers
 - If reach students
 - Flyers
 - Word of mouth



Limitation: All survey respondents took the survey at some sort of bike shop or are around biking culture, results may be skewed

BEFORE

ENGAGEMENT BY GENDER- ANOVA TESTING

- 3 significant tests out of 9
 - Group Ride
 - Public Bench
 - WTF Night
- Group Ride and WTF Night sees more active engagement from women; men are consistently lower.
- Public Bench sees more active engagement from men.



AFTER

OPPORTUNITIES FOR MORE ACTIVE ENGAGEMENT

- 3 significant tests out of 9
 - Group Ride
 - Public Bench
 - WTF Night
- Group Ride and WTF Night sees more active engagement from women; men are consistently lower.
- Public Bench sees more active engagement from men.



KEY TAKEAWAYS



- Strong awareness among the biking community of Iowa City
 - People over 40 years old are far more aware of the Bike Check Out than 19-25 who show little to no awareness
 - 19-25 year olds are more community event driven (but not financially driven), 26-40 year olds are more consumer-oriented (spending on accessories and events), and 40+ year olds are the major financial supporters
 - Community-based physical methods (posters, word of mouth, and bulletin) resonate best with the 19-25 age range, Instagram is only effective to the 26-40 year olds, and emails are the most impactful for the 40+ year olds (but not for the other age ranges)
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APPENDIX: AWARENESS VS. UIOWA AFFILIATION

- Chi-Square Test
- Actual vs. Expected
- $\text{Expected} = \text{Column Total} * (\text{Row Total} / \text{Total Responses})$
- Expected values are values we would see if there was no relationship between variables
- P-Value of 0.026504
 - Alpha = 0.05
 - $0.026504 < 0.05$

Actual				
Count of Response ID		Column Labels		
Row Labels	No	Yes		Grand Total
	No	1	24	25
Yes, as a student		5	11	16
Yes, as faculty/staff		1	14	15
Grand Total		7	49	56

Expected			
Count of Response ID		Column Labels	
Row Labels	No	Yes	
No		3.125	21.875
Yes, as a student		2	14
Yes, as faculty/staff		1.875	13.125



APPENDIX: RESIDUALS

Services	19-25	26-40	Over 40	Row Avg.	Row Effect
Volunteered	11.76%	12.00%	29.41%	17.73%	3.05%
Donated	17.65%	24.00%	52.94%	31.53%	16.85%
Checked Out a Bike	0.00%	0.00%	11.76%	3.92%	-10.76%
Purchased a Bike	0.00%	16.00%	35.29%	17.10%	2.42%
Purchased Bike Accessories	17.65%	36.00%	29.41%	27.69%	13.01%
Donated a Bike	5.88%	12.00%	29.41%	15.76%	1.08%
Public Bench	29.41%	24.00%	29.41%	27.61%	12.93%
Group Ride	5.88%	16.00%	35.29%	19.06%	4.38%
Outspoken Teens	0.00%	0.00%	0.00%	0.00%	-14.68%
WTF Night	0.00%	8.00%	0.00%	2.67%	-12.01%
Cycling Without Age	0.00%	0.00%	5.88%	1.96%	-12.72%
Salvage Night	5.88%	4.00%	23.53%	11.14%	-3.54%
Column Avg.	7.84%	12.67%	23.53%	14.68%	
Column Effect	-6.84%	-2.01%	8.85%		

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- Used pivot tables to find % of each age group per activity
- Calculated row, column, and overall averages
- Computed residuals using: cell – (common mean + row effect + column effect)
- Applied formula across all cells and added heat map

* This procedure was repeated for all residuals



APPENDIX: ANOVA MEN VS. WOMEN VS. NON-BINARY

Group Ride Anova				
SUMMARY				
Groups	Count	Sum	Average	Variance
Female	206	73	0.35436893	0.70795643
Male	333	54	0.16216216	0.28085314
Non-binary	30	3	0.1	0.09310345

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	5.22445857	2	2.61222928	6.13305402	0.00231686	3.01164422
Within Groups	241.074311	566	0.42592634			
Total	246.29877	568				

Public Bench				
SUMMARY				
Groups	Count	Sum	Average	Variance
Female	206	99	0.48058252	0.89474307
Male	333	283	0.84984985	1.23642317
Non-binary	30	22	0.73333333	1.9954023

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	17.3714106	2	8.68570528	7.54257258	0.00058505	3.01164422
Within Groups	651.781489	566	1.1515574			
Total	669.1529	568				

WTF Night				
SUMMARY				
Groups	Count	Sum	Average	Variance
Female	206	115	0.55825243	2.67707791
Male	333	7	0.02102102	0.02666522
Non-binary	30	35	1.16666667	9.04022989

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	61.8596502	2	30.9298251	21.3537978	0.0000000011	3.01164422
Within Groups	819.82049	566	1.4484461			
Total	881.680141	568				