

# Assessing the Impact of Visits to the Learning Resource Center and the Multiliteracy Center

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## Introduction

This report provides an assessment the most recent five (5) years of the academic tutoring centers on campus, the Learning Resource Center and the Writing & Multiliteracy Center. The assessment is comprehensive in nature, but the analyses are limited to stateside students, the tutoring centers themselves, and Fall terms. Selecting these parameters was helpful for the scope of the analyses and I believe in line with normative and best practices for these types of assessments. These parameters are also based on the historical and the most recent data that we have available now. Please see end notes for additional methodological considerations.

## Centers on Campus

There are two main academic tutoring centers on campus, the Learning Resource Center (LRC) and the Writing & Multiliteracy Center (WMC). Both centers are located on campus in the Broome Library and offer free, in-person, one-on-one peer tutoring by trained peer tutors on a drop-in basis. Virtual appointments can also be scheduled online. Both centers offer additional programming for students and faculty support in the classroom through the use of embedded tutors. Examples of programming include the semester-long Math MINDS program at the LRC and Writing Bootcamps offered by the WMC.

The LRC focuses on mathematics and offers support for a variety of courses outside of mathematics and assists with study skills, concept mastery, comprehension, homework and test prep; the WMC also offers support for all types of writing outside the classroom, oral communication and additional faculty support for grant writing or syllabi construction for example. Both centers offer spaces for study and access to loaner materials for free. These range from laptop and iPad checkouts to graphing calculators, textbooks, dry/erase boards, and anatomical models at the LRC or desktops with Adobe CC Pro & Camtasia software and the sound booth at the WMC.

## Course Outcomes

Course term outcomes provide a unique level of analysis where each individual student is allowed to have more than one record. So instead of headcounts the numbers in the table below provide one record for each student course in a given semester. We see that overall students who visited any of the tutoring centers on campus performed better in their courses than those who did not. This holds for both centers across the last five years. The 5 year average for pass rates for those visiting both centers was 93.6%, 93.2% for those visiting the WMC, 88.8% for those visiting the LRC, and 86.1% for those not visiting a center. The LRC pass rates declined by .9 percentage points from the pre covid (18-19) to the post covid (20,21,22) time frame, with those visiting both centers seeing a decline of 1.2 percentage points, and those visiting the

WMC seeing a decline of 1.4 percentage points. In contrast those not visiting a center saw a 4.6 percentage point decline from the pre covid timeframe to the post covid timeframe.

In Fall 2018 below, we see the highest pass rates for those students who visited both tutoring centers (93.9%), followed by those who utilized the Writing and Multiliteracy Center (WMC) (93.7%), and then those who used Learning Resource Center (LRC) (90.0%). Those who did not visit either of the tutoring centers had on average lower pass rates (89.0%) than those who visited any of the centers. In Fall 2019 below, we see the highest pass rates for those who visited the WMC (94.1%), followed by those who visited both tutoring centers (92.6%), and those who visited the LRC (88.9%). Those who did not visit either of the tutoring centers had on average lower pass rates (88.4%) than those who visited any of the centers. In Fall 20 below, we see the highest pass rates for those who visited both centers (95.2%), followed by those who visited the WMC (93.7%), and those who visited the LRC (91.5%). Those who did not visit either of the tutoring centers had on average lower pass rates (84.7%) than those who visited any of the centers. In Fall 21 below, we see the highest pass rates for those who visited both centers (94.9%), followed by those who visited the WMC (90.5%), and those who visited the LRC (87.8%). Those who did not visit either of the tutoring centers had on average lower pass rates (82.6%) than those who visited any of the centers. In Fall 22, we see the highest pass rates for those who visited the WMC (93.9%), followed by those who visited both centers (93.6%), and those who visited the LRC (87.0%). Those who did not visit either of the tutoring centers had on average lower pass rates (85.0%) than those who visited any of the centers.

Table 1. Course Pass Rate and Course Attempts by Center Visitation, Fall 2018 - Fall 2022.

	LRC	WMC	Both	Neither	Total
Pass					
18	90.0%	93.7%	93.9%	89.0%	89.8%
	3,178	3,436	1,055	22,901	30,570
19	88.9%	94.1%	92.6%	88.4%	89.4%
	5,219	3,687	1,846	20,071	30,823
20	91.5%	93.7%	95.2%	84.7%	86.1%
	2,317	2,133	392	24,566	29,408
21	87.8%	90.5%	94.9%	82.6%	84.5%
	2,835	3,009	847	19,420	26,111
22	87.0%	93.9%	93.5%	85.0%	86.7%
	3,956	2,442	982	15,108	22,488
Total	88.8%	93.2%	93.6%	86.0%	87.4%
	17,505	14,707	5,122	102,066	139,400

In summary, we see that every year for the last five years, pass rates have been higher for students who visit either or both of the centers. We also see that in terms of pass rates, those who visited centers weathered the impacts of the pandemic better than those did not. While a strong correlation between visits and pass rates likely exists; it is not clear if it is the initiatives and efforts of students who visit centers that are driving the pass rates, the center visits themselves, or a combination of the two.

Term Outcomes

As shown in Table 2, we see that when averaged over five years, those who visited both centers or visited the WMC had, on average, the highest term GPAs (3.23 and 3.22 respectively); followed by those who visited the LRC (3.01), and those who did not visit a center (2.94). Looking at units attempted, we see that those who visited both centers attempted the most units on average (13.58), followed by those visiting the WMC (13.28), the LRC (13.27), and those who did not visit a center (12.39). Looking at units completed, we see that those who visited both centers completed the most units on average (13.30), followed by the WMC (12.90), the LRC (12.59), and those who did not visit a center (11.43). From the pre covid timeframe to the post covid timeframe, we see units completed decline by -0.4 among LRC visitors, -0.7 among WMC visitors, and not at all among those visiting both centers. In contrast we see a -1.0 decline for those who did not visit a center.

In Fall 18, we see the percentage of undergraduate stateside students on campus using the WMC is 10.8%, 10% for the LRC and 3.2% using both centers. In Fall 19, we see the percentage of undergraduate stateside students on campus using the LRC is 16.2%, 11.3% for the WMC and 5.6% using both centers. In Fall 20, we see the percentage of undergraduate stateside students on campus using the LRC is 7.4%, 6.9% for the WMC and 1.3% using both centers. In Fall 21, we see the percentage of undergraduate stateside students on campus using the WMC is 11.1%, 10.2% for the WMC and 3.1% using both centers. In Fall 22, we see the percentage of undergraduate stateside students on campus using the LRC is 16.4%, 10.4% for the WMC and 4.0% using both centers. While we see a real proportional decline during Covid, engagement with the tutoring center (as measured by percentage of students) appears to have rebounded post Covid and is at all-time highs for the LRC (16.4% in 22)

Table 2. Term Outcomes and Headcount by Center Visitation, Fall 2018 - Fall 2022.

	LRC	WMC	Both	Neither	Total
18					
Term GPA	2.98	3.19	3.19	3.00	3.02
Units Attempted	13.14	13.33	13.54	12.61	12.77
Units Completed	12.71	13.09	13.33	12.03	12.26
	10.0%	10.8%	3.2%	76.0%	100.0%
	687	742	222	5,223	6,874
19					
Term GPA	2.96	3.19	3.15	2.96	2.99
Units Attempted	13.35	13.75	13.63	12.62	12.92
Units Completed	12.85	13.46	13.32	11.98	12.36
	16.2%	11.3%	5.6%	66.8%	100.0%
	1,114	777	385	4,582	6,858
20					
Term GPA	3.23	3.35	3.51	3.01	3.06
Units Attempted	13.35	13.60	13.57	12.68	12.81
Units Completed	12.69	13.06	13.28	11.40	11.63
	7.4%	6.9%	1.3%	84.4%	100.0%
	499	462	85	5,654	6,700

Table 2 (continued).

21					
Term GPA	3.03	3.16	3.31	2.81	2.89
Units Attempted	13.04	12.80	13.31	11.88	12.15
Units Completed	12.29	12.33	13.19	10.76	11.16
	10.2%	11.1%	3.1%	75.6%	100.0%
	632	689	190	4,694	6,205
22					
Term GPA	2.97	3.27	3.22	2.87	2.94
Units Attempted	13.36	12.88	13.77	12.01	12.39
Units Completed	12.33	12.43	13.36	10.81	11.33
	16.4%	10.4%	4.0%	69.2%	100.0%
	898	571	217	3,780	5,466
Total					
Term GPA	3.01	3.22	3.23	2.94	2.98
Units Attempted	13.27	13.28	13.58	12.39	12.62
Units Completed	12.59	12.90	13.30	11.43	11.77
	11.9%	10.1%	3.4%	74.5%	100.0%
	3,830	3,241	1,099	23,932	32,102

In summary we see that term GPAs, units attempted, and units completed are higher for those who visit centers than for those who do not. This trend for all centers seems to hold across the three most recent years. In future years as term GPAs, units attempted, and units completed become less severely impacted by the Covid 19 pandemic; it will be interesting to see if term GPAs correlate with increases in center visits (measured as % of students visiting a center).

## Persistence

### One-term Persistence

Across the 4 years for which we have finalized data (Table 3.1), we see significant variation in persistence rates as well as significant variation between first-time students, transfer students and returning students. In Fall 2021, one-term persistence is highest for first year, full time students (92.2%), followed by transfer students (91.8%) and returning students (91.6%). Fall 21 to Spring 22 persistence is up (2.5 percentage points) for first time students, up (.1 percentage points) for transfer students, and down (1.4 percentage points) for returning students when compared to Fall 20.

Looking at Table 3.1, on average we see higher one-term persistence rates for those who visit centers than for those who do not, with those visiting both centers having the highest persistence rates. For first year, full time students, 96.1% of those who visited both centers returned the following semester, followed by those who just visited the WMC (95.3%), and those who just visited the LRC (95.2%), which were all higher than students visiting neither center (90.7%). For transfer students, 97.5% of those who visited both centers returned the following semester, followed by those who just visited the LRC (96.6%), and those who just visited the WMC (95.3%), which were all higher than students visiting neither center (91.8%). For returning

students, 97.3% of those who visited both centers returned the following semester, followed by those who just visited the WMC (97.2%), and those who just visited the LRC (96.3%), which were all higher than students visiting neither center (92.3%). In summary of one-term persistence rates, we see that those who visited either or both of the centers were more likely to persist than those who do not visit any of the centers. This trend holds across the last four years.

Table 3.1. One-term Persistence and Headcount by Admit Type and Center Visitation, Fall 2018 - Fall 2021.

	First Time Persist (1Term)	Transfer Persist (1Term)	Returning Persist (1Term)	Total Persist (1Term)
18				
LRC	94.1%	96.1%	96.1%	95.9%
	68	77	542	687
WMC	94.0%	95.7%	97.9%	96.5%
	182	141	419	742
Both	95.7%	97.7%	99.2%	98.2%
	46	43	133	222
Neither	90.2%	92.0%	93.8%	93.0%
	671	883	3,669	5,223
Total	91.4%	92.9%	94.6%	93.9%
	967	1,144	4,763	6,874
19				
LRC	96.0%	97.2%	95.6%	95.9%
	173	145	796	1,114
WMC	96.3%	95.9%	96.6%	96.4%
	134	147	498	779
Both	94.8%	96.6%	96.1%	95.8%
	96	58	231	385
Neither	94.4%	93.8%	93.1%	93.3%
	483	874	3,225	4,582
Total	95.0%	94.6%	94.0%	94.2%
	886	1,224	4,750	6,860
20				
LRC	92.6%	94.0%	96.2%	95.4%
	68	67	364	499
WMC	96.8%	95.8%	97.9%	97.4%
	31	95	336	462
Both	100.0%	100.0%	97.9%	98.8%
	10	28	47	85
Neither	88.7%	90.9%	92.3%	91.7%
	523	1,004	4,127	5,654
Total	89.7%	91.7%	93.0%	92.5%
	632	1,194	4,874	6,700

Table 3.1 (continued).

21					
LRC	96.6%	98.4%	96.3%	96.5%	
	87	64	481	632	
WMC	95.7%	94.2%	96.8%	96.1%	
	92	154	443	689	
Both	98.1%	96.3%	97.3%	97.4%	
	52	27	111	190	
Neither	89.2%	90.6%	90.1%	90.1%	
	334	790	3,570	4694	
Total	92.2%	91.8%	91.6%	91.7%	
	565	1,035	4,605	6,205	
Total					
LRC	95.2%	96.6%	96.3%	96.2%	
	396	353	2,183	2,932	
WMC	95.3%	95.3%	97.2%	96.5%	
	439	512	1,696	2,647	
Both	96.1%	97.5%	97.3%	97.1%	
	204	156	522	882	
Neither	90.7%	91.8%	92.3%	92.1%	
	2,011	3,551	14,591	20,153	
Total	92.2%	92.8%	93.3%	93.1%	
	3,050	4,597	18,992	26,639	

### One-Year Persistence

In Table 3.2, on average we see higher one-year persistence rates for those who visit centers than for those who do not, with those visiting both centers having the highest persistence rates. For first year, full time students, 91.7% of those who visited both centers returned the following year, followed by those who just visited the LRC (84.1%), and those who just visited the WMC (83.1%), which were all higher than students visiting neither center (75.3%). For transfer students, 94.9% of those who visited both centers returned the following year, followed by those who just visited the WMC (91.1%), and those who just visited the LRC (89.5%), which were all higher than students visiting neither center (85.6%). For returning students, 90.8% of those who visited both centers returned the following year, followed by those who just visited the WMC (93.0%), and those who just visited the LRC (92.3%), which were all higher than students visiting neither center (87.3%).

Table 3.2. One-year Persistence and Headcount by Admit Type and Center Visitation, Fall 2018 - Fall 2021.

	First Time Persist (1Yr)	Transfer Persist (1Yr)	Returning Persist (1Yr)	Total Persist (1Yr)
18				
LRC	75.0%	88.3%	92.1%	90.0%
	68	77	542	687
WMC	84.6%	92.9%	91.6%	90.2%
	182	141	409	732
Both	89.1%	95.3%	94.0%	93.2%
	46	43	133	222
Neither	73.2%	84.5%	89.0%	86.2%
	671	883	3,669	5,223
Total	76.2%	86.2%	89.7%	87.2%
	967	1,144	4,763	6,874
19				
LRC	85.5%	94.5%	92.0%	91.3%
	173	145	796	1,114
WMC	85.1%	93.9%	94.8%	92.9%
	134	147	496	777
Both	89.6%	93.1%	88.3%	89.4%
	96	58	231	385
Neither	79.5%	88.8%	88.9%	87.9%
	483	874	3,225	4,582
Total	82.6%	90.3%	90.0%	89.1%
	886	1,224	4,748	6,874
20				
LRC	86.8%	83.6%	94.5%	92.0%
	68	67	364	499
WMC	87.1%	90.5%	96.4%	94.6%
	31	95	336	462
Both	100.0%	100.0%	95.7%	97.6%
	10	28	47	85
Neither	79.5%	86.9%	88.2%	87.1%
	523	1,004	4,127	5,654
Total	81.0%	87.3%	89.3%	88.1%
	632	1,194	4,874	6700
21				
LRC	86.2%	85.9%	91.3%	90.0%
	87	64	481	632
WMC	76.1%	87.0%	89.8%	87.4%
	92	154	443	689
Both	96.2%	92.6%	90.1%	92.1%
	52	27	111	190
Neither	67.1%	81.5%	83.2%	81.8%
	334	790	3,570	4,694
Total	74.2%	82.9%	84.9%	83.6%
	565	1,035	4,605	6,205

Table 3.2 (continued).

Total				
LRC	84.1%	89.5%	92.3%	90.9%
	396	353	2,183	2,932
WMC	83.1%	91.1%	93.0%	91.0%
	439	512	1,684	2,635
Both	91.7%	94.9%	90.8%	91.7%
	202	156	522	880
Neither	75.3%	85.6%	87.3%	85.8%
	2,011	3,551	14,591	20,153
Total	78.7%	86.8%	88.5%	87.1%
	3,050	4,597	18,990	26,637

In summary of one-year persistence rates, we see some variation but a likely trend of one-year persistence correlating positively with center visits. Additional statistical testing would allow us to look closer at the relationship between center visits and persistence. It is also quite possible that the pandemic drop off in one-year persistence from 2020 to 2021 would have been more severe if not for the work of the centers. While the 2021 persistence rate for first year, full time students dropped (6.8 percentage points) from 2020, the drop in persistence for those not attending either of the centers was (12.4 percentage points) lower in 2021 than 2020.

We also see that LRC first time freshmen were less adversely affected by the pandemic in terms of one-year persistence rates than LRC transfers.

#### Two-year Persistence

In Table 3.3, on average we see higher two-year persistence rates for those who visit centers than for those who do not, with those visiting both centers having the highest persistence rates. For first year, full time students, 76.3% of those who visited both centers returned after two years, followed by those who just visited the WMC (73.8%), and those who just visited the LRC (69.6%), which were all higher than students visiting neither center (63.8%). For transfer students, 90.7% of those who visited both centers returned the after two years, followed by those who just visited the WMC (88.0%), and those who just visited the LRC (86.8%), which were all higher than students visiting neither center (84.8%). Returning students had a slightly different pattern, 91.6% of those who visited the WMC returned after two years, followed by those who just visited both centers (90.7%), and those who just visited the LRC (89.6%), which were all higher than students visiting neither center (86.1%).

Table 3.3. Two-year Persistence and Headcount by Admit Type and Center Visitation, Fall 2018 - Fall 2020.

	First Time Persist (2Yr)	Transfer Persist (2Yr)	Returning Persist (2Yr)	Total Persist (2Yr)
18				
LRC	58.8%	87.0%	90.4%	86.9%
	40	67	542	597
WMC	75.8%	92.2%	91.6%	87.9%
	138	130	419	652
Both	73.9%	93.0%	91.7%	88.3%
	34	40	133	196
Neither	61.5%	80.4%	87.7%	83.1%
	413	710	3,669	4,340
Total	64.6%	82.8%	88.5%	84.2%
	625	947	4,763	5,785
19				
LRC	74.6%	92.4%	88.9%	87.2%
	129	134	796	971
WMC	72.4%	89.8%	91.3%	87.8%
	97	132	496	682
Both	75.0%	86.2%	90.0%	85.7%
	72	50	231	330
Neither	68.1%	84.2%	87.2%	84.6%
	329	736	3,225	3,878
Total	70.8%	85.9%	88.1%	85.5%
	627	1,052	4,748	5,861
20				
LRC	67.6%	74.6%	89.8%	84.8%
	46	50	364	423
WMC	67.7%	78.9%	92.0%	87.7%
	21	75	336	405
Both	100.0%	96.4%	91.5%	94.1%
	10	27	47	80
Neither	62.7%	79.0%	83.7%	81.0%
	328	793	4,127	4,577
Total	64.1%	79.1%	84.8%	81.9%
	405	945	4,874	5,485
Total				
LRC	69.6%	86.8%	89.6%	86.6%
	309	289	1,702	2,300
WMC	73.8%	88.0%	91.6%	87.8%
	347	383	1,251	1,981
Both	76.3%	90.7%	90.7%	87.5%
	152	129	411	692
Neither	63.8%	84.8%	86.1%	83.4%
	1,677	2,761	11,021	15,459
Total	66.7%	81.9%	87.1%	83.7%
	2,485	3,562	14,385	20,432

In summary of two-year persistence rates, we generally continue to see a positive relationship between center visits and persistence but there are some cases (specific years and specific student types) where persistence rates are not elevated by center visits. Additional statistical analyses could possibly help us to better understand these discrepancies or other variables not included here that are affecting persistence.

In summary of persistence overall, we do see some variation in persistence rates across terms, across student admit types and across center visit activity but a generally positive relationship between persistence and center visits seems very likely. Across all student types and terms for example, one-term persistence is higher for those who visit centers than for those who do not. The further out we go, we start to see some exceptions where center visits do not elevate persistence rates in every case; but for both one- and two-year persistence, persistence rates are higher for those who visit centers most of the time. While smaller positive trends exist in individual years, among individual student admit types, and individual center activities; a deeper analysis with additional statistical controls might be necessary to discern trends in tutoring and student admit type that hold across all years and student types.

## Grad Rates

### Two-year Grad Rates

In Table 4.1, we see that returning students had higher two-year graduation rates than transfers (likely a function of being closer to graduation); but we also observe that two-year graduation rates dropped (by 4.3 percentage points) for transfer students, and (2.3 percentage points) for returning students. On average we see higher two-year graduation rates for those who visit the WMC than for those who do not, with those visiting the WMC having the highest graduation rates. For transfer students, 55.3% of those who visited the WMC graduated after two years, followed by those who just visited both centers (51.9%), and those who visited neither center (44.7%), which were all higher than students visiting the LRC (39.8%). Similarly for returning students, 71.4% of those who visited the WMC returned graduated after two years, followed by those who just visited both centers (67.2%), and those who visited neither center (62.8%), which were all higher than students visiting the LRC (57.4%).

This trend shows LRC visitors underperforming non visitors at the 2-year mark, but later outperforming non visitors at the 3- and 4-year marks (Tables 4.2 and 4.3). In Fall 20, we see that returning students had higher two-year graduation rates than transfer students. We also see that among transfer and returning students, those who visited both centers (64.3% for transfers, 78.7% for returning) had the highest two-year graduation rates. Those who visited the WMC also had elevated graduation rates (54.7% for transfers, 75.6% for returning students). LRC visitors did not graduate as fast as non-visitors at the 2-year mark but we see this trend reverse at the 3- and 4-year marks with LRC visitors graduating faster than non-visitors.

Table 4.1. Two-year Graduation Rates by Admit Type and Center Visitation, Fall 2018 - Fall 2020.

	Transfer Grad (2Yr)	Returning Grad (2Yr)	Total Grad (2Yr)
18			
LRC	35.1%	57.9%	55.1%
	77	542	619
WMC	56.0%	68.3%	65.2%
	141	419	560
Both	39.5%	66.2%	59.7%
	43	133	176
Neither	43.1%	64.2%	60.1%
	883	3,669	4552
Total	44.1%	63.9%	60.0%
	1,144	4,763	5907
19			
LRC	44.8%	57.8%	55.8%
	165	796	961
WMC	55.1%	71.2 %	67.1%
	167	496	663
Both	55.2%	65.4%	63.3%
	58	231	289
Neither	47.7%	63.5%	60.1%
	874	3,225	4,099
Total	48.6%	63.4%	60.4%
	1,224	4,748	5,972
20			
LRC	32.8%	55.8%	52.2%
	67	364	431
WMC	54.7%	75.6%	71.0%
	95	336	431
Both	64.3%	78.7%	73.3%
	28	47	75
Neither	43.5%	60.2%	56.9%
	1,004	4,127	5,131
Total	44.3%	61.1%	57.8%
	1,194	4,874	6,068
Total			
LRC	39.8%	57.4%	54.7%
	309	1,702	2,011
WMC	55.3%	71.4%	67.5%
	403	1,251	1,654
Both	51.9%	67.2%	63.5%
	129	411	540
Neither	44.7%	62.8%	59.9%
	2,761	14,385	17,146
Total	45.7%	37.5%	38.8%
	3,562	18,990	22,552

In Table 4.3 we see higher three-year graduation rates among returning students than among transfer students (likely a function of returning students being closer to graduation). We also observe a (0.9% percentage point) increase in 3-year graduation rates for transfer students but a (1.6 percentage point) decrease in 3-year graduation rates for returning students.

Table 4.2. Three-Year Graduation Rates and Headcount by Admit Type and Center Visitation, Fall 2018 & Fall 2019.

	Transfer Grad (3Yr)	Returning Grad (3Yr)	Total Grad (3Yr)
18			
LRC	68.8%	78.0%	76.9%
	77	542	619
WMC	80.9%	83.8%	83.1%
	141	419	560
Both	81.4%	82.0%	81.9%
	43	133	176
Neither	70.2%	77.7%	76.2%
	883	3,669	4,552
Total	71.9%	78.4%	77.1%
	1,144	4,763	5,907
19			
LRC	76.6%	75.5%	75.7%
	165	796	961
WMC	77.6%	83.1%	81.7%
	167	496	663
Both	79.3%	78.4%	78.6%
	58	231	289
Neither	70.9%	76.1%	75.0%
	874	3,225	4,099
Total	72.8%	76.8%	76.0%
	1,224	4,748	5,972
Total			
LRC	74.1%	76.5%	76.1%
	242	1,338	1,580
WMC	79.1%	83.4%	82.3%
	308	915	1,223
Both	80.2%	79.7%	79.8%
	101	364	465
Neither	70.5%	77.0%	75.7%
	1,757	6,894	8,651
Total	72.4%	77.6%	76.6%
	2,368	9,511	11,879

Overall we see that returning students who visited the WMC had the highest three-year graduation rates (83.4%), followed by those who visited both centers (79.7%), those who visited neither center (77.0%), and those who visited the LRC (76.5%). Among transfer students we

see that those who visited both centers (80.2%), the WMC (79.1%), or the LRC (74.1%) had elevated three-year graduation rates compared with students who visited neither center (70.5%).

In Table 4.3 (as we would hope for) we see that the four-year graduation rates for Fall 18 have increased substantially past the three-year graduation rates for Fall 18 (taking transfers students to 150% of normative graduation time and some returning students beyond that time). It is likely that future five- and six-year graduation rates will also continue to show further improvements in graduation rates.

In Fall 18, we see that for transfers and returning students, those who visited either or both of the centers had higher four-year graduation rates than those who did not visit any of the tutoring centers on campus. For transfer students, those who visited both centers (88.4%), those who visited the WMC (85.8%), and those who visited the LRC (77.9%) had elevated graduation rates compared with those visiting neither center (76.3%). For returning students, those who either visited both centers (88.8%), those who visited the WMC (88.7%), and those who visited the LRC (85.8%) had higher four-year graduation rates than those students who visited neither center (83.3%).

First-time students who visited both centers (39.1%), along with those who visited the WMC (33%) had elevated graduation rates. We suspect the first year, full time students 4-year graduation rates are lower for LRC visitors (23.5%) than for those who did not visit a center (27.7%) for two reasons. First, as mentioned above in 2–3-year graduation rates, it appears that students who visit the LRC center for tutoring graduate at higher proportions than students who do not visit any of the centers, but at a slower rate. So, while LRC grad rates are lower than non-visitors in year 2 for transfer students, they are higher than non-visitors in years 3 and 4. We suspect this also holds true for first time grads on a larger trajectory. We further hypothesize for future research that LRC first year, full time students at 150% normative time (6 years) or greater outperform first year, full time students who did not visit any of the centers on campus.

Another reason the Fall 18 First year, full time students 4-year grad rate is lower for LRC visitors might have been the underrepresentation of females (Table 5.1) and the underrepresentation of first year, full time students at the center in Fall of 2018 (Table 5.5). The center has since increased its representation of females over time and dramatically increased its representation of first year, full time students in more recent years pointing towards further improved grad rates for first year, full time students in the future.

Table 4.3. Four Year Graduation Rates and Headcount by Admit Type and Center Visitation, Fall 2018.

	First Time Grad (4Yr)	Transfer Grad (4Yr)	Returning Grad (4Yr)	Total Grad (4Yr)
18				
LRC	23.5%	77.9%	85.8%	78.7%
	68	77	542	687
WMC	33.0%	85.8%	88.8%	74.5%
	182	141	419	742
Both	39.1%	88.4%	88.7%	78.4%
	46	43	133	222
Neither	27.7%	76.3%	83.3%	75.0%
	671	883	3,669	5,223
Total	29.0%	78.1%	84.2%	75.4%
	967	1,144	4,763	6,874

In summary we see that there may likely be a positive statistical correlation between center visits and graduation rates that can hold across time, student admit types and centers; but more in-depth analyses would be needed to further assess the relationship. Currently we can see some varying differences in graduation rates across student admit types and center visits. Length of time to graduation also impacts these relationships with students who visit tutoring centers having elevated success rates in the longer run but maybe needing a little bit more time to finish their degree. We further hypothesize for future research that representation of each student type and representation of various demographic groups at each center should positively impact graduation rates in the upcoming years.

#### Center Demographics

##### Gender

In Table 5.1, we take a look at the gender distribution of center visitors relative to the overall campus population. At the LRC, we see that female students are underrepresented in Fall 18, 19, 20 and 21. In Fall 22, the LRC visitors are representative of the larger student population on campus. At the WMC, conversely, we see that females are overrepresented in Fall 18, 19, 20, 21 and 22. We also see that females are also overrepresented among those students visiting both centers in Fall 18, 19, 20, 21 and 22. Students who identify as female are underrepresented among those who do not visit any of the centers on campus in 19, 21 and 22.

Table 5.1. Percentage of Female Students by Center Visitation, Fall 2018 - Fall 2022.

	18 Female	19 Female	20 Female	21 Female	22 Female	Total Female
LRC	56.3% 687	62.2% 1113	59.5% 499	64.3% 631	65.2% 893	61.8% 3823
WMC	70.5% 742	71.3% 777	70.3% 461	72.6% 689	73.9% 570	71.7% 3239
Both	68.0% 222	69.9% 385	73.8% 84	74.7% 190	76.0% 217	71.9% 1098
Neither	64.1% 5,223	63.5% 4,581	64.4% 5,649	64.6% 4,689	64.1% 3,775	64.1% 23,917
Total	64.1% 6,874	64.5% 6,856	64.6% 6,693	65.7% 6,199	65.8% 5,455	64.9% 32,077

## HUGS

In Table 5.2, we look at the HUGs distribution of center visitors relative to the overall campus population. At the LRC, we see that HUGs students are underrepresented in Fall 18, 20 and 21 but overrepresented in Fall 19. In Fall 22, the LRC visitors are representative of the larger student population on campus. At the WMC, we see that HUGs students are underrepresented at the WMC in Fall 20 but overrepresented in all of the other years. HUGs students are also overrepresented among those students visiting both centers in Fall 18, 19, 20, 21 and 22. Those who do not identify as HUGs students are overrepresented among those who do not visit any of the centers on campus in 18, 19 and 22.

Table 5.2. Percentage of Historically Underrepresented Groups Identification (HUGs) by Center Visitation, Fall 2018 - Fall 2022.

	18 HUGs	19 HUGs	20 HUGs	21 HUGs	22 HUGs	Total HUGs
LRC	53.9% 687	58.3% 1113	56.3% 499	56.5% 631	60.5% 893	57.5% 3823
WMC	61.5% 742	59.7% 777	57.6% 461	62.0% 689	63.0% 570	60.9% 3239
Both	61.3% 222	59.7% 385	65.9% 84	60.0% 190	62.2% 217	61.1% 1098
Neither	53.3% 5,223	54.4% 4,581	58.5% 5,649	59.0% 4,689	59.8% 3,775	56.9% 23,917
Total	54.5% 6,874	55.9% 6,856	58.3% 6,693	59.1% 6,199	60.3% 5,455	57.5% 32,077

## Pell Eligibility

In Table 5.3, we look at the Pell eligibility distribution of center visitors relative to the overall campus population. At the LRC, we see that Pell eligible students are underrepresented in Fall 18, 19, 20 and 22 but overrepresented in Fall 21. At the WMC, we see that Pell eligible students

are overrepresented in Fall 18, 19, 20, and 21 but underrepresented in Fall 22. Pell eligible students are also overrepresented among those students visiting both centers in Fall 18, 19, 20, 21 and 22. Those who do not identify as Pell eligible are overrepresented among those who do not visit any of the centers on campus in 18, 19 and 21.

Table 5.3. Percentage of Pell Eligible Students by Center Visitation, Fall 2018 - Fall 2022, Fall 2018 - Fall 2022.

	18 Pell	19 Pell	20 Pell	21 Pell	22 Pell	Total Pell
LRC	55.3% 687	54.4% 1113	53.9% 499	55.9% 631	51.9% 893	54.2% 3823
WMC	59.2% 742	59.7% 777	60.0% 461	55.0% 689	51.5% 570	57.2% 3239
Both	63.5% 222	57.9% 385	64.7% 84	61.1% 190	59.9% 217	60.5% 1098
Neither	55.0% 5,223	55.6% 4,581	56.1% 5,649	54.1% 4,689	52.6% 3,775	54.8% 23,917
Total	55.7% 6,874	56.0% 6,856	56.3% 6,693	54.6% 6,199	52.7% 5,455	55.2% 32,077

#### Parents' Education

In Table 5.4, we look at the distribution of center visitors by parents' level of education relative to the overall campus population. At the LRC, we see that first-generation students are underrepresented in Fall 18, 20, 21 and 22 but well represented in Fall 19. At the WMC, we see that first-generation students are overrepresented in Fall 18, 19, 21, and 22 but underrepresented in Fall 20. Among those students visiting both centers, first generation students are underrepresented in Fall 20, 21 and 22 but overrepresented in Fall 18 and well represented in Fall 19. Among those who do not visit any of the centers on campus, first generation students are overrepresented in Fall 20, 21 and 22 but continuing generation students were overrepresented in Fall 19.

Table 5.4. Center Visits by Parents' Education Level, Fall 2018 - Fall 2022.

	18 First Gen	19 First Gen	20 First Gen	21 First Gen	22 First Gen	Total First Gen
LRC	51.7% 687	53.5% 1113	49.7% 499	51.3% 631	49.1% 893	51.3% 3823
WMC	53.9% 742	56.4% 777	52.2% 461	55.3% 689	54.1% 570	54.6% 3239
Both	53.6% 222	53.5% 385	54.1% 84	50.0% 190	50.7% 217	52.4% 1098
Neither	52.7% 5,223	52.7% 4,581	55.3% 5,649	54.3% 4,689	54.2% 3,775	53.9% 23,917
Total	52.8% 6,874	53.3% 6,856	54.6% 6,693	53.9% 6,199	53.2% 5,455	53.6% 32,077

## Admit Type

In Table 5.5, we look at the distribution of center visitors by admission type relative to the overall campus population. At the LRC, we see that first time students are overrepresented in Fall 19, 20, 21 and 22 but underrepresented in Fall 18. It is also worth noting here that the percentage of first year, full time students at the LRC jumped a total of 14 percentage points (from 9.9% in 2018 to 23.9% in 2022) raising the question if intentional changes in targeted outreach have been made. At the LRC, we also see that transfer students are underrepresented in Fall 18, 19, 20, 21 and 22. At the WMC, we see that first time students are overrepresented in Fall 18, 19 and 21 but underrepresented in Fall 20 and Fall 22. At the WMC, we also see that transfer students are overrepresented in Fall 18, 19, 20, 21 and 22. Among those students visiting both centers, first time students are overrepresented in Fall 18, 19, 20, 21 and 22. Among those students visiting both centers, transfer students are overrepresented in Fall 18 and 20 but underrepresented in Fall 19, 21 and 22. Among those who do not visit any of the centers on campus, returning students are overrepresented in Fall 18, 19, 20 and 21.

Table 5.5a. Center Visits by First Time Freshmen Status, Fall 2018 - Fall 2022.

	18	19	20	21	22	Total
	First Time	First Time	First Time	First Time	First Time	First Time
LRC	9.9%	15.5%	13.6%	13.8%	23.9%	16.0%
	687	1,114	499	632	898	3,830
WMC	24.5%	17.2%	6.7%	13.4%	9.1%	15.1%
	742	777	462	689	571	3,241
Both	20.7%	24.9%	11.8%	27.4%	26.3%	23.7%
	222	385	85	190	217	1,099
Neither	12.8%	10.5%	9.3%	7.1%	8.2%	9.7%
	5,223	4,582	5,654	4,694	3,779	23,932
Total	14.1%	12.9%	9.4%	9.1%	11.6%	11.5%
	6,874	6,858	6,700	6,205	5,465	32,102

Table 5.5b. Center Visits by Transfer Status, Fall 2018 - Fall 2022.

	18	19	20	21	22	Total
	Transfer	Transfer	Transfer	Transfer	Transfer	Transfer
LRC	11.2%	13.0%	13.4%	10.1%	11.0%	11.8%
	687	1114	499	632	898	3830
WMC	19.0%	18.9%	20.6%	22.4%	20.3%	20.1%
	742	777	462	689	571	3241
Both	19.4%	15.1%	32.9%	14.2%	12.0%	16.6%
	222	385	85	190	217	1099
Neither	16.9%	19.1%	17.8%	16.8%	16.2%	17.4%
	5,223	4,582	5,654	4,694	3,779	23,932
Total	16.6%	17.8%	17.8%	16.7%	15.6%	17.0%
	6,874	6,858	6,700	6,205	5,465	32,102

## Conclusion

In summary we see that course pass rates, term GPAs, units attempted + units completed, persistence 1 term, 1 year and 2 years, and ultimately graduation rates for each student type help us to track student success at various stages of matriculation. By further looking at center visit activity at the LRC and the WMC by student type across the last five years we are able to begin to assess the impact of each center in helping students to improve course pass rates, increase term GPAs, units attempted + units earned, improve persistence rates and ultimately to increase graduation rates. It is also of course important to be mindful of how much the pandemic may have impacted everything and to consider how it might continue to affect future first time and transfer students as their earlier high school and college experiences may have also been dramatically impacted by the pandemic. By and large both centers appear successful, with graduation rates marking the most final and cumulative indicators of success for students but also (in terms of measurement) the most distant points from the center activities themselves. In some cases, such as 4-year grad rates for transfers, those visiting both centers (88.4%) perform better than those just visiting one of the centers (85.8% at the WMC and 77.9% at the LRC). We suspect this trend will also likely hold true for first year, full time students at the 6-year graduation mark.

Further we closely track the representativeness of student types and student demographics across centers by visit logs and across the last 5 years. We see that representation by various groups such as gender, HUGs, Pell status, parents' education and student type do vary significantly across centers and across years. We hypothesize from these findings that various student types and demographic groups will perform better on each of the aforementioned indicators of student success if they are well represented at either or both of the tutoring centers. Inversely, we also hypothesize that those student groups who are less well represented at the tutoring centers will likely not perform as well.

The impacts of center visits on student outcomes overall are also likely influenced by a combination of factors such as who visits the centers, why they visit the centers, and what services they are offered when they are there. It is also likely that the reasons for visiting the centers vary significantly across students with various goals and need levels. We note significant changes in who visits the centers across time in this analysis and believe it is likely that service offerings at each of the centers have evolved over time as well.

#### End Notes

We are currently collecting data on the impact of embedded tutors in the classroom and faculty training for classes with embedded tutors. Future analyses may be able to incorporate this data into the next assessment report.

Future analyses may also be able to examine the impacts of those visiting a specific center multiple times vs those who may have just visited once.