

Academic Support Centers Assessment Report – Spring 2016

Author: Joseph F. van Gaalen, Ph.D., Director, Academic Assessment

1 INTRODUCTION

Florida SouthWestern's Academic Support Center (ASC) employs a series of assessments in order to support and strengthen the capabilities of each center (writing, math, and peer tutoring) in providing assistance in student achievement of the General Education competencies. Student learning centers have been shown to successfully improve student learning outcomes across the curriculum (Hendriksen et al., 2005) as well as increase college preparedness (Perin, 2004). Therefore, data informed improvement has potential for a compounded effect across multiple disciplines college-wide as well as within the learning centers. Information gathered from assessment is intended to be shared with ASC leadership and staff as well as, in certain cases, among faculty and students. This study is in partial fulfillment of the assessment goals established in fall 2015 which is to include the entire 2015-16 academic year and is outlined in each section below.

For additional detail on further analysis not provided in this report, please contact Dr. Joseph F. van Gaalen, Director of Academic Assessment, Academic Affairs Assessment (jfvangaalen@fsw.edu; x16965).

2 WRITING CENTER

In fall 2015, in order to support student achievement of the General Education competencies, the department established a goal of ensuring that participation in the Academic Support Centers (ASCs) is correlated with student success and retention. During the 2015-16 academic year, students with similar entering grade point averages (G.P.A.) who receive support in the ASCs for writing and are enrolled in ENC 1101 *Composition I* or ENC 1102 *Composition II* courses and who have two or more accrued hours in writing consultation visits will obtain satisfactory grades (A, B, or C) at a rate 10% higher than semester students who do not receive support via the Writing Center consultations. Additionally, success (A, B, or C) will be measured by gender and age cohorts with respect to accrued time in writing consultation visits. This objective is defined within the Academic Support assessment program as Outcome #1.

2.1 DESCRIPTIVE STATISTICS & LEARNING OBJECTIVES

The ASC leadership established measure of success for Outcome #1, student success rate in ENC 1101 or ENC 1102 increases by 10% given two or more hours of ASC writing consultation time, was met for three of five student cohorts (down from four in the fall). Success rates for those receiving greater than two hours of consultation exhibits is 45% higher for those with a GPA < 2.0, 23% higher for 2.0-2.4 GPA, 25% higher for 2.5-2.9 GPA, 8% higher for 3.0-3.4 GPA, and 4% higher for greater than or equal to 3.5 GPA (Table 1). A graphical representation of this data is shown in Figure 1.

n = 4484	n ≥ 2hr	n < 2hr
Goal: Success Rate 10% higher for n ≥ 2hr		
GPA < 2.0	100% (n=3)	55% (n=29)
GPA 2.0 – 2.4	77% (n=35)	54% (n=370)
GPA 2.5 – 2.9	86% (n=59)	61% (n=702)
GPA 3.0 – 3.4	87% (n=62)	79% (n=661)
GPA ≥ 3.5	91% (n=127)	87% (n=1873)

Table 1. Success rates in ENC 1101 or ENC 1102 for those receiving greater than two hours consultation in the Writing Center and those receiving less than two hours consultation based on GPA upon entering college.

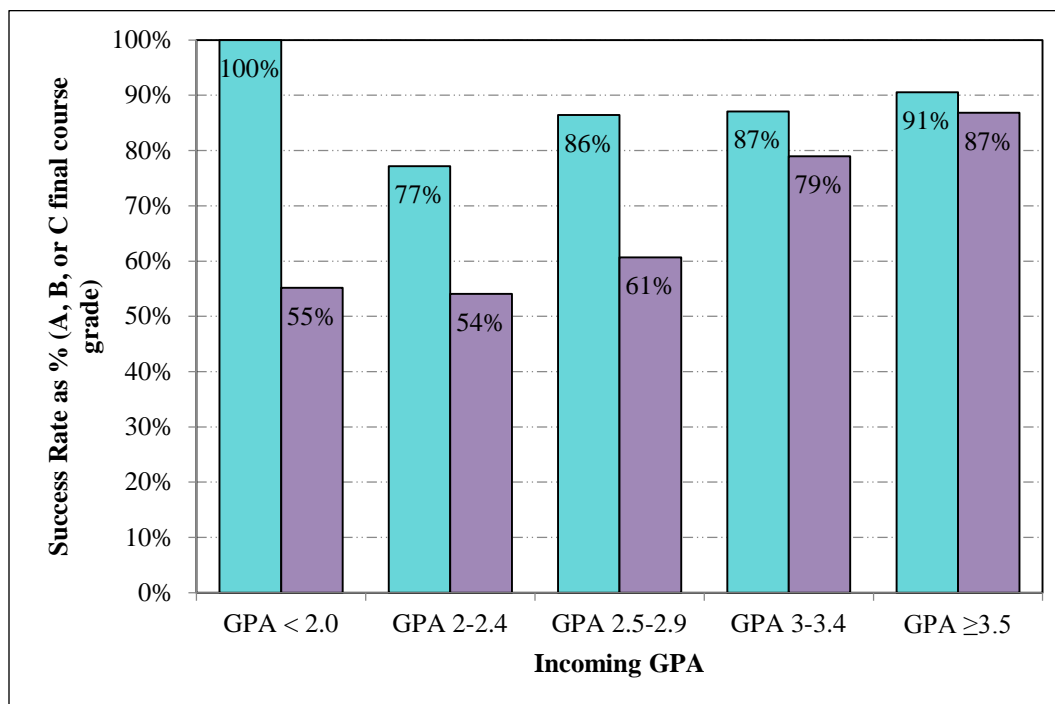


Figure 1. Success rates in ENC 1101 or ENC 1102 for those receiving greater than two hours consultation in the Writing Center (teal) and those receiving less than two hours consultation (purple) based on GPA upon entering college.

A Cochran-Mantel-Haenszel (CMH) test was conducted on the success rate data of those who accrued more than two hours of consultation time in the Writing Center and those that did not to determine statistical significance of the results according to standard methods (McDonald, 2009). In other words, the CMH test compares collectively, inclusive of GPA score bins, whether the two cohorts (≥ 2 hr consultation or < 2 hr consultation) are statistically significantly different and is not an analysis of individual GPA cohorts. Based on the results of the CMH test for repeated tests of independence, students with greater than two hours of consultation do exhibit a statistically significantly higher success rate than those who accrued fewer than two hours of consultation time ($\chi^2_{MH} = 22.052$, 1 d.f., $P = 2.65 \times 10^{-6}$). The null hypothesis that the relative proportions of success to failure between students accruing more or less than two hours of consultation time are independent of each other is rejected.

The second portion of Outcome #1 measures success rates based on gender and age cohorts with respect to accrued time in writing consultation visits. In the “Under 20” age range, achievement is slightly higher for the female cohort across all three ranges of time spent in the Writing Center (0 min, 1-119 min, ≥ 120 min) (Figure 2), a result consistent with fall 2015 data as well. The largest difference is for those never visiting the Writing Center where the female cohort achievement is 84% (up from 83% in the fall) whereas that of the male cohort is 76% (down from 77% in the fall). The same is the case for

the 25 and over age range with the female cohort for 0 min time spent at 74% success rate (up from 69% in the fall) compared with 72% for males (up from 61% in the fall). The 20-24 cohort is more sporadic, with no consistently higher cohort.

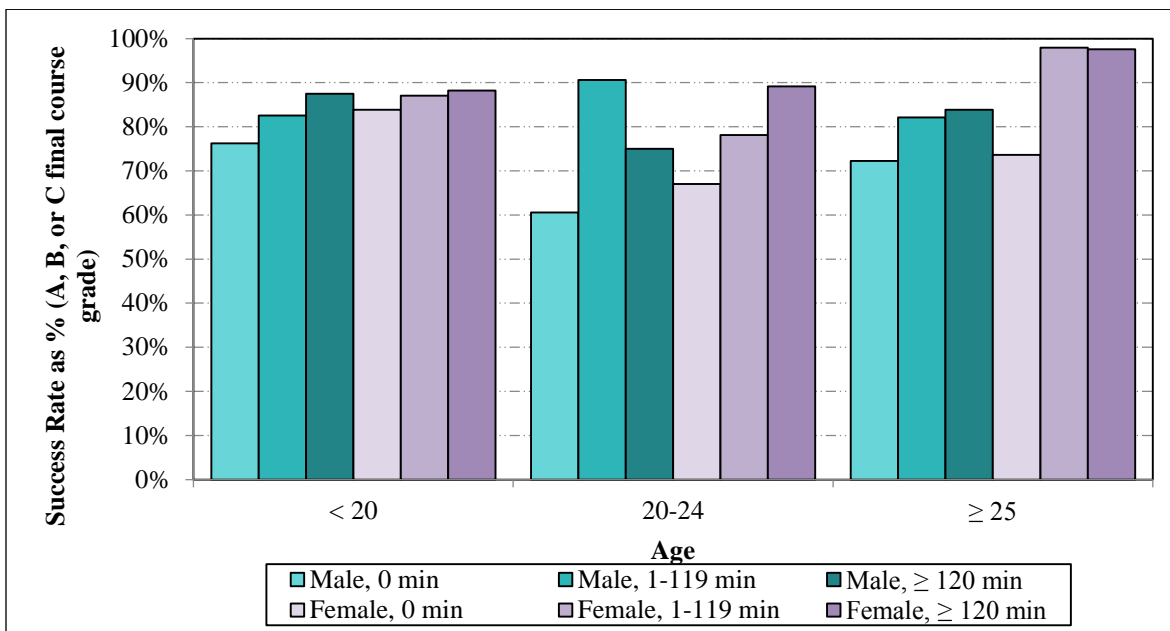


Figure 2. Success rates in ENC 1101 or ENC 1102 for male (teal shades) and female (purple shades) cohorts based on time accrued in the writing center and age range.

2.2 EXPLORATORY ANALYSIS & LONGITUDINAL STUDIES

A comparison of success rate based on time spent in the Writing Center was conducted in order to explore and quantify the value of time spent in writing consultation. The results of the analysis are shown in Figure 3. For students spending two or more hours in the Writing Center, the time minimum used in the definition of Outcome #1, success rate for ENC 1101 or 1102 courses in spring 2016 students increases by approximately 11% over those that did not spend time in the Writing Center (down from 14% in the fall). These results are either on par with or exceed that of comparative research (Cooper, 2010; Hendriksen et al., 2005).

As student demographics and department goals may shift through time, it is important to compare achievement through time along with changes. Figure 4 depicts a comparison of success rate based on time spent in the Writing Center beginning fall 2014 through spring 2016. Both demographics of students and student count vary by semester so it may be more reasonable to compare like semesters (Fall vs. Fall, Spring vs. Spring). In all cases success rate increases with increased time spent in the Writing Center. When comparing like terms, spring 2016 exhibits increases in all ranges (0 min, 1-119 min and ≥ 120 min).

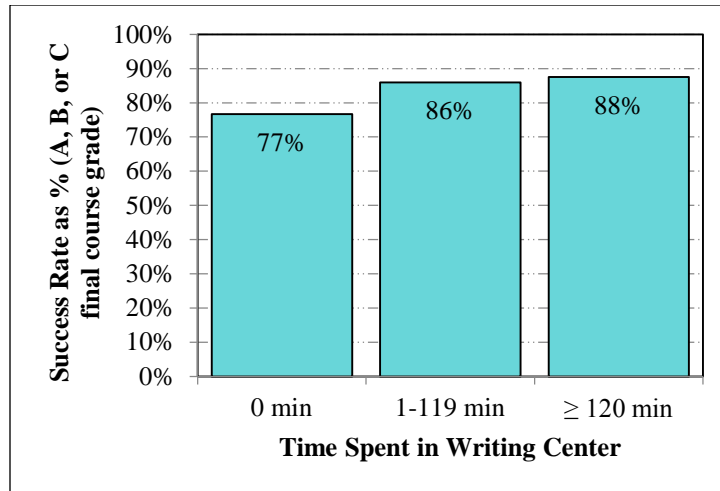


Figure 3. Success rates in ENC 1101 or ENC 1102 based on time spent in the Writing Center.

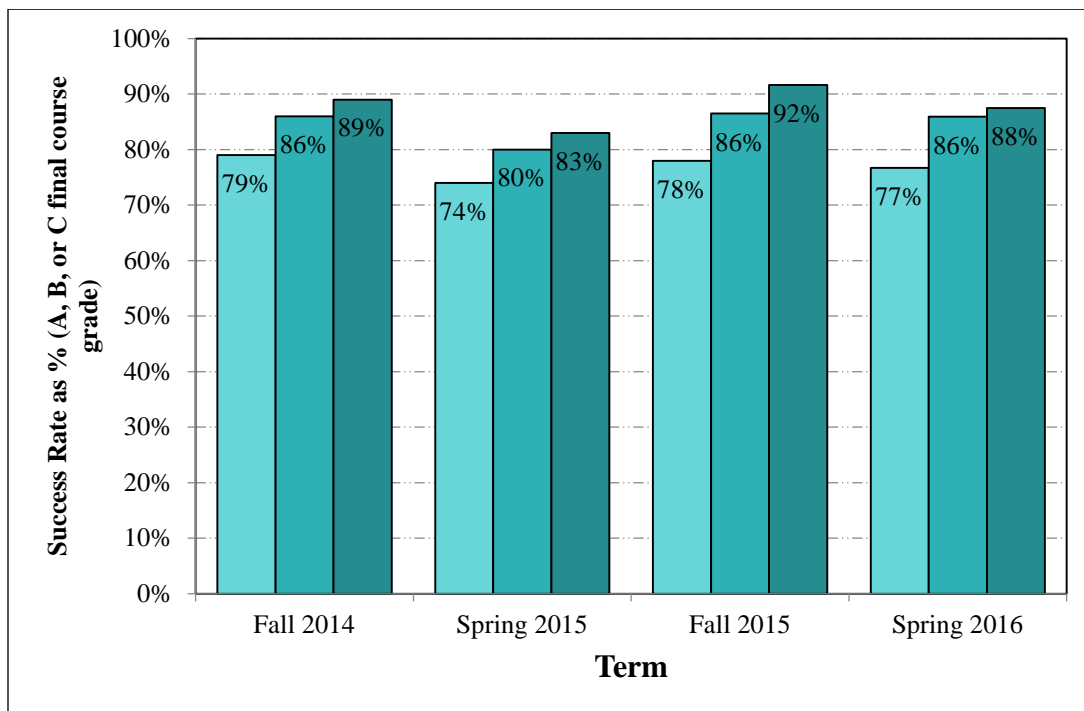


Figure 4. Success rates in ENC 1101 or ENC 1102 based on time spent in the Writing Center for fall 2014 through spring 2016. Light teal denotes 0 minutes spent in the center, dark teal denotes 1-119 minutes spent, and the darkest teal denotes 120 or more minutes spent.

3 MATH CENTER

In fall 2015, in order to support student achievement of the General Education competencies, the department established a goal of ensuring that participation in the ASCs is correlated with student success and retention. During the 2015-16 academic year, students with similar entering grade point averages (G.P.A.) who receive support in the ASCs for mathematics and are enroll in MAT 0057 *Mathematics for College Success*, MAT 1033 *Intermediate Algebra*, MAT 1100 *Mathematical Literacy for*

College Students, and MAC 1105 College Algebra courses and who have two or more accrued hours in mathematics tutoring visits will obtain satisfactory grades (A, B, or C) at a rate 10% higher than students who do not receive support via the Math Center. Additionally, success (A, B, or C) will be measured by gender and age cohorts with respect to accrued time in math tutoring visits. This objective is defined within the Academic Support assessment program as Outcome #2.

3.1 DESCRIPTIVE STATISTICS & LEARNING OBJECTIVES

The ASC leadership established measure of success for Outcome #2, student success rate in MAT 0057, MAT 1033, MAT 1100, or MAC 1105 increases by 10% given two or more hours of ASC math consultation time, was met in four of five cases (up from three in the fall). Success rates for those receiving greater than two hours of consultation is 19% high for those with a GPA < 2.0, 24% higher for 2.0-2.4 GPA, 18% higher for 2.5-2.9 GPA, 18% higher for 3.0-3.4 GPA, and 1% lower for greater than or equal to 3.5 GPA (Table 2). A graphical representation of this data is shown in Figure 5.

n = 3846	n ≥ 2hr	n < 2hr
<i>Success Rate 10% higher for n ≥ 2hr</i>		
GPA < 2.0	67% (n=9)	48% (n=29)
GPA 2.0 – 2.4	57% (n=53)	33% (n=347)
GPA 2.5 – 2.9	61% (n=93)	43% (n=748)
GPA 3.0 – 3.4	80% (n=82)	62% (n=712)
GPA ≥ 3.5	67% (n=171)	68% (n=1172)

Table 2. Success rates in MAT 0057, MAT 1033, MAT 1100, or MAC 1105 for those receiving greater than two hours consultation in the Math Center and those receiving less than two hours consultation based on GPA upon entering college.

A Cochran-Mantel-Haenszel (CMH) test was conducted on the success rate data of those who accrued more than two hours of consultation time in the Math Center and those that did not to determine statistical significance of the results according to standard methods (McDonald, 2009). In other words, the CMH test compares collectively, inclusive of GPA score bins, whether the two cohorts (≥ 2hr consultation or ≤ 2hr consultation) are statistically significantly different and is not an analysis of individual GPA cohorts. Based on the results of the CMH test for repeated tests of independence, students with greater than two hours of consultation have a statistically significantly higher success rate than those who accrued fewer than two hours of consultation time ($\chi^2_{MH}=18.526$, 1 d.f., $P=1.7 \times 10^{-5}$). The null hypothesis that the relative proportions of success to failure between students accruing more or less than two hours of consultation time are independent of each other is rejected.

The second portion of Outcome #2 measures success rates based on gender and age cohorts with respect to accrued time in math consultation visits. In the “Under 20” age range, achievement is somewhat higher for the female cohort across all three ranges of time spent in the Math Center (0 min, 1-119 min, ≥ 120 min) (Figure 6). The largest difference is for those with greater than 2 hours spent in the Math Center where the female cohort achievement is 71% while that of the male cohort is 59%. This differs from fall data where the 0 minutes spent exhibited the greatest difference. In the 20-24 age range male achievement exceeds that of females for those visiting the math center but is below when not visiting. The “25 and over” cohort does not exhibit any particular pattern. Overall, there does not appear to be any strong pattern across cohorts. When comparing age groups, the “Under 20” consistently performs better than the other two, a trait consistent with that of fall data.

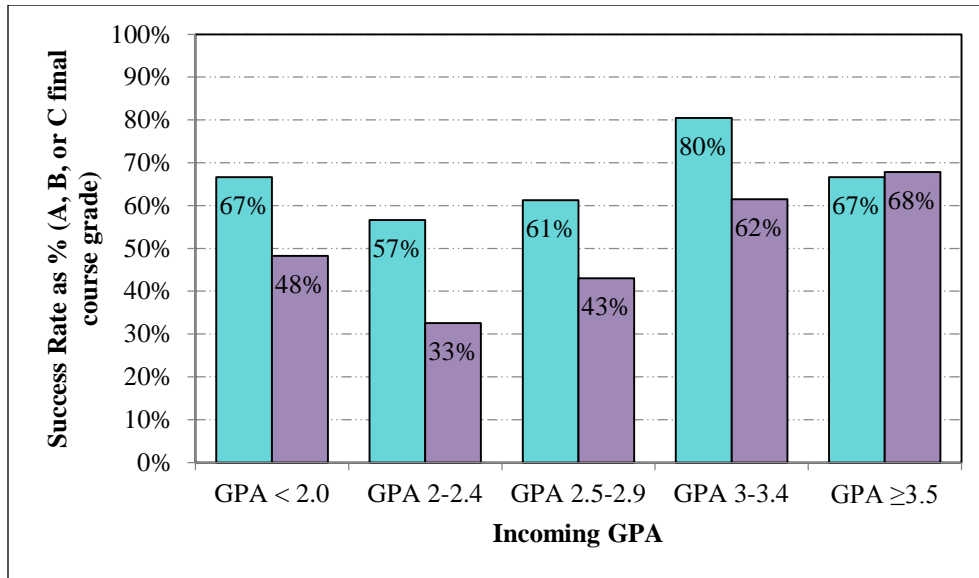


Figure 5. Success rates in MAT 0057, MAT 1033, MAT 1100, or MAC 1105 for those receiving greater than two hours consultation in the Math Center (teal) and those receiving less than two hours consultation (purple) based on GPA upon entering college.

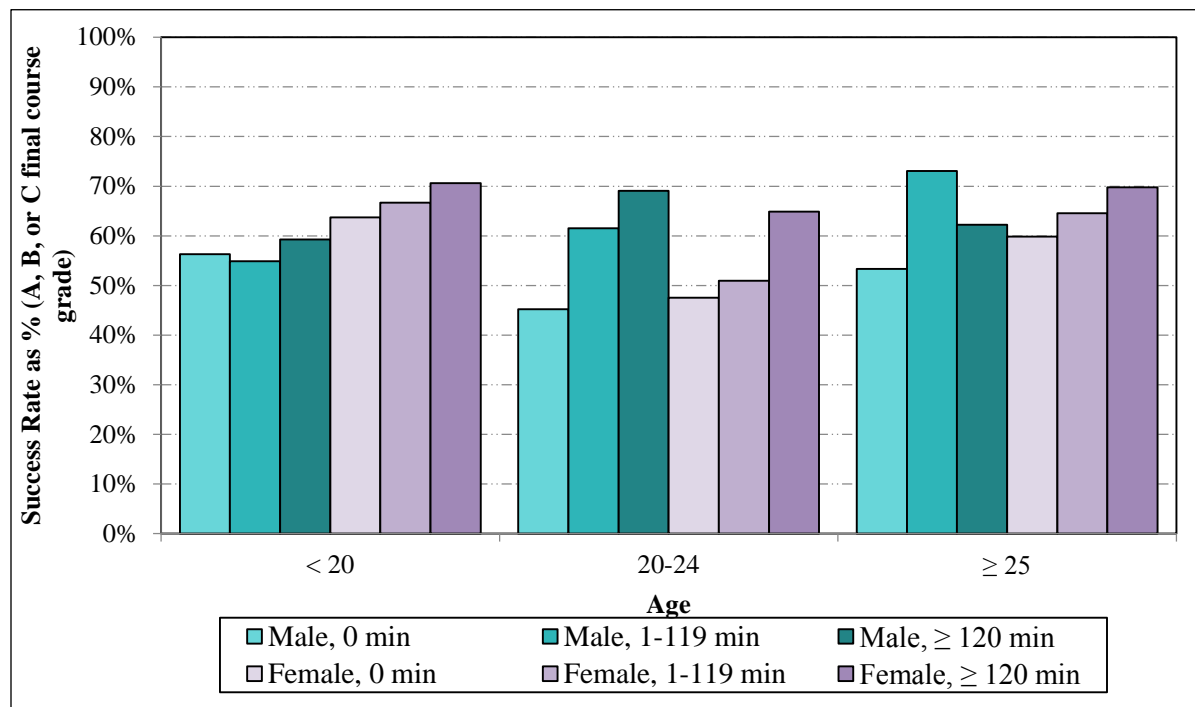


Figure 6. Success rates in MAT 0057, MAT 1033, MAT 1100 or MAC 1105 for male (teal shades) and female (purple shades) cohorts based on time accrued in the Math Center and age range.

3.2 EXPLORATORY ANALYSIS & LONGITUDINAL STUDIES

A comparison of success rate based on time spent in the Math Center was conducted in order to explore and quantify the value of time spent in math consultation. The results of the analysis are shown in Figure 7. For students spending two or more hours in the Math Center, the time minimum used in the

definition of Outcome #2, success rate is approximately 9% higher in MAT 0057, MAT 1033, MAT 1100, or MAC 1105, down from 10% in the fall.

As student demographics and department goals may shift through time, it is important to compare achievement through time along with changes. Figure 8 depicts a comparison of success rate based on time spent in the Math Center beginning fall 2014 through spring 2016. Both the demographics of students and student count vary by semester so it may be more reasonable to compare like semesters (Fall vs. Fall, Spring vs. Spring). For both fall terms, success rate peaks at 1-119 min spent in the Math Center. For both spring terms success rate increases with increased time spent in the Math Center.

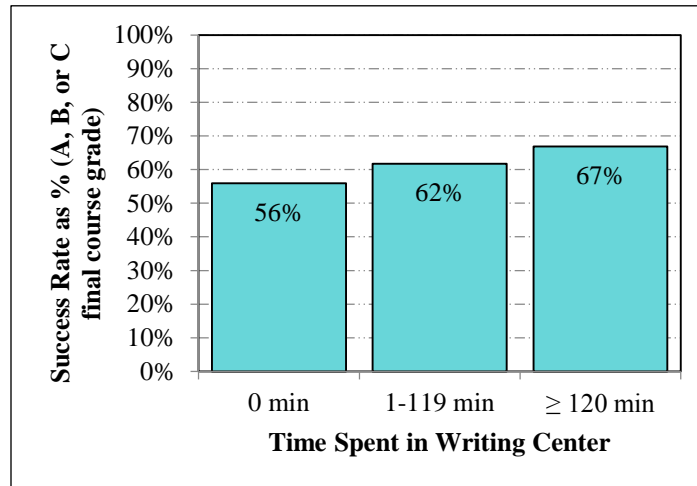


Figure 7. Success rates in MAT 0057, MAT 1033, MAT 1100, or MAC 1105 based on time spent in the Math Center.

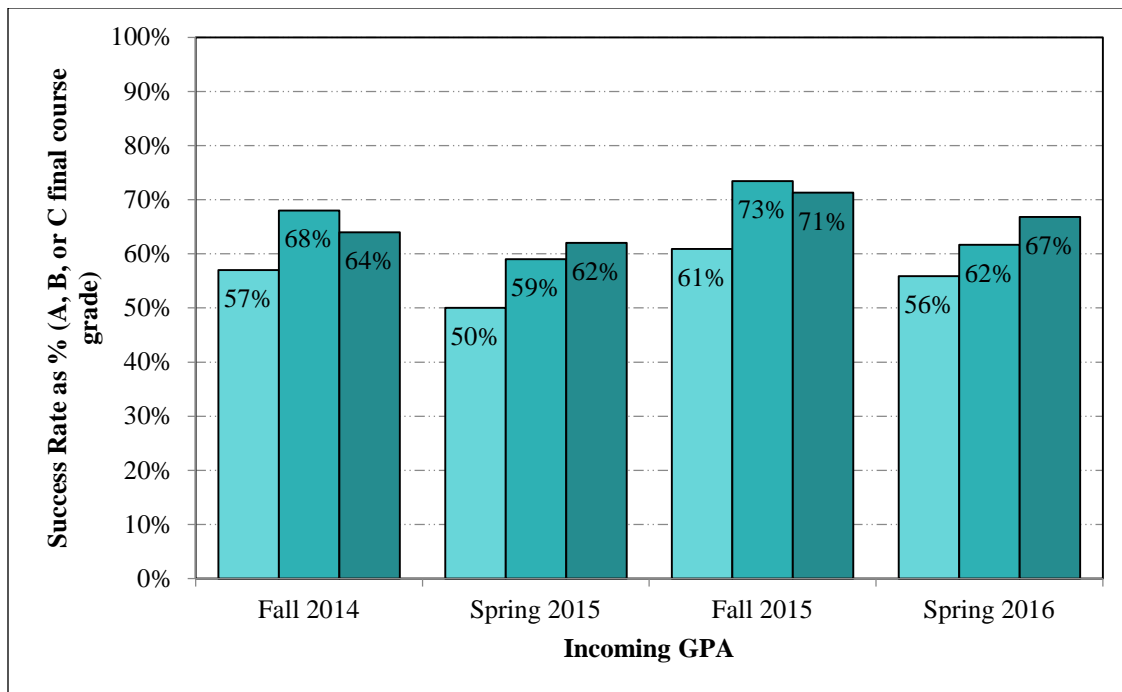


Figure 8. Success rates in MAT 0057, MAT 1033, MAT 1100, or MAC 1105 based on time spent in the Math Center for fall 2014 through spring 2016. Light teal denotes 0 minutes spent in the center, dark teal denotes 1-119 minutes spent, and the darkest teal denotes 120 or more minutes spent.

4 PEER TUTORING CENTER

In fall 2015, in order to support student achievement of the General Education competencies, the department established a goal of ensuring that participation in the Academic Support Centers is correlated with student success and retention. During the 2015-16 academic year, students with similar entering grade point averages (G.P.A.) who receive peer tutoring support in the ASCs for three or more scheduled appointments in MAT 1033, MAC 1105, BIO 1010, and CHEM 2025 will obtain satisfactory grades (A, B, or C) at a rate of 10% higher than semester students who do not receive support. Additionally, success (A, B, or C) will be measured by gender and age cohorts with respect to accrued time in peer tutoring visits. This objective is defined within the Academic Support assessment program as Outcome #3.

4.1 DESCRIPTIVE STATISTICS & LEARNING OBJECTIVES

The ASC leadership established measure of success for Outcome #3, student success rate in MAT 1033, MAC 1105, BIO 1010, and CHEM 2025 will increase by 10% given three or more scheduled appointments, was met in four of four cases (the fifth case did not have any samples). There were no students with a recorded incoming GPA below 2.0 that had scheduled three or more peer tutoring appointments with which to compare. Success rates for those scheduling three or more appointments is 48% higher for those with a 2.0-2.4 GPA, 33% higher for 2.5-2.9 GPA, 15% higher for 3.0-3.4 GPA, and 11% higher for greater than or equal to 3.5 GPA (Table 3). A graphical representation of this data is shown in Figure 9.

n = 4070	n ≥ 3 appts	n < 3 appts
<i>Success Rate 10% higher for n ≥ 3 appointments</i>		
GPA < 2.0	No data	65% (n=26)
GPA 2.0 – 2.4	100% (n=9)	52% (n=275)
GPA 2.5 – 2.9	88% (n=24)	55% (n=837)
GPA 3.0 – 3.4	85% (n=39)	70% (n=1072)
GPA ≥ 3.5	89% (n=57)	78% (n=1860)

Table 3. Success rates in MAT 1033, MAC 1105, BIO 1010 or CHEM 2025 for those scheduling 3 or more peer tutoring appointments and those scheduling less than 3 based on GPA upon entering college.

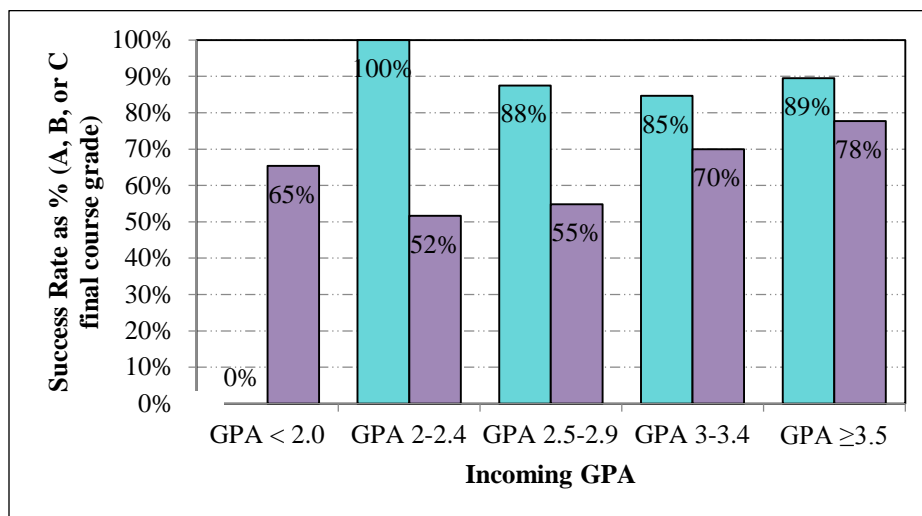


Figure 9. Success rates in MAT 1033, MAC 1105, BIO 1010 or CHEM 2025 for those scheduling 3 or more peer tutoring appointments (teal) and those scheduling less than 3 (purple) based on GPA upon entering college.

A Cochran-Mantel-Haenszel (CMH) test was conducted on the success rate data of those who accrued 3 or more scheduled appointments for peer tutoring and those that did not to determine statistical significance of the results according to standard methods (McDonald, 2009). In other words, the CMH test compares collectively, inclusive of GPA score bins, whether the two cohorts (≥ 3 appointments or < 3 appointments) are statistically significantly different and is not an analysis of individual GPA cohorts. Based on the results of the CMH test for repeated tests of independence, students with 3 or more scheduled appointments for peer tutoring did have a statistically significantly higher success rate than those who accrued fewer than 3 ($\chi^2_{MH}=21.616$, 1 d.f., $P=3.33 \times 10^{-6}$). Therefore, the null hypothesis that the relative proportions of success to failure between students with 3 or more scheduled appointments for peer tutoring or less than 3 are independent of each other can be rejected), which was not the case for fall 2015.

The second portion of Outcome #3 measures success rates based on gender and age cohorts with respect to number of scheduled peer tutoring appointments. In the “Under 20” age range, both male and female cohorts exhibit achievement increases with number of appointments (Figure 10). In the 20-24 age range both cohorts exhibit achievement substantially higher for 3 or greater appointments. The “25 and over” male cohort exhibits a consistent increase with visits while the female cohort exhibit no discernable trend based on number of appointments. When comparing age groups, the “Under 20” consistently performs better than the other two.

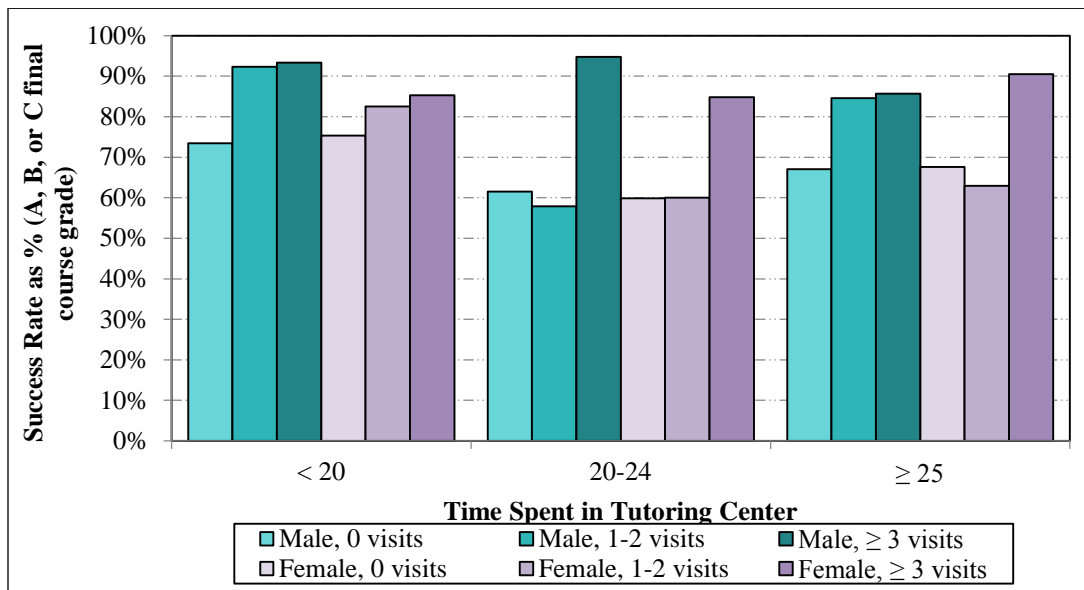


Figure 10. Success rates in MAT 1033, MAC 1105, BIO 101 or CHEM 2025 for male (teal shades) and female (purple shades) cohorts based on number of appointments with peer tutoring and age range.

4.2 EXPLORATORY ANALYSIS & LONGITUDINAL STUDIES

A comparison of success rate based on number of scheduled appointments for peer tutoring conducted in order to explore and quantify the value of peer tutoring. The results of the analysis are shown in Figure 11. For students with 3 or more scheduled appointments, the definition of Outcome #3, success rate is 19% higher than those with no appointments, and so the goal is met. This is counter to fall data where no trend was apparent.

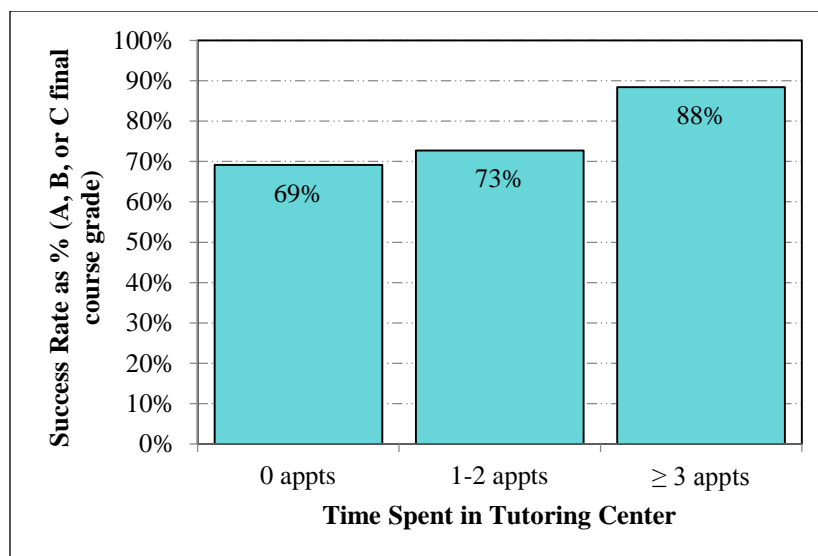


Figure 11. Success rates in MAT 1033, MAC 1105, BIO 1010 or CHEM 2025 based on number of scheduled peer tutoring appointments.

5 TUTORING INTERVENTION STUDY

In fall 2015, students enrolled in one section of MAT 0057 using the "push-in" tutoring intervention will succeed at a rate equal to or higher than AY 2014-15 MAT 0057 sections with the same instructor which did not employ a "push-in" intervention. Any significant difference will be analyzed as related to the intervention and disaggregated by incoming g.p.a., gender, and aged groupings. This objective is defined within the Academic Support assessment program as Outcome #4.

The ASC leadership established measure of success for Outcome #4, student success rate in select sections of MAT 0057 in spring 2016 will increase compared with fall 2014, as with fall 2015, was not met. The success rate for fall 2014 was 95% while that of fall 2015 was only 18%. There was no significant improvement and so no disaggregation studies were completed.

6 CONCLUSIONS

FSW's Academic Support Center employed a series of assessments in order to support and strengthen the capabilities of each center (writing, math, and oral communications). Leadership goals included gauging achievement in composition courses, math courses, biology courses, and chemistry courses as they relate to time spent receiving support from the associated learning center or scheduled number of peer tutoring appointments.

A drill-down of Writing Center results are as follows:

1. Achievement of a 10% increase in success rates in ENC 1101 or ENC 1102 for those receiving greater than two hours of consultation compared with those receiving less than two hours based on incoming GPA (Outcome #1) was met for three of five student cohorts (down from four in the fall) at 45% higher for those with a GPA < 2.0, 23% higher for 2.0-2.4 GPA, 25% higher for 2.5-2.9 GPA, 8% higher for 3.0-3.4 GPA, and 4% higher for greater than or equal to 3.5 GPA.

2. A Cochran-Mantel-Haenszel (CMH) found the results in #1 above to be statistically significantly different.
3. In a comparison of success rates based on gender and age cohorts with respect to accrued time in writing consultation visits, achievement is slightly higher for the female cohort across all three ranges of time spent in the Writing Center (0 min, 1-119 min, ≥ 120 min) (Figure 2), a result consistent with fall 2015 data as well. The same is the case for the 25 and over age range with the female cohort for 0 min time spent at 74% success rate (up from 69% in the fall) compared with 72% for males (up from 61% in the fall). The 20-24 cohort is more sporadic, with no consistently higher cohort.
4. In a comparison of success rates by increased time spent at the Writing Center, success rate for ENC 1101 or 1102 courses in spring 2016 students 11% over those that did not spend time in the Writing Center (down from 14% in the fall).
5. In a longitudinal study comparing terms since fall 2014, in all cases success rate increases with increased time spent in the Writing Center.

A drilldown drill-down of Math Center results are as follows:

1. Achievement of a 10% increase in success rates in MAT 0057, MAT 1033, MAT 1100, or MAC 1105 for those receiving greater than two hours of consultation compared with those receiving less than two hours based on incoming GPA (Outcome #2) was met in four of five cases (up from three in the fall) at 19% high for those with a GPA < 2.0 , 24% higher for 2.0-2.4 GPA, 18% higher for 2.5-2.9 GPA, 18% higher for 3.0-3.4 GPA, and 1% lower for greater than or equal to 3.5 GPA.
2. A Cochran-Mantel-Haenszel (CMH) found the results in #1 above to be statistically significantly different.
3. In a comparison of success rates based on gender and age cohorts with respect to accrued time in math consultation visits, achievement is somewhat higher for the female cohort across all three ranges of time spent in the Math Center (0 min, 1-119 min, ≥ 120 min) in the "Under 20" age range. In the 20-24 age range male achievement exceeds that of females for those visiting the math center but is below when not visiting. The "25 and over" cohort does not exhibit any particular pattern.
4. In a comparison of success rates by increased time spent at the Math Center, success rate for MAT 0057, MAT 1033, MAT 1100, or MAC 1105 courses in spring 2016 is approximately 9% higher in MAT 0057, MAT 1033, MAT 1100, or MAC 1105, down from 10% in the fall.
5. In a longitudinal study comparing terms since fall 2014, for both fall terms, success rate appears to peak at 1-119 min spent in the Math Center. For both spring terms, however, success rate increases with increased time spent in the Math Center.

A drill-down of Peer Tutoring Center results are as follows:

1. Achievement of a 10% increase in success rates in MAT 1033, MAC 1105, BIO 1010, or CHEM 2025 given three or more scheduled appointments, was met in four of four cases (the fifth case did not have any samples). Success rates for those scheduling three or more appointments is 48% higher for those with a 2.0-2.4 GPA, 33% higher for 2.5-2.9 GPA, 15% higher for 3.0-3.4 GPA, and 11% higher for greater than or equal to 3.5 GPA.
2. A Cochran-Mantel-Haenszel (CMH) found the results in #1 above to be statistically significantly different, a change from not statistically significant in fall 2015.

3. In a comparison of success rates based on gender and age cohorts with respect to number of peer tutoring appointments, the 20-24 age range both cohorts exhibit achievement substantially higher for 3 or greater appointments. The “25 and over” male cohort exhibits a consistent increase with visits while the female cohort exhibit no discernable trend based on number of appointments. When comparing age groups, the “Under 20” consistently performs better than the other two.
4. In a comparison of success rates by increased number of peer tutoring appointments, success rate is 19% higher than those with no appointments, and so the goal is met.

A drill-down of Tutoring Intervention Study results are as follows:

5. Achievement in select sections of MAT 0057 in spring 2016 using the tutoring intervention technique was not higher than sections taught by the same instructor in fall 2014 nor was it higher than other classes taught by the same instructor during the same term (spring 2016). There was no significant improvement and so no disaggregation studies were completed.

7 REFERENCES

- Cooper, E. 2010. Tutoring center effectiveness: The effect of drop-in tutoring. *Journal of College Reading and Learning*, 40(2), 21-34.
- Hendriksen, S.I., Yang, L., Love, B., and Hall, M.C. 2005. Assessing academic support: the effects of tutoring on student learning outcomes. *Journal of College Reading and Learning*, 35(2), 56-65.
- McDonald, J.H. 2009. *Handbook of Biological Statistics* (2nd ed.). Sparky House Publishing, Baltimore, Maryland.
- Perin, D. 2004. Remediation beyond developmental education: The use of learning assistance centers to increase academic preparedness in community colleges. *Community College Journal of Research and Practice*, 28, 559-582.