Developmental Achievement & Student Satisfaction Reports Spring 2015

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

Florida SouthWestern State College's assessment measures for the Senate Bill 1720 plan include a collection of achievement data to determine the efficacy of the developmental options and to inform course and program improvement. Additionally, FSW tracks satisfaction of current developmental courses through a survey administered at the end of each term. The data is in support of assessment measures for the SB1720 plan to determine efficacy of developmental options and to inform course and program improvement. What follows is the assembly of achievement and student satisfaction reports for each of the three developmental courses (ENC 0022, REA 0019, and MAT 0057).

The faculty for ENC 0022 *Writing for College Success* defined a method of assessment for AY 2014-2015 and established baselines with the results.

The faculty for MAT 0057 *Mathematics for College Success* reviewed achievement to determine if there is any significant difference across developmental strategies (Compressed and Modularized).

The faculty for REA 0019 *Reading for College Success* defined a course outcome at the onset of AY 2014-2015 that students will read at a post-secondary level that correlates with college success by the completion of the Developmental Reading sequence. Faculty established 1) a goal of the mean score difference (pre-/post) test of the course mastery exam will improve significantly college wide, 2) a goal of the mean score difference (pre-/post) of the course mastery exam will improve significantly across developmental strategies (Compressed and Modularized), and 3) that 80% of REA 0019 completers will pass the course mastery exam for reading and complete the course with a 'C' or better.

Section 1

ENC 0022 Assessment Report – Spring 2015

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

1 INTRODUCTION

In Fall 2014, the English Department of Florida SouthWestern State College (FSW) outlined an initial plan for assessment in three courses: ENC 0022 *Writing for College Success*, ENC 1101 *Composition I*, and ENC 1102 *Composition II*. For Spring 2015, assessment will include ENC 0022 while both ENC 1101 and ENC 1102 will undergo further planning and discussions based on the results of the Fall 2014 assessment before implementing a new set of goals in Fall 2015. A baseline Student Learning Objective (SLO) for ENC 0022 has been implemented based on the assessment results of Fall 2014 and will serve as a correlative measure for supporting assessment driven instruction going forward (Cole et al., 2011; Elder and Paul, 2007).

For additional detail or further analysis not provided in this report, please contact Dr. Joseph F. van Gaalen, Coordinator of Academic Assessment, Academic Affairs (jfvangaalen@fsw.edu; x6965).

2 DESCRIPTIVE STATISTICS & LEARNING OBJECTIVES

ENC 0022 is scored using a rubric with seven dimensions: Introductory Paragraph, Support Paragraphs, Organization, Concluding Paragraph, Grammar, Mechanics, and Research. Each dimension is scored on a scale of 1 to 4 (1-Unacceptable, 2-Needs work, 3-Average, 4-Above average), with 0s if the baseline of 'Unacceptable' is not met. Using this common rubric criterion as an assessment method and based on the results of the Fall 2014 assessment the English department has established a benchmark (SLO1) measuring the percentage of artifacts scoring a 2 or greater.

During the Spring 2015 semester, 128 total artifacts were recorded for ENC 0022. The mean overall score for the 128 artifacts is 20.0/28, or 71.4% (Table 1). The Mechanics rubric dimension exhibits the lowest mean score (2.6). Additionally, just 7.0% of artifacts were scored at a 4. With the exception of Grammar, which shares a similar distribution of artifacts scored a 4 (8.6%), achievement at level 4 in other dimensions range from 22.7% to 35.9% (Figure 1).

	Introductory Paragraph	Support Paragraphs	Organization	Concluding Paragraph	Grammar	Mechanics	Research	Overall
mean	3.1	3.0	3.0	3.0	2.7	2.6	2.7	20.0
standard deviation	0.82	0.79	0.75	0.80	0.68	0.67	0.99	4.56
Rubric Dimension	%	%	%	%	%	%	%	
4	35.9	28.1	27.3	26.6	8.6	7.0	22.7	
3	42.2	47.7	51.6	46.1	53.1	50.0	37.5	
2	18.8	20.3	18.8	24.2	35.2	39.8	24.2	
1	3.1	3.1	2.3	3.1	3.1	3.1	14.8	
Benchmark Achievement	%	%	%	%	%	%	%	
3 or greater	78.1	75.8	78.9	72.7	61.7	57.0	60.2	
2 or greater	96.9	96.1	97.7	96.9	96.9	96.9	84.4	

Table 1. Basic descriptive statistics of Spring 2015 ENC 0022 artifacts. Rubric dimensions are also shown with distribution of artifacts by rubric achievement level and by percentage scoring at benchmark levels (2 or greater & 3 or greater).

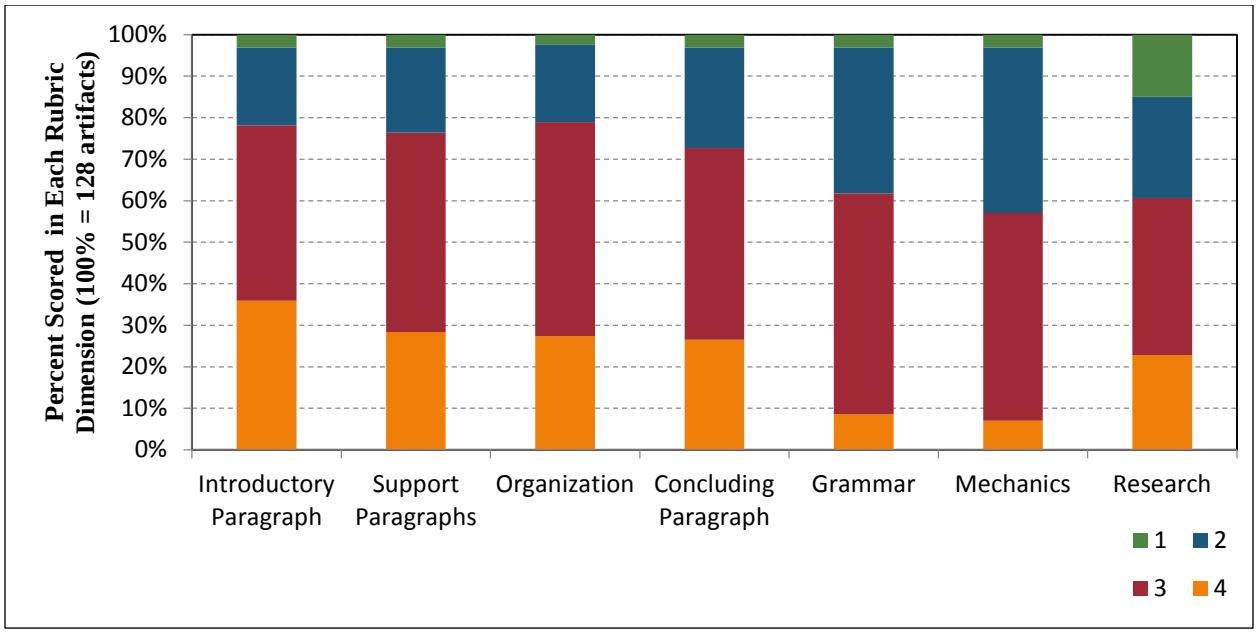

Figure 1. ENC 0022 distribution of rubric scores by dimension.

The benchmark measurement, SLO1, exhibits achievement at 2 or greater ranging from 84.4% (Research) to 97.7% (Organization). Achievement at 3 or greater ranges from 57.0% (Mechanics) to 78.9% (Organization). While the Grammar, Mechanics, and Research dimensions achievement at level 4 vary by approximately 15% their achievement at level 3 or greater varies by less than 5%. A similar situation exists between Grammar and Mechanics and the remaining dimensions excluding Research. Here, Grammar and Mechanics exhibit achievement at 3 or greater at 10-20% lower than the other dimensions. At 2 or greater, this gap is reduced to 0-1%. These varied distributions speak to the typical achievement patterns in various dimensions. For a more thorough review of these patterns, see Section 3.2.

3 Exploratory Analysis & Significance Testing

3.1 Comparison by Site, Format, or Student Type

3.1.1 Dual Enrollment to non-Dual Enrollment Comparison

No dual enrollment sections of ENC 0022 are offered nor do any dual enrollment students register for the course so no comparison studies were completed.

3.1.2 Online to Traditional Comparison

No online sections of ENC 0022 are offered so no comparison studies were completed.

3.1.3 Full term to Mini-term Comparison

No 8-week mini-term sections were offered in Spring 2015 so no comparison studies were completed.

3.1.4 Comparison of Full-time and Part-time Faculty

During the Spring 2015 semester, 77 artifacts originate from courses taught by adjuncts while 51 artifacts originate from courses taught by full-time faculty. A comparison of the means for each rubric dimension and overall score was conducted. Each rubric dimension and the overall score was tested for significance using a Welch's t-test according to standard methods (Davis, 1973; McDonald, 2009; Wilkinson, 1999). The Introductory Paragraph, Support Paragraphs, Organization, and Research dimensions as well as the overall rubric score exhibit statistically significant differences in mean scores (see Table 2). Research is the only dimension in which the difference in the means is greater than 0.4. At 2.3, the full-time faculty exhibit average Research scores that are substantially lower than that of adjunct faculty (3.0).

df = 126^	**Introductory Paragraph**	**Support Paragraphs**	**Organization**	**Concluding Paragraph**	**Grammar**	**Mechanics**	**Research**	**Overall**
Adjunct	3.2	3.2	3.2	3.0	2.7	2.7	3.0	21.0
Full-time	2.9	2.8	2.8	2.8	2.6	2.5	2.3	18.7
Effect Size	-0.397	-0.525	-0.495	-0.256	-0.259	-0.257	-0.776	-0.496
p-value	***0.034****	***0.005***	***0.008***	0.183	0.159	0.198	***3.19x10^{-05}***	***0.004***

*Table 2. Mean scores by dimension and overall for both adjunct faculty and full-time faculty. Statistically significant results indicated in bold/italics. Positive effect sizes indicate a higher mean score for Full-time faculty artifacts. ^There are 126 degrees of freedom for all areas except Support Paragraphs and Research (125) and Overall (124). *Denote marginal significance as defined by Johnson (2013).*

Effect size was calculated using the Rosenthal and Rosnow (1991) for meta-analytical purposes to serve as a common thread across institutions (Lipsey and Wilson, 1993). The statistically significant results exhibit what Cohen (1988) would consider small to large effect sizes ranging from 0.26 to 0.77. In other words, non-overlap from adjunct artifacts to full-time artifacts ranges from approximately 17% in the case of the Grammar dimension to 47% in the case of the Research dimension.

3.1.5 Comparison by Campus/Site

Of the 128 artifacts collected from ENC 0022, 11 originated from the Charlotte Campus, 30 from the Collier Campus, 5 from the Hendry-Glades Center, and 82 from the Thomas Edison (Lee) Campus. Mean scores vary by site with the Thomas Edison (Lee) Campus consistently exhibiting the lowest mean scores across all dimensions and overall score (Table 3). A plot comparing descriptive statistics of the scores by site is presented in Figure 2. While both Charlotte and Hendry-glades share the highest mean scores, both have low sample sizes with 11 for Charlotte Campus and just 5 for Hendry-Glades. Such low sample sizes make any analysis of variance results suspect and so no ANOVA was completed (Brown and Forsythe, 1974).

df = 3	**Introductory Paragraph**	**Support Paragraphs**	**Organization**	**Concluding Paragraph**	**Grammar**	**Mechanics**	**Research**	**Overall**
Charlotte	***3.7***	***3.4***	3.5	***3.2***	2.8	***3.0***	***3.3***	***22.9***
Collier	3.1	3.0	3.1	2.9	2.7	2.6	3.2	20.7
Hendry-Glades	3.4	3.2	***3.6***	3.0	***3.0***	2.8	3.0	22.0
Thomas Edison (Lee)	3.0	3.0	2.9	2.9	2.6	2.5	2.4	19.4

Table 3. Comparison of mean scores by site. Bold/italics denotes highest mean score in that dimension among all sites.

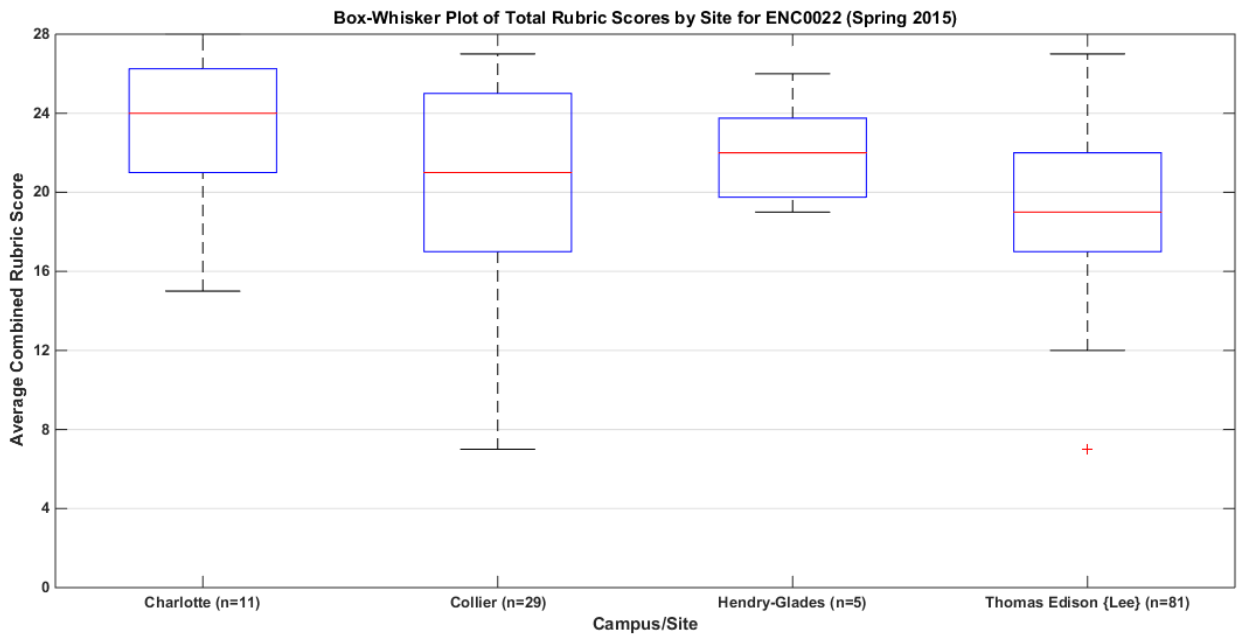

Figure 2. Box-Whisker plot of scores distributed by site for ENC 0022. Red line depicts median score. Upper and lower box boundaries indicate 75% quartile and 25% quartile (box represents central 50% of the scores). Vertical lines represent remaining scores outside central 50% that are not outliers. Red '+'s denote outliers.

3.2 Data Distribution & Longitudinal Study

3.2.1 Data Distribution

Results from Section 2 briefly described the distribution in scores among rubric dimension. Varied distributions exhibited achievement gaps between dimensions at 2 or greater compared with 3 or greater. To further explore this aspect, a color map or binary raster image was created by calculating the average scores for each dimension for a given overall (total) rubric score (Figure 3).

The most effective way to read the colormap is to associate relationships of the colors based on overall scores. For example, an overall score of 21 evenly distributed across all seven rubric dimensions means each dimension would be scored a 3. The dimensions in Figure 3 above depict colors of dark yellow to light orange for the corresponding combined score of 21. When interpreted with the color bar on the right, these colors correspond to a rubric score range from 2.9 to 3.1. By comparison, an overall score of 25 evenly distributed would yield an average across each dimension of 3.6, or orange. The dimensions in Figure 3 above depict colors of yellow to dark red, corresponding to rubric score ranges from 2.7 to 4.0.

From combined rubric scores ≥ 24, the Mechanics dimension and to a lesser extent the Grammar and Research dimensions exhibit average scores that lag the other five dimensions. The Mechanics dimension exhibits an average of 3.5 when the overall rubric score is 27/28. That is, when students score a 27/28, it is most likely the Mechanics dimension which is scored a 3/4 while all others are 4/4.

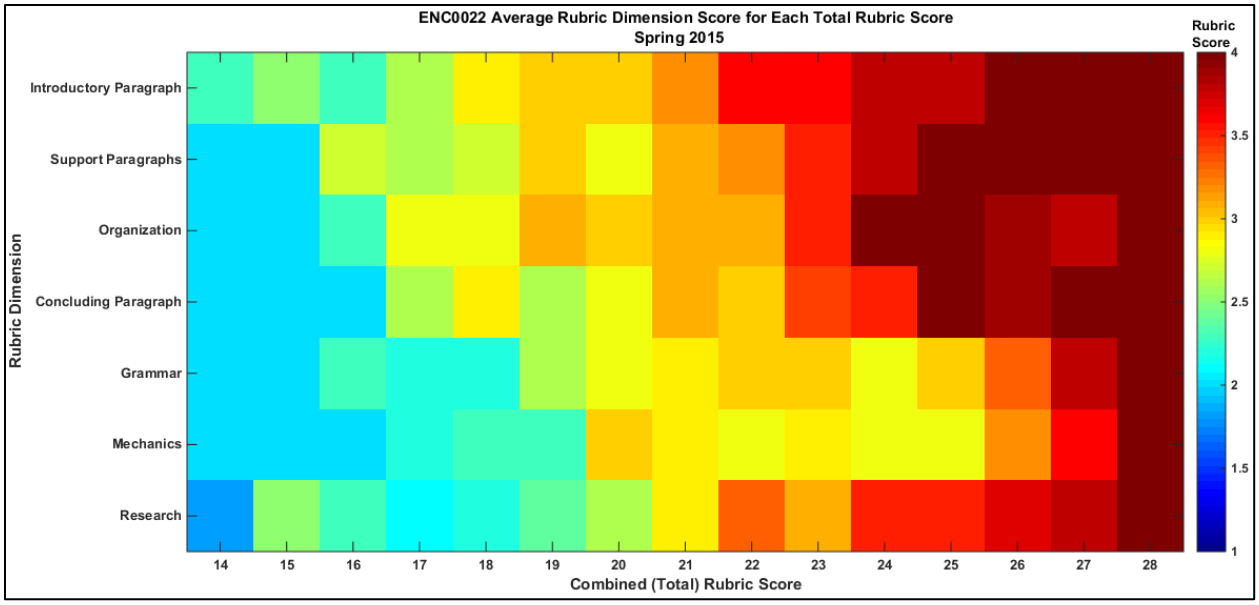

Figure 3. Colormap of mean scores for each rubric dimension for each combined (total) rubric score for ENC 0022.

From combined rubric scores of 17-23, it is the Grammar, Mechanics, and Research dimensions which lag compared with the other four dimensions. At the lower end of the overall scores (< 17) mean scores exhibit fairly even distribution across all dimensions. In short, Grammar, Mechanics, and Research score similar to other dimensions when scores are below 17 and lag other dimensions in overall score range of ≥ 17-23, with Grammar substantially so above 23.

3.2.2 Longitudinal Study

Figure 4 shows the comparison of each rubric dimension achievement percentages from Fall 2014 to Spring 2015. The Introductory Paragraph, Support Paragraphs, Organization, Concluding Paragraph, and Mechanics rubric dimensions exhibit increased achievement at both level 3 and 4. It should be noted that a comparison of achievement from term-to-term as opposed to year-to-year isn't necessarily a one-to-one comparison at FSW. Assessment reports across multiple course level and program level assessments support this and should be taken under consideration upon drawing any relevant conclusions (see http://www.fsw.edu/facultystaff/assessment/history for further details).

In comparing mean rubric score from term-to-term there is an increase in all dimensions except Research, which exhibits a decline from 2.8 to 2.7. The largest increases are in the Introductory paragraph dimension and Concluding Paragraph dimension, at +0.3 and +0.2. All other increases are +0.1 or less.

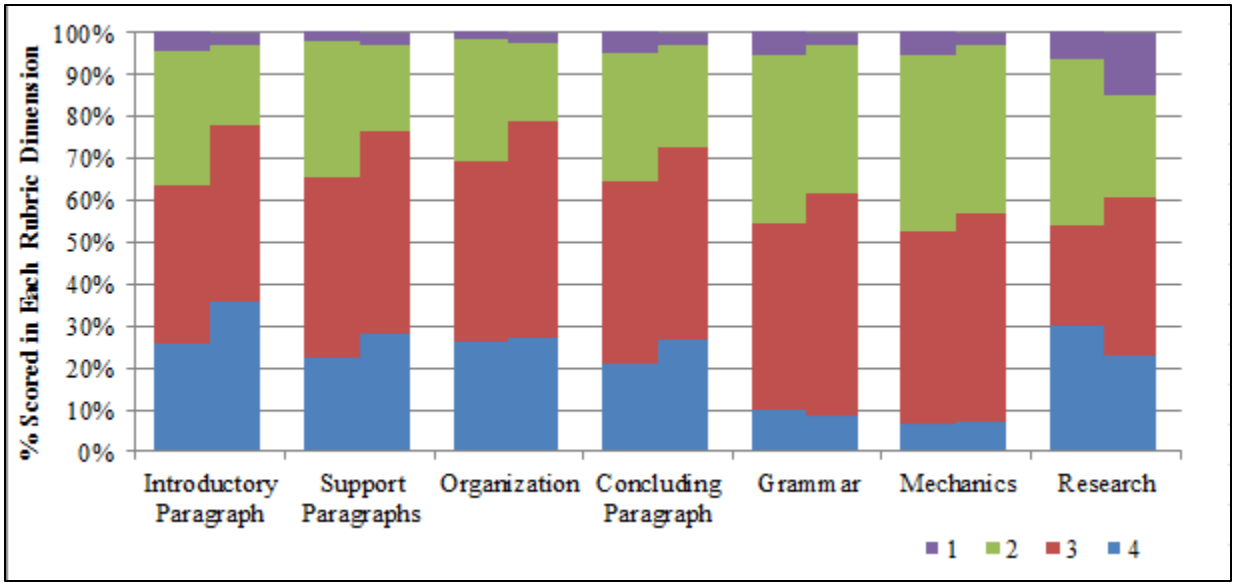

Figure 4. Distribution of rubric scores by dimension for both Fall 2014 (left half of bar graph on each dimension) and Spring 2015 (right half of bar graph on each dimension).

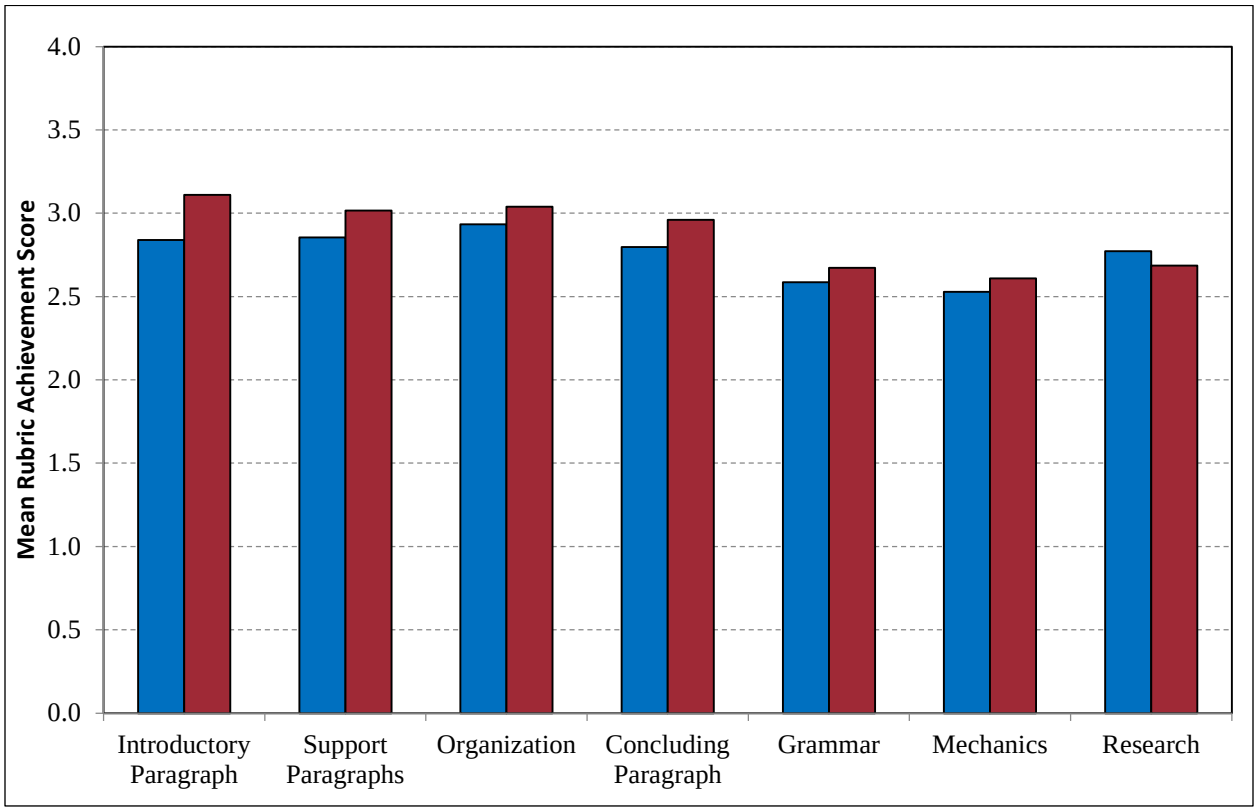

Figure 5. Mean scores by rubric dimension for Fall 2014 (blue) and Spring 2015 (red).

4 CONCLUSIONS

The objective of Spring 2015 assessment for the FSW English Department was to assess the ENC 0022 *Writing for College Success* course using the new Student Learning Objective (SLO) while both ENC 1101 *Composition I* and ENC 1102 *Composition II* undergo further development using new learning objectives in Fall 2015. Using the same common rubric criterion as Fall 2014, the results of the Fall 2014 assessment resulted in the establishment by the English department of a benchmark (SLO1) measuring the percentage of artifacts scoring a 2 or greater.

A drilldown of ENC 0022 results are as follows:

1. All seven rubric dimensions have > 80% achievement at level 2 or higher. The lowest dimension, Research, exhibits achievement of 84.4% at 2 or higher.
2. All rubric dimensions except for Mechanics exhibit have > 60% of achievement at level 3 or higher. The Mechanics dimension exhibits a rate of 57.0% at level 3 or higher.
3. No dual enrollment sections of ENC 0022 are offered nor do any dual enrollment students register for the course so no comparison studies were completed.
4. No online sections of ENC 0022 are offered so no comparison studies were completed.
5. No 8-week mini-term sections were offered in Spring 2015 so no comparison studies were completed.
6. In a comparison of full-time faculty to adjunct faculty, there was a statistically significantly higher mean score for adjunct faculty artifacts in all rubric dimensions except Grammar and Mechanics. In the case of the Research dimension, full-time faculty exhibit average scores that are substantially lower than that of adjunct faculty at 2.3 compared with 3.0, respectively.
7. In a cross-campus comparison, both the Charlotte campus and Hendry-Glades center exhibit consistently higher mean rubric scores compared with the other two sites, although low sample size limits validity of the comparison.
8. In a study comparing average rubric dimension score according to overall score, the Grammar, Mechanics, and Research score similar to other dimensions when scores are below 17/28 and lag other dimensions in overall score range of ≥ 17-23, with Grammar substantially so above 23.
9. In a longitudinal study, mean rubric scores increased from Fall 2014 to Spring 2015 in all dimensions except Research.

5 REFERENCES

Brown, M.B., Forsythe, A.B. 1974. The small sample behavior of some statistics which test the equality of several means. Technometrics, 16(1), 129-132.

Cohen, J. 1988. Statistical power analysis for the behavioral sciences (2nd ed.). Lawrence Earlbaum Associates, Hillsdale, NJ.

Cole, R., Haimson, J., Perez-Johnson, I., and May, H. 2011. Variability in Pretest-Posttest Correlation Coefficients by Student Achievement Level. NCEE Reference Report 2011-4033. Washington, DC: National Center for Education Evaluation and Regional Assistance, U.S. Department of Education.

Davis, J.C. 1973. Statistics and Data Analysis in Geology. John Wiley & Sons, New York, New York, 564 pp.

Elder, L, and Paul, R. 2007. Consequential Validity: Using Assessment to Drive Instruction. In: Foundation For Critical Thinking. Retrieved from http://www.criticalthinking.org/pages/consequential-validity-using-assessment-to-drive-instruction/790.

Johnson, V. 2013. Revised Standards for Statistical Evidence. Proceedings of the National Academy of Science, 110(48), 19313-19317.

Lipsey, M.W. and Wilson, D.B. 1993. The efficacy of psychological, educational, and behavioral treatment: Confirmation from meta-analysis. American Psychologist, 48, 1181-1209.

McDonald, J.H. 2009. Handbook of Biological Statistics (2nd ed.). Sparky House Publishing, Baltimore, Maryland.

Rosenthal, R. and Rosnow, R.L. 1991. Essentials of behavioral research: Methods and data analysis (2nd ed.). McGraw Hill, New York, NY.

Wilkinson, L. 1999. APA Task Force on Statistical Inference. Statistical Methods in Psychology Journals: Guidelines and Explanations. American Psychologist 54 (8), 594–604.

Section 2

ENC 0022 Final (Mastery) Exam Assessment Report – Spring 2015

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

Florida SouthWestern State College's assessment measures for the Senate Bill 1720 plan include a collection of achievement data to determine the efficacy of the developmental options and to inform course and program improvement. The FSW English Department uses a two-section final exam (written and objective) to test mastery of the subject in ENC 0022 *Writing for College Success*. The following report details the results for the final exam for ENC 0022 for the spring 2015 term.

The written section of the ENC 0022 final exam, worth 50% of the overall exam grade, is comprised of six rubric dimensions. They are Main Idea / Topic Sentence, Organization, Detail Sentences, Grammar, Mechanics / Spelling, and Concluding Sentence. Each is scored on a 4-point rubric (4-Above Average, 3-Average, 2-Needs Work, 1-Unacceptable). Artifacts from 132 students were reported for spring 2015 with only one section (13 students) not reporting. The mean scores for each rubric dimension are shown in Figure 1. A percentage of artifacts scoring a 3 or better is shown in Figure 2.

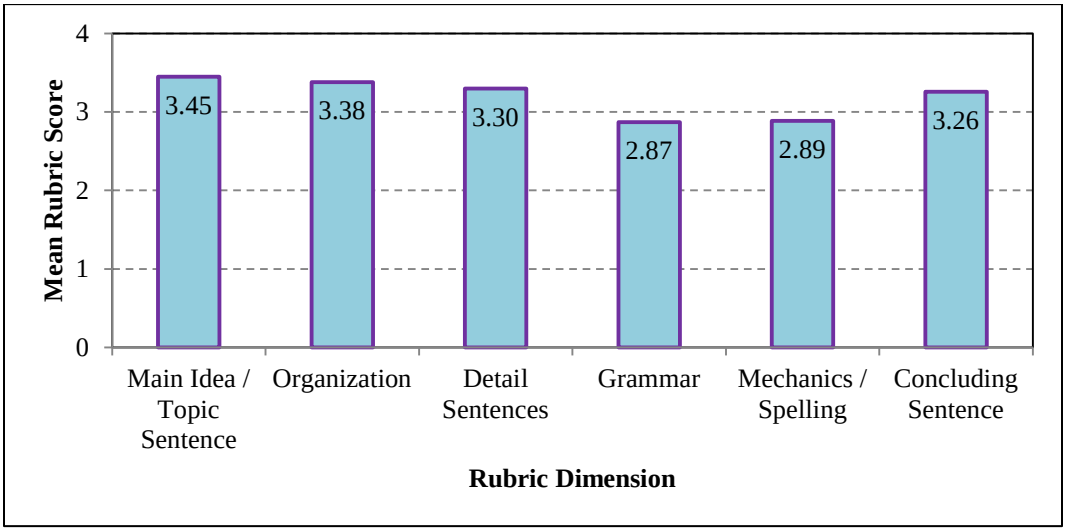

Figure 1. ENC 0022 Final (Mastery) Exam written section mean rubric scores for spring 2015.

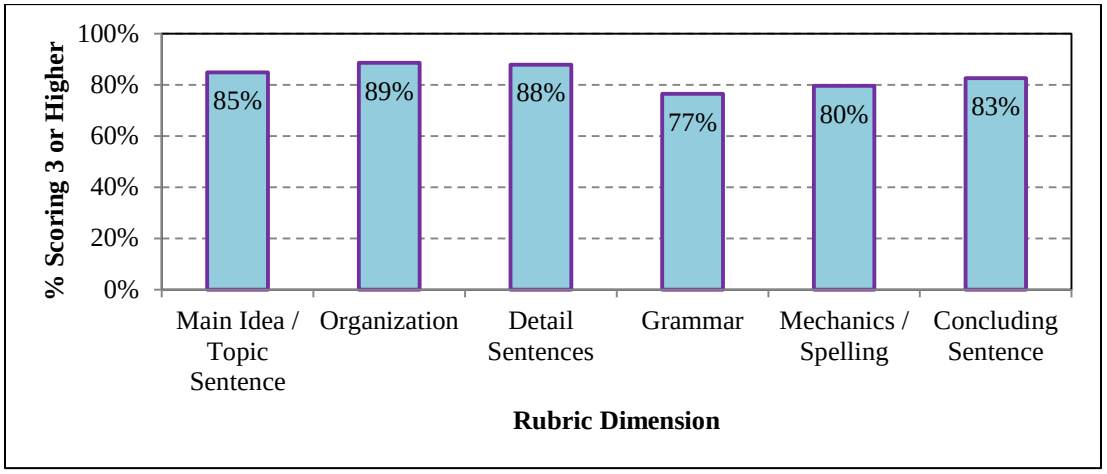

Figure 2. Percentage of spring 2015 artifacts scored 3 or higher on written section of ENC 0022 final (mastery) exam.

While 132 artifacts were reported for the written section of the exam, only 121 were reported for the objective section. The mean scores for each are reported in Figure 3. Differences in the means between written section and the objective section were tested for significance using a Welch's t-test according to standard methods[1,2,3,4] and were found to not be statistically significantly different ($t(251)=7.172$, $p=9.42\times10^{-12}$). Therefore we must reject the null hypothesis that the difference in the means of the written and objective sections of the exam is equal to 0, and we can conclude with 95% confidence that the differences in scores are not solely due to chance.

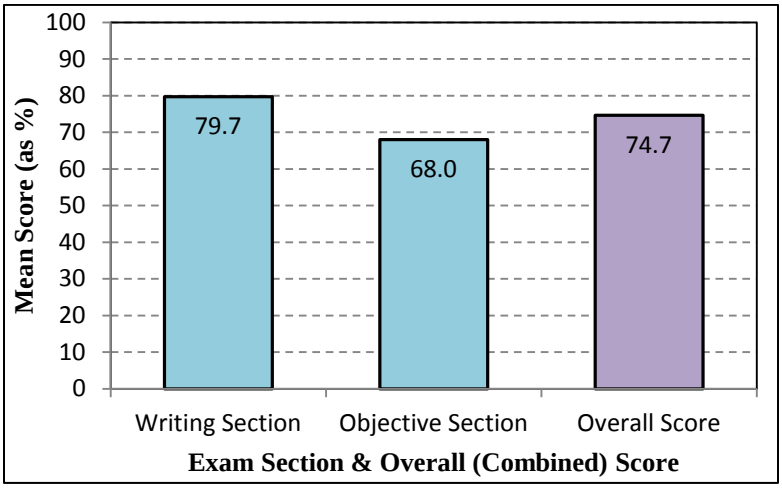

Figure 3. Mean scores by exam section and overall score for the spring 2015 ENC 0022 final (mastery) exam.

Of the 132 artifacts collected from the final exam, 127 originate from the compressed learning strategy version of the course while 5 originate from the modularized learning strategy of the course (spring 2015 was the pilot program for the modularized strategy). A comparison of mean scores by learning strategy is shown in Figure 4. Differences in the means between compressed and modularized learning strategy were not tested for significance as the sample size for modularized is exceedingly small and likely to yield false results[5].

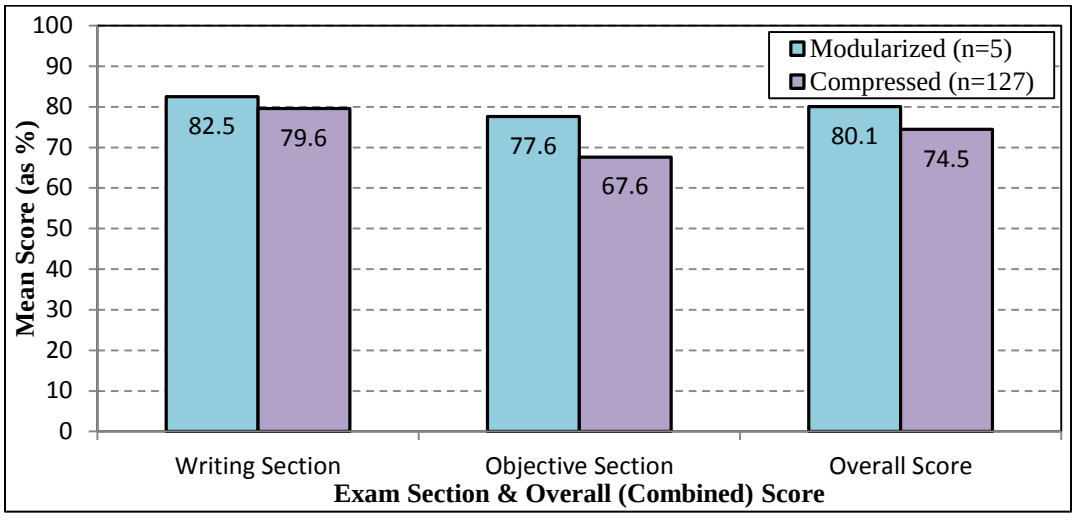

Figure 4. Comparison of spring 2015 exam section and overall scores by learning strategy.

Success rates based on achievement at the 70% level by learning strategy were compiled and are shown in Figure 5. The percentage of artifacts scored 70% or better on the final (mastery) exam originating from modularized sections is 100% for both written and objective sections of the exam. However, the sample size for modularized sections was only 5, thus limiting the impact of the results. The percentage of artifacts scored 70% or better on the final (mastery) exam originating from compressed sections is 81.1% for the writing section and 51.7% for the objective section with an overall (combined) score of 72.4%.

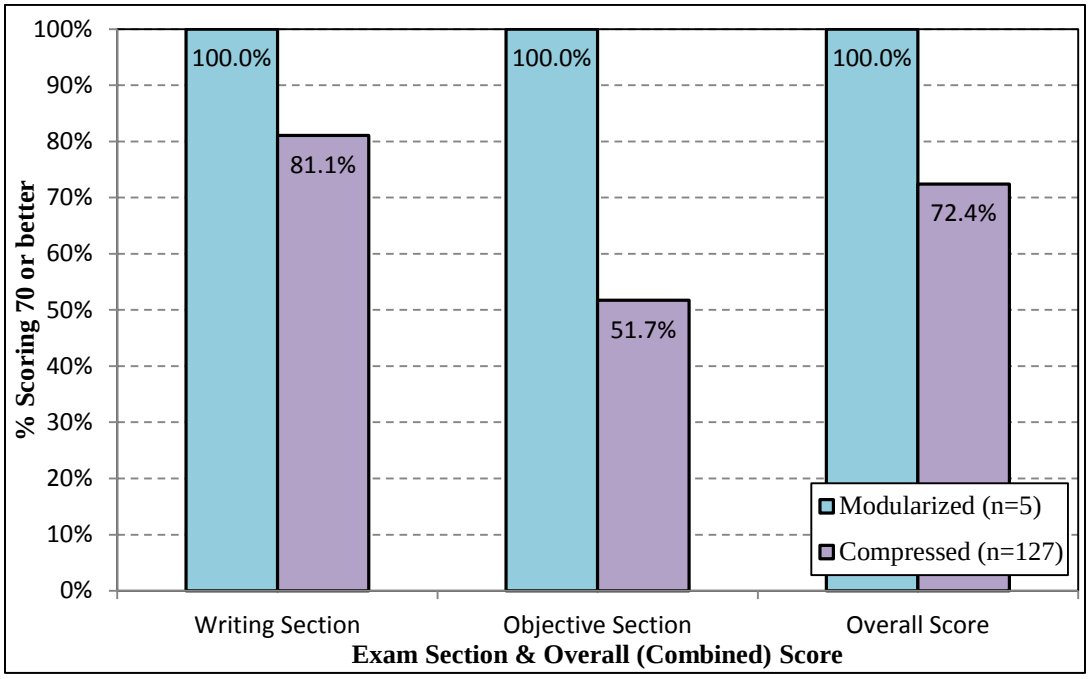

Figure 5. Spring 2015 ENC 0022 final (mastery) exam success rate (≥70%) by section and learning strategy.

[1]Davis, J.C. 1973. Statistics and Data Analysis in Geology. John Wiley & Sons, New York, New York, 564 pp.
[2]McDonald, J.H. 2009. Handbook of Biological Statistics (2nd ed.). Sparky House Publishing, Baltimore, Maryland.
[3]Siegel, S. 1956. Nonparametric statistics for the behavior sciences. McGraw-Hill, New York, New York, 312 pp.
[4]Wilkinson, L. 1999. APA Task Force on Statistical Inference. Statistical Methods in Psychology Journals: Guidelines and Explanations. American Psychologist 54 (8), 594–604.
[5]de Winter, J.C.F. 2013. Using the Student's T-Test with Extremely Small Sample Sizes. Practical Assessment, Research, and Evaluation, 18(10), 1-12.

Section 3

ENC 0022 Survey Report – Spring 2015

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

Florida SouthWestern State College tracks satisfaction of current developmental courses through a survey administered at the end of each term. The data is in support of assessment measures for the SB1720 plan to determine efficacy of developmental options and to inform course and program improvement. The following are the results for the Spring 2015 term.

Of the 179 students enrolled in ENC 0022 during spring 2015, 32 responded to the survey for a response rate of 17.9%. Of the 32 respondents, 68% were enrolled in the traditional classroom learning strategy while 32% were enrolled in the computer assisted learning strategy.

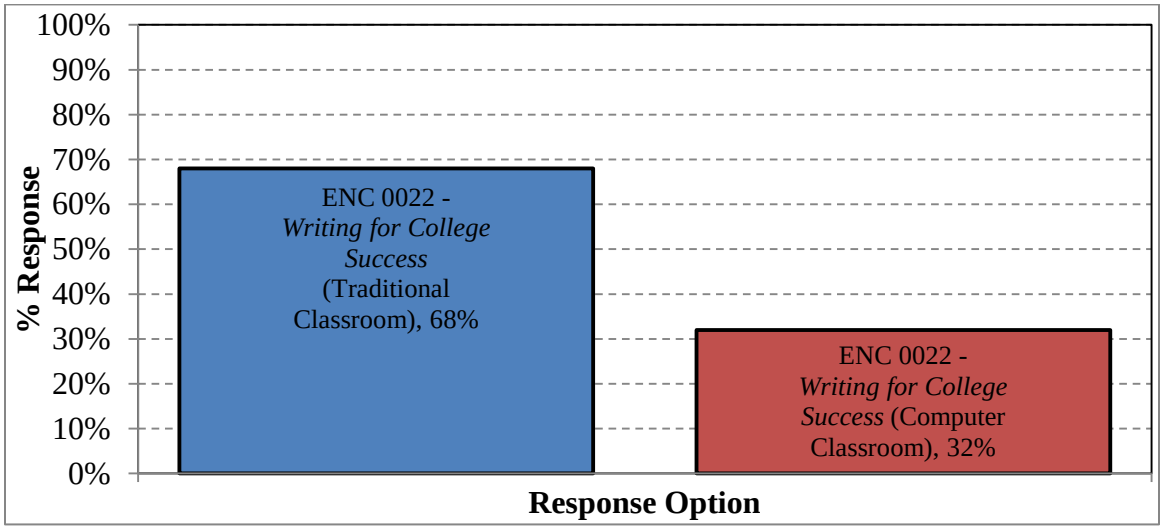

Figure 1. Response rate by learning strategy.

Questions 1 – 6 of the survey establish general statistics of the survey respondent such as class meeting times, gender, age group, etc. Questions 7 – 10 are Likert scale questions describing student perception of learning and achievement in various areas. The below are the prompts for Question #7 followed by the results in Figure 2.

> *Q7: I believe I have improved in the following areas since taking this English class.*
>
> 1. *English Grammar*
> 2. *Punctuation*
> 3. *Sentence skills*
> 4. *Essay writing*
> 5. *Vocabulary*
> 6. *Spelling*

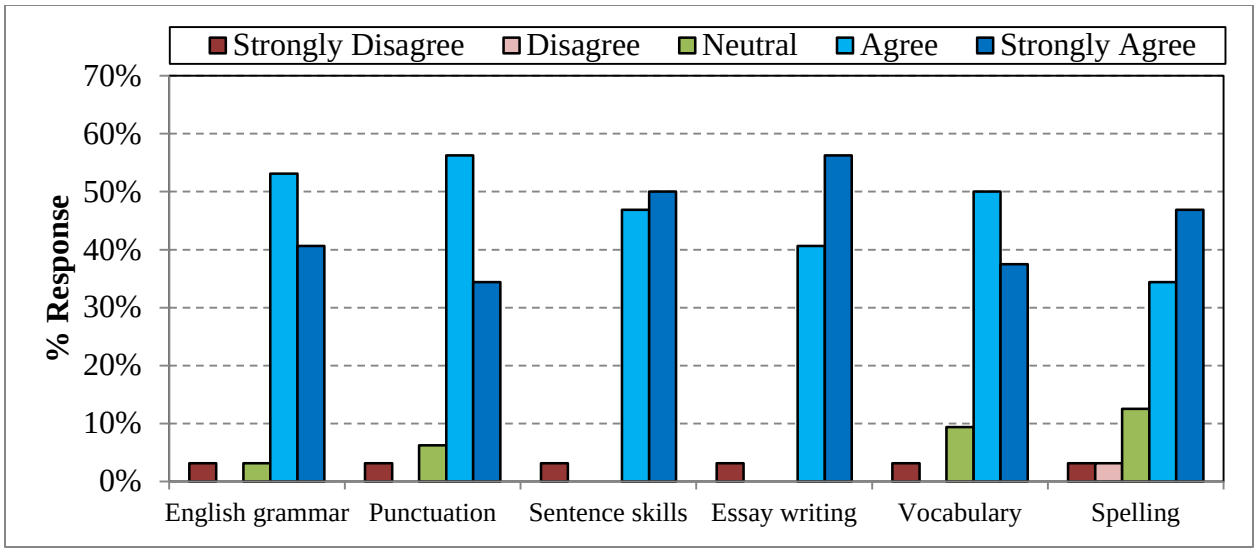

Figure 2. Responses to Question #7 " I believe I have improved in the following areas since taking this English class."

All six areas exhibit positive responses (Agree or Strongly agree) of 80% or better. Q7-1 through Q7-4 exhibit positive response rates greater than 90%. Question 7-6 exhibits the highest negative response rates (Disagree or Strongly disagree) at 6.3%.

The below are the prompts for Question #8 followed by the results in Figure 3.

Q8: I believe I have benefited from the following aspects of the Academic Support Writing Center this semester.

1. *The resources available in the Writing Center*
2. *The instructional assistants*
3. *The access to computers*
4. *The programs on the computers*
5. *The hours the Writing Center was open and available to me*
6. *The required Writing Center hours for my English class*

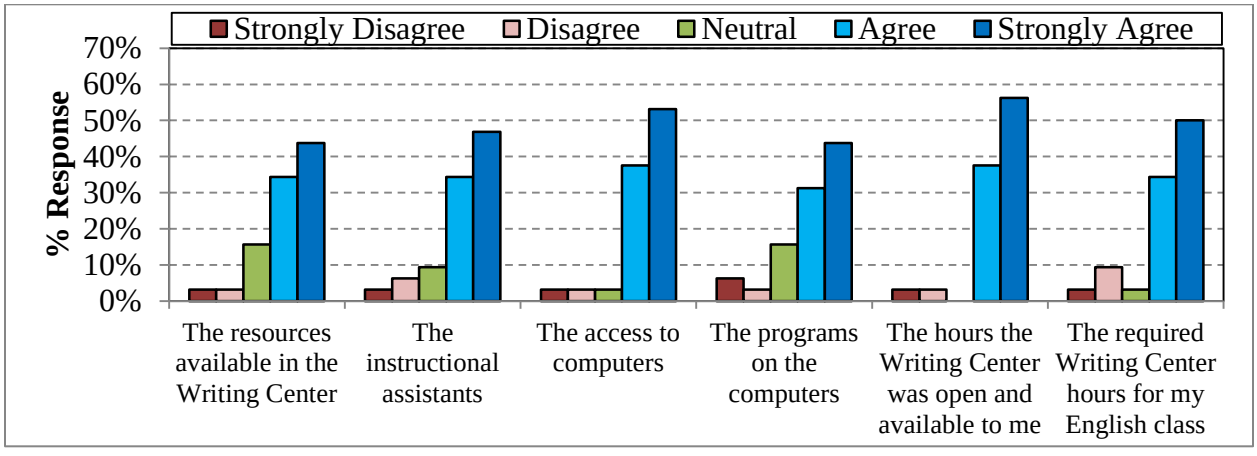

Figure 3. Responses to Question #8 "I believe I benefited from the following aspects of the Academic Support Writing Center this semester."

All six areas exhibit positive responses (Agree or Strongly agree) of 75% or better. Q8-3 and Q8-5 exhibit positive response rates greater than 90%. Question 8-6 exhibits the highest negative response rates (Disagree or Strongly disagree) at 12.5%.

The below are the prompts for Question #9 followed by the results in Figure 4.

Q9: I was satisfied with the following aspects of my English class this semester.

1. *The information on the course syllabus*
2. *The content of the course textbook*
3. *The McGraw-Hill Connect computer component*
4. *The amount of homework assigned*
5. *The number of tests*
6. *The number of written assignments*
7. *The length of time in class*
8. *The frequency of class meetings*
9. *The pace of the course*

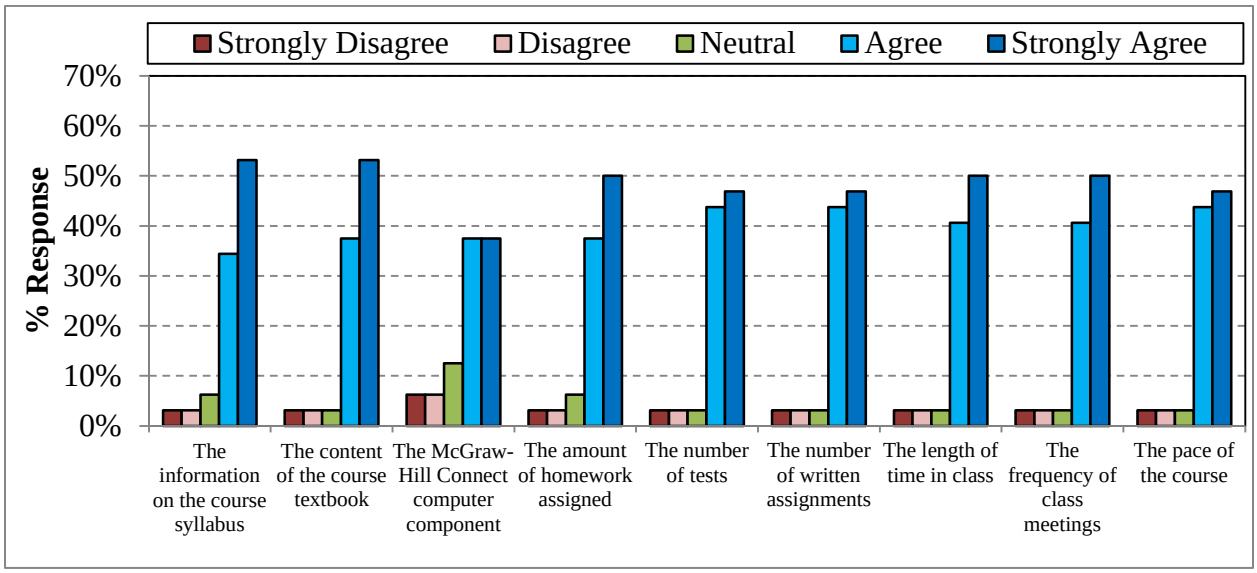

Figure 4. Responses to Question #9 "I was satisfied with the following aspects of my English class this semester."

All nine areas exhibit positive responses (Agree or Strongly agree) of 75% or better. Q9-2, Q9-5, Q9-6, Q9-7, Q9-8 and Q9-9 all exhibit positive response rates greater than 90%. Question 9-3 exhibits the highest negative response rates (Disagree or Strongly disagree) at 12.5%.

The below are the prompts for Question #10 followed by the results in Figure 5.

Q10: This English course prepared me for:

1. *The writing I will do in college*
2. *The expectations of college courses*
3. *The time management I must have in college*
4. *The skills I need to take tests in college*
5. *The use of technology in college classes*

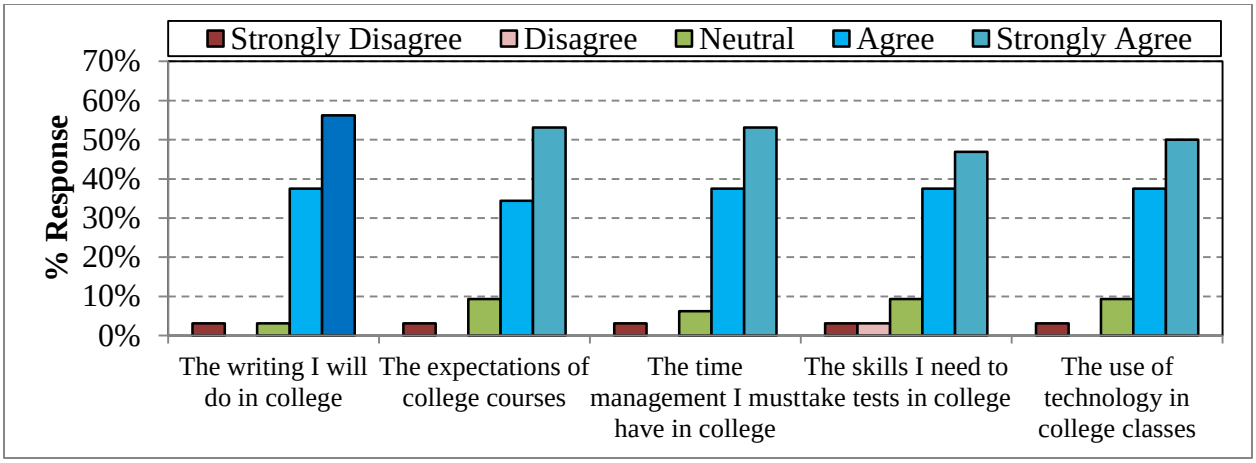

Figure 5. Responses to Question #10 "This English course prepared me for:"

All five areas exhibit positive responses (Agree or Strongly agree) of 80% or better. Q10-1 and Q10-3 exhibit positive response rates greater than 90%. Question 10-4 exhibits the highest negative response rates (Disagree or Strongly disagree) at 6.3%.

A tabulation of positive responses (Strongly agree or Agree) is included below based on learning strategy (Table 1). Of the 26 questions, all of them exhibit a more positive response from traditional respondents although with a limited sample size it is unclear whether any differences are meaningful. A Fisher's exact test was performed on the results of each question with positive results.

	Traditional	Computer-based
Q7-1	100.0%	80.0%
Q7-2	95.5%	80.0%
Q7-3	100.0%	90.0%
Q7-4	100.0%	90.0%
Q7-5	95.5%	70.0%
Q7-6	90.9%	60.0%
Q8-1	86.4%	60.0%
Q8-2	86.4%	70.0%
Q8-3	90.9%	90.0%
Q8-4	81.8%	60.0%
Q8-5	95.5%	90.0%
Q8-6	95.5%	60.0%
Q9-1	95.5%	70.0%
Q9-2	95.5%	80.0%
Q9-3	81.8%	60.0%
Q9-4	95.5%	70.0%
Q9-5	95.5%	80.0%
Q9-6	95.5%	80.0%
Q9-7	95.5%	80.0%
Q9-8	95.5%	80.0%
Q9-9	95.5%	80.0%
Q10-1	95.5%	90.0%
Q10-2	90.9%	80.0%
Q10-3	95.5%	80.0%
Q10-4	90.9%	70.0%
Q10-5	90.9%	80.0%

Table 1. Positive survey response (Strongly Agree or Agree) by learning strategy. Shaded cells denote higher of the two learning strategies. None were found to be statistically significantly different.

Section 4

MAT 0057 Final (Mastery) Exam Assessment Report – Spring 2015

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

Florida SouthWestern State College's assessment measures for the Senate Bill 1720 plan include a collection of achievement data to determine the efficacy of the developmental options and to inform course and program improvement. The FSW Math Department uses a 45-question final exam to test mastery of the subject in MAT 0057 *Mathematics for College Success*. The following report details the results for the final exam for MAT 0057 for the Spring 2015 term.

Of the 269 artifacts from the final exam, 102 originate from the compressed learning strategy version of the course while 167 originate from the modularized learning strategy version of the course. A comparison of mean scores by learning strategy is shown in Figure 1. Differences in the means between compressed and modularized learning strategy were tested for significance using a Welch's t-test according to standard methods[1,2,3,4] and were found to not be statistically significantly different ($t(267)=1.771$, $p=0.078$). Therefore we cannot reject the null hypothesis that the difference in the means of the compressed and modularized course sections is equal to 0, and we cannot conclude with 95% confidence that the differences in scores are not solely due to chance.

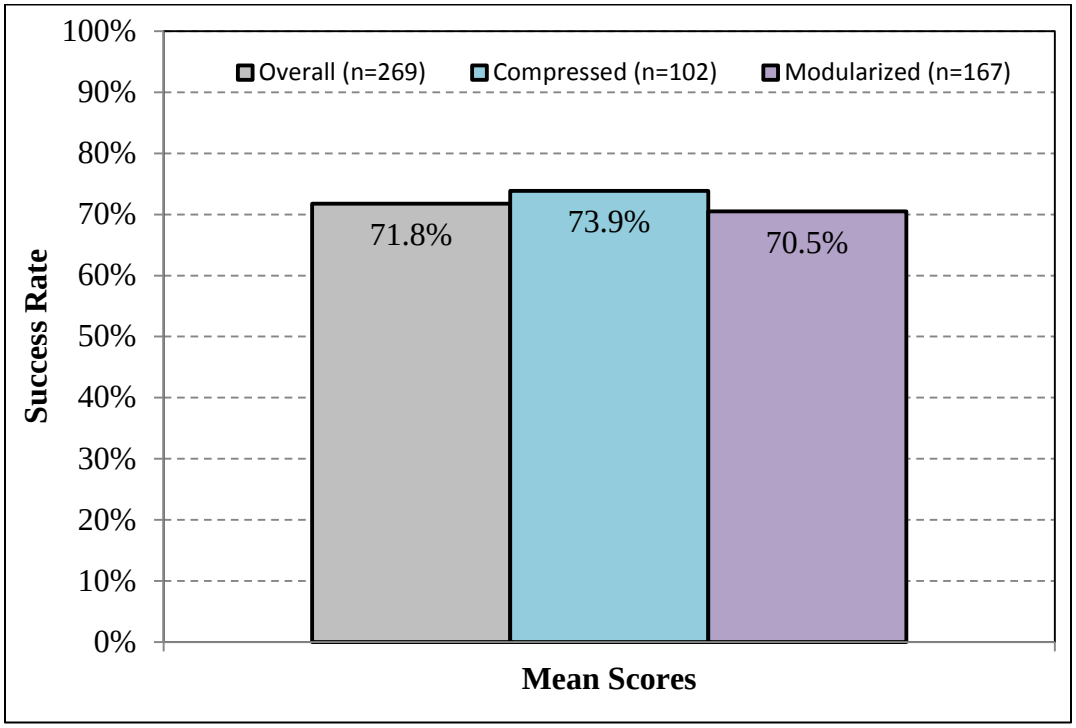

Figure 1. Comparison of MAT 0057 Final exam (mastery exam) mean scores for overall (gray), Compressed (teal), and modularized (purple) for spring 2015.

Success rates based on achievement at the 50%, 70%, and 90% level were compiled. The percentage of artifacts scored 50% or better on the final (mastery) exam is 92% for those originating from the compressed learning strategy and 91% for those originating from the modularized learning strategy with an overall rate of 91% from either strategy. The percentage of artifacts scored 70% or better on the final (mastery) exam is 60% for those originating from the compressed learning strategy and 54% for

those originating from the modularized learning strategy with an overall rate of 57% from either strategy. The percentage of artifacts scored 90% or better on the final (mastery) exam is 17% for those originating from the compressed learning strategy and 8% for those originating from the modularized learning strategy with an overall rate of 11% from either strategy.

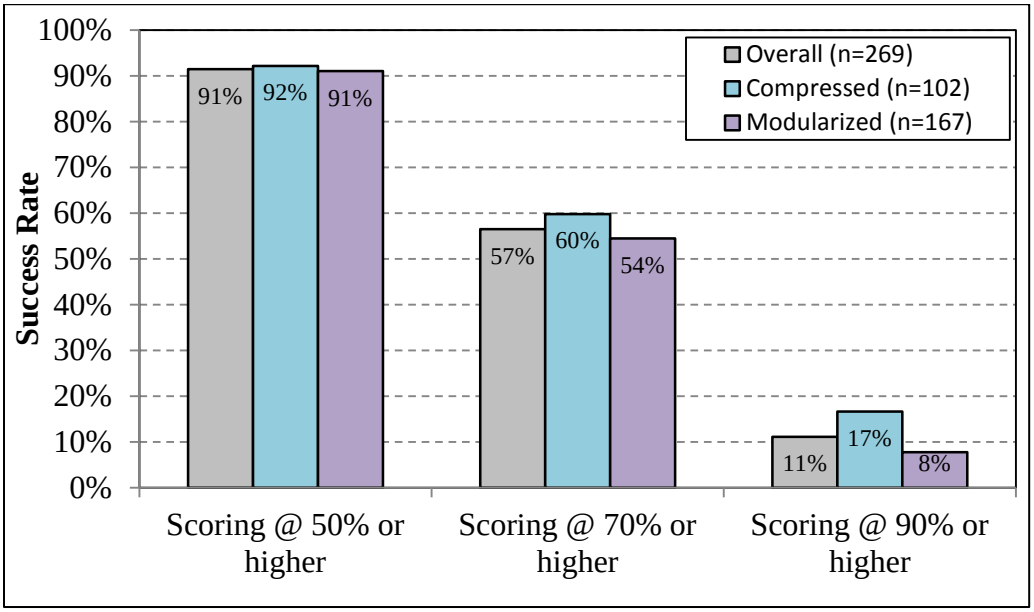

Figure 2. Comparison of MAT 0057 final exam success rates at scores of 50% or higher, 70% or higher, and 90% or higher.

Of the 269 artifacts from the final exam, 38 originated from the Charlotte Campus, 44 from the Collier Campus, and 187 from the Thomas Edison (Lee) Campus. A comparison of mean scores by campus is shown in Figure 3. Differences in the means between each campus were tested independently for significance using a Welch's t-test (Charlotte vs. Collier, Collier vs. Thomas Edison, Charlotte vs. Thomas Edison). When comparing Charlotte to Collier, $t(80)=2.325$, $p=0.023$, meaning results are statistically significantly different. When comparing Collier to Thomas Edison, $t(229)=0.062$, $p=0.950$, meaning results are not statistically significantly different. When comparing Charlotte to Thomas Edison, $t(223)=2.698$, $p=0.010$, meaning results are statistically significantly different. In summation, Collier and Thomas Edison results are both statistically significantly different from Charlotte, but not from each other.

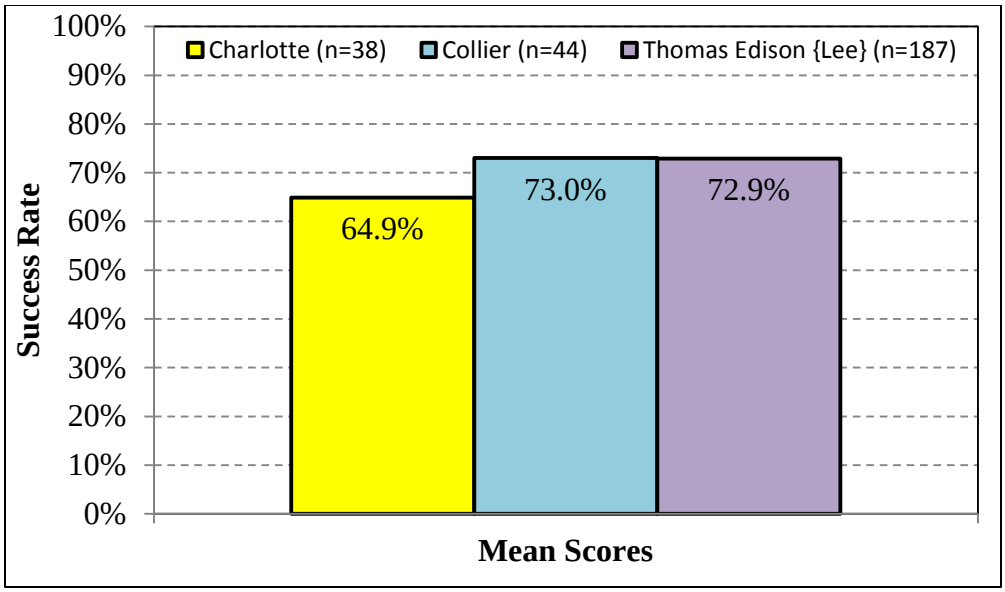

Figure 3. Comparison of MAT 0057 Final exam (mastery exam) scores for Charlotte (yellow), Collier (teal), and Thomas Edison {Lee} (purple) campuses for spring 2015.

[1]Davis, J.C. 1973. Statistics and Data Analysis in Geology. John Wiley & Sons, New York, New York, 564 pp.
[2]McDonald, J.H. 2009. Handbook of Biological Statistics (2nd ed.). Sparky House Publishing, Baltimore, Maryland.
[3]Siegel, S. 1956. Nonparametric statistics for the behavior sciences. McGraw-Hill, New York, New York, 312 pp.
[4]Wilkinson, L. 1999. APA Task Force on Statistical Inference. Statistical Methods in Psychology Journals: Guidelines and Explanations. American Psychologist 54 (8), 594–604.

Section 5

MAT 0057 Survey Report – Spring 2015

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

Florida SouthWestern State College tracks satisfaction of current developmental courses through a survey administered at the end of each term. The data is in support of assessment measures for the SB1720 plan to determine efficacy of developmental options and to inform course and program improvement. The following are the results for the Spring 2015 term.

Of the 773 students enrolled in MAT 0057 during spring 2015, 137 responded to the survey for a response rate of 17.7%. Of the 137 respondents, 32% were enrolled in the traditional classroom, or compressed, learning strategy while 68% were enrolled in the computer assisted, or modularized learning strategy.

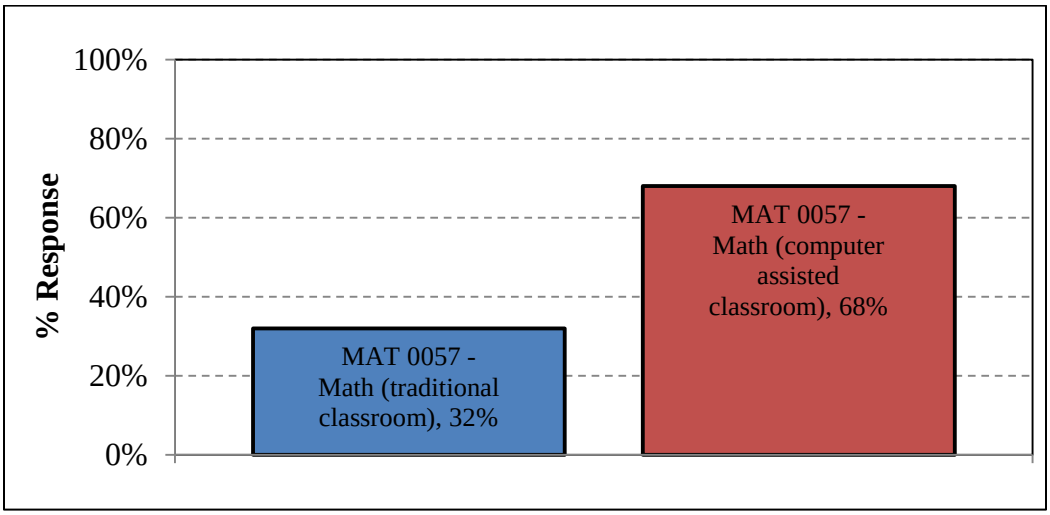

Figure 1. Response rate by learning strategy.

Questions 1 – 7, and 9 of the survey establish general statistics of the survey respondent such as class meeting times, gender, age group, etc. Questions 8, 10 – 12 are Likert scale questions describing student perception of learning and achievement in various areas. The below are the prompts for Question #8 followed by the results in Figure 2.

Q8: I believe I have improved in the following areas since taking this Math class.

1. *I am better at Math*
2. *Math is less scary*
3. *Math makes more sense to me*
4. *Math is easier for me*
5. *I have learned how to manage my time appropriately to succeed in math*
6. *I will be more successful in future Math courses*

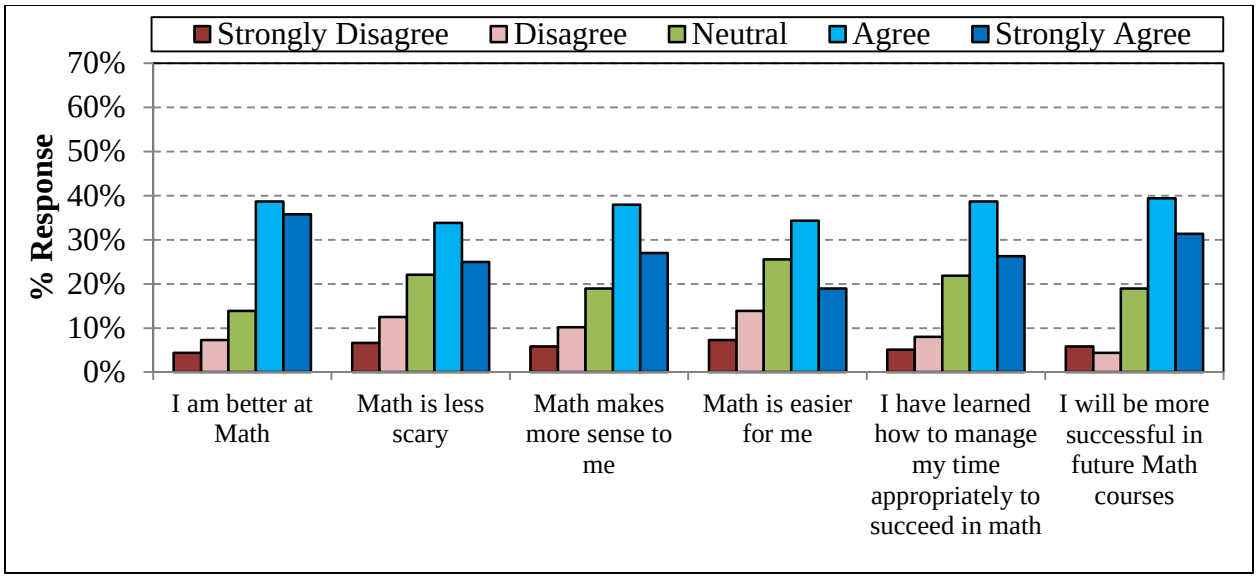

Figure 2. Responses to Question #8 " I believe I have improved in the following areas since taking this Math class."

All six areas exhibit positive responses (Agree or Strongly agree) of 50% or better. Q8-1, and 8-6 exhibit positive response rates greater than 70%. Questions 8-2 and 8-4 exhibit the highest negative response rates (Disagree or Strongly disagree) with 19% and 21%, respectively.

The below are the prompts for Question #10 followed by the results in Figure 3.

Q10: I benefited from the following aspects of the Math Academic Support Center this semester.

1. *The resources available in the Math Center*
2. *The instructional assistants*
3. *The access to computers*
4. *The programs on the computers*
5. *The hours the Math Center was open and available to me*

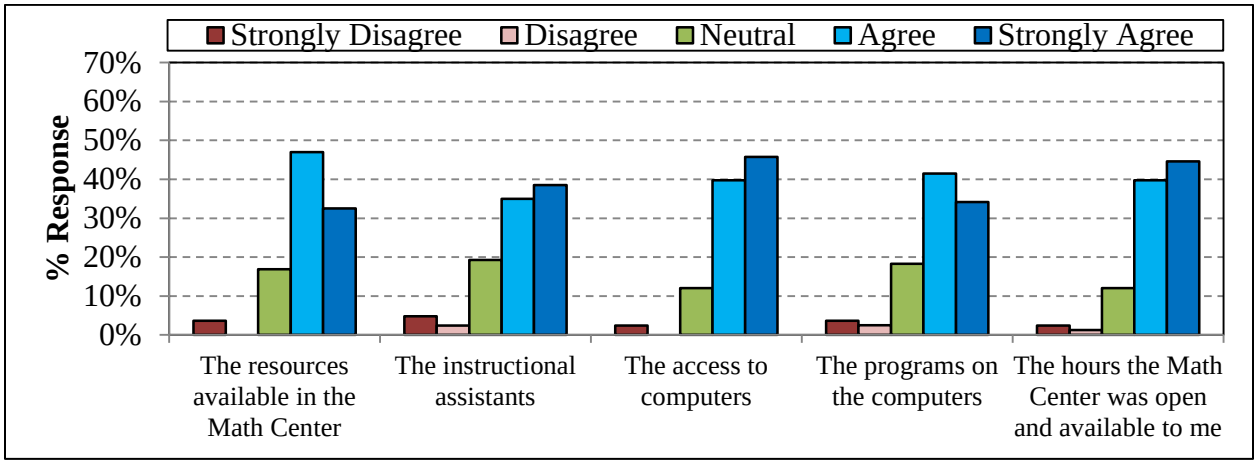

Figure 3. Responses to Question #10 "I benefited from the following aspects of the Math Academic Support Center this semester."

All five areas exhibit positive responses (Agree or Strongly agree) of 70% or better. Q10-1, 10-3, and 10-5 exhibit positive response rates greater than 80%. No question exhibits negative response rates (Disagree or Strongly disagree) higher than 7%.

The below are the prompts for Question #11 followed by the results in Figure 4.

Q11: I was satisfied with the following aspects of my Math class this semester.

1. *The frequency of class meetings*
2. *The information on the course syllabus*
3. *The online homework with MyMathLabs Plus*
4. *The amount of homework assigned*
5. *The clarity of the explanations within the MyLabsPlus site*
6. *The number of tests*
7. *The length of time in class*
8. *The pace of the course*

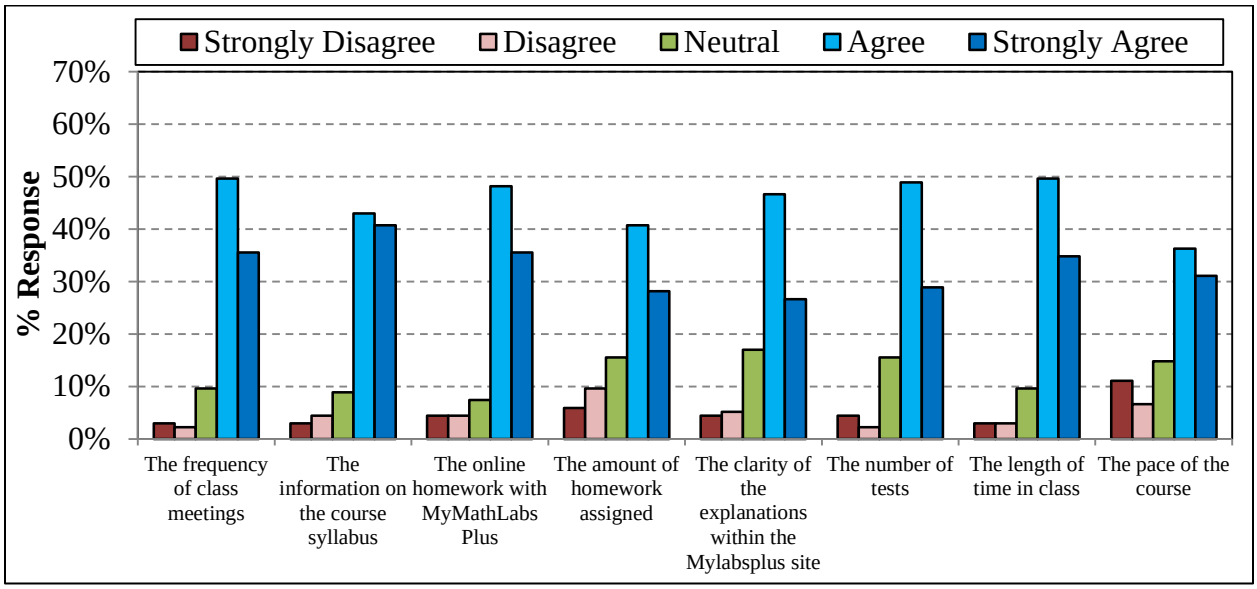

Figure 4. Responses to Question #11 "I was satisfied with the following aspects of my Math class this semester."

All eight areas exhibit positive responses (Agree or Strongly agree) of 65% or better. Q11-1, 11-2, 11-3, 11-6, and 11-7 exhibit positive response rates greater than 75%. Questions 11-4 and 11-8 exhibit the highest negative response rates (Disagree or Strongly disagree) with 16% and 18%, respectively.

The below are the prompts for Question #12 followed by the results in Figure 5.

Q12: This Math course prepared me for:

1. *The next Math classes I will take*
2. *The time management I must have in college*
3. *The skills I need to take tests in college*

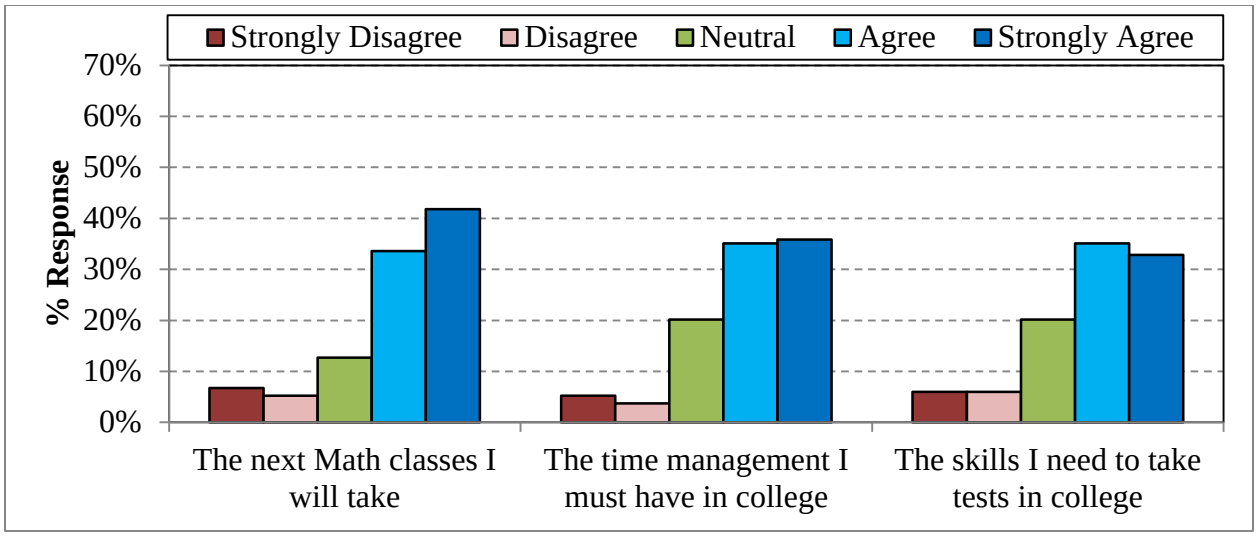

Figure 5. Responses to Question #12 "This Math course prepared me for:"

All three areas exhibit positive responses (Agree or Strongly agree) of 65% or better. Q12-1, and 12-2 exhibit positive response rates greater than 70%. Question 12-1 and 12-3 exhibits the highest negative response rates (Disagree or Strongly disagree) with both at 12%.

A tabulation of positive responses (Strongly agree or Agree) is included below based on learning strategy (Table 1). Of the 22 questions, 14 exhibit a more positive response from modularized respondents though none were statistically significant based on results of a Fisher's exact test.

	Traditional (Compressed)	Computer-based (Modularized)
Q8-1	76.7	73.4
Q8-2	53.5	61.3
Q8-3	62.8	66.0
Q8-4	51.2	54.3
Q8-5	65.1	64.9
Q8-6	69.8	71.3
Q10-1	84.6	77.2
Q10-2	80.8	70.2
Q10-3	84.6	86.0
Q10-4	69.2	78.6
Q10-5	80.8	86.0
Q11-1	83.3	86.0
Q11-2	90.5	80.6
Q11-3	78.6	86.0
Q11-4	66.7	69.9
Q11-5	69.0	75.3
Q11-6	76.2	78.5
Q11-7	81.0	86.0
Q11-8	71.4	65.6
Q12-1	73.8	76.1
Q12-2	76.2	68.5
Q12-3	71.4	66.3

Table 1. Positive survey response (Strongly Agree or Agree) by learning strategy. Shaded cells denote higher of the two learning strategies. None were found to be statistically significantly different.

Section 6

REA 0019 Mastery Exam Assessment Report – Spring 2015

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

Florida SouthWestern State College's assessment measures for the Senate Bill 1720 plan include a collection of achievement data to determine the efficacy of the developmental options and to inform course and program improvement. The department shifted from Connect Reading Exam in fall 2014 to Townsend Press College Reading Test in spring 2015. Since the two assessments differ, no reasonable comparisons of achievement can be made. The following report details the results for Townsend Press College Reading Test the spring 2015 term.

In a comparison of pre-test to post-test results, the mean scores increased across all but one rubric criterion (Inferences) as well as the overall score (Figure 1). The difference in the means of the overall score from pre-to-post test scores was tested for significance using a paired means t-test according to standard methods[1,2,3,4]. The paired means t-test results indicate a statistically significant improvement from 26.0 to 28.9 ($t(91)=5.64$, $p=1.90\times10^{-7}$). Therefore we must reject the null hypothesis that the difference in the means of the pre- and post-test scores are equal to 0, and we can conclude this with a 95% confidence that the differences in scores are not solely due to chance. Figure 2 presents a graphical representation of the change in score distribution from pre-test to post-test.

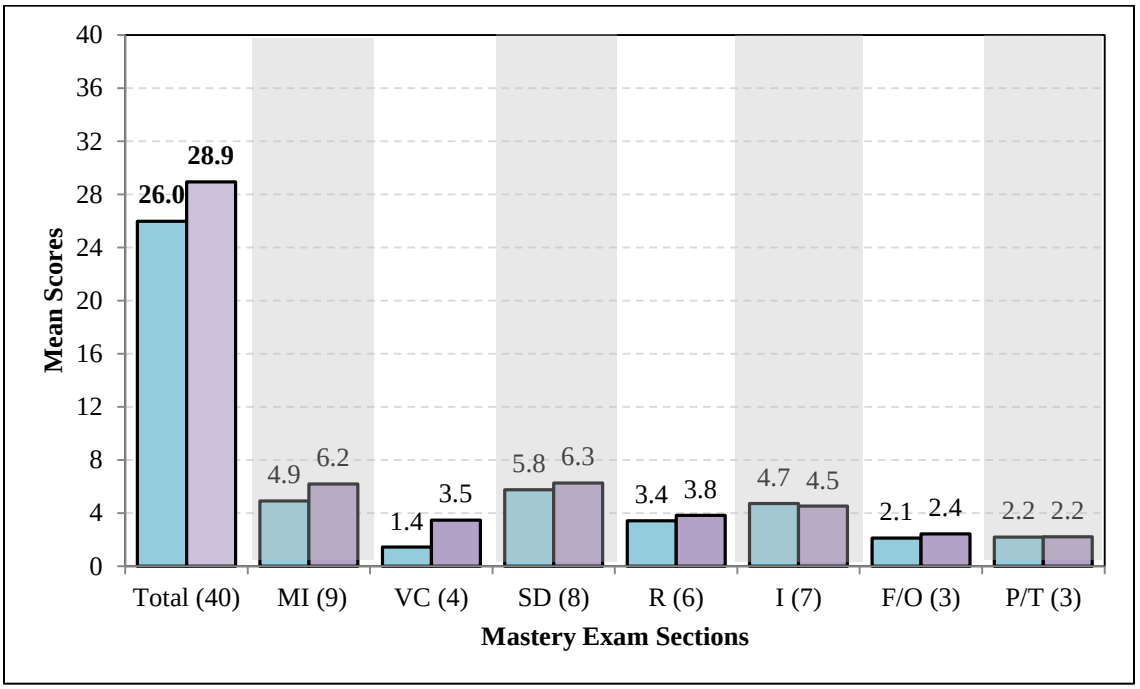

Figure 1. Comparison of pre- (teal) and post-test (purple) achievement for the Townsend Press College Reading Test (serving as the course mastery exam) conducted during the spring 2015 semester in REA 0019 courses. MI: Main Idea (9 points), VC: Vocabulary (4 points), SD: Supporting Details (8 points), R: Relationships (6 points), I: Inferences (7 points), F/O: Fact/Opinion (3 points), and P/T: Purpose/Tone (3 points) for a total of 40 possible points.

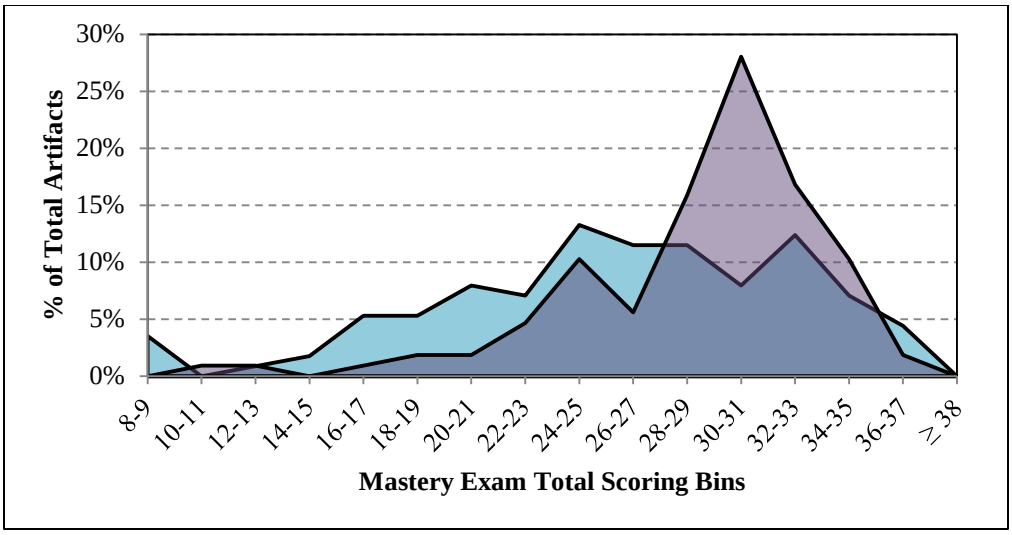

Figure 2. Distribution of pre- (teal) and post-test (purple) scores for the Townsend Press College Reading Test (serving as the course mastery exam) conducted during the spring 2015 semester in REA 0019 courses.

A comparison of pre-test to post-test results as a function of learning strategy (modularized vs. compressed; also known as computer-based and traditional, respectively) is shown in Figure 3. The difference in the means of the overall score from pre-to-post test scores for both modularized and compressed sections was tested for significance using a paired means t-test. The results of both learning strategies exhibit positive results (modularized: $t(77)=5.15$, $p=1.97\text{x}10^{-6}$; compressed: $t(15)=2.25$, $p=0.041$).

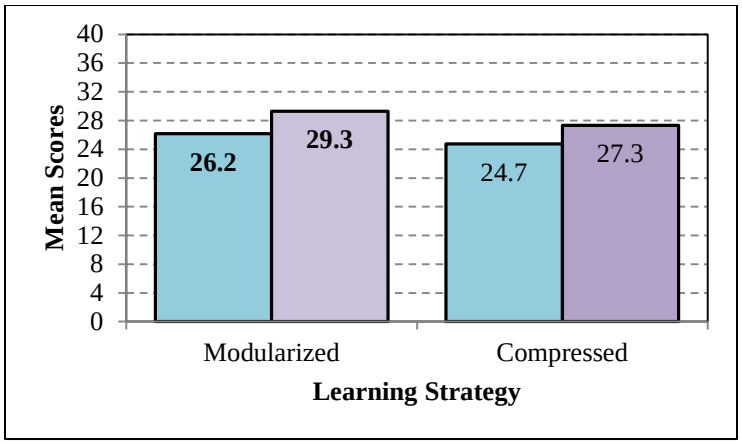

Figure 3. Comparison of pre- (teal) and post-test (purple) achievement for the Townsend Press College Reading Test (serving as the course mastery exam) conducted during the spring 2015 semester in REA 0019 courses based on enrollment in a modularized (computer-based) course or a traditional (compressed) course.

[1]Davis, J.C. 1973. Statistics and Data Analysis in Geology. John Wiley & Sons, New York, New York, 564 pp.
[2]McDonald, J.H. 2009. Handbook of Biological Statistics (2nd ed.). Sparky House Publishing, Baltimore, Maryland.
[3]Siegel, S. 1956. Nonparametric statistics for the behavior sciences. McGraw-Hill, New York, New York, 312 pp.
[4]Wilkinson, L. 1999. APA Task Force on Statistical Inference. Statistical Methods in Psychology Journals: Guidelines and Explanations. American Psychologist 54 (8), 594–604.

Section 7

REA 0019 Survey Report – Spring 2015

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

Florida SouthWestern State College tracks satisfaction of current developmental courses through a survey administered at the end of each term. The data is in support of assessment measures for the SB1720 plan to determine efficacy of developmental options and to inform course and program improvement. The following are the results for the Spring 2015 term.

Of the 142 students enrolled in REA 0019 during spring 2015, 21 responded to the survey for a response rate of 14.7%. Questions 1 – 6 of the survey establish general statistics of the survey respondent such as class meeting times, gender, age group, etc. Questions 7 – 10 are Likert scale questions describing student perception of learning and achievement in various areas. The below are the prompts for Question #7 followed by the results in Figure 1.

#7 I believe I have improved in the following areas since taking this Reading class (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree).

1. *Reading college textbooks*
2. *Reading novels*
3. *Reading for fun*
4. *Understanding what I read*
5. *Expanding my vocabulary*

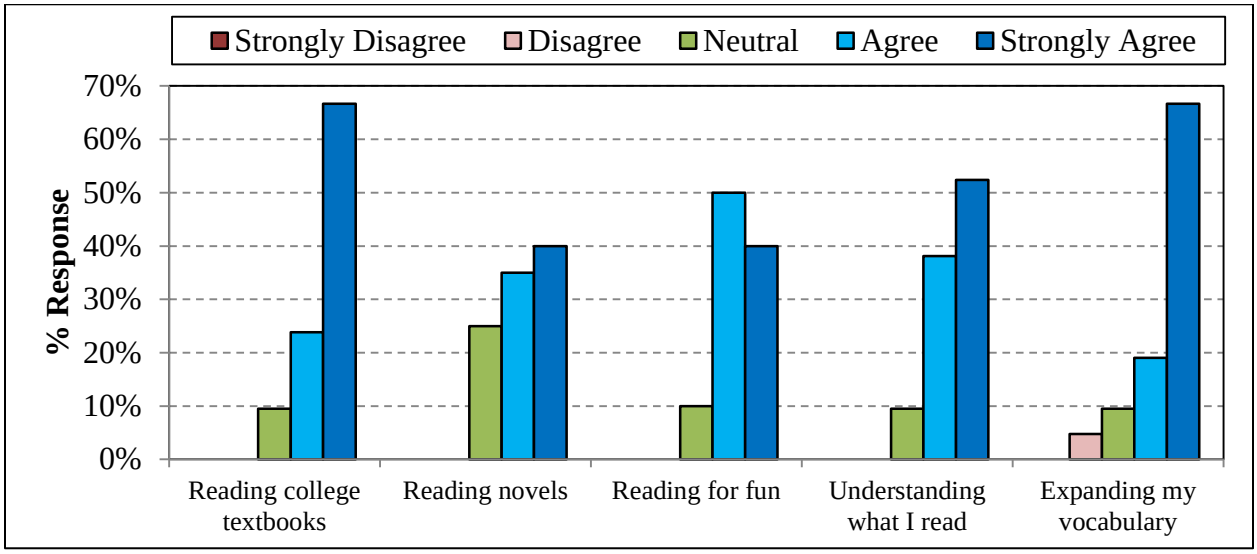

Figure 1. Responses to Question #7 "I believe I have improved in the following areas since taking this reading class."

All five areas exhibit positive responses (Agree or Strongly agree) of 75% or better. Q7-1, 7-3, and 7-4 exhibit positive response rates greater than 90%. Question 7-5 is the only question to exhibit negative responses (Disagree or Strongly disagree) at 4.7% or 1/21.

The following are the prompts for Question #8 followed by results in Figure 2.

#8 I benefited from the following aspects of the Academic Support Center for Reading this semester (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree).

1. *The resources available in the Center*
2. *The instructional assistants*
3. *The access to computers*
4. *The programs on the computers*
5. *The hours the Center was open and available to me*

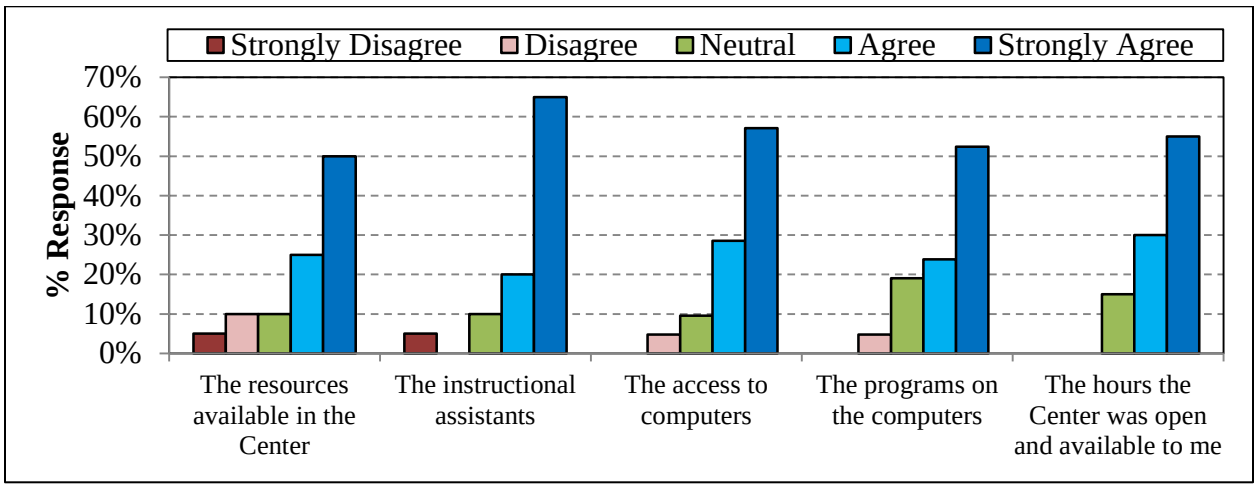

Figure 2. Responses to Question #8 "I benefited from the following aspects of the Academic Support Center for Reading this semester."

All five areas exhibit positive responses (Agree or Strongly agree) of 75% or better. Q8-2, 8-3, and 8-5 exhibit positive response rates greater than 85%. Questions 8-1, 8-2, 8-3, and 8-4 exhibit negative responses (Disagree or Strongly disagree) ranging from 4.7% for Q8-2, 8-3, and 8-4, to 15% for Q8-1.

The following are the prompts for Question #9 followed by results in Figure 3.

#9 I was satisfied with the following aspects of my Reading class this semester (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree).

1. *The novel or stories we read in class*
2. *The information on the course syllabus*
3. *The course textbook*
4. *The homework assigned*
5. *The number of tests*
6. *The length of time of each class*
7. *The frequency of class meetings*
8. *The pace of the course*

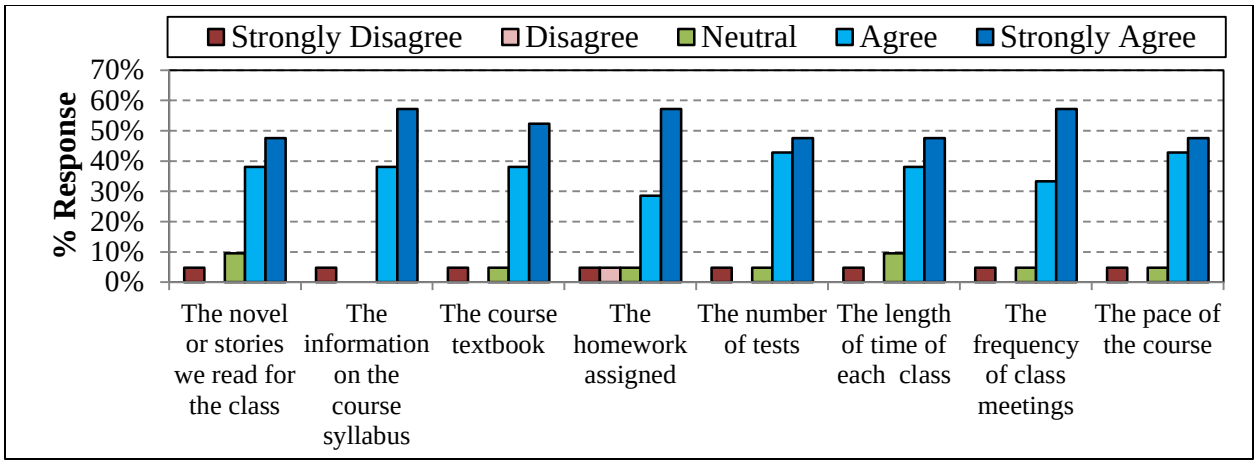

Figure 3. Responses to Question #9 " I was satisfied with the following aspects of my Reading class this semester."

All eight areas exhibit positive responses (Agree or Strongly agree) of 85% or better. Questions 9-2, 9-3, and 9-7 exhibit responses of Strongly Agree at greater than 50%. All questions exhibit negative responses (Disagree or Strongly disagree) ranging from 4.7% to 9.5%.

The following are the prompts for Question #10 followed by results in Figure 4.

#10 This Reading course prepared me for: (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree).

1. *The textbook reading I will do in college*
2. *The expectations of college courses*
3. *The time management I must have in college*
4. *The skills I need to take tests in college*
5. *The technology used in college classes*

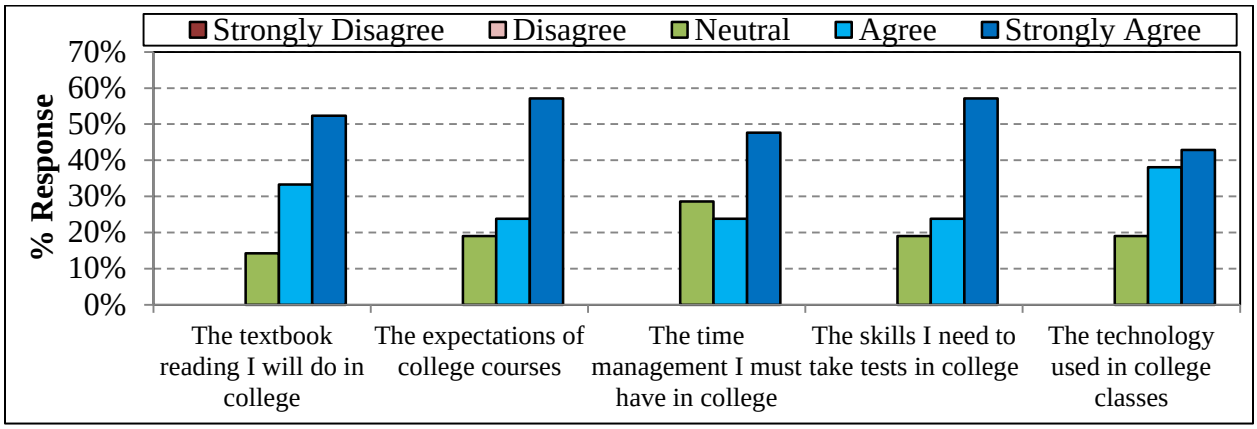

Figure 4. Responses to Question #10 "This Reading course prepared me for:"

All five areas exhibit positive responses (Agree or Strongly agree) of 70% or better. Questions 10-1, 10-2, and 10-3 exhibit responses of Strongly Agree at greater than 50%. No questions exhibit negative responses (Disagree or Strongly Disagree).