

Computer Applications with Flowcharting Assessment Report Spring 2018

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1 INTRODUCTION

Florida SouthWestern State College's Business Department gathers a multitude of data from various courses as assessment tools in support of the Florida Department of Education Curriculum Framework. These courses included in assessment are CGS 2108 *Computer Applications with Flowcharting*. The assessment outcomes are intended to provide a baseline and measurement of achievement moving forward as well as investigate the strength and performance of items in the exam. The assessment plan also provides comparisons between dual enrollment (concurrent) and non-dual enrollment students, online versus traditional students, and by site, where possible. Where data is sufficient, additional analyses are provided including distribution studies and longitudinal studies.

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

2 CGS 2108

2.1 LEARNING OUTCOMES, OBJECTIVES, AND DESCRIPTIVE STATISTICS

The FSW Business faculty defined six areas of interest for evaluation in support of the state framework for the spring 2018 term. The outcomes related to CGS 2108 are:

- LO-1 Create flow charts and diagram computer processes result.
- LO-2 Create, edit, format, save, print database forms, queries and reports result.
- LO-3 Create, edit, modify, save and print digital presentations result.
- LO-4 Create, edit, modify, save, print Word documents result.
- LO-5 Develop formulas and functions within a spreadsheet result.
- LO-6 Implement project scheduling utilizing software applications result.

During the spring 2018 semester, an enrollment of 55 contributed to scores tallied from 2 of 2 sections of CGS 2108. Descriptive statistics for achievement of outcomes are shown in Table 1. Note that the “% Meets Expectations” is the percentage of students whose average learning mastery score is equal to ‘3’ or higher since the count (n) refers to the number of averages of learning masteries (i.e., # of students), not the number of assessments. The graphical representation of the percentage meeting expectations is shown in Figure 1. The highest “% Meets Expectations” is LO 1 at 42%. The lowest “% Meets Expectations” is LO 5 at 23%.

| <i>Outcomes</i> | <i>n</i> | <i>Mean</i> | <i>% Meets Expectations</i> |
|--|----------|-------------|-----------------------------|
| LO-1 Create flow charts and diagram computer processes result. | 19 | 2.2 | 42% |
| LO-2 Create, edit, format, save, print database forms, queries and reports result. | 17 | 2.8 | 29% |
| LO-3 Create, edit, modify, save and print digital presentations result. | 17 | 2.7 | 24% |
| LO-4 Create, edit, modify, save, print Word documents result. | 17 | 2.8 | 29% |
| LO-5 Develop formulas and functions within a spreadsheet result. | 26 | 2.7 | 23% |
| LO-6 Implement project scheduling utilizing software applications result. | 19 | 2.3 | 37% |

Table 1. Student achievement level by outcome for CGS 2108.

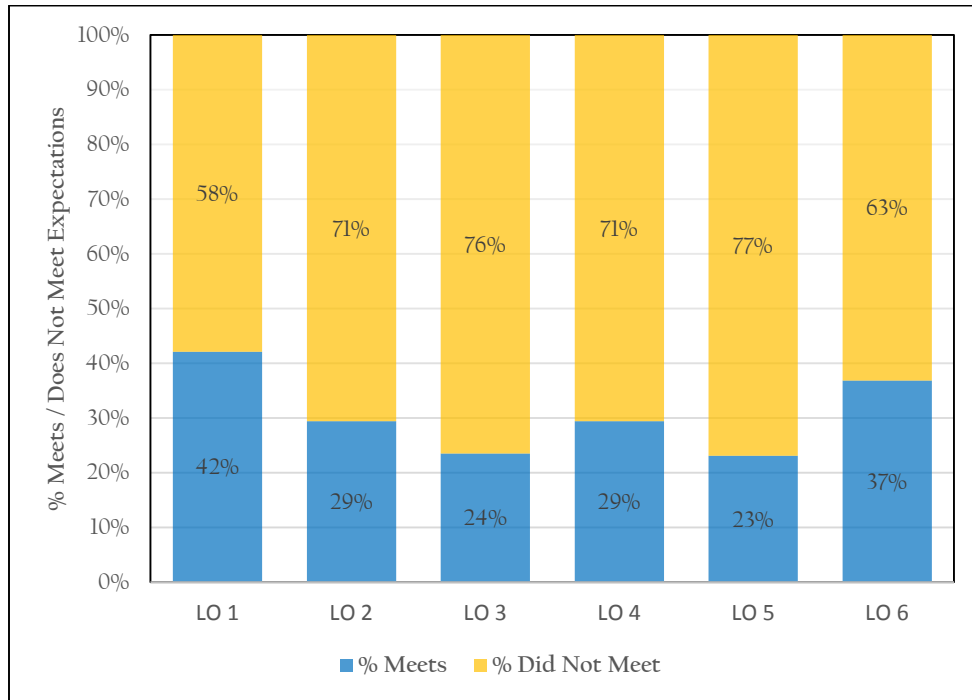


Figure 1. Bar graph of percentage of students (average learning mastery scores) meeting expectations of 3 or higher.

2.2 EXPLORATORY ANALYSIS AND SIGNIFICANCE TESTING

Multiple comparisons of artifact scores across varying formats, campuses, and student types were made, where possible, in order to add depth to the causes of the distribution of the artifacts. Each course was divided into the appropriate subgroups to perform the analysis. In cases where a subgroup is not represented in the course comparisons were not conducted and are noted for comprehensiveness.

2.2.1 Dual Enrollment (Concurrent) to Non-Dual Enrollment Comparison

No dual enrollment (concurrent) sections of the course were run during spring 2018 so no comparison between dual enrollment and non-dual enrollment could be completed.

2.2.2 Online to Traditional Comparison

During the spring 2018 semester, one course section was offered online while the other was offered traditionally. Mean scores for traditional sections ranged from 2.1 to 2.7 (no data was recorded for LO 2, 3, or 4). Mean scores for online sections ranged from 1.8 to 2.8. The “% Meets Expectations” for traditional sections range from 6% to 24%. The “% Meets Expectations” for online sections range from 24% to 70%. Differences in the “% Meets Expectations” were tested for significance using a Fisher’s

Exact Test according to standard methods (McDonald, 2009; Wilkinson, 1999). LO 6 exhibits a statistically significant difference.

| Outcomes | Traditional | | | Online | | |
|--|-------------|------|----------------------|--------|------|----------------------|
| | n | Mean | % Meets Expectations | n | Mean | % Meets Expectations |
| LO-1 Create flow charts and diagram computer processes result. | 17 | 2.7 | 24% | 17 | 1.8 | 60% |
| LO-2 Create, edit, format, save, print database forms, queries and reports result. | ~ | ~ | ~ | 17 | 2.8 | 29% |
| LO-3 Create, edit, modify, save and print digital presentations result. | ~ | ~ | ~ | 17 | 2.7 | 24% |
| LO-4 Create, edit, modify, save, print Word documents result. | ~ | ~ | ~ | 17 | 2.8 | 29% |
| LO-5 Develop formulas and functions within a spreadsheet result. | 17 | 2.5 | 12% | 17 | 2.8 | 29% |
| LO-6 Implement project scheduling utilizing software applications result. | 17 | 2.1 | 6% | 17 | 2.3 | 70% |

Table 2. Comparison of basic statistics of student achievement level by Outcome for online and traditional. Statistically significant differences in the ‘% Meets Expectations’ between online and traditional sections is in **bold/italics**.

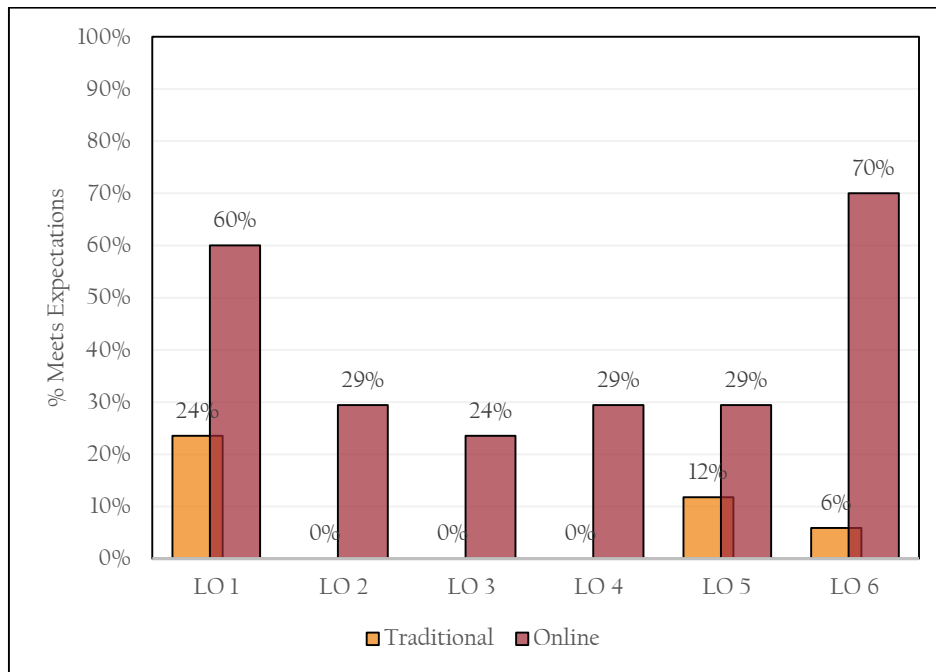


Figure 2. Comparison of ‘% Meets Expectations’ between online and traditional sections.

2.2.3 Comparison by Campus/Site

Since the only two sites in which courses were offered was Thomas Edison (Lee) and FSW Online, results of this comparison are exhibited in 2.2.2 (see above).

2.3 LONGITUDINAL STUDY

As further data is collected in coming terms, this section will track achievement through time and highlight strengths, weaknesses and any long term trends beginning fall 2018.

3 CONCLUSIONS

FWS's Business Department gathers a multitude of data from various courses as assessment tools in support of the Florida Department of Education Curriculum Framework. The courses included in assessment are CGS 2108 *Computer Applications with Flowcharting*. The assessment outcomes are intended to provide a baseline and measurement of achievement moving forward.

3.1 CGS 2108

A drill-down of CGS 2108 results are as follows:

1. In a study of outcome achievement, "LO-1 Create flow charts and diagram computer processes result." the average "% Meets Expectations" across 19 students from two course sections is 42%. Note that the "% Meets Expectations" is the percentage of students whose average learning mastery score is equal to '3' or higher since the count (n) refers to the number of averages of learning masteries (i.e., # of students), not the number of assessments.
2. In a study of outcome achievement, "LO-2 Create, edit, format, save, print database forms, queries and reports result." the average "% Meets Expectations" across 17 students from two course sections is 29%.
3. In a study of outcome achievement, "LO-3 Create, edit, modify, save and print digital presentations result." the average "% Meets Expectations" across 17 students from two course sections is 24%.
4. In a study of outcome achievement, "LO-4 Create, edit, modify, save, print Word documents result." the average "% Meets Expectations" across 17 students from two course sections is 29%.
5. In a study of outcome achievement, "LO-5 Develop formulas and functions within a spreadsheet result." the average "% Meets Expectations" across 26 students from two course sections is 23%.
6. In a study of outcome achievement, "LO-6 Implement project scheduling utilizing software applications result." the average "% Meets Expectations" across 19 students from two course sections is 37%.
7. In a study comparing online with traditional course sections, the "% Meets Expectations" for traditional sections range from 6% to 24%. The "% Meets Expectations" for online sections range from 24% to 70%. LO 6 exhibits a statistically significant difference.
8. No cross-campus comparison could be completed because course data was only collected from online and one site, a study completed in #7 above.

4 REFERENCES

- McDonald, J.H. 2009. *Handbook of Biological Statistics* (2nd ed.). Sparky House Publishing, Baltimore, Maryland.
- Wilkinson, L. 1999. APA Task Force on Statistical Inference. *Statistical Methods in Psychology Journals: Guidelines and Explanations*. *American Psychologist* 54 (8), 594–604.