



**ESTRELLA MOUNTAIN**  
COMMUNITY COLLEGE

**Technological Literacy Assessment Results Spring 2012**

Prepared by: The Office of Planning and Institutional Effectiveness

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## **Technological Literacy Assessment Results**

**Estrella Mountain Community College  
Spring 2012**

### **Results Summary**

Produced by the Office of Planning and Effectiveness  
August 2012



## **Purpose and Methodology:**

A technological literacy assessment rubric was developed during spring 2012 by faculty and the Student Academic Achievement Committee (SAAC). The rubric was designed to assess student technological literacy across the College. Seven common “deliverable components” were assessed: a) *data management*, b) *references*, c) *assignment content*, d) *communication*, e) *layout*, f) *embedded objects*, and g) *conventions*. A score of zero through four was assigned each area (4=above proficient, 3=proficient, 2=approaching proficient, 1=below proficient, and 0=no attempt). Scores measuring “approaching proficient” were used only for *layout*, *embedded objects*, and *convention* areas. Scoring results were categorically converted to dichotomous variables: *proficient* and *non-proficient*.

Assessment comprised 16 unique courses (BIO 205, CIS 105, OAS 118, OAS 101AA, ECN 211, ECN 212, AJS 275, CIS 133DA, MST 157DA, MGT 251, OAS 120, MAT 217, EDU 112, EDU 222, EDU 230, and COM 225). Nineteen individual instructors provided student assessment data from 27 sections. All student responses were analyzed by examining proficient scores within the seven common *deliverable components* categories. A total population of 241 unique students participated. However, areas left unmarked within the *deliverable components* section limited complete analysis on individual components. Analyses also compared entering freshman (0-7 earned credit hours) and sophomore (30+ earned credit hours) student’s corresponding proficiency levels on the technological literacy assessment. A majority of the sections used for the analysis were second year courses which limited the number of true freshmen in the population. The sample of freshman students (n=31) as defined by the earned credit hour criteria was low compared to the larger sample of sophomores (n=122). Cross tabulations exploring technology proficiency levels comparing freshman and sophomore students were examined. Chi-square test for independence was also performed comparing freshman sophomore student observed and expected results.

## **Limitations:**

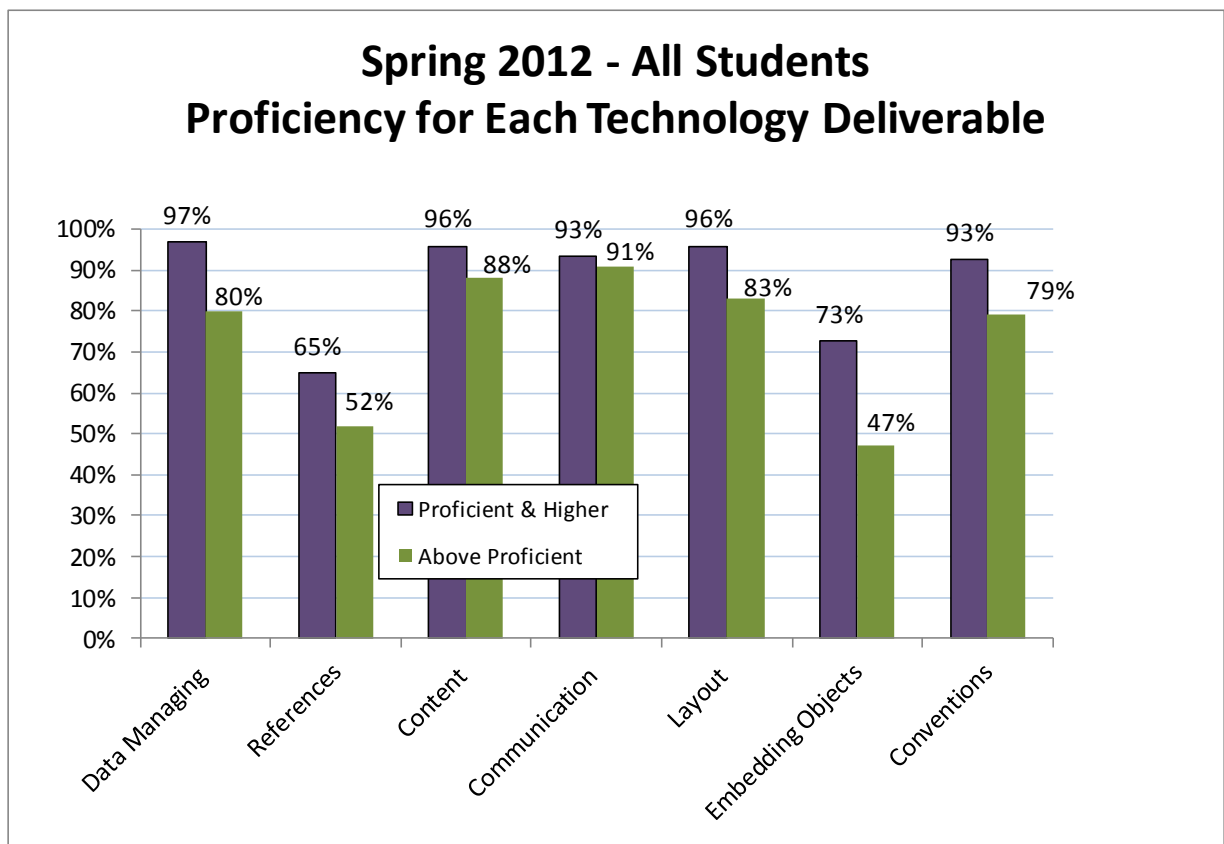
Two primary limitations share this analysis. Although a majority of faculty completed student technological proficiency elements for scoring (right side of Rubric), the narratively described specific *deliverable components* were often left blank (left portion of rubric). Missing data cases accounted for over one-third of the total student population, limiting the ability to identify which specific elements of a technology delivery are missing. Additionally, identifying freshman students by earned credit hours reduced the comparative freshman (n=31) and sophomore (n=122) analysis. The small sample size of the freshmen cohort reduced the likelihood that statistical difference could be discerned from the data.

While the two limitation of this study limit the depth of analysis that can be completed, the results do provide insight into student’s overall technologic literacy levels of EMCC students across a number of unique courses.

## Key Findings All Students:

The following key findings are limited to the group of respondents participating in the assessment. Caution should be taken when generalizing results to the entire student population.

- Over one-third (37.5%) of the 16 unique courses examined were computer or technology related (i.e., CIS 105, OAS 118, OAS 101AA, CIS 133DA, MST 157DA, OAS 120). The remaining courses were in other disciplines.
- Overall, a vast majority of students showed proficiency or above proficiency for: *data management* (97%), *assignment content* (96%), *communication* (93%), *layout* (96%) *conventions* (93%)
- The two deliverable components that did not score as high include: *references* (64% proficiency) and *embedding objects* (73%).
- The chart below show proficient and higher and the percent of students scoring above proficient. Again, the deliverable of *reference* (52%) and *embedding objects* (47%) had the fewest students above proficiency.



- The narrative statements for *references* and *embedded* objects included too many missing responses to identify why students scored lower in these areas. The individual components for *references* include: appropriate number of references, APA/MLA style, and correctly embedding references. The individual items for *embedded objects* include pictures, audio files, hyperlinks, video, and animation. If these specific attributes had been recorded by a majority of the faculty evaluators, it would be possible to identify the specific challenges encountered by students.

**Entering freshman (0-7 earned credit hours) and sophomore (30+ earned credit hours) student technological literacy results:**

- There were no statistically valid difference between freshmen and sophomore students for any of the technology literacy that were assessed. Sophomore students showed slightly higher technological literacy proficiency levels for some deliverable component categories, but no difference proved statistical significance. Freshman students showed a marginal positive proficiency difference in the *reference* deliverable component but not statistically significant.
- Positive technological literacy proficiency results indicate few freshman or sophomore students missing more than one element in categories of *data management*, *references*, *assignment content*, and *communication* deliverable components.



**Appendix B: Rubric Analysis Frequency Tables**

**Item Analysis: Data Managing Proficiency**

Label	Value	Frequency	Percent
Above Proficient - Has all elements	4	192	79.67
Proficient - Missing one element	3	41	17.01
Below Proficient - Missing two elements	1	8	3.32
No Attempt - Has none of the elements	0	0	0.00
Total Valid		241	100.00

**Item Analysis: References Proficiency**

Label	Value	Frequency	Percent
Above Proficient - Has all elements	4	126	52.28
Proficient - Missing one element	3	30	12.45
Below Proficient - Missing two elements	1	18	7.47
No Attempt - Has none of the elements	0	32	13.28
Total Valid		206	85.48
Total Missing	-1	35	14.52
Total		241	100.00

## Item Analysis: Assignment Content Proficiency

Label	Value	Frequency	Percent
Above Proficient - Has all elements	4	214	88.80
Proficient - Missing one element	3	17	7.05
Below Proficient - Missing two elements	1	9	3.73
No Attempt - Has none of the elements	0	0	0.00
Total Valid		240	99.59
Total Missing	-1	1	0.41
Total		241	100.00

## Item Analysis: Communication Proficiency

Label	Value	Frequency	Percent
Above Proficient - Has all elements	4	219	90.87
Below Proficient - Missing one elements	1	6	2.49
No Attempt - Has none of the elements	0	3	1.24
Total Valid		228	94.61
Total Missing	-1	13	5.39
Total		241	100.00

## Item Analysis: Layout Proficiency

Label	Value	Frequency	Percent
Above Proficient - Has all elements	4	201	83.40
Proficient - Missing one element	3	30	12.45
Approaching Proficient - Missing two element	2	8	3.32
Below Proficient - Missing three elements	1	2	0.83
No Attempt - Has none of the elements	0	0	0.00
Total Valid		241	100.00