

# Salisbury University Project SAILS Information Literacy Assessment Report, Fall 2015

This report, authored by SU office of University Analysis, Reporting & Assessment (UARA) staff, discusses information literacy survey data collected during Fall 2015 GULL Week sessions.

## Executive Summary

### Background and Findings

1. Library faculty and UARA staff agreed that Project Standardized Assessment of Information Literacy Skills (SAILS) individual instrument version is aligned with General Education student learning outcomes 1.4a.1, 1.4a.2, 1.4b.1, and 1.4b.2.
2. Although the instrument has 55 items aligned with the Association of College & Research Libraries (ACRL) Standards and the Project SAILS' working group-defined Skill Sets, Project SAILS was not developed to allow for sub-scale scores to be created based on these standards/skill sets. An exploratory factor analysis of the Fall 2015 SU Project SAILS student response data supports that there is only one factor emergent from the instrument, rather than multiple factors that would align with the Standards or Skill Sets.
3. The results of our administration of the 55-item Project Sails instrument were valid and reliable:
  - a. Project Sails scores were valid:
    - i. Content Validity: expert review of items and alignment with ACRL standards and library curriculum Skill Sets
    - ii. Communication Validity: early iterations of the instrument were informed by student think-alouds and subsequent revision of items
    - iii. Scale Validity: Item Response Theory (IRT) mapping of student ability in information literacy with items in the instrument
    - iv. Criterion and Construct Validity: scores on this instrument have a moderately positive correlation with the related measures of SAT Verbal scores,  $r = .508$  ( $p < .001$ ), and SAT total scores,  $r = .513$  ( $p < .001$ )
  - b. Project Sails scores were reliable ( $\alpha = .716$ )
4. Generally, the students that completed the Project SAILS instrument were representative of the overall and non-test-taker populations at SU.
5. Overall, SU students' average score on the instrument (55.3%) was higher than that of the national average (50%), which was based on the scores of seventy higher education institutions that also administered Project SAILS in Fall 2015
6. As SU and other institutions' students' class level (i.e., freshman, sophomore, junior, senior) increased, so too did the average score on the instrument

### Action Items

1. The benchmarks with which SU students' information literacy is compared should be evaluated by objective faculty and/or staff with expertise in the discipline or assessment of it. The Project SAILS' benchmark levels (70 - 84% = proficiency level;  $\geq 85\%$  = mastery level) have not been re-evaluated since the development of the original instrument. As many updates to the instrument have occurred, these reported benchmarks should be reevaluated.
2. Have library faculty and UARA staff align the ACRL Standards, Project SAILS' Skill Sets, or newly-drafted SU Information Literacy Matrix with the SU student learning outcomes.

3. Evaluate the need to revise the current SU Information Literacy general education student learning outcomes.
4. Library faculty, General Education Review Steering Committee, and other relevant parties should consider whether or not the Project SAILS instrument is aligned well with current (or revised) Information Literacy general education student learning outcomes. If it is not aligned, then an alternative assessment that is aligned should be identified.
5. Consider results from the assessment to develop interventions or review and update curriculum to align with areas that need improvement.
6. Determine a timeline to re-collect assessment data related to information literacy.
7. Increase student participation in future GULL Weeks, to increase the likelihood of participant samples that are representative of the overall SU student population, via competitions and marketing to both students as well as faculty that might offer course-embedded incentives for their students that participate.

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## Detailed Information Literacy Report

### Project SAILS Instrument

The assessment is a multiple choice, 55-item instrument. See a Project SAILS example item and its alignment with various standards and learning outcomes in Appendix 1. Details about the instrument can be found at the Project SAILS website (Project SAILS 2000-2015; <https://www.projectsails.org/>). Four, of the five, ACRL Standards (ACRL Information Literacy Competency Standards for Higher Education 1996-2015) the instrument aligns with include:

- Standard One: The information literate student determines the nature and extent of the information needed.
- Standard Two: The information literate student accesses needed information effectively and efficiently.
- Standard Three: The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.
- Standard Five: The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

The eight Project SAILS' working group-defined Skill Sets (Hill *et al.* 2013) it aligns with include:

1. Developing a research strategy
2. Selecting finding tools
3. Searching
4. Using finding tool features
5. Retrieving sources
6. Evaluating sources
7. Documenting sources
8. Understanding economic, legal, and social issues of information

Library faculty and UARA staff agreed that the Project SAILS instrument is aligned with the General Education Information Literacy area and student learning outcomes.

**Table 1.** The SU general education student learning goal, outcomes, and area mapping related to Information Literacy.

Student Learning Goal	Outcome	Area Mapping
1.4. Information Literacy	1.4a.1. Evaluate appropriateness of primary and secondary, popular and scholarly source materials.	IA, IIA, IIB, IIIB
	1.4a.2. Select, evaluate, and cite reputable and appropriate sources.	IA, IB, IIA, IIB, IIIA, IIIB
	1.4b.1. Evaluate appropriateness of primary and secondary, popular and scholarly source materials.	IA
	1.4b.2. Select, evaluate, and cite reputable and appropriate sources.	IA, IIIB

Related to Information Literacy, results from this instrument can: provide a benchmark of student outcomes at SU; inform instructional efficacy and possible interventions; evaluate curricular strengths

and weaknesses; and continuously improve student outcomes if we use this instrument for future GULL Week administrations.

### Methodology and Sample

Data were collected from volunteer students at SU that self-selected and signed up to participate in various Gaining Understanding as a Lifelong Learner (GULL) Week testing sessions during a week in September, 2015. GULL Week sessions were open to the entire SU undergraduate student population. The assessments were administered in a proctored computer lab setting and lasted approximately one hour, of which ~45 minutes was dedicated to the Project SAILS instrument administration, ~10 minutes was dedicated to a different assessment aligned with a separate General Education Area, and ~5 minutes for a Student Opinion Scale (SOS) Survey (Appendix 2; Sundre & Thelk 2007). The SOS Survey estimates the GULL Week participant's perceived importance of the assessment(s) and effort expended by the participant in completing the assessment(s) (i.e., Project SAILS instrument).

Some faculty offered incentives (such as extra credit) to participating students, some mentioned GULL Week and encouraged students to participate, and some did not interact with students about GULL Week. The office of University Analysis, Reporting & Assessment (UARA) publicized GULL Week across campus via many avenues. Particularly, competitions between both Schools and Sororities & Fraternities were set up to improve participation.

In all, n=1359 undergraduates participated in Fall 2015 GULL Week and of those n=834 students completed the Project SAILS instrument (17.3% and 10.6% of total SU Fall 2015 undergraduate enrollment (n=7849), respectively). Demographic analyses of the non-Project SAILS test-takers (n=7015; 89.4%) were compared to the test-takers that completed Project SAILS to evaluate the extent to which the sample of test-takers was representative of the entire SU undergraduate population during Fall 2015. Further analyses within the test-takers were performed to evaluate the validity and reliability of the instrument administration at SU as well as to determine whether or not scores on the instrument varied by student characteristic(s). The students with data for both Project SAILS and the SOS Survey were analyzed to evaluate student responses on those scales.

## Results

### Demographic Comparison of Test-takers vs. Non-test-takers

Overall, the demographics of the students that took the Project SAILS instrument were similar to the non-test-takers (Tables 2-7; lack of significance annotations). However, female test-takers (Table 3) and SU native first time students (Table 4) were over-represented and in three cases of student success metrics (i.e., High School GPA, SU Cumulative GPA, and entering SAT mathematics score), the test-takers of the Project SAILS instrument were significantly more successful than the non-test-takers (Table 7). Although it should be considered that another set of success metrics (i.e., SAT total and SAT verbal scores) did not reveal any significant differences between the two groups. Therefore, the sample of Project SAILS test-takers was fairly representative of the entire SU undergraduate population during Fall 2015. In the future, efforts to publicize GULL Week should be targeted more directly to males, transfer students, and students that represent the less successful students (in terms of GPA) as well as continuing previous publicity efforts to ensure even further representative sampling.

**Table 2.** Student Race/Ethnicity Compared between the Project SAILS Test-takers, Non-test-takers and All SU Undergraduates

Race/Ethnicity	Test-taker	Non-test-taker	Total
African American	115 (13.8%)	938 (13.4%)	1053 (13.4%)
American Indian/ Alaska Native	3 (0.4%)	39 (0.6%)	42 (0.5%)
Asian	38* (4.6%)	197* (2.8%)	235 (3.0%)
Hispanic	33 (4.0%)	290 (4.1%)	323 (4.1%)
Native Hawaiian/ Pacific Islander	2 (0.2%)	9 (0.1%)	11 (0.1%)
NRA	12 (1.4%)	126 (1.8%)	138 (1.8%)
Two or more races	36 (4.3%)	246 (3.5%)	282 (3.6%)
White	565 (67.7%)	4941 (70.4%)	5506 (70.1%)
Unknown/ Not specified	30 (3.6%)	229 (3.3%)	259 (3.3%)
<b>Total</b>	<b>834</b> (100.0%)	<b>7015</b> (100.0%)	<b>7849</b> (100.0%)

**Note.** Cell values are counts with percentages reported parenthetically. Significant difference of participation categories between test-takers' and non-test-takers' proportions are indicated by an asterisk (\*),  $p \leq .05$ .

**Table 3.** Student Gender Compared between the Project SAILS Test-takers, Non-test-takers and All SU Undergraduates

Gender (code)	Test-taker	Non-test-taker	Total
Male (1)	237* (28.4%)	3134* (44.7%)	3371 (43.0%)
Female (2)	597* (71.6%)	3876* (55.3%)	4473 (57.0%)
<b>Total</b>	<b>834</b> (100.0%)	<b>7010</b> (100.0%)	<b>7844</b> (100.0%)

**Note.** Cell values are counts with percentages reported parenthetically. Significant difference of participation categories between test-takers' and non-test-takers' proportions are indicated by an asterisk (\*),  $p \leq .05$ .

**Table 4.** Student Admit Type, to SU, Compared between the Project SAILS Test-takers, Non-test-takers and All SU Undergraduates

SU Admit Type (code)	Test-taker	Non-test-taker	Total
First time student (F)	587* (70.9%)	4118* (60.7%)	4705 (61.8%)
Transfer (T + U)	241* (29.1%)	2662* (39.3%)	2903 (38.2%)
<b>Total</b>	<b>828</b> (100.0%)	<b>6780</b> (100.0%)	<b>7608</b> (100.0%)

**Note.** Cell values are counts with percentages reported parenthetically. Significant difference of participation categories between test-takers' and non-test-takers' proportions are indicated by an asterisk (\*),  $p \leq .05$ .

**Table 5.** Student Undergraduate Class Level Compared between the Project SAILS Test-takers, Non-test-takers and All SU Undergraduates

Class Level (code)	Test-taker	Non-test-taker	Total
Freshmen (1)	190 (22.8%)	1405 (20.0%)	1595 (20.3%)
Sophomores (2)	193 (23.1%)	1491 (21.3%)	1684 (21.5%)
Juniors (3)	245 (29.4%)	1882 (26.8%)	2127 (27.1%)
Seniors (and +) (4)	196* (23.5%)	1886* (26.9%)	2082 (26.5%)
Unclassified non-degree undergrads (7)	10* (1.2%)	351* (5.0%)	361 (4.6%)
<b>Total</b>	834 (100.0%)	7015 (100.0%)	7849 (100.0%)

**Note.** Cell values are counts with percentages reported parenthetically. Significant difference of participation categories between test-takers' and non-test-takers' proportions are indicated by an asterisk (\*),  $p \leq .05$ .

**Table 6.** Student School Enrollment Compared between the Project SAILS Test-takers, Non-test-takers and All SU Undergraduates

School	Test-taker	Non-test-taker	Total
Fulton	200 (24.0%)	1802 (25.7%)	2002 (25.5%)
Henson	217 (26.0%)	1825 (26.0%)	2042 (26.0%)
Perdue	213* (25.5%)	1411* (20.1%)	1624 (20.7%)
Seidel	175 (21.0%)	1510 (21.5%)	1685 (21.5%)
Undeclared	29 (3.5%)	467 (6.7%)	496 (6.3%)
<b>Total</b>	834 (100.0%)	7015 (100.0%)	7849 (100.0%)

**Note.** Cell values are counts with percentages reported parenthetically. Significant difference of participation categories between test-takers' and non-test-takers' proportions are indicated by an asterisk (\*),  $p \leq .05$ .

**Table 7.** Student Success Metrics compared between Project SAILS Test-takers and Non-test-takers

Success Metric	Test-taker		Non-test-taker	
	n	Avg (SD)	n	Avg (SD)
High School GPA	352	3.63 (.45)*	2781	3.54 (.48)*
SAT Verbal	583	528 (74)	4283	529 (76)
SAT Math	583	543 (77)*	4284	536 (78)*
SAT Cumulative	583	1071 (135)	4283	1065 (135)
SU Cumulative GPA	600	3.15 (.55)**	5137	2.96 (.62)**

**Note.** Cell values are sample sizes (n) or averages with standard deviation reported parenthetically. Significant difference of participation categories between test-takers' and non-test-takers' average values are indicated by an asterisk (\*),  $p \leq .05$ , or two (\*\*),  $p \leq .001$ .

### Validity and Reliability of the Project SAILS Instrument Administration at SU

We evaluated whether or not there were sub-scales in the 55-item instrument. Although the authors describe Project SAILS as a single scale, we questioned whether a factor analysis would reveal sub-scales that aligned with either the ACRL Standards or the Project SAILS' working group-defined Skill Sets. An exploratory factor analysis of the Fall 2015 SU Project SAILS student response data supported that there is only one factor emergent from the instrument, rather than multiple factors that would align with the Standards or Skill Sets. From this analysis, it was also determined that sampling size (n=834) was sufficient via the Kaiser-Meyer-Olin (KMO) test of sampling adequacy. The value of .733 was well above standards for acceptable sampling, which is typically  $\geq .7$  (Kaiser 1974). Also, as information literacy standards and skill sets are interrelated, as expected, there were correlations between various items on the Project SAILS instrument.

The results of our administration of the 55-item Project Sails instrument were valid and reliable. Much of the validity of the Project SAILS instrument was described in O'Connor *et al.* (2002). Content validity was achieved via the steps of expert review of items and development of items in direct alignment with the ACRL standards and Project SAILS' working group-defined Skill Sets. Communication validity was established via iteratively getting feedback from students who would take the instruments while reasoning and responding to questions out loud (think-alouds), which then led to revision of items based on that feedback. Scale validity of the instrument was evaluated with Item Response Theory (IRT), where student ability in the construct, information literacy, was mapped with items in the instrument to determine that there was sufficient coverage of the range of student ability assessed by the items (aka a Wright Map). Based on the SU student scores in Fall 2015, criterion and construct validity were supported because students' scores on this instrument had a highly positive correlation with the related measures of SAT Verbal scores,  $r = .508$  ( $p < .001$ ), and SAT total scores,  $r = .513$  ( $p < .001$ ). Correlation coefficients  $\geq .5$  are evidence of large effect sizes (Field 2013). Also, Cronbach's alpha ( $\alpha$ ) is a measure of reliability, or consistency, of the data. Typically, an  $\alpha$  score  $\geq .7$  is considered indicative of a reliable scale (DeVellis 2012). The SU Fall 2015 Project SAILS instrument's value was  $\alpha = .716$ , and therefore the instrument is reliable.

### SU Student Scores on Project SAILS Instrument

On average, the students that participated (n=834) answered 30.4 items (SD=6.2) correctly out of 55 items possible (55.3%) on the Project SAILS instrument. Student scores ranged from 9 (16.4%) to 46 (83.6%) items correct. The SU average score is above the average score of all seventy higher education institutions that administered the Project SAILS individual instrument version in Fall 2015 (50.0%). Table 8 provides a categorization, based on the "basic" Carnegie Classification data from 2008 and 2010 (The Carnegie Classification of Institutions of Higher Education™ Interim Site 2015), of the institutions that participated. Based on these data it is evident that the majority of the institutions that participated were 4-year institutions, and of those most were Master's-level institutions, which are comparable to SU. However, the Project SAILS' specified benchmark values do not align with the scores achieved across this national sample. For Project SAILS, proficiency level is 70% correct and mastery level is 85% correct.

**Table 8.** Counts of the Carnegie Classification institution types (based on data from 2008 and 2010) that utilized the same Project SAILS Individual Instrument Version that SU used in the Fall 2015 GULL Week

Institution Type	n
Special Focus	2
Associate's	9
Baccalaureate	16
Master's*	26
Doctorate-granting	10
Unknown	7
<b>Total</b>	<b>70</b>

**Note.** SU Carnegie Classification category is indicated by an asterisk (\*).

On average, SU native first time students scored significantly higher on the Project SAILS instrument than transfer students (Table 9). The difference, 3.3%, was significant  $t(403) = 3.63, p = .04$ ; however, it represented a small effect size ( $r = .05$ ).

**Table 9.** Student Admit Type, to SU, Average Scores on the Project SAILS Instrument.

SU Admit Type (code)	n	Score (% Correct)	SD
First time student (F)	587	56.2*	10.7
Transfer (T + U)	241	52.9*	12.1

**Note.** Significant difference of categories' average values are indicated by an asterisk (\*),  $p \leq .05$ .

Based on the report from Project SAILS, as SU and other institutions' students' class level (i.e., freshman, sophomore, junior, senior) increased, so too did the average score on the instrument (Table 10). Specifically at SU, juniors and seniors scored significantly higher than freshmen on the Project SAILS instrument, but the difference in mean scores between groups was quite small based on effect size value interpretation ( $F(4, 829) = 6.1, p < .001, r = .17$ ). Post hoc comparisons, via the Tukey HSD test, were used to identify which class levels' mean scores were significantly different. Tests revealed significant pairwise differences between the mean scores of freshmen as compared to juniors,  $p < .05$ , and seniors,  $p < .001$ . Sophomore or unclassified students do not significantly differ from the other groups,  $p > .05$ .

**Table 10.** Student Undergraduate Class Level Average Scores on the Project SAILS Instrument.

Class Level (code)	n	Score (% Correct)	SD
Freshmen (1)	190	52.2 <sup>a</sup>	10.5
Sophomores (2)	193	55.0	12.0
Juniors (3)	245	56.0 <sup>b*</sup>	11.0
Seniors (and +) (4)	196	57.5 <sup>b**</sup>	11.0
Unclassified non-degree undergrads (7)	10	58.5	9.4

**Note.** Significant difference of categories' average scores are indicated by group letters <sup>a</sup> and <sup>b</sup>, where the group <sup>a</sup> category differs significantly compared to group <sup>b</sup> categories are indicated by an asterisk (\*),  $p \leq .05$ , or two (\*\*),  $p \leq .001$ .

When analyzed separately by class level, the same pattern holds true for increasing average scores on the Project SAILS instrument as class level increases for both the SU native first time students as well as for the transfer students. However, during this analysis the pattern for the two student admit category types also holds true by class level. Freshmen that are SU native first time students have a higher average score on the Project SAILS instrument than the freshmen transfer students – and this is true for each other class level as well.



Student performance by SU School is listed in Table 11. There was a significant difference in the Project SAILS percent correct score based on enrollment in school at SU, but the difference in mean scores between groups was quite small based on effect size value interpretation ( $F(4, 829) = 3.9, p < .05, r = .14$ ). Post hoc comparisons, via the Tukey HSD test, were used to identify which schools' mean scores were significantly different. Tests revealed significant pairwise differences between the mean scores of students who come from Seidel as compared to Fulton and Henson,  $p < .05$ . Students who come from Perdue or who are undeclared do not significantly differ from the other groups,  $p > .05$ .

**Table 11.** Student School Enrollment Average Scores on the Project SAILS Instrument.

School	n	Score (% Correct)	SD
Fulton	200	56.3 <sup>a*</sup>	12.6
Henson	217	56.7 <sup>a*</sup>	10.7
Perdue	213	55.1	11.0
Seidel	175	52.6 <sup>b</sup>	10.4
Undeclared	29	54.4	10.1

**Note.** Significant difference,  $p < .05$ , of categories' average scores are indicated by group letters <sup>a</sup> and <sup>b</sup>, where the group <sup>a</sup> categories differ significantly compared to group <sup>b</sup> category are indicated by an asterisk (\*),  $p \leq .05$ .

### Project SAILS and SOS Survey Student Responses

The Project SAILS test-takers also took the SOS Survey ( $n = 834$ ; Table 12). We were able to evaluate the reliability of both subscales within the SOS Survey. The *Importance* subscale, which addresses the extent to which the student thought it was important to do well on the Project SAILS instrument, was found to be reliable ( $\alpha = .780$ ). Similarly, the *Effort* subscale, which addresses the extent to which the student fully engaged in effortful behavior on the Project SAILS instrument, was found to be reliable ( $\alpha = .837$ ). The validity of the instrument is discussed in the SOS Survey Manual (Sundre & Thelk 2007). The 10 items, five in each subscale, are measured in a 1 to 5 scale, where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree. There are four items that are negatively worded, and their scores were reverse coded prior to analysis.

In general, students were fairly "Neutral" in their responses for both the *Importance* and *Effort* subscales. For *Importance*, this indicates that students thought that their scores on the Project SAILS instrument would not affect them strongly in either a negative or positive way. For *Effort*, it indicates that students put in a moderate effort towards completing the Project SAILS instrument. The two subscales had a large positive correlation with one another,  $r = .544$  ( $p < .01$ ; large effect size) and one subscale, *Effort*, was also minimally positively correlated with the Project SAILS percent correct value,  $r = .128$  ( $p < .01$ ; small effect size). This latter seems to indicate that the students that self-reported exerting more effort on the Project SAILS assessment also scored higher than those who did not self-report exerting as much effort, although the effect size was small.

**Table 12.** Student Opinion Scale (SOS) Survey subscales' administrative results for the students that also participated in the Project SAILS instrument administration.

SOS Subscale	Number of Items	Reliability ( $\alpha$ )	n	Average Score (out of 25)	SD
Importance	5	.780	834	15.4	4.1
Effort	5	.837	834	15.9	4.7

## Discussion

Based on the results presented here it seems that there is room for improvement in student learning outcomes related to information literacy at SU. Several action items are suggested below towards this end.

1. To determine whether or not our students are meeting SU expectations for information literacy, the benchmarks with which SU students' information literacy is compared should be evaluated by objective faculty and/or staff with expertise in the discipline or assessment of it. Since the Project SAILS' proficiency level of 70% is nowhere close to what the national average on the individual instrument version in Fall 2015 (50%), the Project SAILS' benchmark values may represent a misalignment with actual student ability on the current instrument. When asked, a Project SAILS representative stated that, "The proficiency cut-scores were established by librarians at Kent State [University] during the development of the individual [instrument version]. These cut-scores are a guideline and your institution may want to establish a different measure for your students." Also, considering that the Project SAILS instrument changes from year to year, it seems that the benchmarks should similarly be re-evaluated and iterated upon based on a rule for generating a standardized value (e.g., percent score expected at a given year in college; a value a standard deviation lower than the average of experts' scores; etc.).
2. Similarly, library faculty and UARA staff should align the Project SAILS instrument with the SU Information Literacy General Education Area student learning outcomes. Since the Project SAILS instrument is aligned with the ACRL Standards and the Project SAILS' Skill Sets, SU library faculty should be able to align the SU student learning outcomes with either of those or with the newly-drafted SU Information Literacy Matrix (Appendix 3).
3. Concurrently with Action Item #2, both the library faculty and the General Education Review Steering Committee should evaluate the need to revise the current SU Information Literacy General Education Area student learning outcomes. Do the current student learning outcomes align with our expectations of students' skills in information literacy that should be achieved while they are at SU? Is the language clear? Are they assessable? These should be targeted at the institutional level, but other levels of student learning outcomes related to information literacy may be generated as well to address program, or course-level assessment needs (e.g., SU Information Literacy Matrix; Appendix 3).
4. Based on discussions and decisions related to Action Items #1-3, relevant parties such as library faculty and the General Education Review Steering Committee should consider whether or not the Project SAILS instrument is aligned well with the current (or revised) SU Information Literacy General Education Area student learning outcomes. If it is not aligned, then an alternative assessment that is aligned should be identified.
5. Relevant stakeholders at SU should consider the results from the Project SAILS assessment to develop interventions or review and update curricula to align with areas that need improvement. Successful projects at other institutions may be considered to guide instructional interventions at SU, such as the development of an online asynchronous one credit course specifically developed to align with information literacy (Mery et al. 2011). Based on the evidence in the results section of this report, groups that would benefit most from such an intervention would be transfer students, freshmen, and students in Seidel.
6. Based on discussions and decisions related to Action Items #1-5, a timeline for re-assessment of the SU Information Literacy General Education Area student learning outcomes should be proposed. This will allow an analysis of whether or not there is change in student learning outcomes based upon either a change in assessment or instructional or curricular interventions.

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## Appendices

Appendix 1. Example item from the Project SAILS Instrument (O'Connor *et al.* 2002)

Appendix 2. Student Opinion Scale (SOS) Survey (Sundre & Thelk 2007)

Appendix 3. SU Libraries Information Literacy Matrix (draft November 2015)

### Appendix 1. Example item from the Project SAILS Instrument (O'Connor *et al.* 2002)

*Item.* If you are required to write a paper on teenage pregnancy, which of the following types of databases might have articles on this topic? CHOOSE ALL THAT APPLY.

- A. architecture database
- B. education database
- C. health database
- D. mathematics database
- E. physics database
- F. psychology database

*Correct Response:* B, C, F

*Alignment:*

ACRL Standard Two: The information literate student accesses needed information effectively and efficiently.

ACRL Performance Indicator 1: The information-literate student selects the most appropriate investigative methods or information retrieval systems for accessing the needed information.

ACRL Outcome: Selects appropriate tools (e.g., indexes, online databases) for research on a particular topic.

Project SAILS' working group-defined Skill Set 8: Evaluating sources

SU General Education Area 1.4 Information Literacy: 1.4a.2. & 1.4b.2. Select, evaluate, and cite reputable and appropriate sources.

SU Libraries Information Literacy Matrix: Accessing information

### Appendix 2. Student Opinion Scale (SOS) Survey (Sundre & Thelk 2007)

Item	Item Text	Subscale
1	Doing well on these tests was important to me.	Importance
2	I engaged in good effort throughout these tests.	Effort
3*	I am not curious about how I did on these tests.	Importance
4*	I am not concerned about the scores I receive on these tests.	Importance
5	These were important tests to me.	Importance
6	I gave my best effort on these tests.	Effort
7*	While taking these tests, I could have worked harder on them.	Effort
8	I would like to know how well I did on these tests.	Importance
9*	I did not give these tests my full attention while completing them.	Effort
10	While taking these tests, I was able to persist to completion of the tasks.	Effort

\* Denotes items that are reversed prior to scoring.

Appendix 3. SU Libraries Information Literacy Matrix (draft November 2015)

ACRL Standards	Lower Division Students will:	Upper Division Students will:	Graduate Students will:
Information need	Begin to formulate research statement or question based on a topic or assignment requirement.	Broaden or narrow a research statement or question based on research interest and resources found.	Formulate a highly specific research question, reevaluating when necessary.
Accessing Information	<p>Search the catalog to identify books and other materials owned by the library; find a book on the shelf using its LC call number.</p> <p>Search multidisciplinary databases to find full text journal articles on a topic; use Find It links to find full text of articles.</p>	<p>Use Interlibrary Loan to request materials not owned by the library.</p> <p>Search subject specific databases to identify journal articles on a topic.</p>	Use a variety of resources (databases, Quick Search, library catalog) to locate and request materials in his or her field.
Evaluating Information	<p>Distinguish between reference sources and research articles when writing a paper.</p> <p>Begin to evaluate sources based on given criteria (relevancy, currency, authority, reliability)</p>	<p>Critically evaluate sources based on disciplinary standards.</p> <p>Distinguish between primary and secondary sources.</p> <p>Distinguish between popular and scholarly sources.</p> <p>Understand the differences between types of resources (books, journal articles, dissertations, white papers, etc.)</p>	<p>Evaluate sources in the context of methodology used in his or her field.</p> <p>Selects information that provides the evidence needed at a professional level.</p>
Using Information to meet a need	<p>Use reference sources to locate background information on a topic.</p> <p>Use books and/or journal articles to support an argument in short research paper.</p>	Use a variety of source types to support an argument or outline a topic in a long research paper or other assignment.	Write a thesis or complete another original research project.
Using Information ethically and legally	<p>Cite sources using an established citation format in order to avoid plagiarism.</p> <p>Locate SU's policy on Academic Integrity on the institutional website successfully.</p> <p>Read and understand SU's policy on Academic Integrity.</p>	<p>Cite sources in the established citation style for his or her major field.</p> <p>Consider issues of intellectual property and copyright.</p>	<p>Consider issues of intellectual property and copyright in the context of his or her published work.</p> <p>Understand research integrity in the context of his or her discipline.</p>