



ILO 4 Information and Technology Literacy

EVIDENCE TEAM REPORT

2020-2021

**Evidence Team**

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## Institutional Learning Outcome Statement

Institutional Learning Outcome (ILO) 4 is written as two parts to accommodate the different aspects of Information Literacy and Technology Literacy.

Institutional Learning Outcome 4A Information Literacy: Define what information is needed to solve a real-life issue, and locate, access, evaluate and manage the information. *Examples of when students have demonstrated mastery of this ILO includes, but is not limited to:*

- Determine the nature and extent of information needed.
- Locate, access, manage, and evaluate information from multiple sources.
- Use information ethically and legally.

Institutional Learning Outcome 4B Technology Literacy: Proficiency in a technology and the ability to choose the appropriate tools. *Examples of when students have demonstrated mastery of this ILO includes, but is not limited to:*

- Use technology and the ability to choose the appropriate tools.
- Select and use technology appropriate for the task.
- Understand the implications of technology in society.

### Previous Review

ILO 4 Information and Technology Literacy was last reviewed in Spring 2015 by an evidence team that included the current Chair. After extensive discussion, the 2015 team orchestrated a college-wide agreement to split the original ILO 4 into two parts to better assess the skills of our students in different academic programs. ILO4 became ILO 4A: Information Literacy for subject areas related to research and writing and ILO 4B: Technology Literacy for subject areas related to mechanical manipulation and calculations. The ILO team that assessed ILO 4 originally recommended that the ILO be split into information and technology literacy because of the disparate nature of the topics. After the approval of the split by all campus stakeholders including Academic Senate, the 2015 team wrote rubrics for each section (4A or 4B) and met with faculty to have them remap their course learning outcomes to either 4A or 4B. The team analyzed the data shown below and determined that the college was well above the benchmark of 70%

#### Summary: Academic Affairs

AHC Benchmark: 70%*	Meets		Does Not Meet	
ILO 4A Information Literacy	1602	92.71%	126	7.29%
ILO 4B Technology Literacy	2213	87.19%	325	12.81%

The spring 2012 evidence team set the benchmark at 70%.

#### Summary: Student Services

AHC Benchmark: 70%*	Meets		Does Not Meet	
ILO 4A Information Literacy	568	92.66%	45	7.34%
ILO 4B Technology Literacy**	NA			

\*The spring 2012 evidence team set the benchmark at 70%.

\*\*No Student Services Context Group Mapped for this sub-ILO.

The 2015 Evidence Team recommended that the campus:

1. Continue to explore processes to monitor institutional learning outcomes (and various levels of student learning outcomes) efficiently and regularly with minimal impact/no additional burden of time and effort on the faculty and student services. For instance, ILO assessment can be integrated in established institution-wide course and program reviews.
  - This suggestion was tabled in 2020-2021 due to the challenging nature of COVID. It is the hope of the current team that the ILO assessment process will be revisited in 2021-2022
2. Continue to conduct regular surveys (like Distance Learning Team and Library Services) in various student services programs to promote better understanding and implement strategies to meet the changing student needs.
  - The 2020-2021 ILO4 team followed the lead on other ILO teams who heeded this suggestion and used a Student Survey as part of the data collection and evidence process
3. Integrate ILO rubrics in assessing student coursework and services (as deemed applicable and appropriate). The team believes that there would be more direct correlation of course student learning outcomes with the institutional learning outcomes. The current team provided an opportunity for faculty feedback and option to use the new rubrics.
  - Integrating ILO performance attributes into student coursework assessment was put partially on hold due to the demands of pandemic. The 2021 team feels that this goal should be revisited as part of a larger discussion around the process of ILO assessment and how the assessment is implemented on campus.
4. Use faculty feedback to continually define and refine the institutional learning outcomes. Through ongoing communication, these learning outcomes are more likely to be relevant and meaningful to students, faculty, staff, and college as a whole.
  - The 2021 team was comprised of members from departments that regularly integrate ILO4 into their courses. The team made a concerted effort to reach out to departments across campus for feedback on the rubric, performance attributes, and more.
5. Provide incentives for integration of ILO rubrics, timely reporting of assessment findings, and creative strategies to promote ongoing assessment of multiple levels of learning outcomes.
  - The team did not address this as the college has decided to shift focus from course learning outcome assessment to program learning outcome assessment. The team felt it would be too much to add on another change in the middle of COVID.
6. Promote information and technology literacy (and other ILOs) to students, teaching and service faculty, and staff. Opportunities abound to have open discussions on how to best improve outcomes and essentially realize the outcomes the college promised the students and the community.
  - Due to recent historical events, our students, faculty, and staff have had the opportunity to apply practical applications of this ILO in real-life scenarios. We agree with the need to continue to further integrate ILOs formally into course learning outcomes, encourage open discussions around best practices, and provide instruction and training for those who need it.
7. Institute pilot projects on best using the features of eLumen in measuring institutional learning outcomes. For instance, in lieu of a college-wide assessment of institutional learning outcomes, it

would be prudent to consider pilot studies of volunteers who would actively engage in integrating ILO rubrics and report data in eLumen in a timely manner.

- Due to the COVID pandemic, the 2020-2021 ILO team deemed this was not an option.
8. Include student feedback and self-assessments regarding their attainment of institutional learning outcomes. In 2013, Library Services conducted AHC Library User Survey and student focus group.
- As mentioned in recommendation 2, the team did this and used a Student Survey.

### **Intentional Actions of the 2019 Evidence Study**

The 2020/2021 evidence team:

- Reviewed the ILO 4 Information and Technology Literacy definition and examples and updated the rubric.
- Collaborated with the institutional research team in developing the student survey based on the updated ILO 4 Information and Technology Literacy rubric.
- Gathered eLumen data with the past six years (2013-2019 inclusive). The data was aligned with the student demographics (gender, age, and ethnicity), subgroups (foster youth, veterans, and first generation), and groups who are directed to services and programs from the enrollment management platform, Banner.
- Provided various opportunities for faculty to review the rubric, the student survey, and the course student learning outcomes (CSLO) mapping to the ILO 4 Information and Technology Literacy.

### **Purpose**

This assessment was done to continue the cycle of annually focusing on one specific ILO. The 2020/2021 team continued to use the assessment method of developing a rubric, creating a student survey and then collection data. Current data uses both direct assessment using eLumen data and indirect assessment using student surveys.

### **Processes and Methods**

#### *Rubric*

The team reviewed the previous rubrics and expanded them to a four-point Likert scale which was in alignment with the standard assessment tools used for course assessments. The performance scale consisted of: exceeds expectation, meets expectation, needs improvement or inadequate. Team members shared the rubric with faculty from all departments and discussed and implemented the provided feedback. Exhibit 1 shows the finalized version.

#### *Student Survey*

Team members worked on statements that would be sent out to students to solicit the students' self-assessment of their skills. The survey uses a four-point Likert scale also with levels of strongly agree, agree, disagree, strongly disagree. Like the rubric, the survey prompts were shared by team members with all the departments on campus. Feedback was incorporated, and the finalized version is shown in Exhibit 2.

#### *eLumen Data Collection*

AHC uses eLumen as the assessment software. It served as a faculty-accessed CSLO assessment measures

reporting system. The CSLOs were mapped to both program learning outcomes (PLOs) and the ILOs. The evidence study focused on specific CSLO that were mapped to ILO 1 communication. The eLumen data were collected within the past six years, 2013-19, inclusively. The data were aligned with Banner, the enrollment management platform. The Banner data extract linked data points with student demographics (gender, age, and ethnicity), subgroups (foster youth, veterans, and first generation), and groups who were directed to services and programs. This data was used to represent direct assessments of ILOs, whereas the survey would capture indirect assessments. The eLumen data is also analyzed for disproportionate impact<sup>1</sup> and the overall meeting of ILO standards.

#### *Opportunities for Faculty Involvement*

Team members were selected from departments with large buy-in to the ILO based on the percentage of course learning outcomes mapped to the ILO (Table 1). Each team member reached out to their own departments and others on campus to solicit faculty feedback on the ILO rubric and student survey drafts. The team specifically contacted the different disciplines, departments, and/or course groups that had CSLO mapped to ILO 4 as seen in Table 1. The evidence team contacted faculty through email and various college-wide meetings help.

*Table 1 Learning outcomes mapped to ILO 4 by department*

<b>Department</b>	<b>Total CLOs</b>	<b>Mapped to ILO_4</b>	<b>Ratio</b>
<b>ABS</b>	220	15	7%
<b>BUS</b>	266	52	20%
<b>CNSL</b>	33	2	6%
<b>COS</b>	6	1	17%
<b>ENGL</b>	49	6	12%
<b>FA</b>	593	52	9%
<b>HS</b>	110	4	4%
<b>IT</b>	265	111	42%
<b>LANG</b>	110		0%
<b>LBRY</b>	6	5	83%
<b>LPS</b>	322	15	5%
<b>MATH</b>	99	14	14%
<b>NC</b>	11		0%
<b>PE/ATH</b>	87		0%
<b>PS</b>	321	3	1%
<b>SBS</b>	217	2	1%
<b>Grand Total</b>	2715	282	10%

Faculty representatives for the research committee were chosen among the highest impact departments in Table 1.

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<sup>1</sup> Percentage Point Gap Analysis

## Results

### eLumen Results- Direct Measures

Table 2 Overall elumen results

	# Meets	# Not Meets	% Meets
<b>ILO 4A - Information Literacy</b>	2,341	276	89.72%
<b>ILO 4B - Technology Literacy</b>	4,557	790	84.83%

Table 3 eLumen disproportionate impact analysis

Demographic Element	# Meets	# Not Meets	% Meets	PPG	80% Rule
<b>ILO 4A- Information Literacy</b>					
American Indian/Alaskan Native	22	2	91.67%	2.21%	99.98%
Asian	58	8	87.88%	-1.57%	95.85%
Black Non-Hispanic	65	12	84.42%	<b>-5.04%</b>	92.07%
Filipino	80	4	95.24%	5.78%	103.87%
Hispanic	1,350	179	88.29%	-1.16%	96.30%
Other Non-White	0	0			0.00%
Pacific Islander	5	0	100.00%	10.55%	109.07%
Unknown/Undeclared	11	3	78.57%	-10.88%	85.70%
White Non-Hispanic	750	68	91.69%	2.23%	100.00%
<b>ILO 4B- Technology Literacy</b>					
American Indian/Alaskan Native	26	6	81.25%	<b>-3.98%</b>	92.11%
Asian	140	16	89.74%	4.52%	101.74%
Black Non-Hispanic	132	47	73.74%	-11.48%	83.60%
Filipino	161	20	88.95%	3.72%	100.84%
Hispanic	2,490	485	83.70%	-1.53%	94.89%
Other Non-White	0	0			0.00%
Pacific Islander	22	4	84.62%	-0.61%	95.93%
Unknown/Undeclared	23	3	88.46%	3.24%	100.29%
White Non-Hispanic	1,563	209	88.21%	2.98%	100.00%

### Student Survey- Indirect Measures

Table 4 Student survey dimensions statistics

<b>Survey Dimension Statistics</b>					
	N	Minimum	Maximum	Mean	Std. Deviation
ILO4.1 Nature and extent of information needed	209	1.00	4.00	3.2201	0.66461
ILO4.2 Locate, access, manage, and evaluate information	207	1.00	4.00	3.1787	0.52665
ILO4.3 Use information ethically and legally	205	1.33	4.00	3.5528	0.46448
ILO4.4 Use technology and choose tools	205	1.00	4.00	3.2841	0.56777

ILO4.5 Select and use technology	208	2.00	4.00	3.3906	0.50397
ILO4.6 Understand ethical and legal implications	207	1.75	4.00	3.2766	0.50653
ILO4 Overall	198	1.88	4.00	3.3165	0.38635

Table 5 Three lowest and highest survey items

Lowest Three Survey Items					
	N	Minimum	Maximum	Mean	Std. Deviation
I feel comfortable navigating the library's catalog and/or library databases to find information for research assignments.	207	1	4	2.96	0.771
I am comfortable with proper keyboarding techniques including typing without looking at the keyboard.	208	1	4	3.13	0.842
I feel comfortable determining the validity of information found from social media, search engine or other internet inquiries.	207	1	4	3.13	0.688
Highest Three Survey Items					
I am comfortable incorporating other people's ideas into my work by paraphrasing, using direct quotes, or otherwise clearly attributing credit to the original author or creator.	207	1	4	3.49	0.630
I know how to use the camera and the microphone.	208	1	4	3.55	0.545
I understand that it is wrong to falsely present other authors' or creators' words, work, or ideas as my own (plagiarism).	207	1	4	3.73	0.507

ILO4- Student Survey Disproportionate Impact (DI) Analysis					
Group		Number	Percentage Point Gap DI	80% Index DI	Proportionality Index DI
DSPS	Yes	30	No	No	No
	No*	168	No	No	No
Economically Disadvantaged	Yes	181	No	No	No
	No*	17	No	No	No
EOPS	Yes	39	No	No	No
	No*	159	No	No	No
Ethnicity	American Indian/Alaskan Native	5	Yes	Yes	Yes
	Asian	1	No	No	No
	Asian Indian	1	No	No	No
	Black Non-Hispanic	8	No	No	No
	Chinese	1	No	No	No
	Filipino	4	No	No	No

	Mexican/Mex-American/Chicano	73	Yes	No	No
	NR	1	No	No	No
	Other Hispanic	10	No	No	No
	Pacific Islander	2	No	No	No
	Vietnamese	1	No	No	No
	White Non-Hispanic*	91	No	No	No
Gender	Male*	56	No	No	No
	Female	136	No	No	No
	Not Reported	6	No	No	No
* Reference group for PPG and 80% index					

## Analysis

### Overall analysis

The direct assessment data from eLumen indicated that overall, students met the benchmark for both ILO4A and ILO4B with 90% and 85% respectively.

The indirect assessment from the student survey indicated that students met standards with an overall mean of 3.32 response to the 1 to 4 scale as seen in Table 4. Items with a mean of 3 or higher are considered meeting the standard, and those with a mean below 3 indicate students do not feel comfortable meeting the standard. Table 5 illustrates that the survey item, “I feel comfortable navigating the library’s catalog and/or library databases to find information for research assignments” had a 2.96 response mean, indicating that students did not feel comfortable navigating the library’s catalog and/or databases.

### Disproportionate impact analysis

Disproportionate impact occurs when the subset of students based on a student characteristic such as age, race, and gender are unjustifiably experiencing lower outcomes compared to the total student population. Title 5 § 55502 (d) similarly described methods to determine disproportionate impact<sup>2</sup>. It can be determined by percentage point gap (PPG) and 80% rule.

The PPG compares the percentage in a particular outcome for a disaggregated group to the percentage for all students. A negative PPG indicates that the disaggregated subgroup has a lower rate compared to the rate of all students and may be a significant disproportionate impact. PPG uses a threshold or margin of error that is adjusted by sample size or cohort size of the subgroup. The standard margin of error is three percent (3%) if the sample size is at least 800. The margin of error increases the sample size decreases (Appendix C ). The PPG of the survey results were adjusted according to the sample size.

### ***The eLumen Data***

Although the elumen data is a direct assessment, it is “noisy” data that relies on numbers to overcome issues in collection. When the margin of error (Appendix C) is applied to the disaggregated ethnicity data, no

<sup>2</sup> Disproportionate impact analysis using the 80% rule and proportionality index



ethnicity groups were considered disproportionately impacted as seen in Table 3.

The R software package DisImpact<sup>3</sup> was used to evaluate disproportionate impact data for the student survey data see in Table 6. Mexican/Mex-American/Chicano and American Indian/Alaskan Native were two groups flagged as being disproportionately impacted, with American Indian/Alaskan Native being flagged by all three types of analysis. However, the small number of respondents relative to our known campus population numbers would indicate that this may be an issue of inadequate responses to the survey.

### **Other analysis**

The team also conducted a binary logistic regression analysis on the survey data using credits earned as the independent variable. The results of the analysis indicated that the number of credits earned had a significant effect on the probability of a student meeting the standard. For every credit earned, a student increases their chances of meeting the standard by 1.5 percent.

## **Conclusions, Recommendations, and Subsequent Actions**

While there was no disproportionate impact from the eLumen data as seen in Table 3, there were some concerning results from the survey data. The Mexican/Mex-American/Chicano group from the DI analysis was impacted. Although the number of responses from this group was only 73, that was a large portion of the total survey responses and could be indicative of a disproportionate impact. Moreover, the one survey item that was below standards indicates that some effort regarding navigating library information systems needs to be addressed. After reviewing the data, the research committee recommends the following:

- Increase survey response rate
  - Utilize clubs or organizations take time out to fill out the survey.
  - Canvas distribution may be a factor in low turnout – notification fatigue. Explore new methods of distributing the survey on Canvas or asking instructors to distribute the survey in their Canvas course instances.
  - Increase systematic use of classes with survey distribution.
  - Incentivize survey with some award or gift.
- Faculty should incorporate librarian instruction if the class does research projects to lend extra support and expertise to struggling students.
- We may also want to decouple the concept of information literacy from specifically using the library catalog and/or databases if most of students' research projects are using non-academic sources.
- The highest score indicated that students understood that plagiarism is wrong, but the research committee feels that the question was not adequate in illustrating the complexity of plagiarism and what it entails. Therefore, the assessment should be revised to better assess understanding of what plagiarism is and connect it to the action of plagiarism, not the morality of it.

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<sup>3</sup> DisImpact Analysis using R

## Appendix A: Survey Results

	N	Minimum	Maximum	Mean	Std. Deviation
<b>ILO 4A: Information Literacy</b>					
<b>As a result of your educational experience at Allan Hancock College, please respond to these statements about your ability to <u>determine the nature and extent of information needed.</u></b>					
<i>When doing research, I can tell what kinds of resources I need to answer different types of questions. (i.e. I know when to use peer</i>	209	1	4	3.22	.665
<b>As a result of your educational experience at Allan Hancock College, please respond to these statements about your ability to <u>locate, access, manage, and evaluate information from multiple sources.</u></b>					
<i>I feel confident in my ability to determine if the resources I find are credible, reliable, and relatively free from bias.</i>	209	1	4	3.25	.656
<i>I feel comfortable determining the validity of information found from social media, search engine or other internet inquiries.</i>	207	1	4	3.13	.688
<i>I usually use multiple resources when constructing arguments for my papers and other research assignments.</i>	207	1	4	3.38	.570
<i>I feel comfortable navigating the library's catalog and/or library databases to find information for research assignments.</i>	207	1	4	2.96	.771
<b>As a result of your educational experience at Allan Hancock College, please respond to these statements about your ability to <u>use information ethically and legally.</u></b>					
<i>I understand that it is wrong to falsely present other authors' or creators' words, work, or ideas as my own (plagiarism).</i>	207	1	4	3.73	.507
<i>I am comfortable incorporating other people's ideas into my work by paraphrasing, using direct quotes, or otherwise clearly attributing credit to the original author or creator.</i>	207	1	4	3.49	.630
<i>I use appropriate citation formats (APA/MLA) when writing formal assignments.</i>	205	2	4	3.44	.562

## ILO 4B- Technology Literacy

**Considering your educational experience at Allan Hancock College, please respond to these statements about your ability to use technology and the ability to choose the appropriate tools.**

<i>I am able to organize and utilize my files across various platforms. (i.e. Dropbox, desktop, OneDrive, Google Drive)</i>	208	1	4	3.18	.699
<i>I am able to download, open and use various files with different extensions (i.e. .doc, .pdf, .msp, .zip).</i>	207	1	4	3.30	.651
<i>I am able to choose an appropriate software program for a task (i.e. writing a paper, sending an email, preparing a presentation).</i>	208	1	4	3.38	.626
<i>I am comfortable with a variety of software programs (i.e. Word, Excel, PowerPoint, Web browser, Adobe Acrobat).</i>	206	1	4	3.26	.703

**Considering your educational experience at Allan Hancock College, please respond to these statements about your ability to select and use technology appropriate for the task.**

<i>I believe learning to keyboard is an important life skill.</i>	208	1	4	3.44	.649
<i>I know how to use the camera and the microphone.</i>	208	1	4	3.55	.545
<i>I am comfortable with proper keyboarding techniques including typing without looking at the keyboard.</i>	208	1	4	3.13	.842
<i>I know when to use a cell phone, tablet, computer, laptop, or Chromebook for a given task.</i>	208	1	4	3.45	.612
<i>I am comfortable with the various ways my mouse or touchpad interacts with software programs.</i>	208	1	4	3.38	.618

**Considering your educational experience at Allan Hancock College, please respond to these statements about your ability to understand the ethical and legal implications of technology in society.**

<i>I believe there are ethical implications to using my cell phone or a computer in a class to take pictures or record without permission.</i>	209	1	4	3.22	.693
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<i>I am aware of the public implications of postings on various platforms such as Facebook, Instagram and Twitter.</i>	208	1	4	3.37	.574
<i>I understand the legal implications associated with posting on a social media site.</i>	207	1	4	3.23	.662
<i>I am aware of copyright of electronic resources online, such as photos, videos and text and how to use them ethically.</i>	209	1	4	3.29	.638

### Appendix B: Binary Logistic Regression Results

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup> Credits_Earned	.015	.007	5.372	1	.020	1.015
Constant	.924	.296	9.712	1	.002	2.519

a. Variable(s) entered on step 1: Credits\_Earned.

### Appendix C: Margin of Error: Thresholds for the Percentage Point

n	E(95%CI)	n	E(95%CI)	n	E(95%CI)	n	E(95%CI)
11	30%	51	14%	91	10%	410	5%
12	28%	52	14%	92	10%	420	5%
13	27%	53	13%	93	10%	430	5%
14	26%	54	13%	94	10%	440	5%
15	25%	55	13%	95	10%	450	5%
16	25%	56	13%	96	10%	460	5%
17	24%	57	13%	97	10%	470	5%
18	23%	58	13%	98	10%	480	4%
19	22%	59	13%	99	10%	490	4%
20	22%	60	13%	100	10%	500	4%
21	21%	61	13%	110	9%	510	4%
22	21%	62	12%	120	9%	520	4%
23	20%	63	12%	130	9%	530	4%
24	20%	64	12%	140	8%	540	4%
25	20%	65	12%	150	8%	550	4%
26	19%	66	12%	160	8%	560	4%
27	19%	67	12%	170	8%	570	4%
28	19%	68	12%	180	7%	580	4%
29	18%	69	12%	190	7%	590	4%
30	18%	70	12%	200	7%	600	4%
31	18%	71	12%	210	7%	610	4%
32	17%	72	12%	220	7%	620	4%
33	17%	73	11%	230	6%	630	4%
34	17%	74	11%	240	6%	640	4%
35	17%	75	11%	250	6%	650	4%
36	16%	76	11%	260	6%	660	4%
37	16%	77	11%	270	6%	670	4%
38	16%	78	11%	280	6%	680	4%
39	16%	79	11%	290	6%	690	4%
40	15%	80	11%	300	6%	700	4%
41	15%	81	11%	310	6%	710	4%
42	15%	82	11%	320	5%	720	4%
43	15%	83	11%	330	5%	730	4%
44	15%	84	11%	340	5%	740	4%
45	15%	85	11%	350	5%	750	4%
46	14%	86	11%	360	5%	760	4%
47	14%	87	11%	370	5%	770	4%
48	14%	88	10%	380	5%	780	4%
49	14%	89	10%	390	5%	790	3%
50	14%	90	10%	400	5%	800	3%