ILO 6 Scientific Literacy: Where are we?

Step C (Spring 2012) → Step D (Spring 2016)

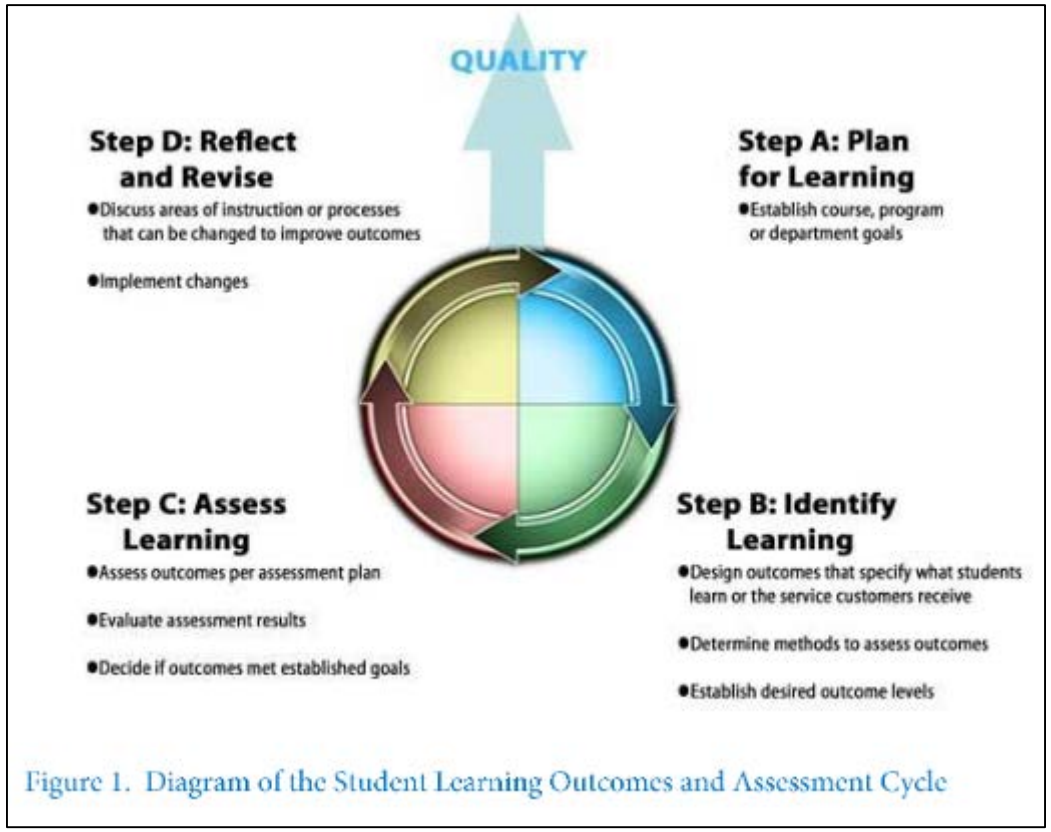

Figure 1. Diagram of the Student Learning Outcomes and Assessment Cycle

The Evidence Team

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The 2016 evidence team continues the study with these purposes:

- ✓ **Review and revise** ILO 6
- ✓ Develop a **rubric**
- ✓ Gather data from **summer 2012 to spring 2016**.
  - **Disaggregate data**, if possible, to help determine the presence of **disproportionate impact on various** groups.
- ✓ **Compare previous and current data – benchmark** (70% meet or exceed standards)
- ✓ **Make recommendations**

The rubric is revised.

	Exceeds Standard (3)	Meets Standard (2)	Below Standard (1)	No Evidence
Demonstrate science-based understanding of the natural world.	Thoroughly researches concepts. Effectively describes natural scientific concepts in oral and/or written formats.	Adequately researches concepts. Adequately describes natural scientific concepts in oral and/or written formats.	Unable to adequately research concepts. Unable to adequately describe natural scientific concepts in oral and/or written formats.	
Describe and demonstrate the use of the scientific method.	Poses thoughtful and concise questions about observations. Develops efficient and effective experiments to gather data. Proposes thoughtful hypotheses.	Poses reasonable questions about observations. Develops reasonable experiments to gather data. Proposes reasonable hypotheses.	Unable to pose reasonable questions about observations. Unable to develop reasonable experiments to gather data. Unable to propose reasonable hypotheses.	
Apply scientific concepts and models to solve complex problems within the natural world.	Efficiently and accurately gathers experimental data. Effectively analyzes data. Clearly understands the results and applications of the data.	Adequately gathers experimental data. Adequately analyzes data. Adequately understands the results and applications of the data.	Unable to adequately gather experimental data. Unable to adequately analyze data. Unable to adequately understand the results and applications of the data.	
Demonstrates science-based knowledge and applications in real world-situations.	Accurately and/or effectively applies science-based knowledge in real world situations.	Adequately applies science-based knowledge in real world situations.	Unable to adequately apply science-based knowledge in real world situations.	

- **NEW:** Three-point scale. Alignment with eLumen.
- **NEW:** 4th dimension: "Demonstrates science-based knowledge and application in real world situations."

Faculty Request	Available eLumen Data
Correlation with science courses **Day versus evening** **English status** **Ethnicity (Latino, Asian White, Filipino, Oaxaca)** **Financial status/Economically disadvantaged** **Full versus Part-time** **Male versus Female** **Online versus live** **Prerequisites (MATH, BIOL, ENGL, real-world)** **Transfer versus non-transfer**	Age DSPs Economically disadvantaged EOPS/CARE/CalWorks Ethnicity (Latino, Asian White, Filipino, Oaxaca) First generation Foster Male versus female MESA Veteran

Disaggregating Data

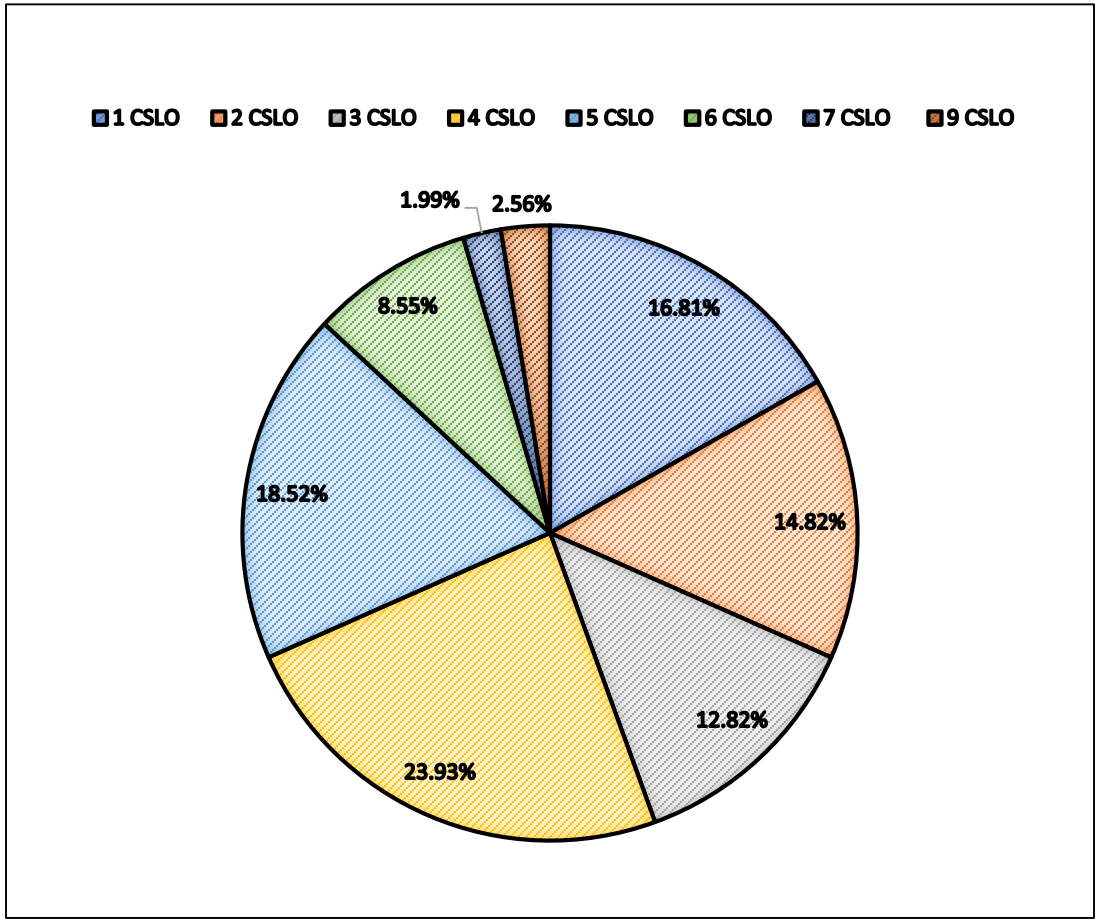
- Current eLumen settings warranted <u>further set-up and testing</u> to be able to generate disaggregated data.

RECOMMENDATION: The efforts to enable eLumen to disaggregate student demographics **should be completed and applied as soon as possible**. Disaggregated data can help drive efforts to **close the gaps** in access and success in underrepresented student groups.

Data Points

141 courses mapped to this ILO

59 courses had 1 CSLO mapped
26 courses had 2 CSLOs mapped
15 courses had 3 CSLOs mapped
21 courses had 4 CSLOs mapped
13 courses had 5 CSLOs mapped
5 courses had 6 CSLOs mapped
1 courses had 9 CSLOs mapped



Results:

ILO 6 Summer 2012-Fall 2016

	Exceeds/Meets Standards	Below Standards
Total	13,216	3,164
Percentage	**80.68%**	19.32%

Benchmark (Goal):
75% Meets/Exceeds Standards

Conclusions

- **CHALLENGE:** Use and applicability of rubrics in relation to assessment measures that were used to assess CSLOs.
- **HOPE:** eLumen features: ability to disaggregate data and to align with ILOs (and even PSLOs)!
- **CHALLENGE** & **HOPE**: Faculty responses to ILO evidence study and use of SLO data in academic/institutional decision-making.
- **PLAN**: Continued attainment of ILO 6 benchmark of 75%.