



Learning Achievement in Advanced Degree Programs: A Summary Analysis of the 2020 Graduate Program Assessment Reports

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Executive Summary

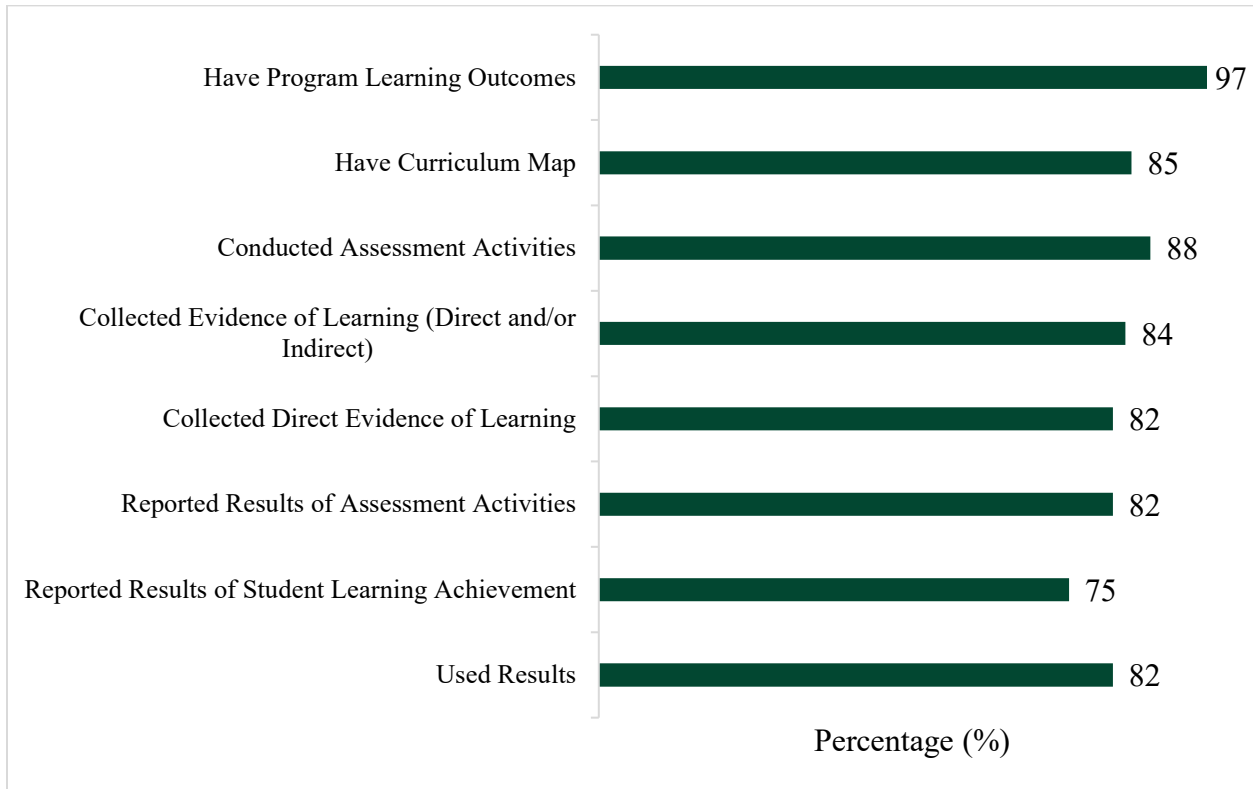
The University of Hawai'i at Mānoa (UHM) is a public research-intensive comprehensive university, accredited by the Western Association of Schools and Colleges Senior College and University Commission (WSCUC). UHM faculty conduct program and institutional level learning assessment mainly for the purpose of improvement of teaching and learning. The learning assessment activities and reporting also help the institution maintain its accreditation status. The institutional accreditation standards require that systematic investigations of student learning achievement take place for all graduate degrees and that findings are applied to the design and improvement of curricula, pedagogy, and assessment methodology.

The main mechanism used to document program level learning assessment activities is through the program assessment reports that the Assessment & Curriculum Support Center (ACSC) periodically collects from all academic degree programs. (See the 2020 [report template](#).) In 2020, the ACSC collected 140 reports on program learning assessment from 141 advanced degree programs at UHM, a 99% submission rate. This report summarizes the advanced degree program learning assessment status at UHM based on the analysis of these program assessment reports. In addition, this report describes how the Center has used the program assessment reports to analyze student learning achievement on Institutional Learning Objectives (ILOs) for the advanced degree programs (Appendix A).

A large majority of the advanced degree programs have engaged in systematic program learning assessment activities, 2018-2020 (Figure 1).

Figure 1

Summary of Graduate Program Assessment Status and Activities, 2018-2020 Reporting Period

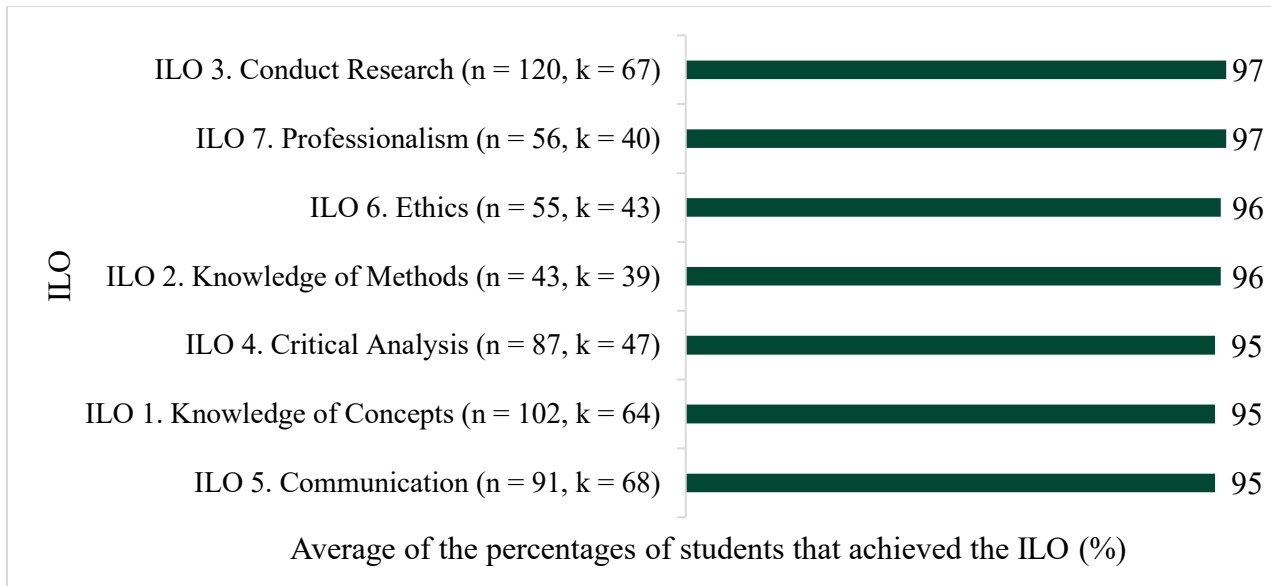


Note. All percentages in this report, unless otherwise noted, are calculated using the total number of graduate programs (n = 141).

Because three quarters of all graduate programs have results on student learning achievement, it is reasonable to represent the institution-level learning achievement by aggregating the program-level results. We first verified the alignment between each program learning outcome (PLO) and the ILOs. To represent the ILO achievement result, we averaged the available results reported for the PLOs aligned with that ILO; each PLO result was expressed as the percentage of assessed students who met the minimum achievement for the PLO. On average, at least 95% of the students achieved the PLOs aligned with each ILO, indicating an almost full-scale achievement on all the ILOs (Figure 2).

Figure 2

Advanced Degree Program ILO Achievement Results as the Average of the Percentages of Students Who Achieved the PLOs Aligned with Each ILO



Note. For each ILO, n is the number of PLO results used to calculate the ILO achievement result, and k is the number of programs whose PLOs are included in the results. (For example, 120 PLO achievement results, across 67 programs, met our criteria for inclusion in the area of *ILO 3. Conduct Research*. Thus, 120 different percentages were averaged to obtain the 97% result for ILO 3.) The number of students was not included in the calculation. The number of programs (k) is provided here to show how many programs are represented in the aggregate results.

Overall, the ACSC recommends that programs (continue to) evaluate students' culminating products with evaluation criteria (e.g., a rubric) that are explicitly aligned with PLOs (and even ILOs). We also identified the need to improve guidance to programs on PLO-ILO alignment and the need to revisit the ILOs to capture other learning outcomes important to the advanced degree programs (e.g., demonstrating leadership, establishing professional identity).

Background and Context

The University of Hawai'i at Mānoa (UHM) is a public research-intensive comprehensive university, accredited by the Western Association of Schools and Colleges Senior College and University Commission (WSCUC). UHM faculty conduct program and institutional level learning assessment mainly for the purpose of improvement of teaching and learning. The learning assessment activities and reporting also help the institution to maintain its accreditation status. The institutional accreditation standards require that systematic investigations of student learning achievement take place for all graduate degrees and that findings are applied to the design and improvement of curricula, pedagogy, and assessment methodology.

The main mechanism used to document program level learning assessment activities is through the program assessment reports that the Assessment & Curriculum Support Center (ACSC) periodically collects from all academic degree programs. (See the 2020 [report template](#).) Since 2015, the ACSC shifted from an annual reporting cycle to a multi-year reporting cycle, i.e., 2015-2018 and 2018-2020. Such a shift is to reinforce the idea that program learning assessment is a multiphase cyclical activity and to dispel the misconception that a program needs to complete the entire cycle of assessment within a year. The most recent reporting period is November 2018 to November 2020.

At the institution level, the ACSC has reported assessment results for undergraduate education (e.g., [Assessment Office, 2017](#)). To date, we have not summarized learning assessment results on the Institutional Learning Objectives (ILOs) for the advanced degree programs. The ACSC explored synthesizing advanced degree ILO achievement through aggregating program-level learning achievement using the 2018 reports. We formalized this strategy to analyze the reports collected in 2020 from 140 programs out of a total of 141 advanced degree programs at UHM, a 99% submission rate. Because three quarters of all graduate programs have results on student learning in the 2020 reports, it is reasonable to represent the institution-level learning achievement by aggregating the program-level results.

Below is a detailed summary of advanced degree program assessment activities for the reporting period (2018-2020), followed by our analysis of the student learning achievement results for each of the UHM Advanced Degree ILOs. We conclude with recommendations for improving graduate program assessment of student learning achievement.

Advanced Degree Program Learning Assessment Activities (2018-2020)

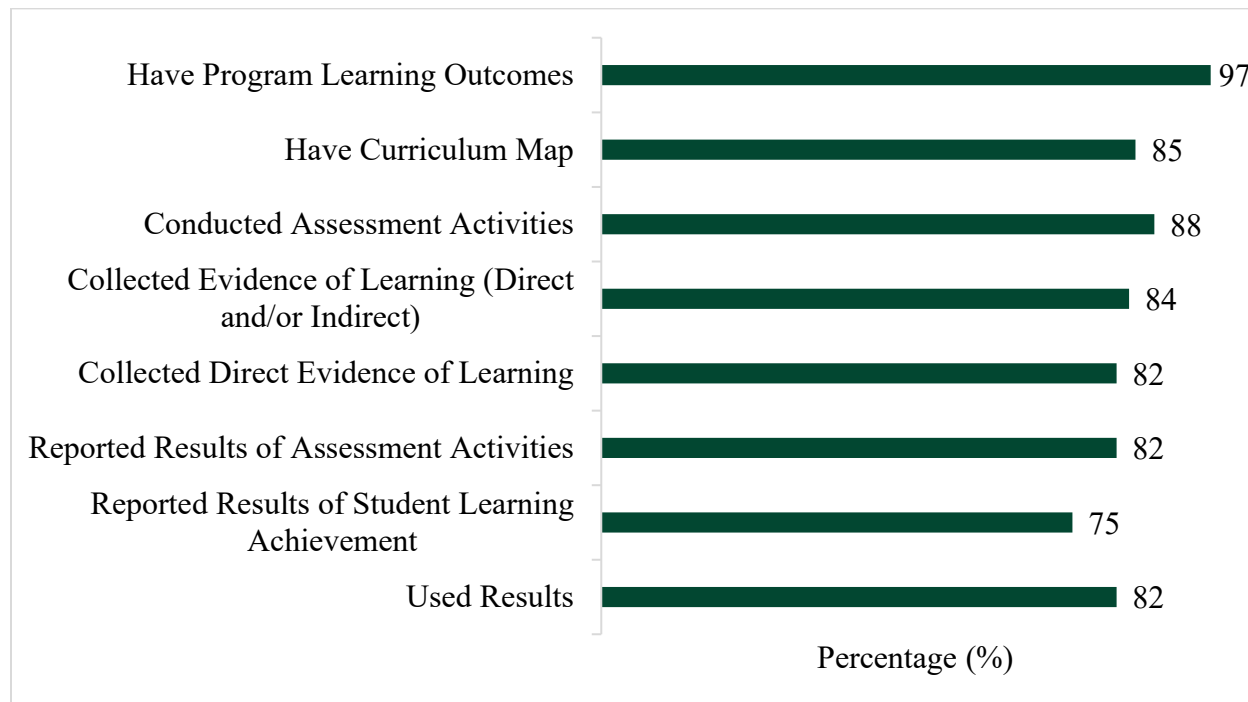
This overview status chart (Figure 3) reveals that a large majority of the advanced degree programs have engaged in systematic program learning assessment activities, 2018-2020. Almost all programs (97%) have program learning outcomes (PLOs); 88% of programs engaged in some kind of assessment activities; 84% collected learning evidence; and 82% reported results and had used results.

Only 85% of the programs had an acceptable curriculum map (a matrix that graphically illustrates the alignment of PLOs with the program's requirements), short of our expectation of 100%. The graduate program leaders and the ACSC can target their support to the 20 programs that need to develop their curriculum maps. In addition, we can follow up with the programs that

did not engage in any assessment activities during the reporting period (n = 17), the programs that need to collect direct learning evidence (n = 25), and those that need to use results (n = 25).

Figure 3

Overview of Graduate Program Assessment Status and Activities, 2018-2020 Reporting Period

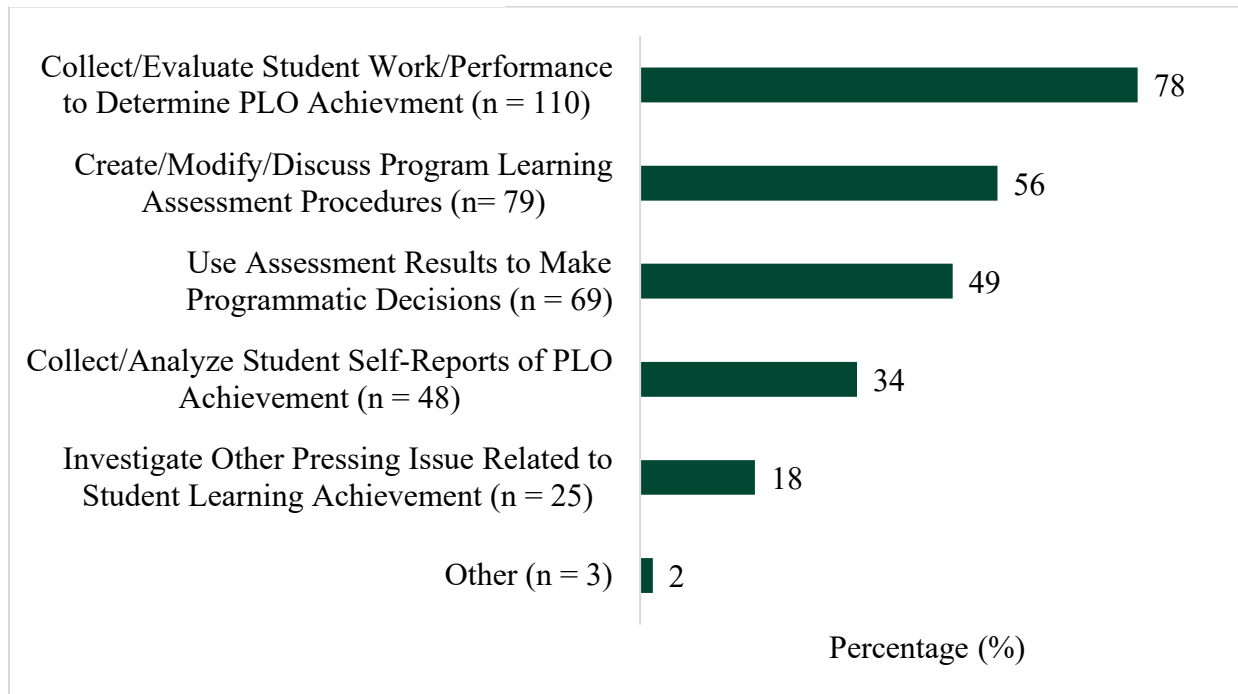


Now we will take a detailed look at the 2018-2020 graduate program assessment activities, including types of assessment activities, types of assessment evidence collected and/or evaluated, methods for evaluating evidence, assessment results, and use of results.

Types of Assessment Activities

Among the 141 advanced degree programs, 124 (88%) reported engaging in assessment activities during the 2018-2020 reporting period. The most common activity reported is *collection/evaluation of student work to determine PLO achievement* (78%), followed by *creating/modifying/discussing program learning assessment procedures* (56%) and *using assessment results to make programmatic decisions* (49%) (Figure 4).

Figure 4
Types of Assessment Activities



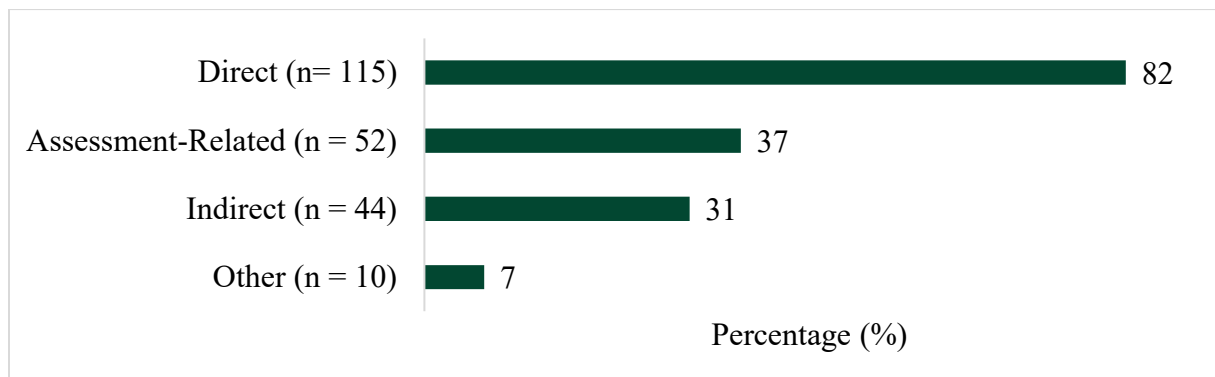
Note. The categories do not sum to 100% because programs could select multiple activities.

Types of Assessment Evidence Collected

84% of programs collected and/or evaluated at least one type of evidence as part of their assessment activities. The ACSC categorized the evidence into three main types:

- a) direct evidence: student work/performance in a course or program that is evaluated for a specific PLO achievement;
- b) indirect evidence: student self-assessment of PLO achievement through surveys, interviews, or focus groups; and
- c) assessment-related evidence: rubric, curriculum map, assignment guidelines, etc.

Figure 5
Types of Evidence Collected and/or Evaluated

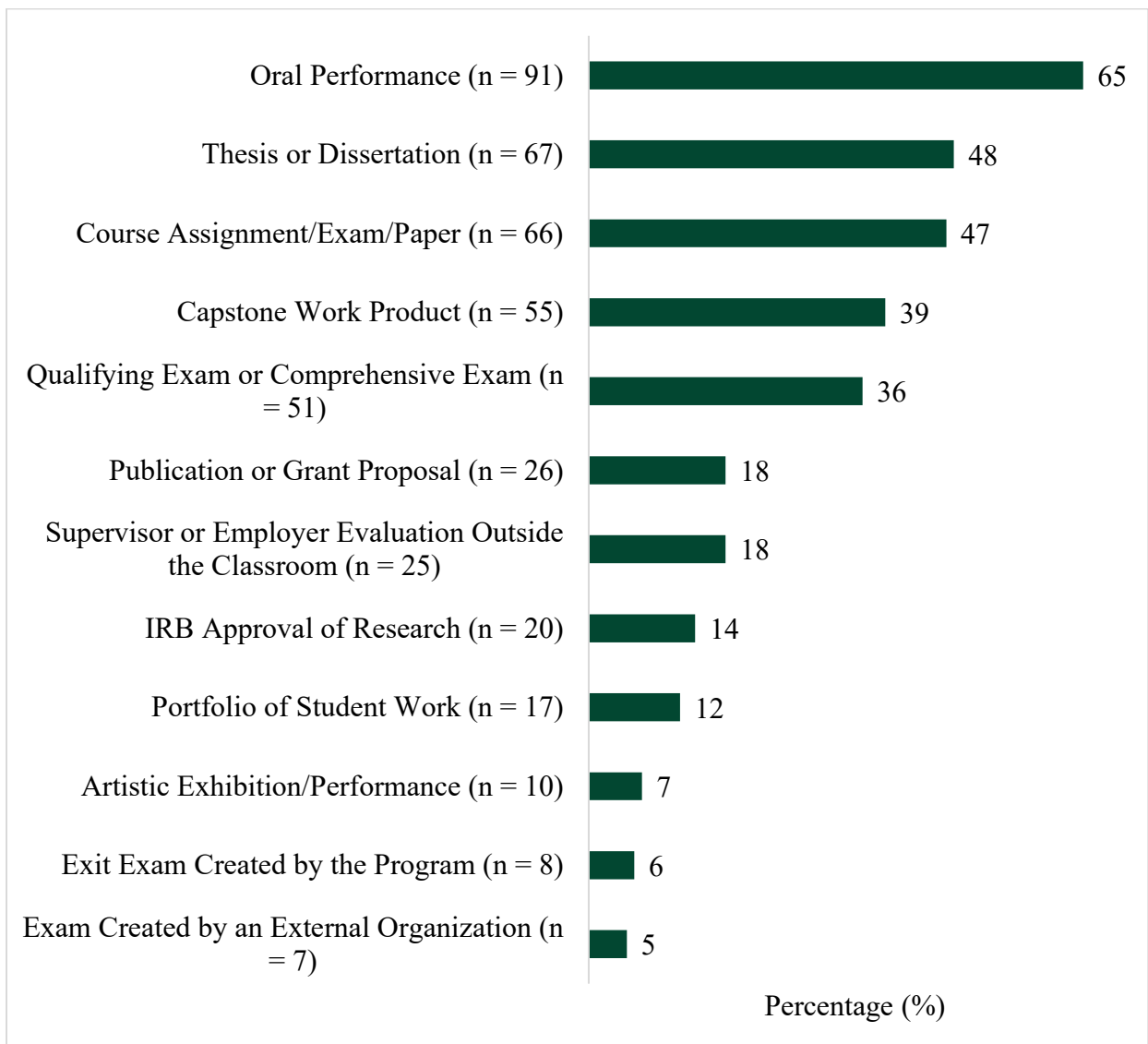


Note. The categories do not sum to 100% because programs could collect and/or evaluate multiple types of evidence.

Direct learning evidence from students' products and performance is the most appropriate type of evidence to evaluate students' achievement on the learning outcomes. Four fifths (82%) of programs reported collecting direct evidence of student PLO learning achievement (Figure 5), indicating a large majority of the programs used direct evidence of learning for assessment purposes. This is an area of strength for the advanced degree programs.

The most common types of direct evidence collected and/or evaluated were *oral performance* (by 65% of the advanced degree programs); *thesis/dissertation* (48%); *course assignment, exam, or paper* (47%); *capstone work product* (39%); and *qualifying/comprehensive exam* (36%) (Figure 6).

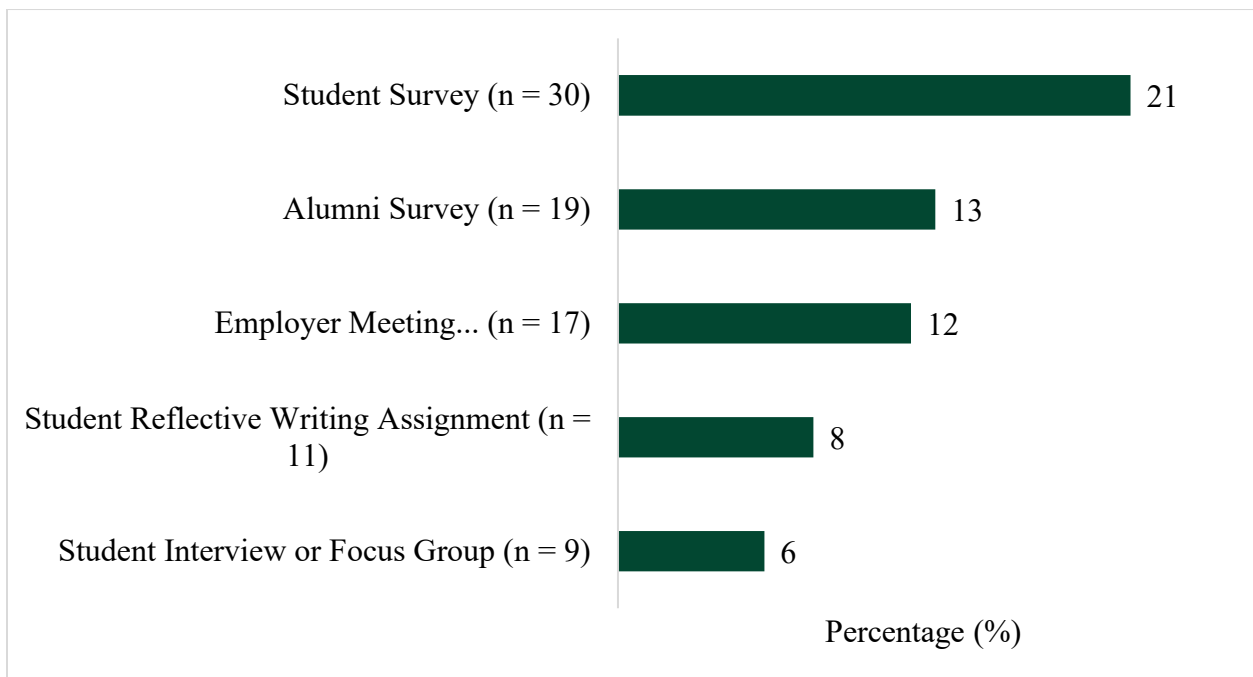
Figure 6
Types of Direct Evidence Collected and/or Evaluated



Note. The categories do not sum to 100% because programs could collect and/or evaluate multiple types of direct evidence.

31% of programs reported collecting indirect evidence of student PLO learning achievement, which includes *alumni surveys; employer meetings, discussions, surveys, and/or interviews on student learning achievement; student interviews or focus groups; student reflective writing assignment (e.g., essay, journal entry, self-assessment); and student surveys* (Figure 7). The most common types of indirect evidence collected and/or evaluated were *student surveys* (by 21% of the advanced degree programs); *alumni surveys* (13%); and *employer meetings, discussions, surveys, and/or interviews on student learning achievement* (12%).

Figure 7
Types of Indirect Evidence Collected and/or Evaluated



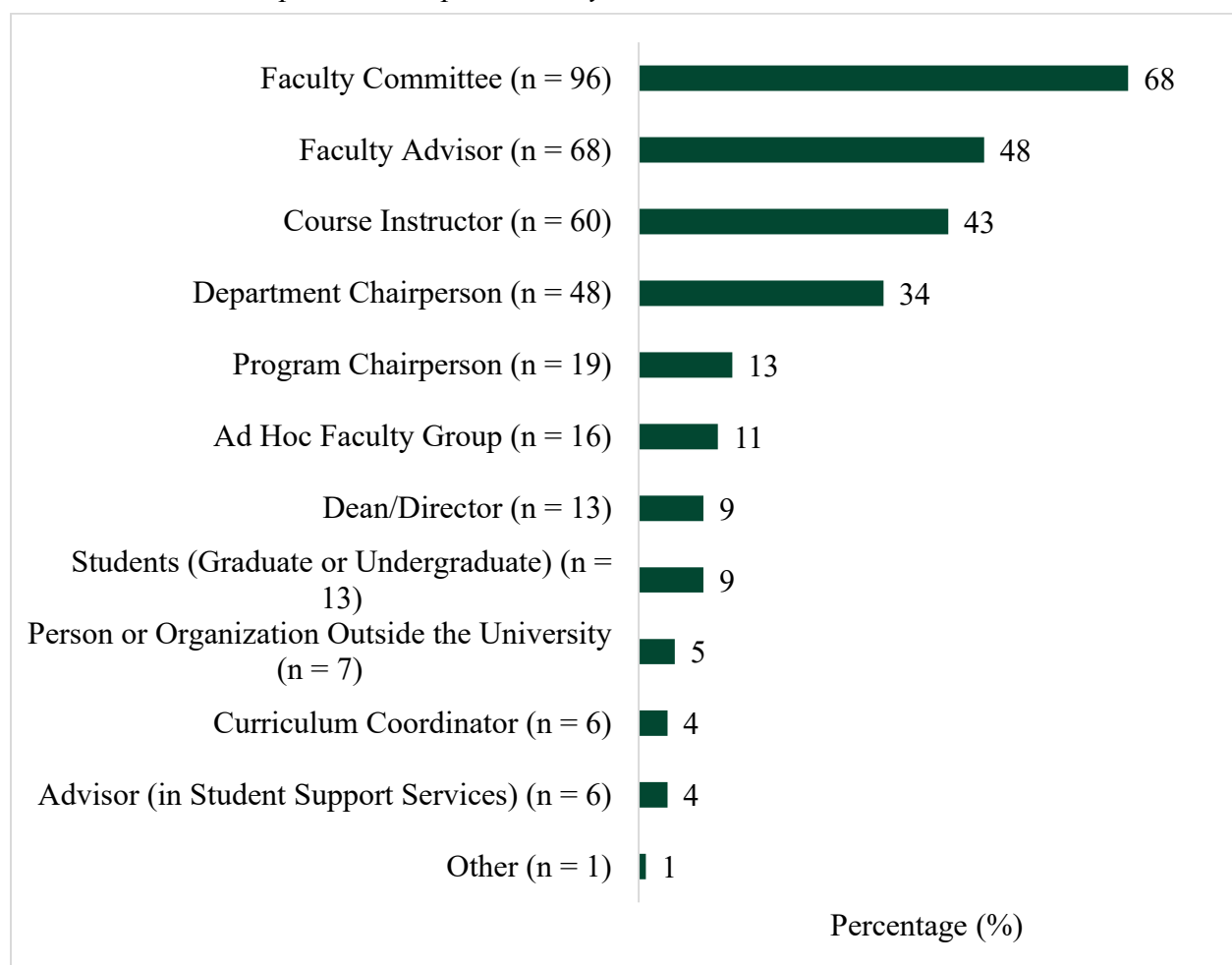
Note. The categories do not sum to 100% because programs could collect and/or evaluate multiple types of indirect evidence.

Furthermore, 37% of the advanced degree programs reported collecting assessment-related evidence (Figure 5). Among these programs, 27% collected *assessment-related materials (e.g., assessment plan, PLOs, curriculum map)*, and 29% collected *program or course materials (e.g., syllabi, assignments, requirements)*.

Evidence Interpretation

About two thirds of the advanced degree programs (68%) used *faculty committees* to interpret and analyze the collected evidence, indicating a relatively high level of faculty collaboration and engagement in the assessment process. *Faculty advisors* (in 48% of programs), *course instructors* (43%), and *department chairs* (34%) were the second most common individuals or groups to interpret/analyze the collected evidence (Figure 8).

Figure 8
Individuals or Groups Who Interpreted/Analyzed Evidence



Note.

a. The categories do not sum to 100% because programs could have multiple individuals or groups who interpreted/analyzed evidence.

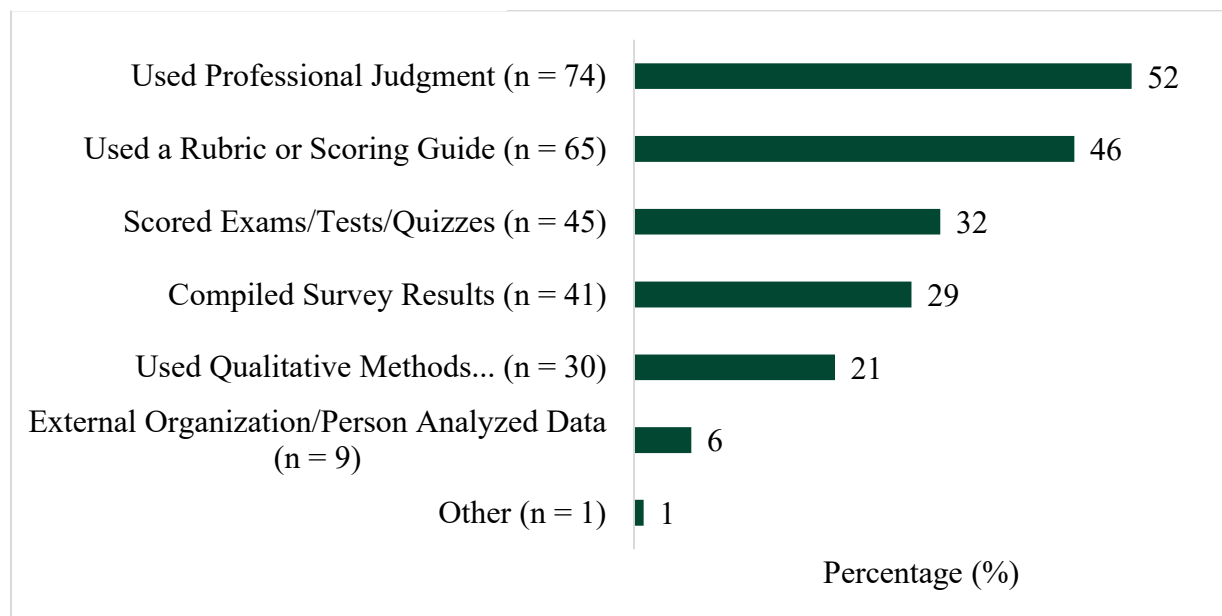
b. The categories of *program chairperson* and *curriculum coordinator* were not given as choices in the report (see question 11 in the [2020 report template](#)); instead, the ACSC created these categories after analyzing programs' *Other* responses. These categories may be included as choices for future program reports.

For evaluating direct evidence, the most commonly used method was *using professional judgment without a rubric or scoring guide* (by 52% of the advanced degree programs). This result suggests an area for improvement. Scoring guides assist students' learning when the expectations are made explicit. Also, establishing explicit evaluation criteria through a rubric or a scoring guide helps faculty members to be fairer and more consistent in the evaluation of students' performance. On the other hand, close to half of the programs (46%) did report *using a rubric or scoring guide*. Collecting and disseminating excellent rubrics or scoring guides from these programs could lead to an increased use of scoring guides among all programs. In addition

to *professional judgment* and *scoring guide*, about one-third of programs (32%) *scored exams, tests, or quizzes*.

For evaluating indirect evidence, 29% of programs *compiled survey results* and 21% *used qualitative methods on interview, focus group, or open-ended response data* (Figure 9).

Figure 9
Methods for Evaluating Evidence



Note. The categories do not sum to 100% because programs could use multiple methods for evaluating evidence.

Program Assessment Results and Use of Results

82% of the advanced degree programs reported results from their assessment activities during the reporting period. 75% of advanced degree programs reported results of student learning achievement of PLOs, which means the results can directly speak to whether students achieved the program learning outcomes. 19% reported other student achievement results (e.g., retention, employment rates), and 20% reported results not related to student achievement, such as those related to creating/modifying assessment procedures.

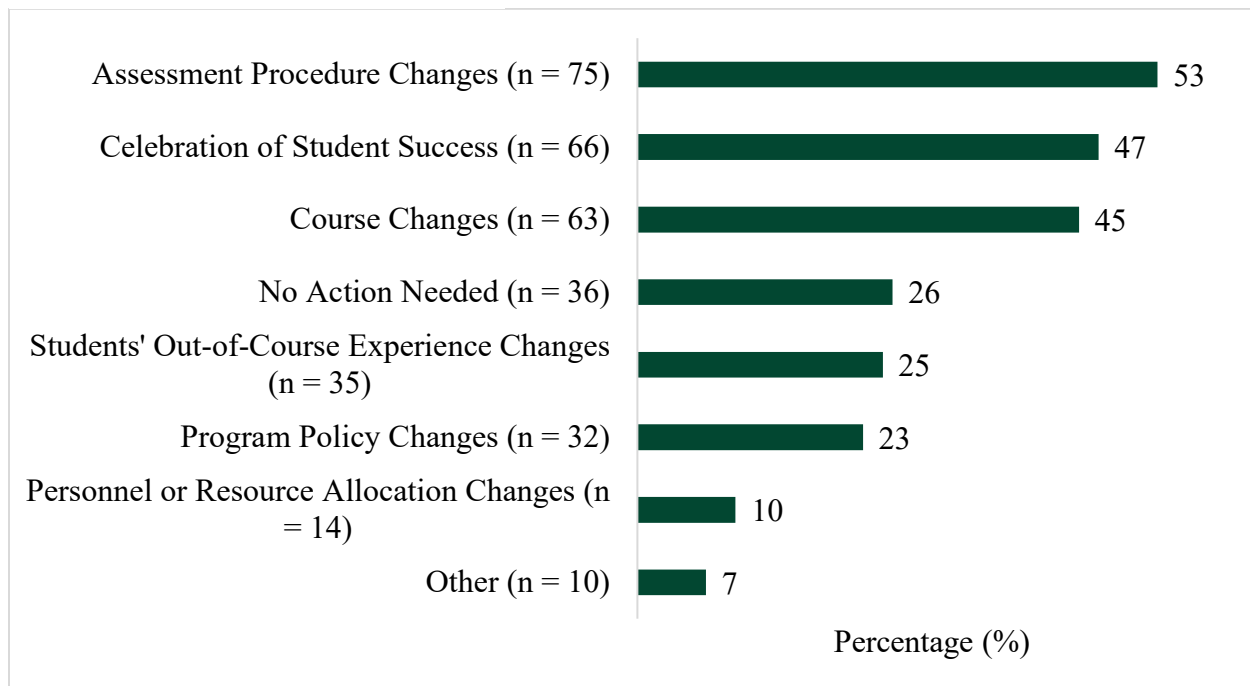
A high percentage of the advanced degree programs (82%) reported using assessment results in some way. The most common ways that programs used their assessment results were (Figure 10):

- *assessment procedure changes* (PLOs, curriculum map, rubrics, type of evidence collected, sampling, communication with faculty, etc.) (53%),
- *celebration of student success* (47%), and
- *course changes* (course content, pedagogy, courses offered, new course, prerequisites, requirements) (45%).

Other uses included *students' out-of-course experience changes* (advising, co-curricular experiences, program website, program handbook, brown-bag lunches, workshops), *program policy changes* (e.g., admissions requirements, student probation policies, common course evaluation form), and *personnel or resource allocation changes*. 26% of programs reported that their *results indicated no action was needed* because students met expectations. Using assessment results to take informed programmatic actions is what makes learning assessment meaningful. It would be worthwhile to conduct in-depth analysis of how programs have used their assessment results to improve the curriculum and student learning environment.

Figure 10

Use of Assessment Results



Note. The categories do not sum to 100% because programs could use assessment results in multiple ways.

Summary of the Program Assessment Activities

We were encouraged to find that for the 2018-2020 reporting period:

- 1) 84% of advanced degree programs reported that they collected and/or evaluated at least one type of evidence as part of their assessment activities
- 2) 82% reported collecting and/or evaluating direct evidence of student PLO achievement
- 3) 82% reported results of their assessment activities
- 4) 75% reported results of student learning achievement of PLOs
- 5) 82% reported using their results in some way

In addition, 68% of the programs evaluated students' performance through faculty committees, indicating a high level of faculty collaboration and engagement in assessment. These results show that program learning assessment has been widely carried out among advanced degree programs.

We identified several areas for further improvement:

- 1) Support 20 programs to develop their curriculum maps.
- 2) Follow up with the 17 programs that did not engage in any assessment activities during the reporting period, the 25 programs that need to collect direct learning evidence, and the 25 programs that need to use results.
- 3) Help programs increase the robustness of evidence and evaluation of student learning achievement. Over 52% of programs evaluated direct evidence of student learning achievement using professional judgement (no rubric or scoring guide).

In addition, as a next step to promote assessment-for-improvement, we can conduct an in-depth analysis of how programs have used results to showcase excellence.

Aggregation of program level student learning outcomes achievement can provide a picture of student learning achievement at the institutional level. Next, we summarize the ILO findings.

ILO Student Learning Achievement Analysis

Methodology

In order to calculate institutional-level student learning achievement, we took three main steps:

1. Align each PLO with a primary ILO(s)
2. Identify and record learning achievement results for the PLOs
3. Calculate the average percentage of students meeting learning achievement expectations for each ILO

These steps are described below and in further detail in Appendix C and Appendix D.

Step 1: Align Each PLO with Primary ILO(s)

In the program assessment report, each program was asked to indicate the ILO(s) that each PLO addresses. UHM has seven advanced degree ILOs (abbreviation in parentheses, see also Appendix A):

1. Demonstrate comprehensive knowledge in one or more general subject areas related to, but not confined to, a specific area of interest. (*ILO 1. Knowledge of Concepts*)
2. Demonstrate understanding of research methodology and techniques specific to one's field of study. (*ILO 2. Knowledge of Methods*)
3. Apply research methodology and/or scholarly inquiry techniques specific to one's field of study. (*ILO 3. Conduct Research*)
4. Critically analyze, synthesize, and utilize information and data related to one's field of study. (*ILO 4. Critical Analysis*)
5. Proficiently communicate and disseminate information in a manner relevant to the field and intended audience. (*ILO 5. Communication*)
6. Conduct research or projects as a responsible and ethical professional, including consideration of and respect for other cultural perspectives. (*ILO 6. Ethics*)
7. Interact professionally with others. (*ILO 7. Professionalism*)

The achievement on each ILO can be calculated as the average of the achievement on all PLOs aligned with it. Among the 141 graduate programs at UHM, 97% of programs have PLOs, and 88% indicated the alignment between each PLO and the ILOs in their report.

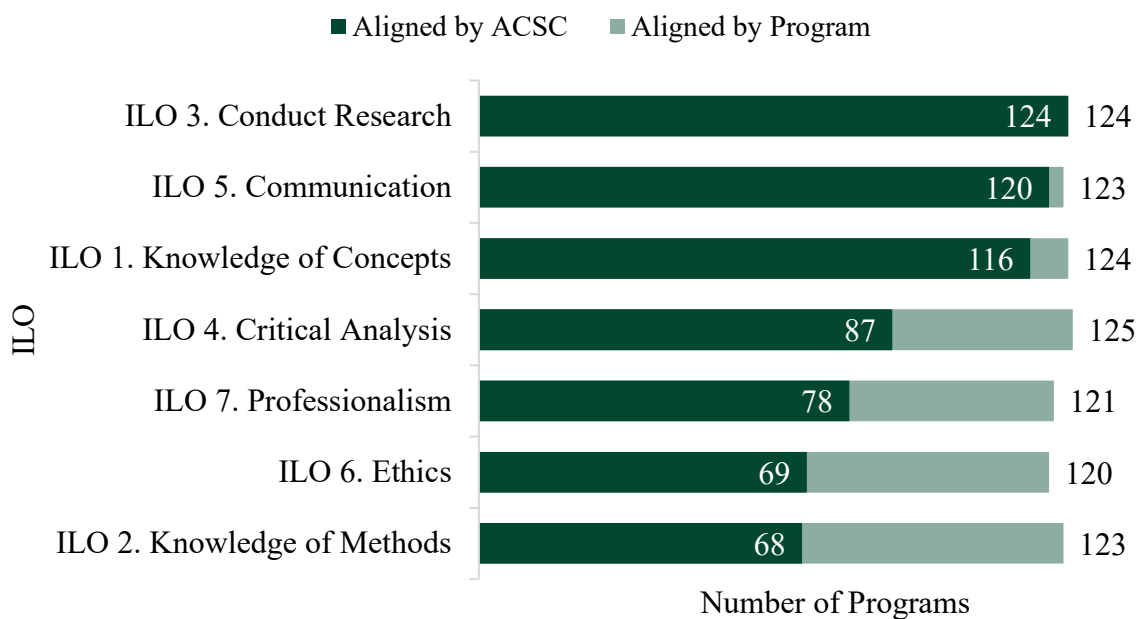
Theoretically, it would be ideal if each PLO aligned with only one ILO, but this is challenging to do because each of the seven ILOs specifies a complex set of skills that is often interconnected with other ILOs. For example, the Public Health MS program aligned their epidemiology-track PLO, “Apply epidemiological specific theoretical constructs, research design, research methodology, and analytic strategies,” with *ILO 2. Knowledge of Methods*, *ILO 3. Conduct Research*, and *ILO 4. Critical Analysis*. For this program, it is through the application of research methodology (ILO 3) and analytic strategies (ILO 4) that a student can demonstrate understanding of epidemiological research techniques (ILO 2).

While we respect each program’s choice in their PLO-ILO alignment, we needed to identify the *primary* ILO(s) that each PLO aligns with to ensure the interpretability of the results. We detail the alignment procedure in Appendix C. Using the ACSC alignment, the number of programs with at least one PLO aligned with an ILO ranged from 68 (ILO 2) to 124 (ILO 3) (Figure 11). Figure 11 also clearly shows the differences in PLO-ILO alignment assigned by the ACSC and by the individual programs. For example, the ACSC identified 69 programs that had PLOs aligned with *ILO 6. Ethics*, whereas 120 programs reported having PLOs aligned with this ILO.

While the difference is negligible whether we use the programs’ alignment or our alignment to calculate the ILO achievement results, such a discrepancy indicates the need for the ACSC to work closely with graduate program leadership groups (e.g., the Advanced Programs ILO Advisory Group) and individual programs to understand each other’s expectations and criteria for alignment. Such conversations may result in training materials as a resource for the assessment coordinators, similar to the ones that we provide to undergraduate programs ([example here](#)).

Figure 11

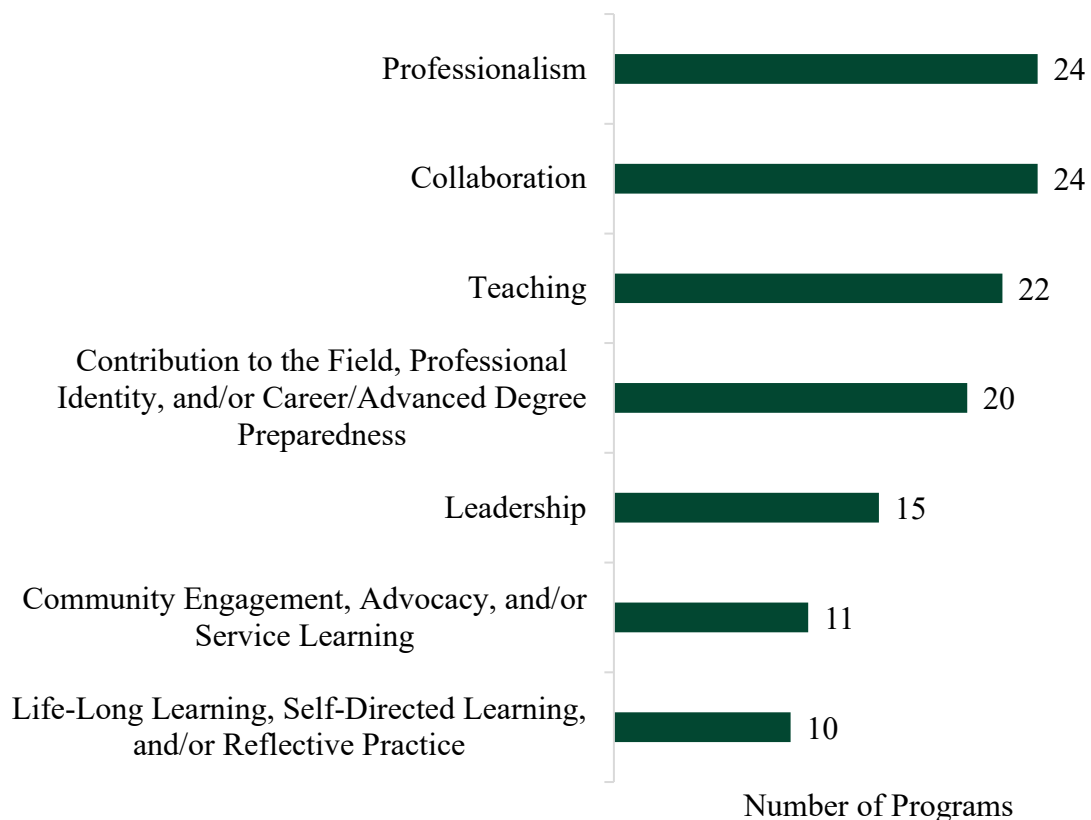
Number of Programs with at Least One PLO Aligned with an ILO (n = 141)



The alignment of PLOs with *ILO 7. Professionalism* proved to be complicated in some circumstances. ILO 7 is about interacting professionally with others. We used this outcome to capture all dimensions of professionalism revealed through the PLOs, including demonstrating leadership, establishing professional identity, and engaging in reflective practice. See Figure 12 and Table C3. This is an area in which the Center and graduate program leadership can work with the programs to either reword ILO 7 or capture professionalism in other ways.

Figure 12

Number of Programs with PLOs in Categories that Align with ILO 7. Professionalism (n = 141)



Step 2: Identify and Record Program Learning Achievement Results for Each PLO

After completing the PLO-ILO alignment, we then determined whether a program reported numerical student learning achievement results, and if so, what the results were. We needed numerical results from the programs to calculate the percentage of the students who met each PLO.

In the program assessment reports, some programs reported results on a variety of data that provide no direct information on student PLO achievement, such as completion of an assessment product (e.g., PLOs, rubrics, surveys), time to graduation, successful employment after graduation, pass rates, and so on. We could not use these results for this analysis.

Even for programs that claimed that they had student achievement results for PLOs, we encountered some challenges. Some programs claimed that they had results, but these were too general or vague (e.g., “*We are satisfied with the performance of all students,*” “*The majority of students achieved all PLOs*”). Other programs were not clear on the total number of students assessed. For example, the statement, “*3 students achieved PLO 4 through completion of their comprehensive exams*” did not allow us to determine the percentage of students who achieved PLO 4 because we did not know how many took the exam in total. Additionally, some programs provided grades, rubric scores, or other measures of student learning achievement, but they did not state the minimum acceptable score. Therefore, we did not include these in this analysis. See Table D1 for a summary of the types of problematic results for the purpose of our analysis.

In our analysis, we only included programs that stated achievement results that aligned with a specific PLO (e.g., “*90% of the students achieved PLO 1, 96% PLO 2...*”). Some results were generally stated (e.g., “*All 6 students achieved all PLOs by passing their dissertation defenses*”); though not ideal, these kinds of results were included in the analysis because the program technically aligned the results with PLOs.

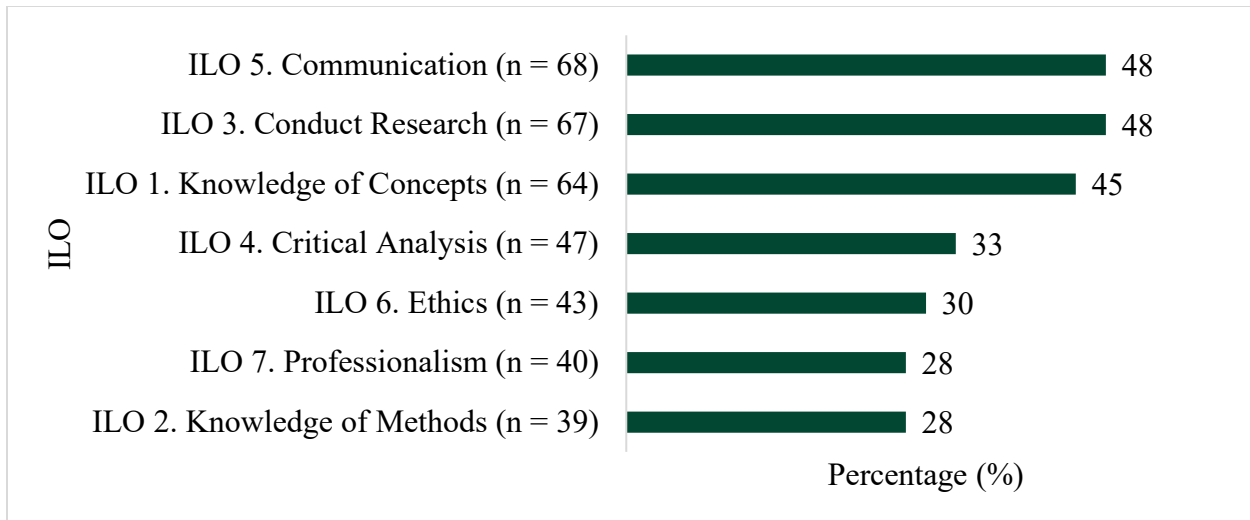
We recorded the result for each PLO as the percentage of assessed students who achieved acceptable performance or met/exceeded expectations on that PLO. Sometimes programs provided multiple sets of results for the same PLO. In general, we selected results from the direct evidence, culminating assignment/experience, and/or more recent year (see Appendix D for details).

After eliminating results that did not meet our criteria, the most-assessed ILOs were as follows (Figure 13):

- *ILO 5. Communication*, assessed in 68 graduate programs (48% of the total number of the graduate programs);
- *ILO 3. Conduct Research*, in 67 programs (48%); and
- *ILO 1. Knowledge of Concepts*, in 64 programs (45%).

Figure 13

Percentage of Programs with PLO Student Learning Achievement Results that Met Our Criteria for Inclusion in the ILO Aggregate Analysis



Note. For each ILO, n is the number of programs with PLO student learning achievement results that met our criteria. Percentages were calculated from the total of 141 programs.

Step 3: Calculate ILO Learning Achievement Results

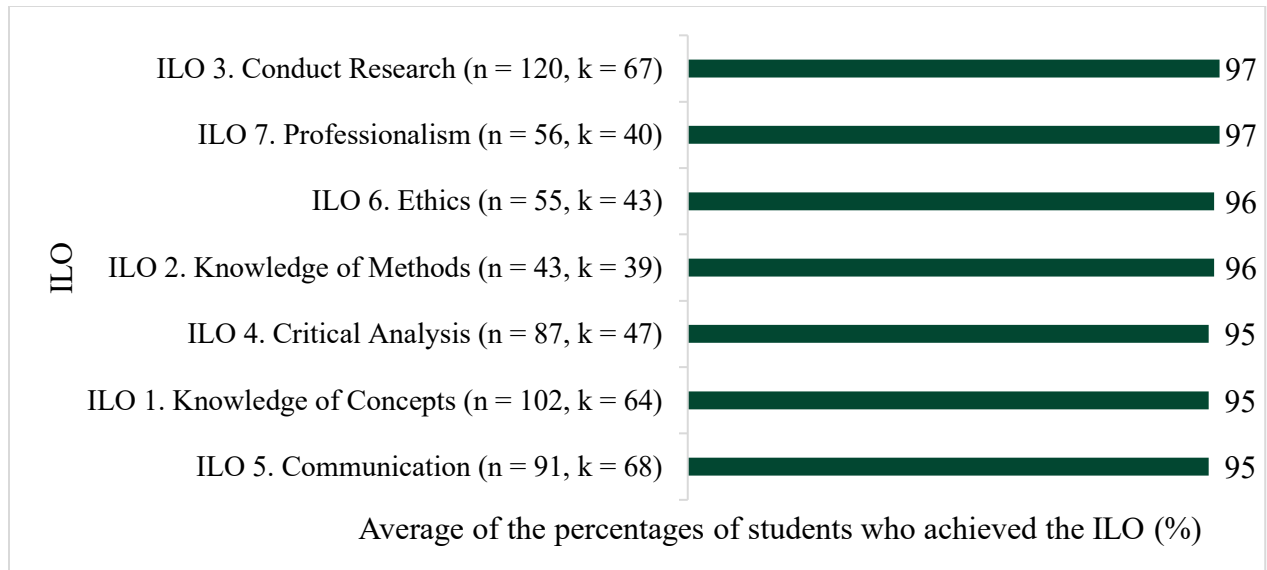
We calculated the learning achievement result for each ILO by taking the average of the aligned PLO results that met our criteria. For example, if there were criteria-meeting results for 40 PLOs aligned with ILO 2, the average of the 40 PLOs' results is the ILO 2 achievement result. Therefore, the ILO result is the average of the percentages of students who met or exceeded the minimum acceptable learning achievement for each PLO aligned with the ILO. The number of students used to calculate each PLO result was not used as a weighting factor in the aggregate calculation for the ILOs. In other words, PLO results that included more students were not weighted more heavily when we calculated the average. Many programs' results did not include the exact number of students assessed (e.g., "All students achieved PLO 4" could be recorded as a result of 100%, even with an unknown number of students), which precluded the use of the total number of students as a weighting factor.

Results

Our analysis showed high average achievement for all ILOs, with 95% to 97% of students on average achieving PLOs aligned with each ILO (Figure 14).

Figure 14

Advanced Degree Program ILO Achievement Results as the Average of the Percentages of Students Who Achieved the PLOs Aligned with Each ILO



Note. For each ILO, n is the number of PLO results used to calculate the ILO achievement result, and k is the number of programs whose PLOs are included in the results.

Table 1 details the number of PLOs and number of programs used in the ILO achievement calculation. It also lists the minimum, maximum, median, and average student learning achievement percentages for each ILO-aligned PLOs, with the average as the ILO achievement indicator. For example, for *ILO 1. Knowledge of Concepts*, the student learning achievement results for 102 PLOs across 64 programs were included in the calculations. Out of these 102 PLOs, the lowest percentage of students that achieved a particular PLO was 50% and the highest was 100%, with a median of 100% and an overall average of 95%. Again, the average of the percentages of students that met or exceeded the minimum acceptable learning achievement for all aligned PLOs is the overall ILO result. For ILO 1, the average of 102 PLO achievement percentages was taken, resulting in a 95% average student learning achievement for the ILO.

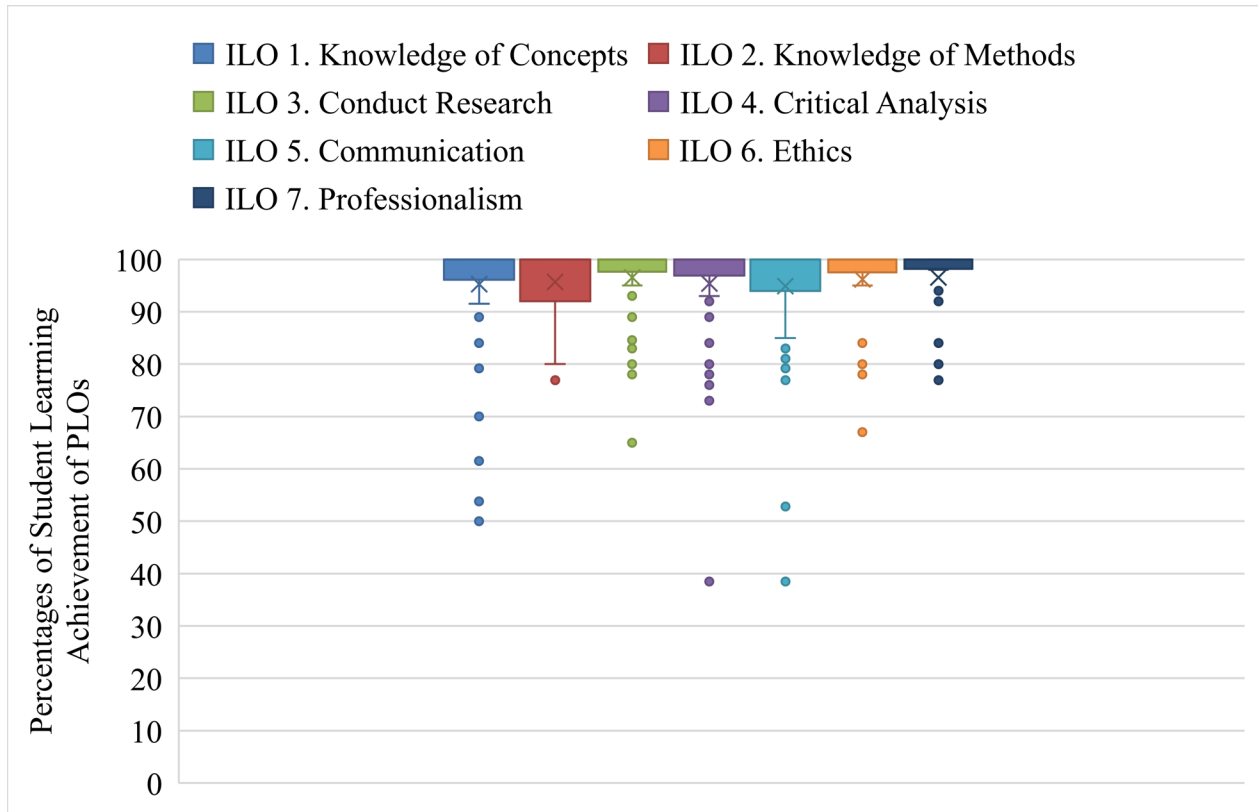
Table 1*Summary of Student Learning Achievement Results of PLOs Aligned with ILOs*

ILO	Number of PLOs (Number of programs)	Lowest % of students that achieved a PLO	Highest % of students that achieved a PLO	Median % of students that achieved a PLO	ILO Achievement Results as the Average of PLOs Results
ILO 1. Knowledge of Concepts	102 (64)	50%	100%	100%	95%
ILO 2. Knowledge of Methods	43 (39)	77%	100%	100%	96%
ILO 3. Conduct Research	120 (67)	65%	100%	100%	97%
ILO 4. Critical Analysis	87 (47)	39%	100%	100%	95%
ILO 5. Communication	91 (68)	39%	100%	100%	95%
ILO 6. Ethics	55 (43)	67%	100%	100%	96%
ILO 7. Professionalism	56 (40)	77%	100%	100%	97%

Some results in Table 1 seem alarming at first glance. For example, the lowest percentage of students achieving a PLO was 39%. We graphed the distribution of the PLO achievements in a box-and-whisker plot in Figure 15. The plot revealed that *all* of these minimums were statistical outliers which fell out of the continuous distribution of the results. The lower bounds (Q1) of the inter-quartile range for each ILO were from 93% to 99%; this means that for each ILO, 75% of all aligned PLOs' achievement results was at least 93%. The lowest non-outlier PLO achievement result was 80% (lower extreme for ILO 2).

Figure 15

Range of Percentages of Student Learning Achievement of PLOs Aligned with ILOs



Overall, the high percentages clearly indicate a high level of graduate student achievement. One explanation for this high level of achievement is that much of the learning evidence used in the assessment was from students' culminating products such as theses, dissertations, and defenses. These typically involve multiple revisions and polishing before the summative evaluation. In addition, only students who have successfully passed the graduate programs' milestones were able to present the culminating products and be included in such an evaluation. To deepen understanding of the advanced degree programs' learning achievement, it would be fruitful for individual graduate program to examine the results at different points along students' learning paths, not just as they near program completion.

With the available data, we disaggregated the results between the Master's and Doctorate programs and calculated the average ILO achievement on each ILO for both degree types. Achievement results between the two degree types were very similar and were very high, over 94% on any ILO (Table 2). The average ILO achievement in the doctorate programs was slightly higher than in the Master's programs on five of the seven ILOs, indicated as the shaded results in Table 2.

Table 2*Institution-Level Student Learning Achievement by Graduate Program Type*

ILO	ILO Average Achievement	
	Master's (n = 87)	Doctorate (n = 54)
ILO 1. Knowledge of Concepts	95%	96%
ILO 2. Knowledge of Methods	96%	96%
ILO 3. Conduct Research	96%	98%
ILO 4. Critical Analysis	95%	96%
ILO 5. Communication	94%	97%
ILO 6. Ethics	97%	96%
ILO 7. Professionalism	96%	97%

Conclusion and Next Steps

Program- and institution-level student learning assessment is a vital tool for improving teaching and learning at UHM. This report provided the program assessment status for the advanced degree programs, 2018-2020. In addition, it is a first formal attempt at investigating the learning achievement status on the Advanced Degree Programs Institutional Learning Objectives (ILOs). This process has highlighted excellent assessment practices undertaken by these programs, as well as areas where the ACSC can focus support to further improve program assessment practices.

Program assessment is an iterative process that should occur in multi-year cycles; the full process includes collecting and analyzing data and using analytical results to make improvements to the program. We were very pleased to see that for the 2018-2020 reporting period, over 84% of programs reported that they collected and/or evaluated evidence, and over 82% of programs reported that they used their assessment results to make improvements.

Direct learning evidence from students' products and performance is the most appropriate evidence to evaluate students' learning achievement for PLOs. Over 81% of programs reported collecting and/or evaluating direct evidence of student learning achievement for PLOs, and 75% of programs reported results of student learning achievement for PLOs. Because of this, we were able to formally analyze institution-level learning achievement by aggregating the program-level results. Our analysis showed that all ILOs were well achieved in general – the average percentage of student learning achievement was between 95% and 97% for each ILO.

The following are some areas that the Center, graduate program leadership, and advanced degree programs can collaborate on to continue enhancing rigor, meaningfulness, and assessment feasibility:

1. Promote collection of direct learning evidence through students' culminating products (e.g., theses, dissertations). Already, the most common types of direct evidence collected and/or evaluated by graduate programs are culminating products: 65% of programs collected/evaluated evidence from student oral performances (including oral defenses), and 48% collected/evaluated evidence from theses or dissertations. We can identify and celebrate excellent programs that conduct meaningful assessment using direct evidence of learning.

2. Promote collaborative faculty evaluation of student work with explicit evaluation criteria (e.g., a rubric) that aligns with PLOs (and even ILOs). Faculty committees (68% of programs) and faculty advisors (48%) are the most common evaluators of the evidence. However, more than half (53%) of programs used professional judgement without a rubric or scoring guide to assess student learning achievement. Using explicit evaluation criteria like a rubric can improve the consistency and fairness in the assessment of student learning achievement generally. When the evaluation criteria clearly align with PLOs, the scores provide much more relevant results that speak to the achievement on each aligned PLO. It provides more useful information on areas of learning strengths and relative weaknesses than a simple pass/fail that we see in some reports.
3. Provide targeted help for a few programs that still need to develop PLOs and curriculum maps. Four programs still need acceptable PLOs and 21 need a curriculum map.
4. Offer strategies for programs to assess students' growth in addition to mastery. It is excellent that the advanced degree programs' ILO achievements were very high on average. Assessing students along the learning milestones can help programs monitor student growth, which would be helpful for curriculum/program planning and individual student advising.
5. Communicate expectations and provide guidance to support accurate PLO-ILO alignment.
6. Ask programs to report achievement results in a consistent format (e.g., the percentage of students meeting and exceeding expectations for PLO learning achievement.) This will greatly facilitate synthesis and aggregation. Offer guidance on data analysis and data summarization for programs that already have results.
7. Facilitate conversations on defining professionalism for advanced degree programs and expand the current description of ILO 7. *Interact professionally with others* to better capture the diversity of ways in which professionalism is demonstrated in programs across campus (e.g., leadership, self-reflective practice).

Acknowledgements

We sincerely thank Dr. Monica Stitt-Bergh for her thoughtful input on this report.

References

Assessment Office. (2017). *Undergraduate student learning achievement and student perceptions: General education and institutional learning objectives*.
<https://drive.google.com/file/d/1cFi4NYjbX702aREnvChRnJHW3ggaVmN/view>

Appendix A. Advanced Degree Institutional Learning Objectives (ILOs)

Approved by the Mānoa Faculty Senate, May 10, 2017.

Knowledge and Understanding

1. Demonstrate comprehensive knowledge in one or more general subject areas related to, but not confined to, a specific area of interest.
2. Demonstrate understanding of research methodology and techniques specific to one's field of study.

Intellectual and Applied Skills

3. Apply research methodology and/or scholarly inquiry techniques specific to one's field of study.
4. Critically analyze, synthesize, and utilize information and data related to one's field of study.

Communication Skills

5. Proficiently communicate and disseminate information in a manner relevant to the field and intended audience.

Professional Responsibility

6. Conduct research or projects as a responsible and ethical professional, including consideration of and respect for other cultural perspectives.
7. Interact professionally with others.

Table A1

Potential Indicators/Evidence for the Advanced Degree ILOs

Learning Outcome	Potential Indicator/Evidence (i.e., may be used in assessment and evaluation)
1. Comprehensive knowledge	<ul style="list-style-type: none"> • comprehensive exam • gallery exhibit • oral defense • portfolio or collection of performances • written review of the literature
2. Understanding of research methodology	<ul style="list-style-type: none"> • written projects • oral presentations • online communications • television and film productions • photo, image, picture projects • recitals and performances

- | | |
|---|---|
| 3. Research methodology and/scholarly inquiry techniques | <ul style="list-style-type: none"> • original research project • written and oral critiques of journal articles (e.g., journal clubs) • research or grant proposal |
| 4. Critically analyze and synthesize information and data | <ul style="list-style-type: none"> • written review of the literature • written analysis and discussion of data • policy paper |
| 5. Communicate appropriately | <ul style="list-style-type: none"> • written projects • oral presentations • online communications • television and film productions • photo, image, picture projects • recitals and performances |
| 6. Responsible, ethical, professional conduct of research | <ul style="list-style-type: none"> • observation of students' adherence to timelines, ability to set appropriate priorities, ability to follow through on commitments • written description of ethical considerations in students' research, approval of students' proposals to conduct research • critique of research designs' adherence to ethical principles • appropriate conclusions drawn from data; appropriate use of data and treatment of participants • written policy of and application of the ethical responsibilities of authors, including issues concerning ghost authorship, collaborative research, and conflicts of interest • completion of formal training in responsible conduct of research (e.g., CITI or related training) • observation of students' sensitivity to cultural values (such as kuleana and aloha). |
| 7. Interact professionally | <ul style="list-style-type: none"> • observation of student performance during conference/poster presentation Q&A • supervisor/director evaluation of professional performance • evaluation of students' cultural competence during professional interactions |

- observation of students' sensitivity to cultural values (such as kuleana and aloha).

Appendix B. Graduate Program Assessment Activities Data (2018-2020)

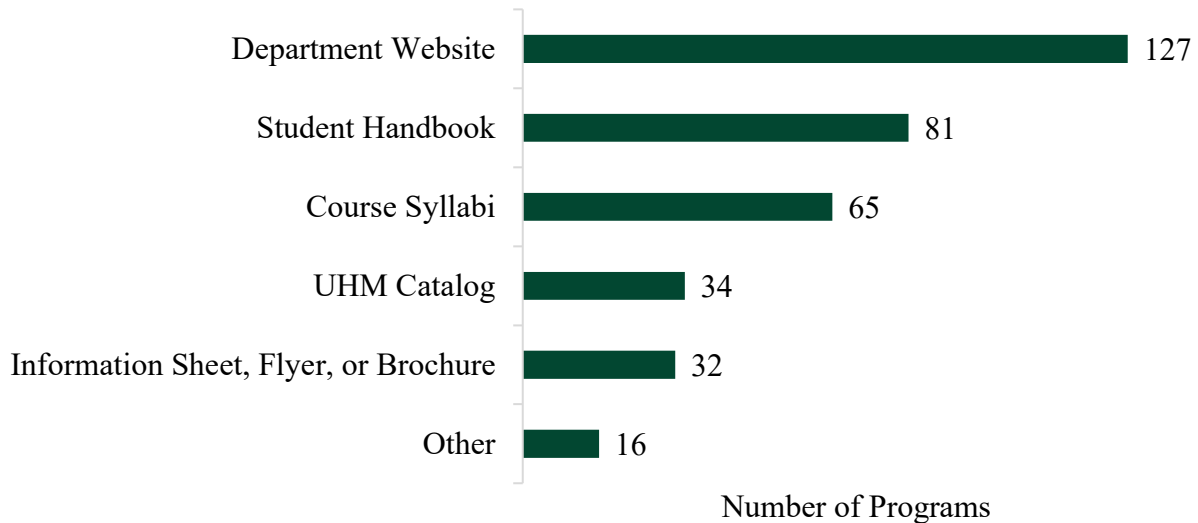
Table B1

Summary of Graduate Program 2018-2020 Assessment Activities (n=141)

Report Data/Info	Number of Programs (%)
Submitted Report	140 (99.3)
Have PLOs	137 (97.2)
Aligned PLOs with the ILOs	124 (87.9)
Published PLOs	135 (95.7)
Submitted a Curriculum Map	120 (85.1)
Conducted Assessment	124 (87.9)
Collected Direct Evidence of Learning	115 (81.6)
Collected Indirect Evidence of Learning	44 (31.2)
Reported Results	116 (82.3)
Have Learning Achievement Results for Most or All of Their Program Learning Outcomes	100 (70.9)
Used Results	116 (82.3)

Figure B1

Where Are PLOs Published? (n=136)



Appendix C. PLO-ILO Alignment Data

ACSC Methodology for PLO-ILO Alignment

1. Identified the primary knowledge, skill, or disposition targeted in each ILO, listed in Table 1 below.

Table C1

Primary Knowledge, Skill, Dispositions Targeted in Each ILO

ILO	Target Knowledge, Skill, or Disposition/Value
ILO 1. Knowledge of Concepts	Knowledge of the subject area: concepts, theories, body of the knowledge in the field.
ILO 2. Knowledge of Methods	Knowledge of the inquiry methods in the field
ILO 3. Conduct Research	Ability to design and implement inquiries, research methods, designs, models, and disciplinary projects
ILO 4. Critical Analysis	Analyze and interpret data; perform critical review of primary or secondary literature
ILO 5. Communication	Communicate in written, oral, artistic, and/or creative forms.
ILO 6. Ethics	Demonstrate ethical and responsible behavior in research and projects; consider cultural perspectives in research, project, and professional interactions.
ILO 7. Professionalism	Ability to interaction professionally; demonstrate professionalism (e.g., leadership, self-reflective practice, life-long learning, collaboration skill)

2. Drafted PLO-ILO guidelines:
 - a. Each PLO that includes one primary knowledge, skill, or value, should align with only one ILO when possible.
 - b. PLOs that state multiple skills (e.g., students can conduct and present research) can align with multiple ILOs when the connections are explicit (e.g., “conduct research” can be aligned with ILO 3 (Conduct Research) and “present research” can be aligned with ILO 5 (Communication))
 - c. PLOs that address different facets of professionalism are being aligned to ILO 7 (Professionalism). The interpretation of ILO 7 thus can be expanded to *interact and function as a professional*. Table A4 lists the skills and dispositions that were aligned with ILO 7.
3. In 2018, we started the PLO-ILO alignment work. Two researchers (Yao Hill and Thu Ha Nguyen) independently performed the alignment. They then discussed the differences and reached consensus.

4. In 2021, two researchers (Maura Stephens-Chu and Yao Hill) performed the PLO-ILO alignment for only the PLOs that changed from the previous report cycle.
5. Two researchers collaboratively performed the PLO-ILO alignment for about 10 programs.
6. One researcher performed the independent PLO-ILO alignment for the rest of the programs.
7. Both researchers met and reconciled any questionable alignment.

Table C2

Summary of PLO-ILO Alignment

ILO (Abbreviated Description)	Total Number of Aligned PLOs (%) (n = 860)	Number of Programs with an Aligned PLO (%) (n = 141)
ILO 1 (Knowledge of Concepts)	205 (23.8)	116 (82.3)
ILO 2 (Knowledge of Methods)	86 (10.0)	68 (48.2)
ILO 3 (Conduct Research)	214 (24.9)	124 (87.9)
ILO 4 (Critical Analysis)	152 (17.7)	87 (61.7)
ILO 5 (Communication)	178 (20.7)	120 (85.1)
ILO 6 (Ethics)	87 (10.1)	69 (48.9)
ILO 7 (Professionalism)	109 (12.7)	78 (55.3)

Table C3

ILO 7 Alignment Categories

Skill/Disposition	Number of PLOs (%) (n = 109)	Number of Programs (%) (n = 141)
Collaboration	28 (25.7)	24 (17.0)
Professionalism	26 (23.9)	24 (17.0)
Teaching	23 (21.1)	22 (15.6)
Contribution to the Field, Professional Identity, and/or Career/Advanced Degree Preparedness	20 (18.3)	20 (14.2)
Community Engagement, Advocacy, and/or Service Learning	19 (17.4)	11 (7.8)
Leadership	16 (14.7)	15 (10.6)
Life-Long Learning, Self-Directed Learning, and/or Reflective Practice	13 (11.9)	10 (7.1)

Appendix D. Methods for Determining PLO and ILO Learning Achievement Results

Table D1
Student Learning Assessment Results Reporting Issues

Issue	Example(s)	Number of Programs
PLO results are available but unspecified	<ul style="list-style-type: none"> • A program provided a qualitative description of student learning experiences but no specific assessment results • A program reported using rubrics to assess the thesis/dissertation and defense but did not report the rubric scores / assessment results 	7
Assessment results' alignment with PLOs is unclear	<ul style="list-style-type: none"> • A program reports the number of students who passed milestones (qualifying exam, dissertation defense, etc.) but results that are aligned with specific PLOs are unclear • A program reports the results of assessment activities, but it is unclear with which PLO these assessment activities align 	6
PLO results available but standards unclear	<ul style="list-style-type: none"> • Rubric scores were reported, but the minimum acceptable score is not reported • Survey results were reported, but the minimum acceptable score is not reported 	5
PLO results available but only vaguely specified	<ul style="list-style-type: none"> • The results were reported as, "The majority of students achieved the PLOs" • The results were reported as, "The students are meeting PLOs" 	6
Incomplete data	<ul style="list-style-type: none"> • A program reported the results of embedded assessment in multiple classes, but the same students may be counted twice if the results are totaled • The total number of students assessed was not reported, only the number of students who achieved acceptable outcomes 	2

Method for Determining Student Learning Achievement Result If a PLO Had Multiple Results or a Range of Results

We used the following rules to make a judgement on which results to include in the analysis:

- If a program provided both direct and indirect evidence of student learning achievement for a single PLO, we used the direct evidence to determine the results. For example, if a program reported both rubric scores for a thesis defense (direct evidence) and student self-evaluation surveys (indirect evidence), we would use the rubric scores.
- If a program provided multiple types of direct evidence of student learning achievement for a single PLO, we would use the evidence from the culminating assignment or most advanced assignment available. For example, if a program provided rubric scores for a dissertation and scores for a comprehensive exam, we would use the results of the dissertation evaluation.
- If a program reported the students' PLO achievements across multiple cohorts and years, and if the cohorts were large enough ($n \geq 30$), we used the most recent cohort's results. If the size of the cohorts were small, we used the results of the two most recent cohorts.
- If a program reported achievement results in a range (e.g., 85-100%), we used the number at the lower bound to represent the achievement for a particular outcome.