UNIVERSITY OF PUERTO RICO
Río Piedras Campus
Deanship of Academic Affairs
Office of Student Learning Evaluation

Undergraduate Academic Programs Assessment of Student Learning Annual Report

Academic Year 2012-2013

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University of Puerto Rico

Rio Piedras Campus

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Annual Report on the Fourth Cycle of Assessment of Student Learning Process in the Undergraduate Academic Programs (2012-2013 Academic Year)

Introduction

The Assessment of Student Learning at the University of Puerto Rico Río Piedras Campus (UPR-RP) is undergoing its fourth cycle in most of the undergraduate academic programs (2009-2010; 2010-2011; 2011-2012; 2012-2013). For the purpose of this evaluation process, an assessment cycle was defined in accordance with the following stages: 1) selection of the competencies or learning outcomes to be assessed aligned with both the academic program learning objectives and the UPR-RP Baccalaureate Student Graduating Profile, 2) identification of the educational activities in which the learning outcomes are going to be assessed, 3) adapting or developing assessment instruments to collect pertinent data, 4) selection of the different check points–in the same course or across courses–for gathering data, 5) analysis and interpretation of the data collected, and 6) proposal of transforming actions. In the next assessment cycle the implemented transforming actions will be evaluated and new learning outcomes will be added to those already assessed. The time frame established for each cycle is one academic year.

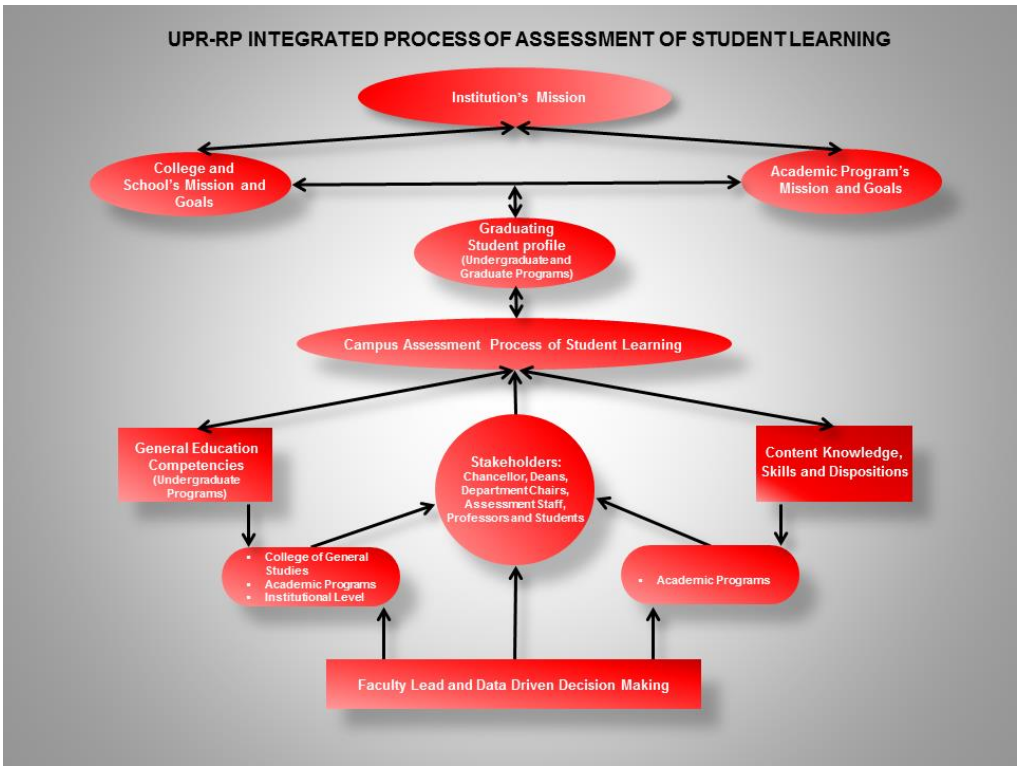
The Assessment of Student Learning in Campus continued as designed and planned during the 2012-2013 academic year, and followed the guidelines traced in the Evaluation of Student Learning Plan approved by the Academic Senate in April 2006 (Appendix I) as described in the Periodic Review Report, Progress Report, and Monitoring Report to the Middle States on June 2010 and June 2011, and April 2012, respectively (Appendices II, III, and IV)[1] The Office for the Evaluation of Students Learning (OEAE for its Spanish acronym) was created by the Deanship of Academic Affairs. Its mission is to coordinate and institutionalize student learning assessment efforts through the implementation of the Student Learning Evaluation Plan of the University of Puerto Rico, Rio Piedras Campus. All information related to the assessment process in undergraduate academic program, and workshops held so far related to developing and supporting a Campus assessment culture is available at http://oeae.uprrp.edu. The website includes assessment plans for each undergraduate and graduate academic program, competencies and learning

[1] At the end of this report there is a list of the appendices with their corresponding website where they can be access.

objectives evaluated, assessment rubrics and educational activities, and the annual reports, among others documents (see Appendix V for the services rendered by the OEAE). Support to this Office establishes the Campus commitment to an organized, systematic and sustained process of assessment.

The process of assessment of student learning carried out in UPR-RP is faculty led, data driven and course embedded. The learning outcomes of the Campus mission, as stated in the Graduate Baccalaureate Student Profile (Appendix VI), are assessed for two general learning areas in all undergraduate academic programs: (1) General education competencies from the perspective of the discipline, and (2) Content knowledge, skills and dispositions that characterize each discipline. The following diagram presents a schematic representation of the UPR-RP Assessment of Student Learning Process. A detail description of the implementation of this process follows.

Diagram 1: Integrated process of assessment of student learning



General Education Component

The general education competencies, such as: oral and written communication in Spanish and English, scientific reasoning, social responsibilities and information literacy are assessed in the College of General

Studies. They are also assessed at the academic programs level from the perspective of the disciple since the 2008-2009 academic year.

Assessment of student learning of general education competencies at the level of General Studies College

The continued assessment process of General Education Competencies in this College has been supervised by Dr. Vanessa Irizarry during the academic year 2012-2013. Since 2009-2010, students' scientific reasoning skills and social responsibilities began to be assessed as pilot projects in laboratory reports of some sections of the Biological Sciences and Physical Sciences courses at this College. The development of the learning objectives to be assessed and the rubric to be used, including its validation, involved participation of all faculty members from these Departments. The assessment of this learning outcome began as pilot projects in some sections of these courses. Analysis of the findings from these pilot projects identified areas of students' needs that required to be addressed. In a Departmental meeting, faculty members proposed different transforming actions to be implemented in the next academic year assessment efforts. They proposed giving the rubric to the student with the laboratory assignment, that class meetings should include discussion of how to write and submit scientific findings in laboratory reports, including establishment of the hypothesis. These transforming actions were implemented and the analysis of assessment findings in the following years produced better learning outcomes. The Social Sciences Department of the College of General Studies also started assessment measurements during this period by means of case studies that involved issues of social concern such as environmental awareness, national heritage, gender problems, and ethics situations.

The assessment of General Education competencies in the College of General Studies included the following: (1) the assessment of written and oral communication skills, in Spanish and English courses, (2) scientific reasoning in the Physical and Biological Sciences courses, critical thinking in the Humanities courses, and (3) social responsibility in the Social Sciences courses. Also, a project to implement information literacy skills in all courses of the freshman year was approved and implemented during the 2012-2013 academic year. Learning objectives to be assessed in each of the previously mentioned student learning outcomes were written and included in the course syllabus. Rubrics to be used were designed or selected and validated. Also, the need to set an expected outcome and the desirability to use a uniform rubric was discussed.

All undergraduate academic programs are required to assess general education competencies, as described in the Graduate Baccalaureate Student Profile from the perspective of the discipline as well as the content knowledge, skills, and dispositions that characterize each academic program. Hence, the general education

competencies of the General Education component of the Baccalaureate Degree are also assessed at the institutional level, by the academic programs and by the College of General Studies as described above.

Assessment of Student Learning at the Institutional Level

Information literacy and logical-mathematical reasoning competencies were assessed at the institutional level. Logical-mathematical reasoning skills were assessed in those Mathematic courses in which students enroll to comply with this general education component of their Baccalaureate degree. Information literacy skills were assessed beside the undergraduate academic program, in all departments of the General Education College.

Assessment of Students' Information Literacy Skills

Information literacy competencies are assessed at an initial level (College of General Studies) and at the developmental level, from sophomore to senior years. This learning outcome is also assessed in special projects at the Library System (PICIC PROJECT), and at the Architecture and Natural Sciences Colleges' libraries. To facilitate the development of the PICIC Project three librarians of the Institution Library System participated in the ACRL Information Literacy Immersion Program (teaching track 2009, assessment track 2010 and teaching with technology, management track 2013. Also, training activities for all library system personnel were coordinated and offered.

Three Colleges participated in the PICIC Project: College of Education, College of Business Administration and College of General Studies. Although this project is mainly geared to undergraduate students, it also has an impact on graduate students from the Colleges of Education and Business Administration. An operational definition for these competencies adapted from ACRL was made, and learning objectives were designed for the initial and developmental level (Appendix VII). All colleges participating are following the same learning objectives for this learning outcome (information literacy) as approved by the Campus Committees. In 2012-2013, the College of Business Administration trained 60% of the total undergraduate enrollment and 73% of the graduate enrollment. The College of Education trained 8% of their graduate students and 13% of the undergraduate students. The College of General Studies trained 100% of their undergraduate students at the initial developmental level (freshman students). In this College 93 % of the faculty members integrate information literacy in their courses and syllabi.

The College of Humanities assessed this competency in 2012-2013 and it is planning to continue assessing these skills in next year assessment of student learning plan (2013-2014) in their general education courses:

Hispanics Studies, English and Comparative Literature. Also, these skills are measured in all the other academic programs of this College at least once in a five year cycle as part of their Assessment of Student Learning Plans. A systematic gathering of assessment data of this competency is recommended and that a standardized measurement instrument should be developed.

Some libraries outside of the campus Library System such as the Library of the School of Architecture and the Library of the College of Natural Sciences, are also participating in the assessment of these competencies. A series of workshops, aimed toward training faculty in the assessment of these competencies: writing learning objectives to measure this competency and including them in the course syllabus, selecting an appropriate learning activity to measure this competency and designing a rubric, were sponsored by the different Colleges or Schools.

These competencies have already been measured by some of the undergraduate academic programs as part of their Assessment Plans.

Assessment of Students' Logical-Mathematical Reasoning Skills

A test designed by a committee of experts to assess logical-mathematical reasoning skills was validated and administered to a series of sections of math courses in which students that are not from the Colleges of Business Administration and Natural Sciences enroll to comply with these skills for the general education component of the Baccalaureate degree. This test was administered for the first time to these sections of Math courses in May 2011. The average result of all sections assessed was 11.5 correct answers out of 22 items.

The committee members met at the beginning of the first semester of the academic year 2011-2012 to discuss the test results and identify the learning objectives where students' low performance was observed in these skills. Once identified, a meeting with the Chairperson of the Mathematics Department was scheduled by the OEAE to discuss test results and the need to strengthen the teaching of those learning objectives in their courses in order to advance students' logical-mathematical reasoning skills. The Chairman scheduled a departmental meeting in which OEAE personnel discussed these results with the faculty members. As a result from this discussion, some professors proposed transforming actions. It was agreed to implement a series of out of class tutoring sessions to students enrolled in MATE 3105, MATE 3001, MATE 3036, MATE 3041, and MATE 3042 courses in order to strengthen their logical mathematical reasoning skills, which are currently underway. Also, during the second semester 2011-2012, additional measures geared to course modifications and tutor training were worked on to strengthen student learning in this learning outcome and assess the effectiveness of the tutoring program. A tutoring system was implemented,

coordinated by an experienced professor, to improve students' learning needs in this outcome. The Department Chairmen asked the OEAE to administer the test again to see if the tutoring program had improved students' outcome.

The test was administered again in in the second semester 2012-2013 (April 2013). A total of 215 students participated. Students' outcomes evidenced lower performance in this outcome in this instance. Generally, students who failed or obtained a low grade, repeat the course in the second semester. Nevertheless, the tutoring process designed seems to have little impact in the students' performance of these skills. Discussions about how to improve teaching and learning in this area are currently underway. Future transforming actions may need to be strategically situated within the classroom. Tutoring sessions are important and useful and these have boosted student learning. But many students are likely to turn to tutors to acquire the skills that are most useful for meeting their immediate needs in their courses. Because course content may not explicitly deal with the more foundational competencies emphasized in the assessment instrument, what is learned in tutoring sessions may not lead to better assessment results. If tutoring is to be continued, the organizers of the program may want to consider establishing tracks that require different topics and skills to be required on a weekly basis.

Another possible strategy for better understanding these learning outcomes is establishing a sample of two sets of students, a group that has attended tutoring and a control group that has not. Comparing the samples could assist in identifying effective transforming actions.

Information related to students' outcome in these tests are included in the following tables.

Table 1. Evidences the results by area of competency and compares results in each instance in which it was administered.

LOGICAL-MATHEMATICAL REASONING TEST (GENERAL)		
Competency Area	**2010 – 2011 (May, 2011)**	**2012 – 2013 (May, 2013)**
Computation	44.84%	43.90%
Representation	62.92%	62.87%
Evaluation	51.89%	52.21%
General Average	**52.34%**	**52.09%**

A similar test was administered to students from the Business Administration College who enrolls in the Pre-calculus course as a requisite to comply with the general education mathematical component. During the first administration in 2010-2011, a similar test to the one given to the students who enroll in MATE courses was administered in the MECU course. After discussing results with all faculty members who teaches this course, it was decided that this test did not measure the logical mathematical reasoning skills require for the MECU students. A comparable process was followed to design a test with items that comply with the same content areas approved for the original test to assess logical mathematical reasoning skills but in the context of the Pre-calculus (MECU 3031) course objectives. This test was designed and approved by the professors who teach this course. It was administered in December 2011 and again in May 2012. An improvement in students' achievement can be seen when these competencies are measured within the context of the discipline. No data was handed in for the 2012-13 academic year related to students' performance in this learning outcome.

Table 2 Evidences the results by area of competency and compares results in each instance in which a similar test was administered in Business Administration MECU 3031 course.

LOGICAL-MATHEMATICAL REASONING TEST FOR QUANTITATIVE METHODS (MECU 3031) COURSE			
Competency Area	**2010 – 2011**	**2011 – 2012**	
	May, 2011	**December, 2011**	**May, 2012**
Computation	53.11%	74.06%	68.03%
Representation	57.98%	70.55%	64.01%
Evaluation	54.20%	77.30%	63.56%
General Average	**54.86%**	**74.14%**	**65.39%**

Assessment of Students' Effective Written Communication Skills in Spanish

As stated in the Periodic Review Report, one of the four learning outcomes to be assessed in all academic undergraduate programs was effective communication skills, as established in the UPR-RP's Evaluation of Student Learning Plan. As a first instance, it was decided that information regarding this learning outcome was to be gathered at the institutional level through an essay-type test administered to a cohort of freshman students.

Results from previous administration of a similar test (in 2007 and in 2008) are included in the following table (Table 3) The test was developed by the OEAE with the Office of the College Board for Puerto Rico and Latin America. The project evaluated the writing competencies of the 2007-2008 incoming

class, a milestone campus-wide effort. During this academic year, a writing test was administered to students from the first nine academic programs that started the revised curriculum (Physics, Mathematics, General Science, Biology, three programs from the School of Communication, and two programs from Humanities: Arts and Interdisciplinary Studies). Four hundred and nine (409) students or 58% of total admissions to those programs participated. The areas evaluated were: theme and structure, lexical competency, domain of syntactical structures
and grammatical correctness. The College Board was in charge of the rubric used and for grading the essays produced. The results indicated that 21% of the students showed limited writing skills, such as lack of domain on basic essay structure and poor vocabulary use. Results were presented and discussed among the deans, associate deans and student learning assessment coordinators for the corresponding actions. The students were referred to the Center for Linguistics Competencies at the College Of General Studies. It should be noted that the Center for Linguistics Competencies was a major transforming action approved during the bachelors' revision in support of the development of communication skills.

Collaborative efforts with the College Board continued during the 2008-2009 academic year. A writing test was administered to a sample of 1,599 newly admitted students, 82% of total admissions in the revised programs. Results indicated that 88% of students evidenced poor writing skills. Problematic areas were similar to the ones found during the first year of the Project, although a higher incidence of limited skills resulted possibly due to a more diverse group of participating students. In light of these findings the following actions were implemented since then: 1) coordination of writing workshops with the Center for Linguistics Competencies; 2) development of a writing program called Writing Zones in the College of Education, for Education students with mandatory attendance to the workshops; 3) offerings of writing skills workshops in Spanish and English at the College of Business Administration; 4) creation of a writing seminar in the School of Communications. Students identified with writing difficulties are now assigned to one of the above institutional initiatives. According to the student's academic needs, programs have integrated activities in their curriculum in a consistent and systematic way. These actions boosted efforts to implement a model for the development of writing skills across the curriculum, within the context of the disciplines, and with important opportunities for practice and feedback.

The following table presents results from the competencies areas assessed in the test in 2007 and 2008 academic years. It should be noted that students assessed in 2007 are from academic programs with the higher entrance academic indexes.

Table 3: Assessment Results of the Test to Assess Written Communication Skills Administered to Freshman Students during the 2007 – 2008 and 2008 – 2009 Academic Years

Criteria	October10, 2007 (N=409)		August 7, 2008 (N=1599)	
	Average [20, 80]	Percent	Average [20, 80]	Percent
Theme and Structure	61.5	76.9%	52.1	65.1%
Domain of syntactical structures	53.2	66.4%	50.9	63.6%
Lexical Competency	57.1	71.4%	46.3	57.9%
Grammatical correctness	54.9	68.6%	56.2	70.3%
Total Essay Score	**60.0**	**75.0%**	**41.0**	**51.2%**

During the academic year 2011-2012, the OEAE personnel planned the second instance of an institutional assessment of student learning regarding effective written communication in Spanish. It was decided that in this occasion the Institution will be in charge of all aspects of this effort. Toward this end, a committee of experts was appointed to be in charge of the following: 1) deciding the statement on which students will develop a short essay, 2) adapting a rubric to be used as an assessment instrument, 3) revising all relevant information to be given to the student, and 4) grade all essays in two rounds of independent evaluations.

The test was administered in August 16, 2012, during the day in which the Institution schedules the course registration analysis of the upcoming academic semester. A communication was sent to the incoming class to invite them to participate in this activity. (Appendix VIII). A total of 1,686 students participated in the test, this made up 80% of the incoming freshmen class. The results were sent to students via their institutional email and recommendation of possible courses to enroll, workshops in which they could participate and Campus support programs and offices which could give them pertinent counseling were recommended. The findings were discussed with pertinent academic units and faculty. Results of this effort are included in the following tables. (Tables 4 and 5)

Table 4. Distribution by criteria assessed and their level of performance in the effective written communication test (Spanish) administered in August 16, 2012 to all incoming students.

Criteria	Levels				
	Novice (1)	**In Progress (2)**	**Satisfactory (3)**	**Very Good (4)**	**Excellent (5)**
Theme and Structure	136	260	998	153	139
	8.1%	15.4%	59.2%	9.1%	8.2%
Mastery of Morph syntactic Structures	326	210	996	99	55
	19.3%	12.5%	59.1%	5.9%	3.3%
Lexical Mastery	120	136	1155	149	126
	7.1%	8.1%	68.5%	8.8%	7.5%
Orthography	395	237	753	158	143
	23.4%	14.1%	44.7%	9.4%	8.5%
TOTAL	977	843	3902	559	463
	14.5%	**12.5%**	**57.9%**	**8.3%**	**6.9%**

Table 5. Group Performance by criteria in the effective written communication test (Spanish) administered in August 2012 to all incoming students.

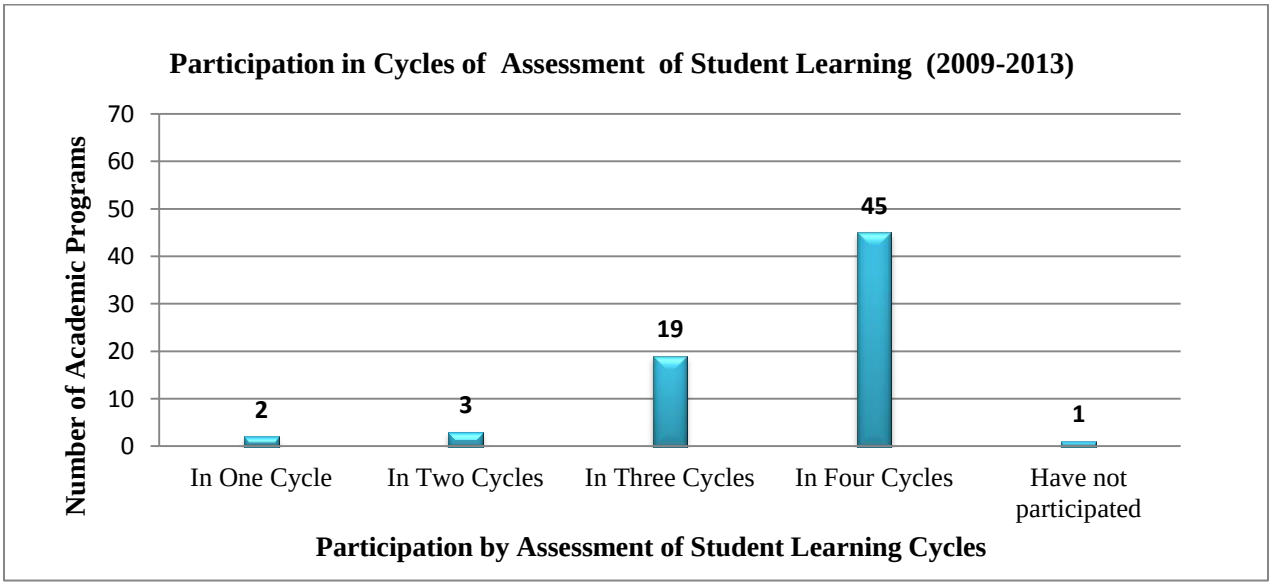
Criteria	Categories	
	Less than 3 points	**3 points of more**
Theme and Structure	23.5%	76.5%
Mastery of Morph syntactic Structures	31.8%	68.2%
Lexical Mastery	15.2%	84.8%
Orthography	37.5%	62.5%
TOTAL	**27.0%**	**73.0%**

It was expected that 70 % of the students assessed would obtain an expected outcome of 3.0 points or more in each test criteria. Although the average performance percentage of all areas was higher than 70 %, two of the assessed criteria (Morph syntactic Structures Mastery and Orthography) did not meet the expected outcome. An exit test geared to baccalaureate graduating students to assess effective written communication skills in Spanish was scheduled for April 2013, but due to budget restraints for grading purposes its administration had to be postponed for another year.

Assessment of Student Learning at the Undergraduate Academic Programs: Fourth Assessment Cycle

The Assessment of Student Learning at the undergraduate academic programs has been engaged in a systematic and ongoing process since the learning and formative assessment experience was implemented in the 2008-2009 academic year. During the 2008-2009 academic year the focus of the process centered on providing the academic community with series of workshops related to the implementation of the Assessment of Student Learning Plan in the Undergraduate Academic Programs, as well as much needed individual assistance. Therefore, as reported on the 2010 Periodic Review Report to the Middle States Commission of Higher Education, the first formal assessment of student learning cycle was carried out a year later, in the 2009-2010 academic year. As of June 2013, 46 (66%) of the undergraduate academic programs─70 in total ─ are undergoing their fourth assessment cycle and 18 (26 %) of them are in their third cycle as shown in Graph 1. The number of academic programs that have participated in an assessment of student learning cycle from 2008-2013 is presented in Graph 1.

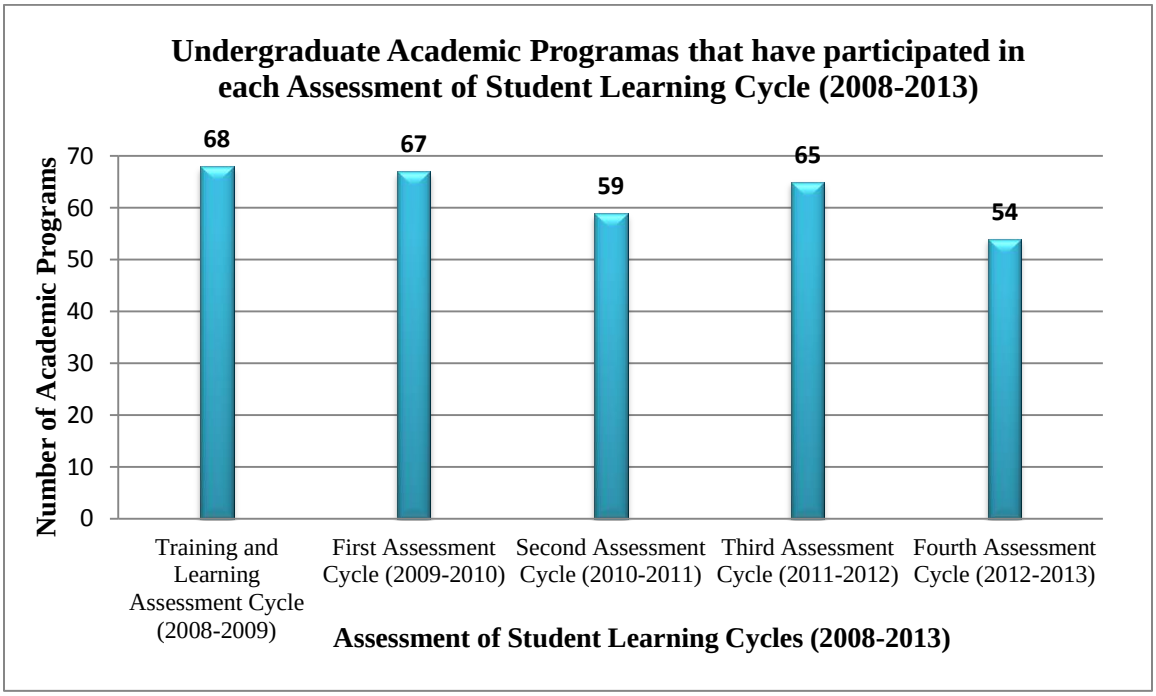
Graph 1: Undergraduate Academic Program Assessment Cycles



Most undergraduate academic programs participating in the fourth assessment cycle (2012-2013) appointed Assessment Coordinators to be in charge of developing and coordinating the assessment efforts of their academic programs. Some were given release time or compensation equivalent to three credit hours for their assessment efforts, while others that coordinated the previous year assessment cycle, continued working ad-honorem in this endeavor. In some Colleges or Schools, one coordinator is in charge of the assessment activities of more than one academic program. Also, other schools appointed Assessment Coordinators at the

College level to overview the assessment process of their academic programs. As stated before, the College of General Studies appointed a General Education Coordinator to supervise the assessment activities of the general education component at this College. These levels of participation (Graph 2) show a strong commitment from the Institution with the assessment of student learning.

Graph 2: Number of Academic Programs that have participated in an Assessment of Student Learning Cycle from 2008 to 2012



Continuous effort to strengthen Campus Assessment of Student Learning

To continue developing and enforcing a culture of assessment of student learning in the Río Piedras campus, and reinforcing the assessment process in the undergraduate academic programs throughout the 2012-2013 academic year, personnel from the OEAE planned different activities at campus level. Beyond the regular, systematic, course embedded and faculty driven assessment process in the academic programs, the OEAE planned five assessment activities that should strengthen the assessment processes in the different academic programs. Those were:

- Administer a test to measure writing skills in freshman students the day assigned for the analysis of the registration process in the enrollment week, August 16, 2012, in order to have a sample of students' writing skills at the entrance level. Assessment results were gathered and are informed in Tables 3 and 5 of this report. Efforts to measure if the first year experience had an effect in these

students' writing skills could not be scheduled for the end of the second semester of their first year of studies (second semester of the freshman Spanish course). Efforts toward this end will be made for the next administration of this test scheduled for August 2015.

- In collaboration with the Assessment Technician, Mr. William Estépar, the OEAE designed Excel spreadsheets to facilitate the collection and analysis of assessment data available in all undergraduate academic programs.
- A test to assess logical-mathematical skills in students (from all undergraduate programs with the exception of students from the Colleges of Business Administration and Natural Sciences) who were enrolled in the second semester of 2012-2013 MATE courses to comply with the general education component, was prepared and administered in the April 16 -20, 2013 week, to assess the effect of tutoring efforts in student's outcomes. Performance results are included in Tables 1 and 2 of this report.
- A test to assess students' writing skills as an exit measure in students enrolled in advanced courses was designed, printed and ready to be administered. All the necessary efforts to administrate this test were done and everything was ready for its administration. Due to lack of budget funds for grading these tests, this assessment activity could not be administered. The Chancellor, Dr. Ana Guadalupe, transferred funds to cover grading expenses for this activity for the next academic year, 2013-2014. The OEAE will include among next academic year's assessment activities, the administration of this test in order to have an exit measure of this learning outcome and a uniform way to gather information of this learning outcome in order to develop a profile of graduating candidates' effective communication skills.
- The OEAE together with the Chair of the Computer Science Program discussed the possibility of designing a web application that the professors and assessment coordinators could use to compile the assessment data gathered and to do the analysis of the assessment results. This idea was positively received by Dr. Carlos Corrada who taught the *Development of web-based applications* course (MATE 4996) and decided to use the idea as the semester project of the course. He divided the class in two groups of 5 students. The students met in various occasions with the staff of the OEAE with the purpose of learning about all the aspects of the on-going assessment process. The application should be able to analyze the data gathered and provide the results in table and in graph format. By the end of the semester, the day set by the Registrar for the final exam for this course, both group of students gave a presentation before the OEAE staff and Campus Assessment Coordinators, explaining what their web-based application is able to do. The attendees assessed both applications. Dr. Corrada recommended which of the two applications should be used for the testing phase of this initiative.

The OEAE programmed a series of meetings with assessment coordinators from different colleges to discuss the process of assessment of student learning carried out in campus and in their academic programs. The First Semester Report on the Assessment of Student Learning (2012-2013) of the undergraduate academic programs was thoroughly discussed with most of the assessment coordinators in order to improve their Annual Reports and future assessment cycles. Continued guidance was provided in the design of assessment instruments and in the recommendation of possible educational activities that could be used to measure student learning. Personnel from OEAE also provided assistance in analyzing and evaluating assessment of student learning results, and in assuring that transforming actions were planned, when needed, and identifying which will be implemented during the next assessment cycle. Emphasis was given to:

- The importance and quality of the documents to be submitted (Assessment of Student Learning Plan, Annual Report, Curricular Matrix, and Five-Year Plan).
- A continuous revision of the Five-Year Plan and Curricular Matrix in light of previous assessment results.
- The importance of implementing the transforming actions that resulted from last year' assessment process in each academic program to ensure improvement of student learning.
- The need to assess the impact of the transforming action implemented regarding student learning, and to close the assessment cycle when these assessment transforming actions are assessed.
- Promote an increase in the participation from all stakeholders involved in the teaching and learning process in the different academic programs in order to strengthen their commitment with the processes of assessment of student learning.
- The need to use multiple measures to assess one learning outcome in order to triangulate assessment results.
- The need to measure one learning outcome in more than one instance to corroborate assessment findings.
- The importance of assessing student learning by criteria and presenting its corresponding results in terms of the expected outcome. The criteria that did not meet the expected outcome pinpoint the areas of weakness to be addressed and hence, the proposed transforming action that should be implemented.
- Encourage academic programs to include the following learning outcomes as part of their assessment plans for this academic year (2012-2013): effective communication, research and creation, critical thinking and information literacy as well as content knowledge, skills or dispositions characteristic of each academic program.

- Ensure that academic programs incorporate learning objectives in the course syllabi for each learning outcome assessed.
- Assist Assessment Coordinators, professors and teacher assistants in developing adequate assessment instruments.
- The convenience of using data gathering Excel spreadsheets to facilitate the interpretation of the assessment data gathered.
- The need to refine the assessment process of their academic program.
- The use of assessment results to improve teaching and learning, to promote continuous improvement, to plan yearly budget if budget allocations are needed for curricular design and sequencing, to increase opportunities to learn, among others.
- The desirability to measure a learning outcome more than once in a semester with teaching enforcement activities in-between, with the purpose of providing an opportunity of reinforcing student learning in the same semester (formative assessment).

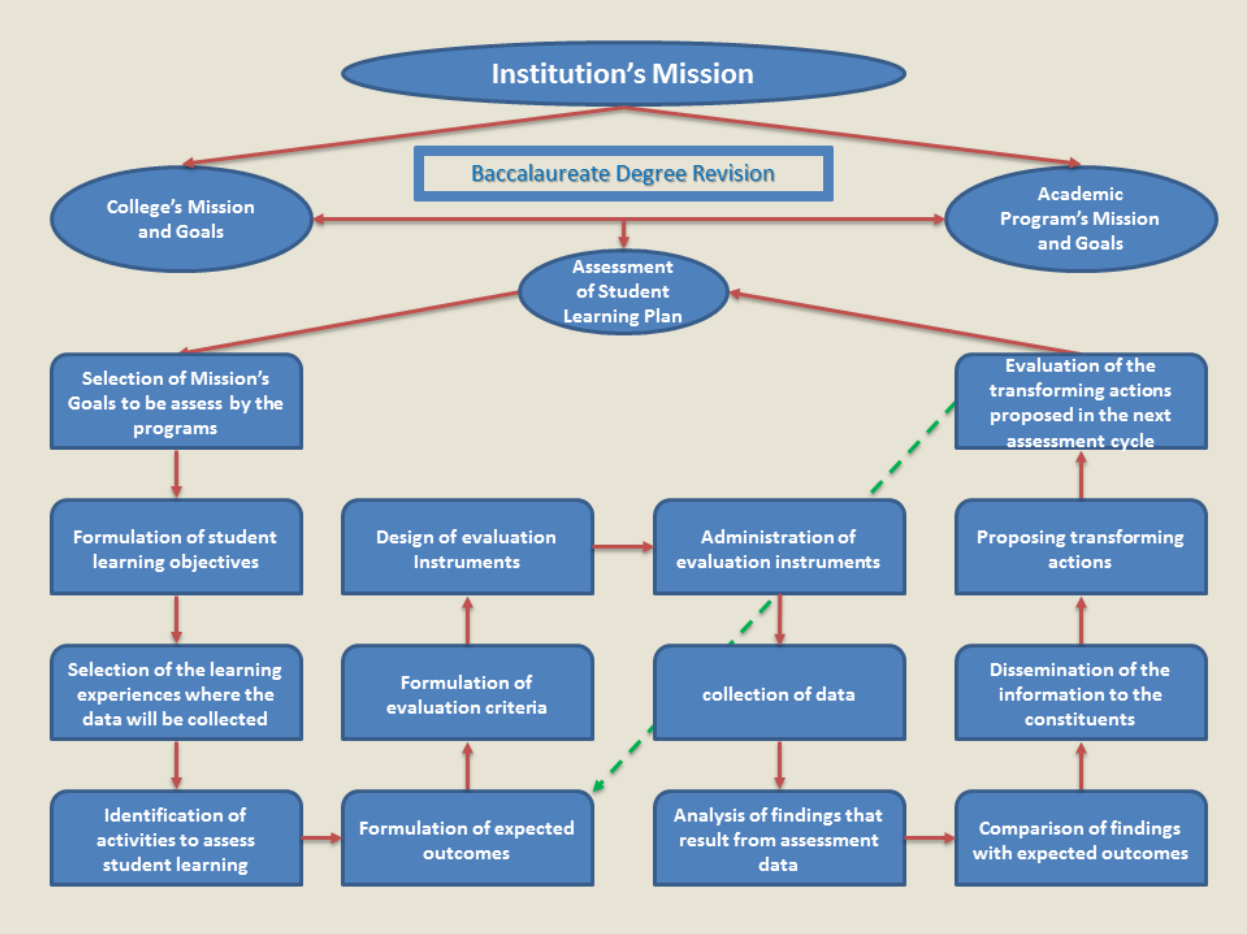
Assessment of Student Learning at the Rio Piedras Campus

A. The process at undergraduate programs

The Assessment Plan and the Annual Report consist of two parts: assessment of the general education learning outcomes stated in the Alumni Student Profile and the assessment of content knowledge, skills and dispositions that characterize each program. A brief narrative describing the analysis of the assessment results and the proposed transforming actions should be submitted with the Annual Report. Diagram 2 shown in the next page, describes the integrated process plan of the Evaluation of Student Learning at UPR-RP.

Samples of Assessment of Student Learning Plans, Annual Reports, and Rubrics developed by UPR-RP's professors and OEAE personnel are available in the OEAE official blog site (http://oeaeuprrp.blogspot.com) that has been created to assist faculty in this endeavor and, at the same time, to disseminate the ongoing assessment process to the different stakeholders.

Diagram 2: Integrated process plan of Evaluation of Student Learning

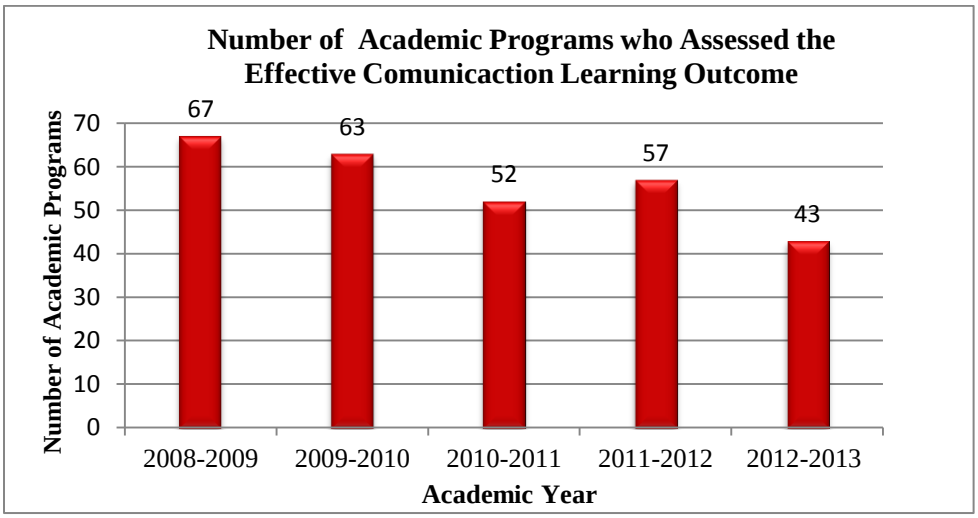


B. Student Learning Outcomes Assessed in the UPR-Rio Piedras Campus Assessment Cycles

The following graphs illustrate the number of academic programs that assessed the UPR-RP student learning outcomes by academic year from 2008-2009 to 2012-2013.

Effective Communication

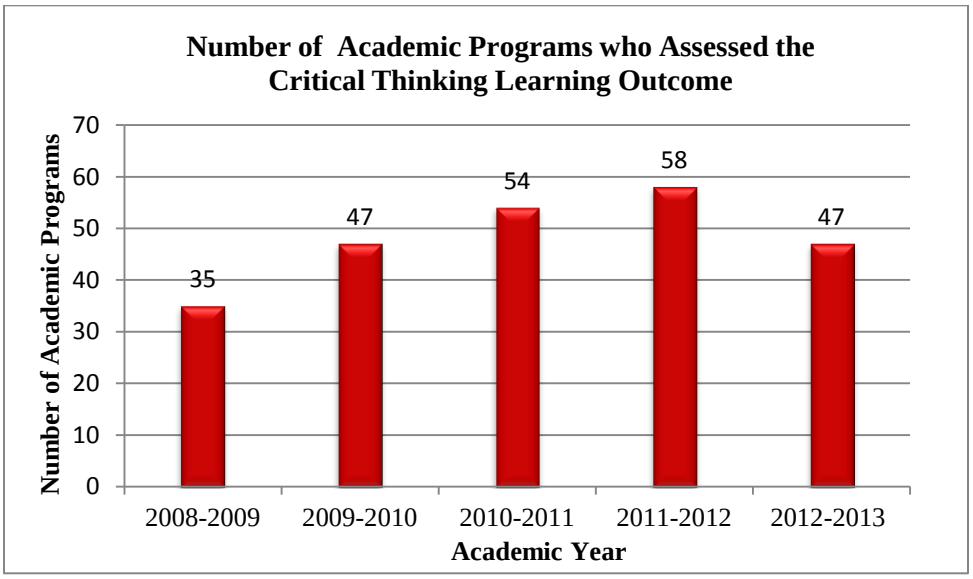
Graph 3: Number of Academic Programs that Assessed this Learning Outcome



As of 2012- 2013, an average of 56 undergraduate academic programs have assessed this learning outcome, at least once, since 2008-2009 academic year.

Critical Thinking

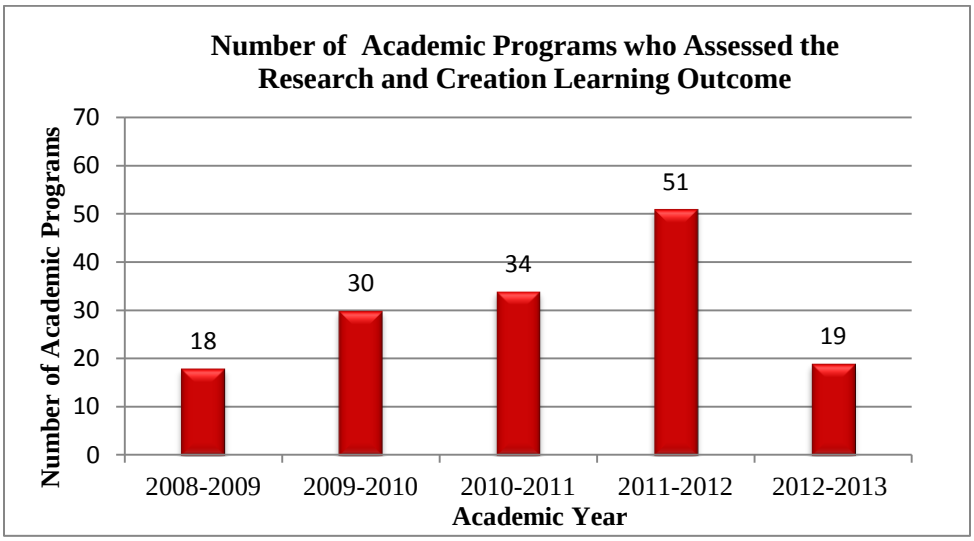
Graph 4: Number of Academic Programs that Assessed this Learning Outcome



As of 2012- 2013, an average of 48 undergraduate academic programs have assessed this learning outcome, at least once, since 2008-2009 academic year.

Research and Creation

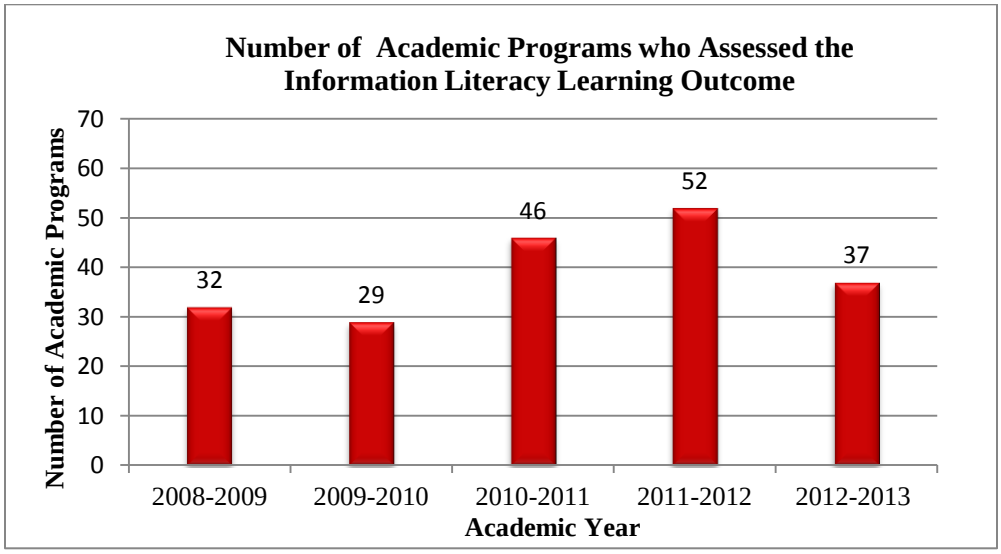
Graph 5: Number of Academic Programs that Assessed this Learning Outcome



As of 2012- 2013, an average of 30 undergraduate academic programs have assessed this learning outcome, at least once, since 2008-2009 academic year.

Information Literacy

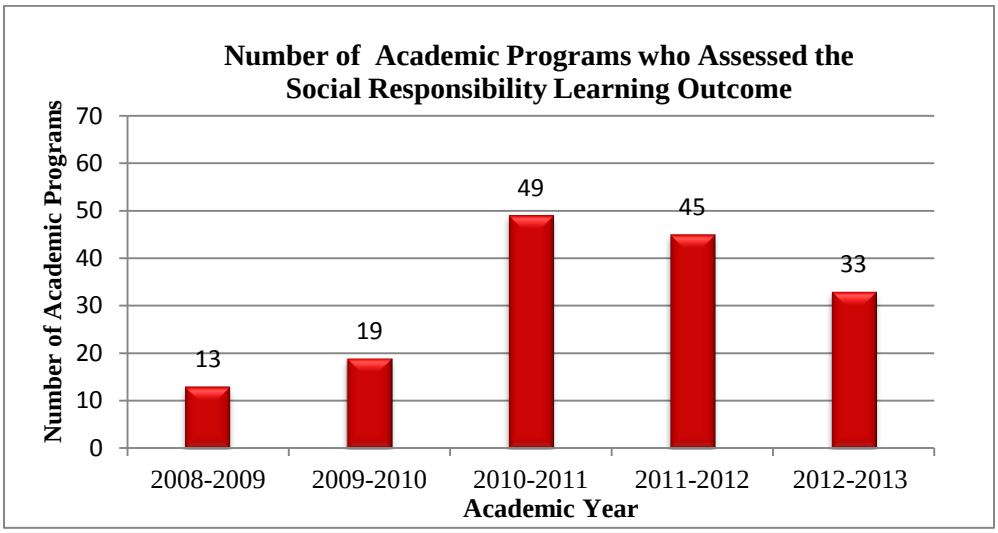
Graph 6: Number of Academic Programs that Assessed this Learning Outcome



As of 2012- 2013, an average of 39 undergraduate academic programs have assessed this learning outcome, at least once, since 2008-2009 academic year.

Social Responsibility

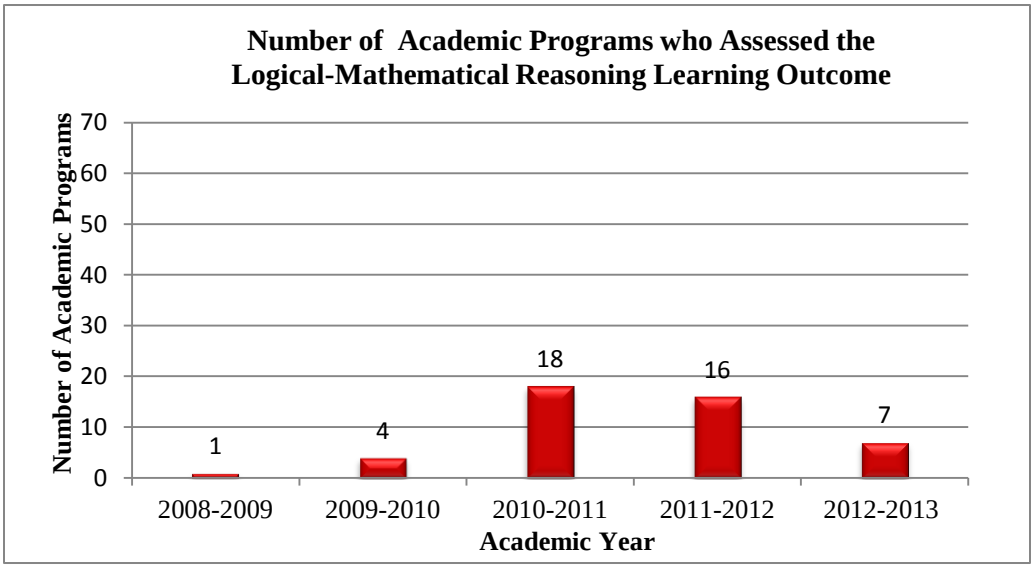
Graph 7: Number of Academic Programs that Assessed this Learning Outcome



As of 2012- 2013, an average of 32 undergraduate academic programs have assessed this learning outcome, at least once, since 2008-2009 academic year.

Logical-Mathematical Reasoning at the Program level

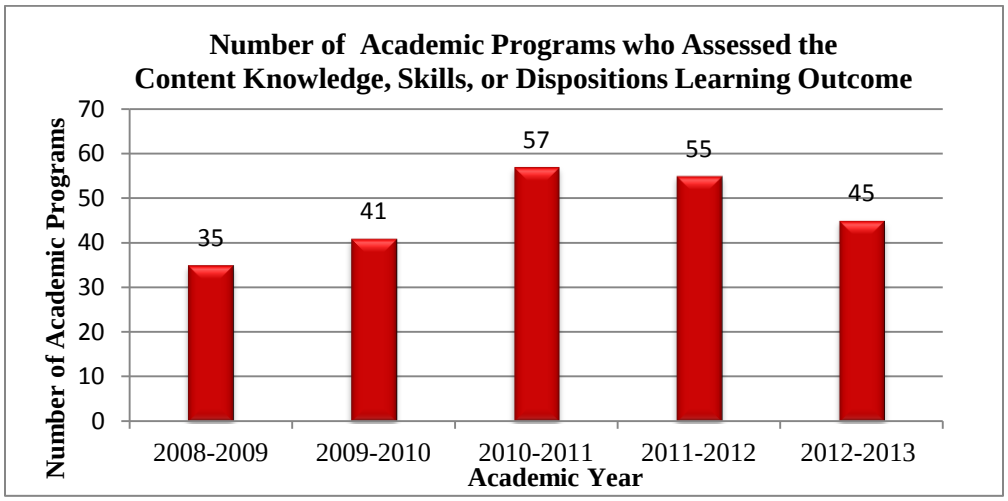
Graph 8: Number of Academic Programs that Assessed this Learning Outcome



As of 2012- 2013, an average of 9 undergraduate academic programs have assessed this learning outcome, at least once, since 2008-2009 academic year.

Content Knowledge

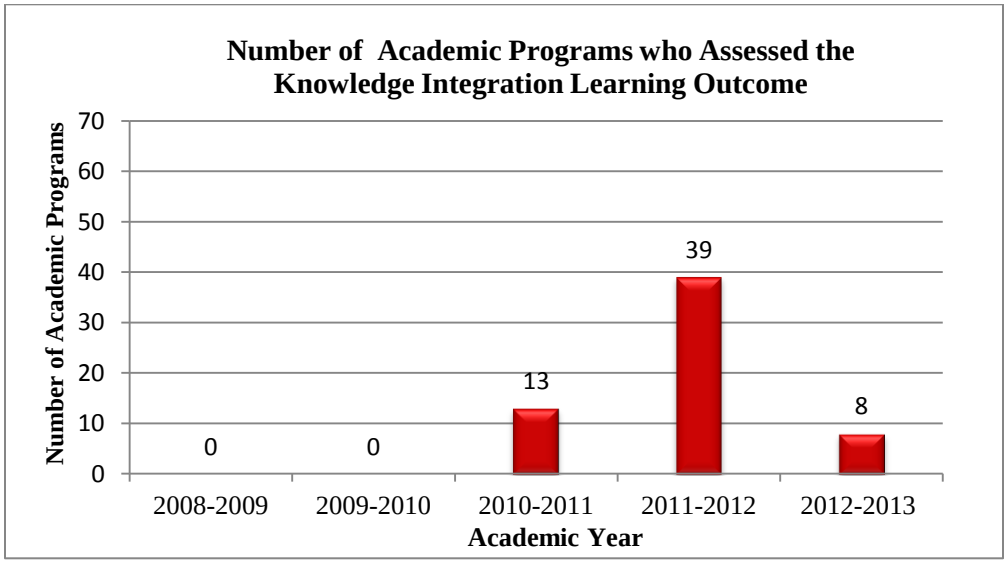
Graph 9: Number of Academic Programs that Assessed this Learning Outcome



As of 2012- 2013, an average of 47 undergraduate academic programs have assessed this learning outcome, at least once, since 2008-2009 academic year.

Knowledge Integration

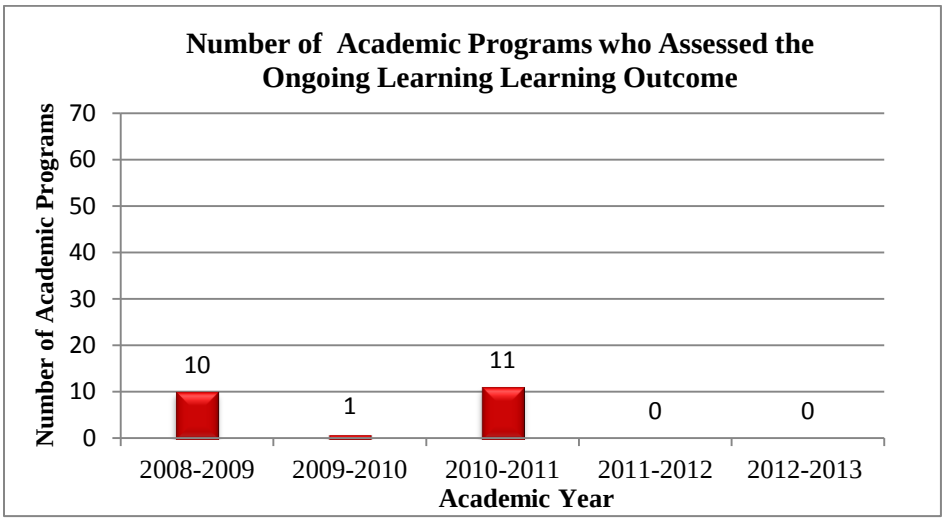
Graph 10: Number of Academic Programs that Assessed this Learning Outcome



As of 2012- 2013, an average of 20 undergraduate academic programs have assessed this learning outcome, at least once, since 2010-2012 academic year.

Ongoing Learning

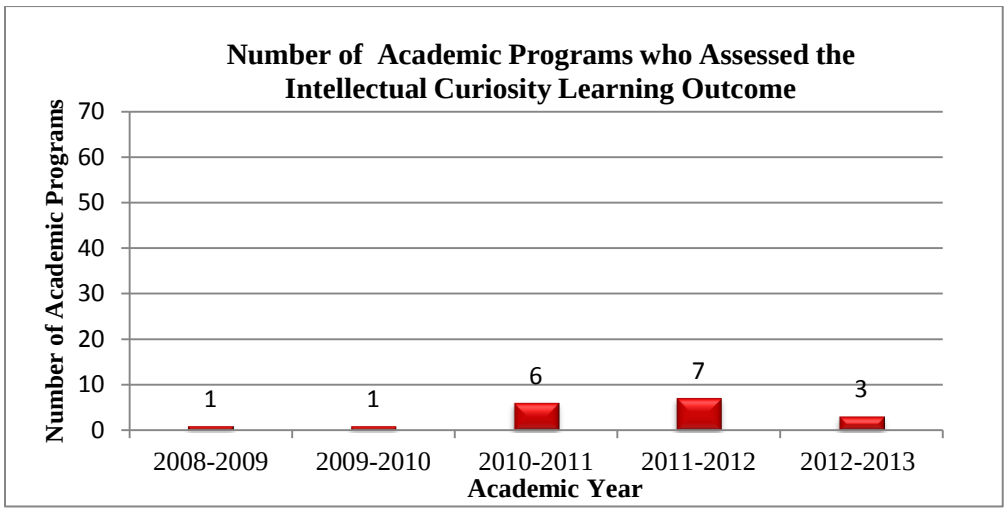
Graph 11: Number of Academic Programs that Assessed this Learning Outcome



As of 2012- 2013, an average of 4 undergraduate academic programs have assessed this learning outcome, at least once, since 2008-2009 academic year.

Intellectual curiosity

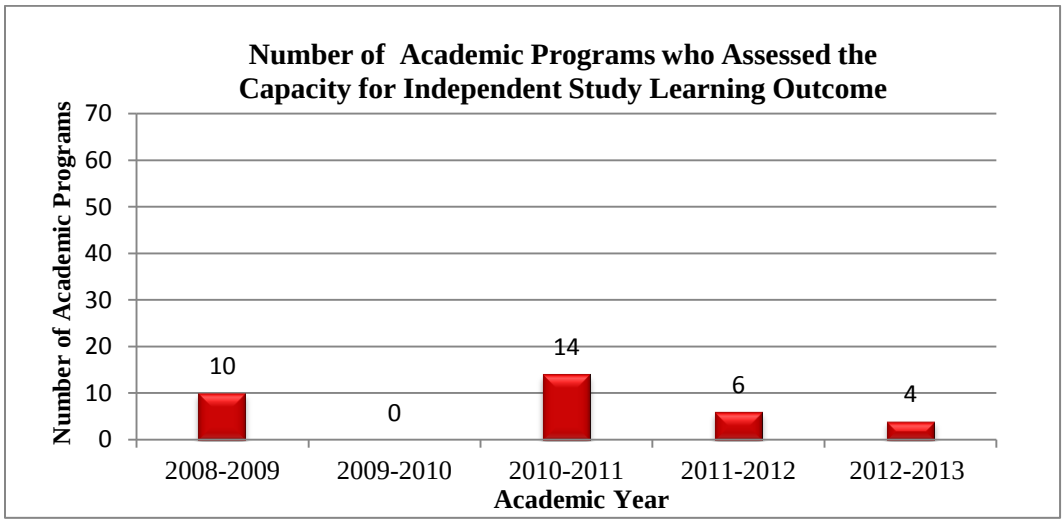
Graph 12: Number of Academic Programs that Assessed this Learning Outcome



As of 2012- 2013, an average of 4 undergraduate academic programs have assessed this learning outcome, at least once, since 2008-2009 academic year.

Capacity for independent study

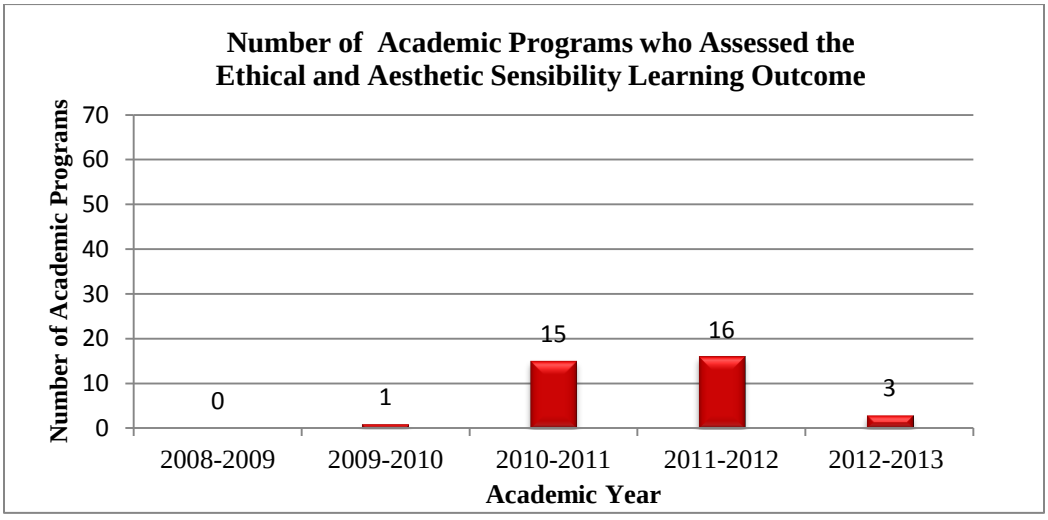
Graph 13: Number of Academic Programs that Assessed this Learning Outcome



As of 2012- 2013, an average of 7 undergraduate academic programs have assessed this learning outcome, at least once, since 2008-2009 academic year.

Ethical and aesthetical sensibility

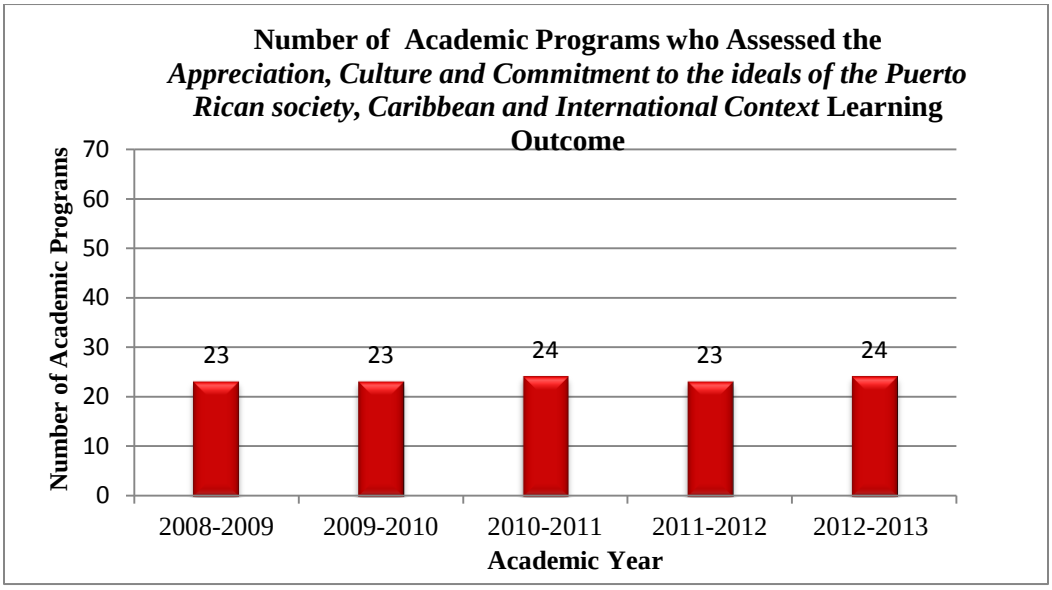
Graph 14: Number of Academic Programs that Assessed this Learning Outcome



As of 2012- 2013, an average of 9 undergraduate academic programs have assessed this learning outcome, at least once, since 2009-2010 academic year.

Appreciation, Culture and Commitment to the ideals of the Puerto Rican society, Caribbean and International Context

Graph15: Number of Academic Programs that Assessed this Learning Outcome



As of 2012- 2013, an average of 23 undergraduate academic programs have assessed this learning outcome, at least once, since 2008-2009 academic year.

The low program participation in the last five learning outcomes showed from Graphs 11 through 15 can be explained due to the difficulty encountered in designing adequate assessment instruments. Nevertheless, the institution considers that these leaning outcomes, of the actual student profile, should be acquired by the students throughout their baccalaureate experience. Therefore, the OEAE continues to encourage the assessment of these learning outcomes even though few programs can measure them.

The analysis of the assessment data received by academic programs and by Colleges or Schools and the summary of the results at Campus level can be found in the Table of Assessment Findings and Transforming Actions by Colleges and academic programs for 2012-2013 academic year. (Appendix IX)

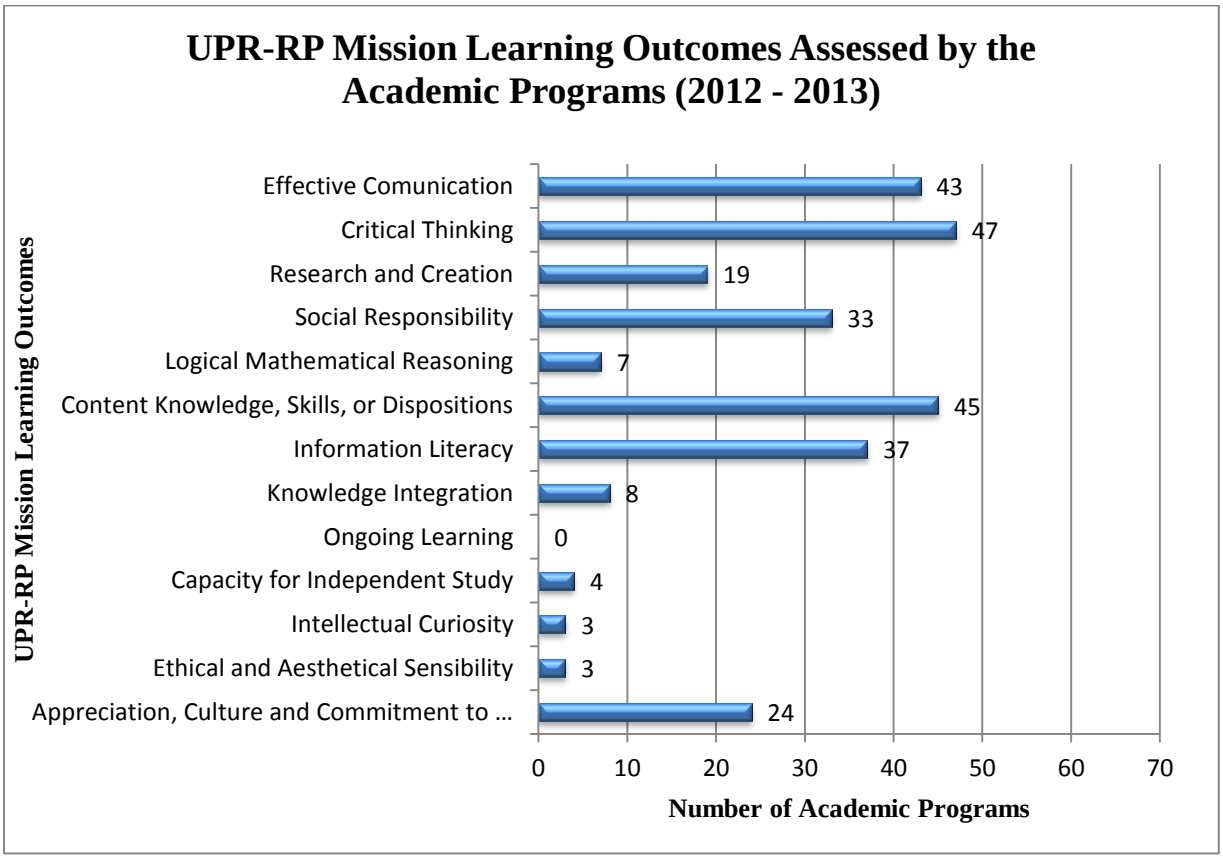
C. Assessment of student learning results at the UPR-RP of the academic year 2012-2013

The Table of Assessment Findings and Transforming Actions by Colleges and Academic Programs in the Academic Year 2012-2013 presents a summary of the learning outcomes assessed by Colleges or School and

by programs, the teaching activities or learning measures used to assess a learning outcome and the number of instances being assessed. This table has information for the 2012-2013 academic year and has been translated into English and published in the OEAE's official web site (http://oeae.uprrp.edu).

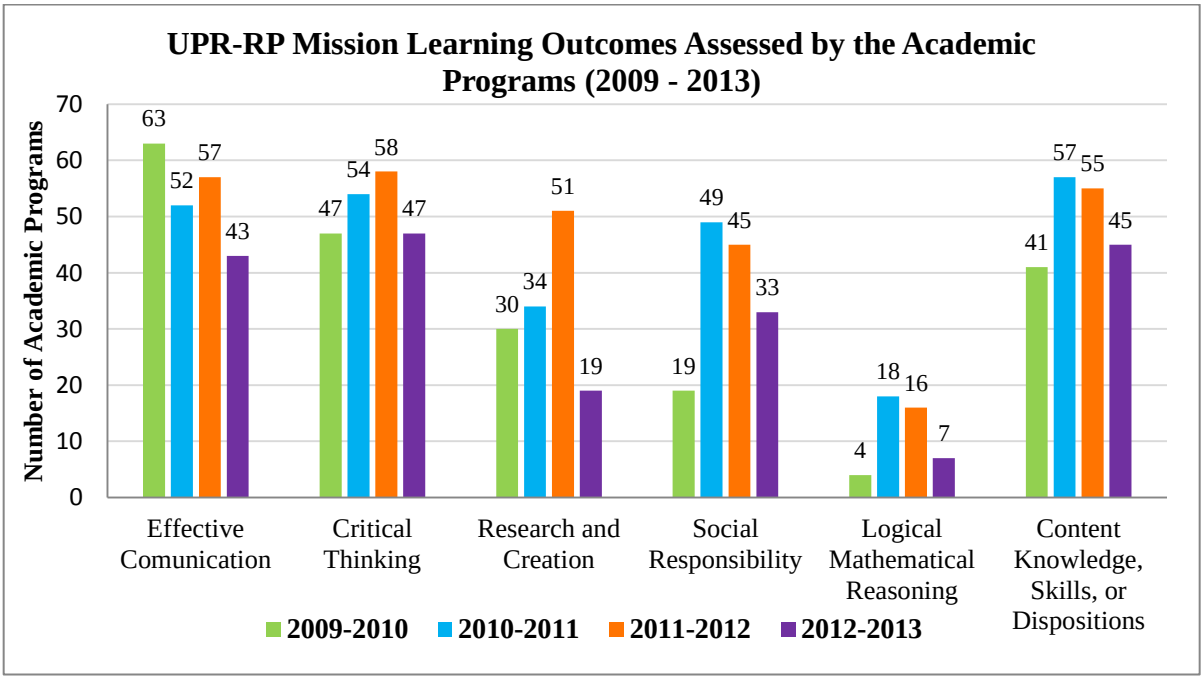
Due to the ample academic offerings available for the students, and the diversity of the learning processes, one can observe different approaches of assessment of student learning. As expressed before, 55 (79 %) of the 70 undergraduate academic programs participated in the first semester 2012-2013 fourth assessment cycle. Graph 16 presents the learning outcomes that were assessed or planned to be assessed during the e 2012-2013 academic year and the number of academic programs that assessed each one of them.

Graph 16: UPRP Learning Outcomes Assessed by Undergraduate Academic Programs



The assessment of student learning of UPR-RP learning outcomes by academic year are represented in graph 17 in the following page.

Graph 17: Represents the assessment of student learning of UPR-RP learning outcomes by academic year



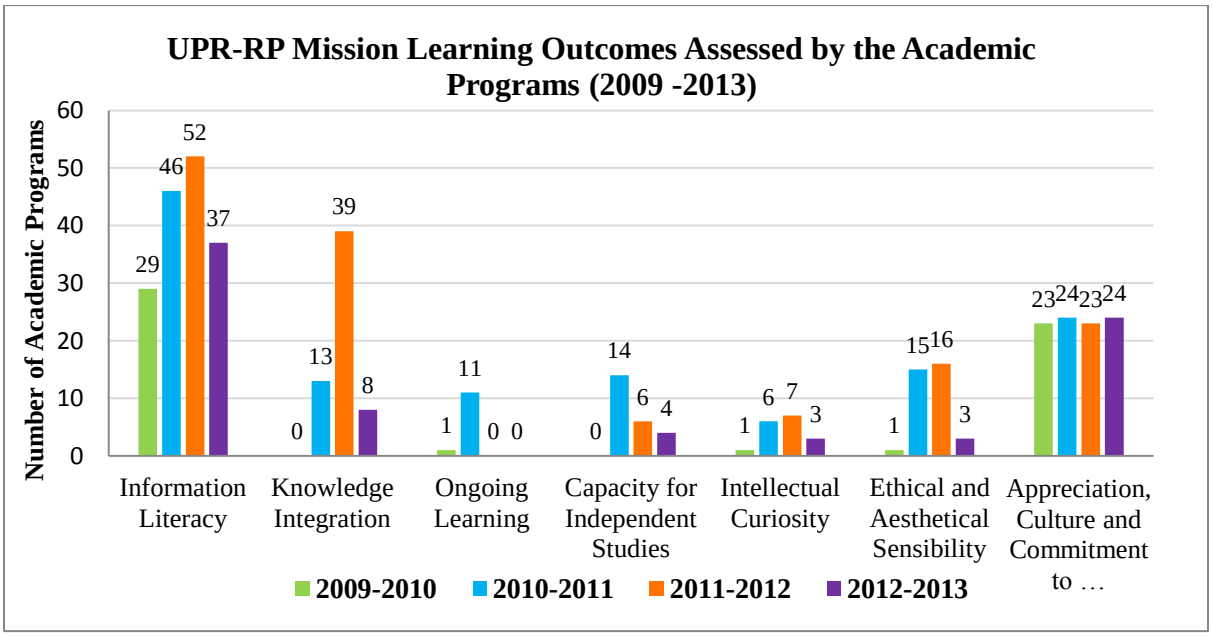


Table 6 contains information of the different programs that assessed a specific learning outcome and the number of academic programs that reached the expected outcome.

Table 6. Learning Outcome Assessment Results by Academic Programs (2012-2013)

Assessment Results by Learning Outcomes in the Academic Programs (2012-2013)		
Learning Outcomes	**Number of Academic Programs Who Assessed the Learning Outcome (N=54)**	**Number and Percentage of Academic Programs Who Reached the Expected Outcome**
Effective Communication	43	38 (88%)
Critical Thinking	47	41 (87%)
Research and Creation	19	14 (74%)
Social Responsibility	33	31 (94%)
Information Literacy	37	8 (22%)
Content Knowledge, Skills or Dispositions Competencies in the Academic Programs	45	38 (84%)
Logical - Mathematical Reasoning	7	4 (57%)
Capacity for Independent Study	4	2 (50%)
Intellectual Curiosity	3	2 (67%)
Knowledge Integration	8	5 (63%)
Ethical and Aesthetic Sensibility	3	3 (100%)
Appreciation and Commitment to the values and Ideals of Puerto Rican Society, in Caribbean and International Context	24	24 (100%)

D. Discussion of Assessment Results – Assessment Findings and Transforming Actions – Fourth Cycle

Findings and Transforming actions from the assessment activities of the learning outcomes that most academic programs assessed this academic year are presented in this section. Those learning outcomes were: effective communication, critical thinking, research and creativity, social responsibility, information literacy, and content knowledge, skills or dispositions (discipline specific learning outcomes). A complete detailed description of assessment findings and transforming actions of all learning outcomes assessed this year by undergraduate academic programs can be found in Appendix IX – Table of Assessment Findings and Transforming Actions by Colleges and Academic Programs in the Academic Year 2012-2013.

Communication Skills learning outcome

***Definition**:* Ability to express oneself effectively in oral and written language that demonstrates a clear, coherent and accurate communication.

Of the 55 academic programs engaged in the assessment of student learning process, 43 (78 %) assessed effective communication skills. Of those programs, 38 (88%) reported positive learning outcomes results[2] in this competency according to expected results established by the programs. Thirty-nine programs (91%) proposed transforming actions as a result of the assessment process.

Thirty seven programs (86 %) used at least two different activities to collect data, and 40 (93%) of these academic programs reported having assessed this learning outcome in at least two instances. All programs used direct measures to collect data on this learning outcome. Assessment methods for competency in written and oral communication are embedded in the discipline courses throughout the curriculum. Evidence of student ability to communicate effectively was assessed in the following activities: essays and oral presentations, art proposals, supervised practicum, laboratory reports, design projects, research article reviews, critiques, research papers and projects, and persuasive arguments, among others.

As an example of a program that assessed this learning outcome, the Hispanic Studies program used written assignments using a standardized rubric in two instances in the ESPA 4222 course. It was expected that 70% or more of the students would obtain 54 or more out of 84 points. All students met the expected outcome in both instances. Although the expected outcome was achieved, the program faculty recommended the following transforming actions:

- To improve grammar: short written assignments like short tests (5-10 minutes long) for a total value of 10 points each.

- Selection of sources: require diverse written or online media published by peer-review academic sources and include their assessment in the rubric used.

- Information needs definition: Motivate and promote the continued use of intellectual sources such as the language dictionary for them to make a responsible reading of each assigned text, also of the literary and historical focused histories that contextualized the literary works.

[2] A positive result implies that the learning outcome was achieved in at least 70% of the instances measured. An instance was considered to be met if at least 70% of its corresponding criteria were achieved.

- Development of a conclusion: Emphasize that all compositions that implies a minimum research exercise must conclude with an author valuation of the problem researched, and must be one of the criteria assessed in the rubric used.

- Students will write the same text assignment at least two times in the semester in order to learn from their errors .Develop a more integral concept of the content as well as in the style of the essay.

Another example can be observed in the School of Communication. The faculty in charge of teaching the courses of the different programs strongly recommends the creation of a course sequence specifically designed to reinforce student's oral and written communication skills. These courses should be required for all students in the curricular sequence during the first two years of their baccalaureate experience. Although the expected outcome was achieved in all instances in which this learning outcome was assessed, the faculty feels there is a need to better comply with the expected student achievement in their written and oral communication skills.

As the result of the 2012-2013 assessment of student learning process regarding the effective communication skills outcome, the following sample of transforming actions by academic programs will be implemented in the next assessment cycle (2013-2014):

- *Teacher Preparation Programs:* Professors will provide individual help to students that need improving their reflection writing abilities as future teachers.
- *English: Linguistic and Communication:* New assignments will be created by individual professors, including the preparation of a brochure designed by students, and the writing of a self-reflection paper about their research process.
- *Audiovisual Communication:* Integrate a review on grammar and orthography into the thematic content in the first weeks of the course, in order to answer any doubts and remedy any general achievement gaps on this learning outcome.
- *Labor Relations:* Continue strengthening effective communication competencies through assignments and formative assessments.
- *Performing Arts:* Given that the students come from different majors, the assessment results will be share with their programs to minimize the deficiencies shown in written communication.

Critical thinking learning outcome

Definition*:* A thinking skill that enables the student to analyze and interpret the object of study, by judging, criticizing and analyzing the diverse perspectives in a thorough and constructive way, aiming towards the development of their own criteria.

Forty six (84%) of the 55 undergraduate academic programs assessed critical thinking skills. Of those programs, 40 (87 %) reported positive learning outcomes results[3] in this competency according to expected results established by the programs.

Forty-five programs (98%) proposed 79 transforming actions as a result of the assessment process.

Of those programs, 40 (87%) reported positive learning outcomes results in this competency according to expected results established by the programs. Thirty-seven programs (80%) used at least two different activities to collect data, and 40 (87%) reported having assessed this learning outcome in at least two instances. Most programs used direct measures and course-level activities to collect data regarding this learning outcome. Evidence of student ability to think critically was assessed through the following activities: supervised practicum, design of projects, marketing campaign plan, laboratory reports, research article reviews, critiques, research papers and projects, essays, exam questions, among others.

Examples of programs that assessed this learning outcome are:

- *English Literature program* : The English Literature curriculum committee revised the course syllabus of INGL 3252 (American Literature survey course) to include new objectives that require, professors to begin adjusting course assignments in order to work more with integrating activities that teach critical thinking.
- *Fine Arts program*: This program incorporated more creative research skills in order to measure critical thinking. In order to accomplish this, they designed research methodology workshops, assigned readings that were supplemented with essay assignments. The Curriculum Committee created exercises in order to incorporate research and critical thinking skills in their syllabus.
- *Modern Languages program*: This program also designed and scheduled two workshops in order to attend to the complexity and demands of the critical thinking learning outcome at an intermediate level. A research component was incorporated into the third semester course syllabus. All syllabus revision will be approved by the Curriculum Committee.

[3] A positive result implies that the learning outcome was achieved in at least 70% of the instances measured. An instance was considered to be met if at least 70% of its corresponding criteria were achieved.

- Sociology program: This program proposed comprehensive discussion of different texts used in relation to the sociology discipline in all courses. The faculty also encouraged to apply these texts to the management of information in the various theoretical and methodological traditions which characterize the discipline. As a result, students were encouraged to complete various assignments, such as essays, oral presentations, and methodological proposals, which reflect critical thinking in the discipline, as well as historical transformations.
- *Art History program*: This program assessed critical thinking skills in two courses in three instances each. After each assessment, the professors involved gave feedback and assign exercises in areas of need since the first instance. An improvement was observed over the semester experiences. This is a good example of formative assessment that should be enforced by the OEAE.

Research and Creation Learning Outcome

Definition*:* Mastery of skills needed to design and conduct a systematic, objective, and critical investigation, qualitative or quantitative, of a scientific or social problem or issue; the ability to create, develop, and present a work of art or literature.

Of the 55 academic programs that engaged in the assessment of student learning process, 18 (33%) assessed students' research and creation skills. Of those programs, 12 (67%) reported positive learning outcomes results in this competency according to expected results established by the programs. Fifteen programs (83%) proposed a total of 36 transforming actions in the assessment process of this leaning outcome.

Sixteen programs (89%) used at least two different activities to collect data, and 18 (100%) reported having assessed this learning outcome in at least two instances. Most programs used direct measures to collect data on this learning outcome. Currently, reported assessment methods for this competency are embedded in the discipline courses throughout the curriculum. Evidence of student ability to demonstrate research and creation skills was assessed through the following activities: laboratory reports, research article reviews, critiques, research papers and proposals, research seminars, peer reviewed projects and oral presentations, undergraduate thesis, radio scripts and public relations campaigns, among others.

As a research oriented institution, students' research skills are of paramount importance to all undergraduate programs. Most programs that assessed students' critical thinking skills, also gathered information about a research and creation related outcome. The Interdisciplinary Program in Natural Sciences (IPNS) and Art History are two undergraduate programs that assessed students' research skills, but with two different

approaches. The IPNS program gathered information in seven instances, three in the first semester and four in the second, and used different type of educational activities such as laboratory reports, research proposals, poster sessions, and research reports. It is interesting to note that its assessment process uses information from other Natural Science departments, such as the Physics courses FISI 3013 and 3014, since due to the nature of its curriculum, students can enrolled in Natural Science College Core courses (i.e., Biology, Chemistry, Physics, Mathematics), and other courses that are geared to their interests, including those available in other colleges around Campus. However, its capstone course is a common experience for these students, and it's precisely where the IPSN faculty professors gather its last instance of assessment of student learning information regarding program and institutional outcomes.

The Biology program assessed the research and creation learning outcome. During the assessment of student learning process it gathered information regarding this learning outcome in three instances each semester in the BIOL 3101 (General Biology Course), in BIOL 3350 (Genetics Laboratory) and in BIOL 4036 (Cellular-Molecular Laboratory). A rubric was used in the courses to assess student's' research skills. In all three courses assessed results surpassed the expected outcomes.

As the result of the 2012-2013 assessment of student learning process regarding the research and creation skills outcome, the following sample of transforming actions by academic programs will be implemented in the next assessment cycle (2013-2014):

- *English Literature:* The Curriculum Committee will revise the syllabus of the INGL3252 course (American Literature) to include new objectives that require professors to integrate activities that teach research and creation competencies.
- *Information and Journalism Program:* Include information in the syllabus related to the development of a research design in the first part of the course. Also, increase student's access to research articles, thesis and dissertations, as well as practical exercises. They also proposed the design and scheduling of workshops geared to the writing, presentation, and publications of research articles.
- *Anthropology:* In all Anthropology courses the research component will be strengthened in order for students to be prepared in the research techniques in an ethnography and archeological scope, and provide the theoretical tools that will help them in the comprehension of human research process.
- *Comparative Literature:* There is a need to develop more thoroughly students' ability to formulate hypotheses, specify premises, develop conclusions, etc., throughout the students' trajectory in the department's courses. Because this course was the capstone course of the major, in which students are expected to write their undergraduate thesis, it is important that the students be able to demonstrate their critical thinking and research abilities through this final paper/thesis. Also, the

programs must provide professional development activities for faculty members and monitor all professors who teach these courses to ensure that they are including information literacy as an essential skill to be developed in research activities in our classes.

See Appendix IX for other examples of assessment results and transforming actions from these and others programs that assessed this learning outcome.

Social Responsibility Learning Outcome

***Definition**:* The ability to apply knowledge and skills gained through the undergraduate experience toward the development of abilities and attitudes that promote ethics and civic responsibility for the advancement of society.

Thirty-three programs (60 %) that participated in the assessment of student learning process during the 2012-2013 academic year assessed social responsibility outcome. Of those programs, 31 (94%) reported positive learning outcomes results in this competency according to expected results established by the programs. Fifteen programs (45%) proposed transforming actions as a result of the assessment process.

Twenty-nine programs (88%) used at least two different activities to collect data, and 28 (85%) reported having assessed this learning outcome in at least two instances. Academic programs used direct and indirect measures to collect data on this learning outcome. Currently reported assessment methods for competency in social responsibility skills are embedded in the discipline courses throughout the curriculum. Evidence of student ability to demonstrate social responsibility in the community and towards their peers in their immediate working community and in applying moral and ethical principles was assessed through the following activities: case studies, field experiences, group discussions, critical reviews, student-teaching portfolios, surveys, written news and practicum, among others.

As an example of an academic program that assessed this learning outcome, a rubric was used in the Teaching Methodology course from the Teachers Preparation Program to assess students' social and community responsibility skills in their field experiences. Findings revealed that 86% of the teacher candidates obtained a performance level of 18 points out of 21 (excellent) in the rating scale. The rubric used during this assessment process is a revised version that is the result of the implementation of a last year proposed transforming action to measure student performance in this learning outcome.

Another example can be observed in the Information and Journalism Program. The professor that taught the COPU 4148 course used a rubric to assess if students ponder ethical responsibility skills in the process of written communication. It was expected that 70 % or more of the students would obtain 3.0 points or more in each criterion assessed in the rubric used. Results showed that in the two criteria assessed: apply ethical principles, balances of genre issues and sources considered (95 %); and show comprehension and consider diversity issues: gender, ethical identity, sex orientation and any other diversity issues related to our culture (100%); the expected outcome were met.

As the result of the 2012-2013 assessment of student learning process regarding the social responsibility outcome, the following sample of transforming actions by academic programs will be implemented in the next assessment cycle (2013-2014):

- *General Studies Program:* Exercises on intercultural knowledge and skills will be integrated more explicitly throughout the course.
- *Performing Arts Program:* Continue complying with the civic duty that this program has with the Puerto Rican society and to maintain the rigorous standards with the social responsibility domain. Also continue the self-management process to maintain the national and international relations and alliances developed in order to achieve more participation and development of the Department's international projection.
- *Computer Science Program:* Continue to encourage students to participate in professional and community organizations.
- *Nutrition and Dietetics Program:* Increase student participation in professional and community organizations.

See Appendix IX for other examples of assessment results and transforming actions from these and others programs that assessed this learning outcome.

Information Literacy Learning Outcome

***Definition**:* A set of abilities requiring individuals to recognize when information is needed and be able to locate, evaluate and effectively use the needed information (adopted from the Association of Colleges Research Libraries - ACRL).

Thirty-seven academic programs (67 %) assessed the information literacy outcome. Of the programs that assessed students' information literacy skills, 8 (22%) reported positive learning outcomes results in this

competency according to expected results established by the programs. Thirty-six programs (97 %) proposed transforming actions as a result of the assessment process.

Nine programs (24%) used at least two different activities to collect data, and 9 (24 %) reported having assessed this learning outcome in at least two instances. All programs used direct measures to collect data on this learning outcome. Currently, reported assessment methods for the information literacy competency are embedded in the discipline courses throughout the curriculum. Students' information literacy skills were assessed through the following activities: Project for the Integration of Information Literacy to the Curriculum (PICIC project in the College of Education, for its Spanish acronym), undergraduate thesis, historiographical essays, research projects, written assignments, research papers, critical reviews, research proposals, monographs, tests, film discussions, news articles, radio reports, group projects, Portfolio, research posters, course exercises, annotated bibliography, online modules, and oral presentations, among others.

Among the undergraduate programs that assessed students' information literacy skills are the History and the Nutrition and Dietetics programs. These programs have placed an emphasis on developing students' information literacy skills as early as possible in their curriculum in order to prepare them adequately for advance courses with a strong research component. In the History program, a rubric was used to evaluate an annotated bibliography in order to assess students information literacy skills in terms of the quality of sources they were able to use for a historical research-type paper, and if they were able to evaluate them regarding the new focuses of historical methodology. It was expected that 70% of the students will achieve a performance level of at least 5 points or more in an eight points scale rubric. Findings revealed that 83% of students met the expected outcome, of which 80% exceeded expectations. Although the results are positive, the program considers that it must improve because this learning outcome is one of the basic skills of the discipline. They reported that students received various orientations in the Campus General Library and the College of Humanities' Center for Historical Research on the bibliographical resources at their disposal, as well as the use of Internet databases for historical-type research papers. This is the second time that this skill is assessed systematically, and the program considers that more courses should be involves in the assessment of this learning outcome so that additional information regarding this outcome must be gathered in the next assessment cycles to develop and strengthen students' information literacy skills. The program considers that the professors of other courses need to assign additional exercises to assess this skill, like an additional annotated bibliography assignments, use of databases, and short research projects, among others.

The Biology program assessed students' information literacy skills for the second time on the 2012-2013 assessment of student learning cycle. A rubric was used in BIOL 3350 (Genetics Laboratory) and BIOL 4036 (Molecular cellular Laboratory) courses to assess students' information literacy skills. Students were participating in research projects and /or hand in laboratory reports in which they needed to be able to use current information technologies to locate and apply evidence-based guidelines and protocols in order to use adequately relevant, valid and authoritative references. It was expected that 10 % of the students would reach the excellence level and 80 % the good level in the rubric used. Findings revealed that students' average scores were 95 % when adding their performance in these two levels, when assessing these learning outcome activities as a whole. Since two consecutive assessments of student learning cycles have resulted in positive outcomes, the program decided that it will continue to implement this type of activity to ensure that students have the necessary mastery of information literacy skills by the end of their baccalaureate degree.

As the result of the 2012-2013 assessment of student learning process regarding the information literacy skills outcome, the following sample of transforming actions by academic programs will be implemented in the next assessment cycle (2013-2014):

- *Teacher Preparation Programs:* Add additional courses to the PICIC Project to integrate information literacy skills to the curriculum such as EDFU 4007 course (Introduction to Educational Research). Also, promote the inclusion of evidence on the development of information literacy in the Electronic Portfolio developed throughout the baccalaureate experience.
- *Art History Program:* The program states the need to offer professional development activities to all professors who teach their courses to ensure that they are including information literacy as an essential skill to be developed in research activities in their classes. The program will ask faculty members to explain in the classroom the proper use of the style manual, emphasizing the correct ways of writing citations, footnotes and the bibliography in the students' projects.
- *Anthropology:* In all courses, students will be evaluated on their ability to search for bibliographical sources in the various texts relating to the discipline of anthropology, as well as how they apply them in the requested assignments (e.g., essays, oral presentations, and research projects). Evaluation and the use of information in a critical way will be encouraged. Also, the comprehension and interpretation of the information by means of the exchange of opinions with other students will be validated by See Appendix IX for other examples of assessment results and transforming actions from these and others programs that assessed this learning outcome.

Content Knowledge, Skills or Dispositions in the Academic Program Learning Outcome

***Definition**:* Graduating students will demonstrate an in-depth knowledge of the content they learn as part of their academic experience. They demonstrate their knowledge through inquiry, critical analysis, and synthesis of the discipline. Students demonstrate behaviors that show that they have acquired the dispositions that responsible citizens show. They also demonstrate the necessary skills that support the content knowledge acquired in their disciplines.

A total of 44 out of the 55 academic programs (80 %) engaged in the assessment of student learning process, assessed students' content knowledge, skills or dispositions related to their disciplines. Among those programs, 38 (86 %) reported positive learning outcomes results in this competency according to expected results established by the programs. Also, 39 programs (89 %) proposed transforming actions as a result of the assessment process.

Forty-one programs (93 %) used at least two different activities to collect data, and 43 (98 %) reported having assessed this learning outcome in at least two instances. All programs used direct measures to collect data on this learning outcome. Currently, all assessment methods for competency in content knowledge, skills, or dispositions related to their disciplines are embedded in the discipline courses throughout the curriculum. The programs used the following activities to gathered information regarding this learning outcome: exam questions, course assignments, essays, comprehensive tests, internships, electronic portfolios, teaching practicums, field experiences, research-type essays, oral presentations, monographs, comic strips, theater performances, independent study projects, critical reviews, radio reports, advertisement campaigns, radio and TV scripts, workshops, laboratory reports, community and organizational activities, among others.

As an example of a program that assessed this learning outcome, the Public Relations and Advertisement Program used a rubric in the REPU 4166 (Advertisement Campaign) course to assess if students have the capacity to use effectively the content knowledge acquired in the course in the final project in which they had to present a situational analysis, consider the marketing objectives and strategies, design a Media Plan, selection of media means, consider the plan mechanical structure and communicability and present an innovative Plan. It was expected that at least 70% of the students assessed would obtain 3.5 points or more in the 5.0 points scale rubric used. Findings revealed that the goal was met in every criteria (8) assessed.

Another program that assessed this learning outcome was Nutrition and Dietetics. A rubric was used to evaluate content knowledge acquire through the courses in three reports, where students must demonstrate utilization of adequate techniques based on population needs question. It was expected that 70% or more of the students would receive a score of "good" or higher in the rubric used in each report assessed. Findings showed that the results exceeded the expected outcome, 92 % of the students assessed obtained scores of excellent in the three reports submitted.

As the result of the 2012-2013 assessment of student learning process regarding the content knowledge, skills or dispositions outcome, the following sample of transforming actions by academic programs will be implemented in the next assessment cycle (2013-2014):

- *Philosophy Program:* Multiply the interpretation exercises of the assigned philosophical texts. Also, offer workshops where graduate students can practice with undergraduate students the skills necessary for the analysis and interpretation of philosophical texts.
- *Performing Arts Program:* Reinforce the dexterities with comprehensive workshops about the basic technical skills to complement the knowledge of those students who lack a solid base in the art of acting. Also, revise the dexterities that are taught in order to standardize the syllabus used. Also, perform more exercises regarding the necessary skills (blur, light and shadow) in order to achieve and excellent theatrical makeup. Moreover, continue promoting professional participation experiences of our students as a method to confirm their capacity of applying the acquired knowledge in a working environment performance.
- *Modern Language Program:* Although the results are highly positive in the PORT4016 (Portuguese's Oral Expression Techniques) this program proposed that the following actions should be taken: (1) Oral grammatical correctness will be emphasized during the laboratory starting in the first semester of the course, (2) a meeting will take place with the laboratory assistants to stress the importance of grammatical correctness and phonetics, (3) the existing grammar exercises will be expanded and verb conjugation exercises will be increased in the classroom; and (4) the grammatical aspects of the language will be emphasized even more during the third semester of Portuguese.
- *Teacher preparation Program:* The program for teachers whose specialization is in Mathematics proposed to include the Math 4120 course (History of Mathematics) as a requirements for all candidates of the Secondary Mathematics Program. As a result of the NCATE assessment process, the College of Education incorporated in all of their secondary level programs a methodology course of four credits (Manipulative and Technologies in Secondary Mathematics) to reinforce the area of pedagogical knowledge. Increasing time allotted to the following areas, strengthened this course:

educational research, the use of technologies in learning mathematics, and the time dedicated to field experiences.

See Appendix IX for other examples of assessment results and transforming actions from these and others programs that assessed this learning outcome.

E. Summary of Assessment Results for 2012-2013 academic year (Fourth Assessment Cycle)

The OEAE encouraged the assessment coordinators to use more than one or more academic activity in order to evaluate the student learning in a specific learning outcome. Furthermore, the office encouraged them to measure the student learning in more than one instance to corroborate the validity of the assessment results. Moreover, by these means the professors could show students their progress in the course in order for them to strengthen the areas in which they are having difficulties.

Assessment results of the academic programs that evaluated student learning using multiple measures and instances are detailed in the following table (Table 7).

Table 7. Number of Academic programs that used multiple measures and instances

Assessment Results in the Academic Programs (2012-2013)				
Faculty or School (Total number of the academic programs who has participated in the assessment cycle)	**Percentage of Participation by Faculty or School**	**Number of Academic Programs who:**		
		Assessed the Learning Outcomes Using Multiple **Measures**	Assessed the Learning Outcomes in Multiple **Instances**	Proposed **Transforming Actions** in at Least One Learning Outcome
Business Administration (1/10)	10%	1 (100%)	1 (100%)	1 (100%)
Education (23/25)	92%	23(100%)	23(100%)	23 (100%)
General Studies (1/1)	100%	1 (100%)	1 (100%)	1 (100%)
Humanities (12/13)	92%	11 (92%)	12 (100%)	12 (100%)
Natural Sciences (7/8)	88%	7 (100%)	7 (100%)	6 (86%)
Social Sciences (7/9)	78%	5 (71%)	6 (86%)	7 (100%)
Architecture (0/1)	0%	Did not participate	Did not participate	Did not participate
Communication (3/3)	100%	3 (100%)	3 (100%)	3 (100%)

OEAE achievements in the 2012-2013 academic year

During the 2012-2013 academic year, the OEAE was involved in activities inherent to an office which goal is to improve and strengthen student learning by measuring outcomes stated in the UPR-RP Graduate Profile. Its focus is to provide the necessary support to design a strong and easy to implement, manage and support assessment program in each undergraduate academic program. Activities programmed were all aimed to pursue this goal.

- The administration of a test to measure students' writing skills in this academic year in-coming class (August 16, 2012)
    - Exam results were analyzed and compared with results from a similar initiative in 2008. This year's average results of the assessment of students' writing skills are higher than the ones obtained in 2008. Also, students from this year sample obtained better results in the Mathematical Aptitude and in the Mathematical Reasoning parts of the College Board test.
    - Results were analyzed and sent by e-mail to students who took this test with recommendations of courses that they could enroll, workshops they could attend, and Campus offices that could provide counseling services, to attend areas of need.

    - Results were also sent to the Spanish Departments of the General Studies and Humanities Colleges.
- The revision and analysis of assessment results informed in 2012-2013 Annual Reports provided by the academic programs, and follow-up on those programs that had not handed-in their Reports by June 29, 2012, to also include their vision and analysis of assessment data of their academic programs in the OEAE's Assessment of Student Learning Report (2012-2013).
- The collection of assessment results by College or School level and Campus level, and the tabulation of this information.
- The discussion of the Partial Assessment Reports individually with the assessment coordinators in order to continue enhancing the assessment of student learning process in the academic programs. Counseling and support was given to the assessment coordinators in: the assessment of instruments used, the adequate presentation of the assessment data gathered, possible learning activities that could be used, assessing the learning outcomes by criteria, checking that the assessment of previous assessment cycles' transforming actions were included, that proposals of transforming actions to increase student learning resulting from this year's assessment process are also included, and in the need to increase the instances and measures used to assesses a learning outcome. For programs which assessment processes required minor improvements, the recommendations were sent by email. It was

impossible to look after all the undergraduate academic programs since the OEAE does not have sufficient personnel to take care of all the needs. The Assessment Analyst resigned to his position in February 28, 2013. Actually the OEAE staff is: A part time Campus Assessment of Student Learning Coordinator and Counselor, a part time Secretary and a Research Assistant from the Campus' Graduate Program in Translation. A contract for professional services (20 hours monthly) was prepared for the Assessment Technician from March to May 31, 2013, in order to help in the analysis of assessment results and related statistics after his resignation from this position.

- The preparation of the Table of Assessment Findings and Transforming Actions by Colleges and Academic Programs in the Academic Year 2012-2013 (Appendix IX) that presents a summary of the learning outcomes assessed by Colleges or School and by programs, the teaching activities or learning measures used to assess a learning outcome and the number of instances being assessed. This Table is prepared from assessment data reported by each academic program in their Annual Reports and translated into English by the Research Assistant from the Graduate Program in Translation and revised by the Assessment Coordinator. Once finished it is published in the OEAE's official blog site.
- Tending to Assessment Coordinators that visit the OEAE facilities to help them improve their assessment processes in their academic programs, and in the analysis of assessment data gathered.
- The analysis of the assessment data aggregates at College or School and Campus levels. Inform pertinent assessment data information in tables and graphs.
- Writing the 2012-2013 Assessment of Student Learning Partial Annual Report and publishing it in the OEAE's official blog site.
- The Assessment of Student Learning Technician designed Excel spreadsheets in order to facilitate the information of assessment results gathered by the academic programs, and the processing of data. They also provide information regarding the expected outcome and the percent of students that met the expected outcome in each criteria assessed. Besides providing information in an organized way, the professor can pinpoint the criteria of the rubric used to assess a learning outcome where the students have problems and identify the transforming actions needed.
- A Power Point presentation *Assessment of Student Learning Plan in the University of Puerto Rico Rio Piedras Campus: challenges, opportunities and results* geared to UPR stakeholders and higher education professors was prepared and presented at the College Board Annual Education Latin American Congress by the Campus Assessment Coordinator and Counselor, Prof. Nadia Cordero and Mr. William Estépar, Assessment of Student Learning Technician, in order to disseminate the Assessment of Student Learning Process going on at UPR-RP Campus. This presentation is published in the OEAE's official blog site.

- The OEAE staff participated in or coordinated the following workshops to facilitate the recovery and publication of assessment data gathered and to discuss assessment related topics.
    - A workshop for professors of the School of Communication to discuss how to report assessment data by criteria in special spreadsheets according to the criteria assessed in a given learning outcome in an academic program. – given by Mr. William Estépar, OEAE's Assessment Technician
    - A workshop at the College of General Studies to discuss assessment instruments and teaching activities to assess information literacy skills – given by William Estépar, OEAE's Assessment Technician in February 20 de 2013
    - Services rendered by the OEAE - workshop given by Mr. William Estepar in August 15, 2012, as part of the Orientation Week programmed by the Center for Academic Excellence for new professors (professors who started their teaching contracts in August 2012).
    - The past, present, and future of Assessment of Student Learning on Campus–a workshop given by Mr. William Estépar to the Natural Sciences Department Chairs and Assessment Coordinators in September 12, 2012.
    - Assessment of Student Learning on Campus – workshop given by Prof. Julio Rodríguez in August 16, 2012, as part of the Orientation Week programmed for new professors (professors who started their teaching contracts in August 2012) by the Center for Academic Excellence.
    - Reverse Curriculum Design : From the Assessment of Student Learning Results to the Change in the Curriculum - given by Prof. Angel Rivera, Assessment Coordinator of the Political Science Program in October 26, 2012
- OEAE Action Plans from 2012-2013 through 2014-2015 were revised to include new projects and sent to the Campus Dean of Academic Affairs and to the Chancellor Office.
- A test to assess logical-mathematical reasoning skills was administered, in the April 16-20, 2013 week, to students enrolled in math courses from all Colleges or Schools with the exception of students from Business Administration and Natural Sciences Colleges, who take pre-calculus and calculus courses, respectively.
    - All the related necessary activities like, printing test, lists of assistance and exam administration instructions, distribution of Scranton sheets and exam copies by courses' sections, and delivery to the Department Chairman office ready to be administered, among others, were all responsibility of the OEAE staff.
    - Also, once administered it was sent to the Computer Center for grading and for an item analysis. Results were analyzed by the Assessment Technician from the original database to calculate difficulty index and its correspondence with the *College Board* delta index; and the

discrimination index. A table with alienation between items, general logical-mathematical reasoning competencies, specific logical-mathematical reasoning competencies, difficulty index, delta index, discrimination index and interpretation of results presented in the table, will be made and sent to the Mathematics Department and to the professors of the courses' sections that participated in this test administration. A Department meeting will be held in during the first semester of the 2013-2014 academic year between the OEAE staff and the math professors in order to discuss the test results and the impact of the tutoring sessions on these results. These tutoring sessions were the transforming actions proposed by the professors based on the test results of the previous year.

- A test to assess writing skills in students enrolled in advanced courses was planned by the OEAE to have an exit measure and a uniform way to assess this learning outcome. OEAE's efforts toward this aim included the selection of an appropriate date to ensure ample participation, designing and printing the exam copies, numbering each one of the exams, determining sample size selection, selecting the professors who expressed interest in participating in this activity, distribution of the exams by section, selection of a three members committee from three different Campus Colleges in charge of grading the essays (each exam had to be graded by two professors) selection of the rubric to be used and distribution in envelopes by course' section. All was ready for its administration; however the test could not be administered due to budget constraints. Subsequently, by the end of the semester, the Chancellor identified funds to administer this test during this academic year or during the next assessment cycle. It will be programed to be administered during the next academic year, 2013-2014 since it was too late in the semester to plan this activity in the current semester.
- An assessment online project was developed by the students of Dr. Carlos Corrada as part of the CCOM course, *Development of web based applications*, MATE 4996, special project aimed to facilitate professors and Assessment Coordinators in gathering information and analysis of assessment results in their courses as already stated in page --. Dr. Corrada divided the students enrolled in this course in two 5 members groups. The OEAE staff met with the class members in various occasions:
    - Gave a presentation and explanation of the Campus assessment process at the undergraduate programs in the classroom at the beginning of the second semester.
    - Provided both group of students with the following information: learning outcomes assessed, possible criteria to assess each learning outcome, and rubrics designs. Also, information regarding the minimum calculations expected from this web application for the assessment of student learning process was discussed, such as tabulation of results and comparison with the expected outcome, analysis of data and presentation of results in table and graph formats.

- Four meetings were scheduled with each group of students to answer their questions and concerns, and for us to evaluate if their projects were on track according to the OEAE's objectives. Also, there were frequent email communications between both groups and the OEAE staff.
- Each group gave their final presentation to OEAE staff and Assessment Coordinators the day scheduled by the Registrar for the final examination of this course. The attendees evaluated both projects. This evaluation will be considered by Dr. Corrada when grading the students. The selection of the project to be adopted by the OEAE will be decided together between the OEAE staff and Dr. Carlos Corrada. A pilot project with at least four programs will start in the next academic year, 2013-2014, on a voluntary basis if funds are allotted for the maintenance of the web application.

Highlights of improvement of the Assessment of Students Learning in Undergraduate Academic Programs at the UPR-RP Campus

From the assessment processes being held in the different academic programs for the whole academic year, and from the results obtained from the assessment of student learning in the learning outcomes assessed in 2012-2013 academic year, an improvement can be seen when assessment reports were analyzed.

- An increase can be seen in the number of faculty members participating in the assessment processes of most academic programs.
- More efficient assessment reports are handed-in in terms of the presentation of results gathered, in the increase in the percentage of criteria that met the expected outcome, in the implementation of transforming actions proposed from previous years' assessment efforts, and in the identification of the needed transforming actions to attend to the student learning deficiencies identified.
- More efficient assessment instruments are designed by the professors.
- More instances in which the learning outcomes are assessed, and the use of multiple measures by a higher number of academic programs that do not require budget allocations, are evidence of an increased commitment with the assessment processes from the faculty members.
- More academic programs are closing the present assessment cycle by assessing transforming actions proposed in previous assessment cycles.
- Most of the transforming actions that are implemented at the program level do not require budget allocations.
- More interest in student outcomes and in ways to improve them can be perceived in the different academic programs.

Prospective Plans

In order to continue supporting and promoting an ongoing culture of assessment, the OEAE staff must attend to the following situations or strongly consider the following recommendations as part of the prospective plans for the following year:

- Ask each academic program to assess the assessment process going on in their academic programs including the Curricular Matrix and the Five Year Plan as a result of last assessment cycle results and experience.
- Ensure that each academic program will implement transforming actions resulting from this year's assessment processes (2012-2013) in next year's (2013-2014) assessment plans.
- Implement the online assessment pilot project in four academic programs.
- Administer the effective written communication test to a sample of senior students enrolled in advanced courses to provide an uniform way to gather information about this learning outcome in order to develop a profile of graduating candidates' effective written communication skills.
- Strongly recommend the use of multiple measures in multiple instances for each learning outcome assessed to ensure that students are provided with sufficient opportunities to achieve the expected outcome.
- Strongly recommend the academic programs to assess one learning outcome more than once (two or more times in the same semester) in order to assure that the expected outcome is met. Thus, providing students with the learning opportunities needed to achieve the learning goals in the course (formative assessment opportunities).
- Include learning objectives in the course syllabus of the student learning outcomes to be assessed in the course.
- Recommend undergraduate academic programs to include critical thinking, social responsibility, research skills, and information literacy in next year's Assessment of Student Learning Plans, if they had not measured these learning outcomes in previous years' assessment cycles or want to reinforce student learning of these skills.
- Recommend undergraduate academic programs that obtained a low or negative result in their assessment of a specific learning outcome to reassess them in the next assessment cycle (2013-2014) after implementing the proposed transforming actions.
- Recommend undergraduate academic programs to assess team work as a discipline related skill in the 2013-2014 assessment of student learning cycle.
- Ask each academic program to use the Information Sheets to inform the data gathered.

- Ask academic programs to assess student learning outcomes by criteria.
- Enforce the use of a uniform rubric to assess a learning outcome in more than one course of the academic program.

Assessment of the Campus Assessment Process: Recommendations for strengthening the Assessment of Student Learning process in the undergraduate academic programs of the UPR-RP Campus

To strengthen the Assessment of Student Learning at the undergraduate programs:

- The Campus needs the Office of Assessment of Student Learning to be staffed by a full-time Assessment Coordinator, at least one full-time Assessment Analyst, at least two Research Assistants and a full-time Administrative Assistant to provide the much needed assistance to the professors in this endeavor.
- A proven and sound commitment with the process is needed from the upper level administration, Deans, Associate and Assistant Deans, and Department Chairs from all Colleges and Schools by:
    - Allotting funds for Assessment Coordinators or release time for this endeavor if a genuine, thorough, and reliable process is expected.
    - Requiring the dissemination of assessment activities and results of the academic programs in faculty meetings, departmental meetings, conferences, Student Council activities and electronic pages.
    - Supporting the participation of faculty members in national and international assessment workshops and conferences.
    - Evidencing the existence of a solid and responsible administrative support to the assessment of student learning process.
    - Supporting the curricular activities drawn from the transforming actions recommended to improve student learning
    - Providing or facilitating the activities geared to improve student learning.
- Assign funds to implement the online assessment of student learning pilot project that resulted from the *Development of web-based applications* course (MATE 4996) to facilitate and modernize the Campus assessment process.
- Increase the number of persons (professors and students) that participate in the assessment of student learning process in each undergraduate academic program through the deans', and department chairs commitment.

- Ensure that the Assessment of Student Learning Plans include an increase in the number of courses assessed in each academic program each year in order to provide an expanded view of the assessment process through the baccalaureate degree, and hence of the improvement of student learning.
- Evidence Campus commitment with the implementation of transforming actions proposed by different academic programs that are the result of years of assessment of student learning efforts.

So far, after the end of the fourth assessment cycle, evidence of student achievement at the undergraduate programs demonstrates a significant improvement in student learning and a solid student academic preparation at the baccalaureate degree level.

List of the Appendices

- Appendix I – http://oeae.uprrp.edu/wp-content/uploads/2015/02/Appendix-I-Evaluation-of-Student-Learning-Plan-Approved-by-the-Academic-Senate-in-April-2006.pdf
- Appendix II – http://oeae.uprrp.edu/wp-content/uploads/2015/02/Appendix-II-OEAE-Full-Report-UPRRP-Periodic-Review-Report-June-2010.pdf
- Appendix III – http://oeae.uprrp.edu/wp-content/uploads/2015/02/Appendix-III-OEAE-s-Full-Report-Progress-Report-to-MSCHE-June-2011.pdf
- Appendix IV – http://oeae.uprrp.edu/wp-content/uploads/2015/02/Appendix-IV-OEAE-s-Full-Report-Monitoring-Report-to-MSCHE-April-1-2012.pdf
- Appendix V – http://oeae.uprrp.edu/wp-content/uploads/2015/02/Appendix-V-Services-Rendered-by-the-OEAE.pdf
- Appendix VI – http://oeae.uprrp.edu/wp-content/uploads/2015/02/Appendix-VI-Undergraduate-Curriculum-Review-at-the-Rio-Piedras-Campus-Profile-of-the-Baccalaureate-Graduate.pdf
- Appendix VII – http://oeae.uprrp.edu/wp-content/uploads/2015/02/Appendix-VII-Definition-and-learning-objectives-Information-Literacy.pdf
- Appendix VIII – http://oeae.uprrp.edu/wp-content/uploads/2015/02/Appendix-IX-Communication-to-freshmen-students-%E2%80%93-Effective-Written-Communication-Test.pdf
- Appendix IX – http://oeae.uprrp.edu/wp-content/uploads/2015/07/LINK-12-13-Actualizado-16-julio-2015.Table-of-Assessment-Findings-and-Transforming-Actions-by-Colleges-and-Academic-Programs.pdf