Applications of Direct Assessment towards Closing the Loop in Higher Education: A Gardner-Webb University Case Study

Olin O. Oedekoven, Ph.D.
President & CEO
The Accountability Imperative

The political climate is clearly impacting the way in which we do business in terms of academic accountability:

- More regulations from the US Department of Education, CHEA, and Regional Accreditation Organizations
- State Boards of Education and State Legislatures tightening the funding belt and looking at greater accountability in higher education
- Demand from students, parents, and other academic stakeholders for more proof that their higher education experience is worth the financial costs
The purpose of this presentation is to describe and discuss the direct assessment services that Gardner-Webb University employs as a tool for accreditation, accountability, and learning outcomes measurement in order to CLOSE THE LOOP IN HIGHER EDUCATION.
Agenda

1. Introduction: Accreditation and Accountability
2. Relevant Literature on Outcomes Assessment in Business Education
3. Methodology
   • Direct Assessment Methodology
   • The Exam Process
4. Results
   • Student Data
   • Internal Benchmarking
   • External Benchmarking
5. Conclusions and Recommendations
Dr. Olin O. Oedekoven has over 30 years of leadership experience at all organizational levels from first-line leader through strategic leadership. Olin has extensive work experience in both the public and private sectors with a comprehensive background in management, business administration, and organizational leadership. He has been working in the higher education profession for the past 10 years with an emphasis on accreditation, assessment, and continuous improvement.

Olin graduated from South Dakota State University with a B.S. in Wildlife and Fisheries Sciences followed by the University of Wyoming with a Master's degree in Wildlife Management.

Olin continued his formal education with Northcentral University where he received both an MBA and his Doctorate in Business Administration with specializations in Management and Public Administration. Olin completed a post-doctoral program in human resource management.

Olin is a graduate of the Army Command and General Staff College and the U.S. Army War College where he received a Master's Degree in Strategic Studies. His military experience includes senior staff, battalion command, and brigade command assignments. Olin retired from the National Guard in 2011 as a Brigadier General after nearly 33 years of military service. He is currently president & CEO of both PLI and PAS.
“We have found Peregrine Academic Services to be responsive, not only in the timeliness of the reporting but in the ability to produce customized reports that allow us to drill down and analyze student learning at various levels, across programs and geographic regions.

When you become a client of Peregrine, you have a thought partner in the assessment arena. Olin and his staff not only provide you with the data, but they also are available to help you make sense of your student learning data.”

Peter J. Holbrook, Ph.D.
Dean
College of Business and Management
Cardinal Stritch University
Acknowledgements

- Dr. Anthony N. Negbenebor
  Godbold School of Business

- Janice Stoudemire,
  Palmetto Academic Consulting Services, Inc.
Introduction: Accreditation and Accountability

Applications of Direct Assessment towards Closing the Loop in Higher Education: A Gardner-Webb University Case Study
Why Should We Assess Learning Outcomes? (1 of 3)

“Business schools and programs must have an outcomes assessment program with documentation of the results and evidence that the results are being used for the development and improvement of the institution’s academic programs.”

ACBSP STANDARDS AND CRITERIA
Why Should We Assess Learning Outcomes? (2 of 3)

“Academic quality in business programs is evaluated through the assessment of the academic business unit’s intended student learning outcomes. This requires the academic business unit to have developed and fully implemented an outcomes assessment process.”

IACBE PROGRAM ACCREDITATION MANUAL
Why Should We Assess Learning Outcomes?  

(3 of 3)

“Accreditation requires institutional commitment to the concept of quality enhancement through continuous assessment and improvement. The institution has developed an acceptable Quality Enhancement Plan (QEP) that includes an institutional process for identifying key issues emerging from institutional assessment and focuses on learning outcomes and/or the environment supporting student learning and accomplishing the mission of the institution.”

SACS Principles of Accreditation
Relevant Literature on Outcomes Assessment in Business Education

Applications of Direct Assessment towards Closing the Loop in Higher Education:
A Gardner-Webb University Case Study
Anhavale et. al (2009)

- Many business schools have made little significant progress toward design, implementation, and assessment.
- Despite the perceived need for curricular integration, relatively few resources have been committed to this activity.
- Respondents felt that curricular integration could be successfully assessed.
Cripps et. al (2011)

- Since 1988 US international program accrediting bodies have added a common Professional Component (CPC) requirement to ensure that business programs recognize the interdisciplinary nature of business.

- CPC is focused on student learning outcomes with the intention of assuring recognition by students of the interdisciplinary nature of business.
Business Program Accreditation Requirements
The Business Program Common Professional Component (CPC) Topics

1. Marketing
2. Business Finance
3. Accounting
4. Management (Operations/Production Management, Human Resource Management, Organizational Behavior)
5. Legal Environment of Business
6. Economics
7. Business Ethics
8. Global Dimensions of Business
9. Information Management Systems
10. Quantitative Techniques/Statistics
11. Leadership
12. Business Integration and Strategic and Management
Methods

Applications of Direct Assessment towards Closing the Loop in Higher Education:
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How the Direct Assessment Process Works

Start of Program

Student takes the Inbound COMP Exam, Initial Benchmark. This is usually taken during their first business course.

Student Completes Business Program

The change in scores is a direct measure of learning, both for the individual and at the program level.

End of Program

Student takes the Outbound COMP Exam, Final Benchmark. This is usually taken during the last course in the curriculum.

Outbound exam results compared to peer schools for external benchmarking.

Data analysis drives continuous improvement. The process is repeated to close the loop in higher education.
The Application (Exam) Process for Gardner-Webb University

The following 7 slides show how Gardner-Webb University applied the direct assessment process for their undergraduate business program.
Step #1: Assign the exam to a course as an assignment

- ACCT-213 Account Principles I
  - Grade the Inbound Exam as Pass/Fail based on completion

- BADM-480 Senior Seminar in Business
  - Grade the Outbound Exam with a letter grade worth 10% of the course, graded on a normed scale.
The Exam Process (2 of 7)

Step #2: Provide a Frequently Asked Questions Guide (FAQ) for the students and faculty that includes instructions for self-registration for the exam. Content included in the course syllabus specific for the assignment where the exam is required.
The Exam Process  (3 of 7)

Step #3: Students self-register for the exam using a school micro-site.
Step #4: Student select their exam based on their course enrollment and complete the registration process.

The following is a listing of courses where our online testing services are included as a requirement in the course. Please select the course that corresponds to your current class and then proceed to register.

The CPC-based comprehensive (COMP) exams include 10 questions from each of the topical areas associated with your program. Questions are either multiple choice or true/false. CPC topics are defined by the business degree accreditation organizations. The specific topics selected for evaluation correspond directly with the required courses associated with your degree program. To learn more about the CPC-Based COMP exam, click here: http://www.peregrineacademics.com/services/cpc.

Your completion of the assessment is required for your course. Please do your best in order to provide your institution with the best possible information to guide academic decision-making. Please refer to your course syllabus for the grading requirements of this assessment for your course.

Undergraduate Degree Programs

Select your course

- ACCT-213 Account Principles I Exam
- BADM-480 Senior Seminar In Business Exam
Step #5: After selecting the hyperlinked exam key (displayed at the end of the registration and e-mailed to the student), the student selects their program.
The Exam Process (6 of 7)

Step #6: Student completes the online exam. In this case, it was a 120-question exam with 10 questions per CPC topic.
Step #7: At the end of the exam, the exam results are displayed and the student downloads, then submits the completion certificate to the course instructor for their grade/credit.
Results

Applications of Direct Assessment towards Closing the Loop in Higher Education:
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Inbound/Outbound Exams

- 65 Students completed the Inbound Exam in their ACCT-213 Account Principles I course (December 2011 and May 2012).

- 80 Students completed the Outbound Exam in their BADM-480 Senior Seminar in Business course (December 2011, April 2012, May 2012, and July 2012).
Student Groups

- Students were further identified based on their program of study:
  - Day Program
  - GOAL Program
Interpreting and Using the Exam Scores

Even though a 100pt scale is used, it is necessary to interpret the results based on a standardized scale.
After the testing period, the student-level data are downloaded and analyzed (Excel file).
Student-level Data Analysis

Inbound Exam Results

○ Student Group
  ● Mean scores by topic and total exam provide the initial benchmark that is used with the outbound exam to measure student learning

○ Individual Student
  ● Assess knowledge level of transfer students and provide guidance for academic placement
## Inbound Exam Data

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Student-level Data Analysis

Example Findings (Inbound Exam)

- **Student Group**
  - Highest scores in Accounting
  - Lowest scores in Business Ethics
  - Average Completion Time: 31 minutes (120 questions)

- **Individual Students**
  - Total Score Range 20-54
  - Topic Score Range 0-60
Outbound Exam Results

○ Student Group
  - Difference in scores between Inbound and Outbound is the direct measure of learning

○ Individual Student
  - Pair-wise reporting when the student takes the inbound exam at the start and then also takes the outbound exam at the end. Report shows learning by student.
  - Correlate with GPA
Outbound Exam Data

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<td>Kumar, Nisha</td>
<td>153</td>
<td>60</td>
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<td>60</td>
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<td>10.22</td>
<td>04/30/12</td>
<td>09:40</td>
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<td>Outbound</td>
<td>GOAL Program</td>
<td>Villan, Hani</td>
<td>Kumar, Nisha</td>
<td>154</td>
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<td>60</td>
<td>60</td>
<td>70</td>
<td>40</td>
<td>0</td>
<td>48.3</td>
<td>94.1</td>
<td>07/23/12</td>
<td>10:12</td>
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<td>Villan, Hani</td>
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<td>155</td>
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<td>50</td>
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<td>04/23/12</td>
<td>06:07</td>
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<td>GOAL Program</td>
<td>Villan, Hani</td>
<td>Kumar, Nisha</td>
<td>156</td>
<td>70</td>
<td>90</td>
<td>30</td>
<td>40</td>
<td>60</td>
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<td>90</td>
<td>50</td>
<td>52.1</td>
<td>78.9</td>
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</tbody>
</table>

Student Names & ID Numbers

Means 57.2 54.4 54.3 49.8 48.4 49.3 56.2 63.1 63.6 57.0 36.8 35.2 52.1 78.9
Example Findings (Outbound Exam)

- **Student Group**
  - Highest scores in Information Management Systems
  - Lowest scores in Quantitative Techniques and Statistics
  - Average Completion Time: 79 minutes (120 questions)

- **Individual Students**
  - Total Score Range 36-77.5 (note: one student’s completion time was only 10 minutes)
  - Topic Score Range 0-100
Comparison Report Results and Analysis

Gardner-Webb University Summary Analysis September 2011 - September 2012

Comparative Analysis Report for:

Gardner-Webb University

Academic Level: Bachelors
September 2011 - September 2012
Included Course(s): ACCT-213 Account Principles I Exam, BADM-480 Senior Seminar in Business Exam
Sample Size(s): 65 Inbound Exams, 80 Outbound Exams
Internal Benchmarking

Gardner-Webb University
Academic Level: Bachelors
September 2011 - September 2012

Included Course(s): ACCT-213 Account Principles I Exam, BADM-480 Senior Seminar in Business Exam
Sample Size(s): 65 Inbound Exams, 80 Outbound Exams
Inbound and Outbound Exam Results

Overview Side-by-Side of Inbound and Outbound Results

- **High Areas**
- **Low Areas**
Score Distributions

Assess the score distributions, for total exam score and for each topic/subtopic score.
Topic-Level Analysis

Topic-level analysis allows for a more detailed look at the course/topic level of the program.
The descriptive statistics provided allow for an overall assessment of learning outcomes at the course/topic level.
Learning Outcomes-Level Analysis

- “Subjects” within each topic correspond to Learning Outcomes.
- The Learning Outcomes Analysis is therefore the examination of the subject-level scores to assess those that correspond to specific learning outcomes for the program.
The Program/Cohort Comparison Report

Gardner-Webb University Program and/or Cohort Comparison Report

Comparative Cohort Report for:

Gardner-Webb University

9/1/2011 - 9/30/2012 n = 73 tests.
Day Program = 2
GOAL Program = 71
Academic Level(s): Bachelors
Program Comparison

- Programs compared side-by-side for total score and for each topic/sub-topic.
- Also show an aggregate comparison (in this case Faith-based pool) for external benchmarking.
The Longitudinal Analysis Report

Gardner-Webb University Longitudinal Report

Longitudinal Analysis Report for:

Gardner-Webb University

9/1/2011 - 12/31/2011 n = 72 tests.
- Inbound = 60
- Outbound = 22

1/1/2012 - 6/30/2012 n = 68 tests.
- Inbound = 16
- Outbound = 44

Total n = 121 tests.

Academic Level(s): Bachelors
Course(s):
- ACCT-213 - Comprehensive CPC Exam, 12 Topics
- BADM-480 - Comprehensive CPC Exam, 12 Topics
Longitudinal Analysis

- Compare two (or more) groups of students over time.
- In this study, no program-level changes were made between these two groups.
- When you make program-level changes, can more easily assess the results of the changes.
Pair-Wise Reporting

When the students who took the inbound exam in Fall of 2011 are in their last course in 2014, we will run a pair-wise report to evaluate how individual students changed as a result of their education experience.
The Aggregate Pools

Pools Based on Program Delivery Modality
1. Traditional. The majority of the program is delivered at a campus location at an established college or university. The majority of the students are recent high school graduates, typically 18-22 years old. Business courses are taught on a semester or quarter basis, typically Monday through Friday.
2. Online. The majority of the program is delivered online to students and there is little, if any, requirement for the students to go to a campus location any time during their college or university experience. The majority of the students are considered non-traditional, meaning they tend to be older, may have some college credit prior to starting their program, and are often working adults completing their degree program.
3. Blended. The program is delivered to students using a combination of online and campus-based instruction and/or the program is delivered in an accelerated format. The course term is typically 4 to 8 weeks. Campus-based instruction tends to be either at night or on weekends with generally longer sessions. The student population tends to be non-traditional, meaning they tend to be older, may have some college credit prior to starting their program, and are often working adults completing their degree program.

Pools Based on Location
1. Outside-US. Includes colleges and universities outside of the United States. Program delivery is usually campus-based; however, the aggregate pool includes some blended programs and online programs.
2. Regional/Country. Includes colleges and universities outside of the United States from specific regions (e.g. Latin America, Europe, Asia, etc.) or from specific countries (e.g. Mongolia). Program delivery is primarily campus-based; however, the pools may include some blended and online course delivery.
3. US. Includes all US-based schools and programs.

Pools Based on Institute Characteristics
1. Large Private. This aggregate pool includes large, privately owned universities within the United States.
2. HBCU. Includes colleges and university that are designated as Historically Black Colleges and Universities.
3. Private. US schools that are privately owned.
4. Public. US schools that are publically owned.
5. Faith-based. US schools that have a specific religious affiliation or association.

Masters-level Pools Based on Degree Type
1. Masters-MBA. Includes programs that are designed as Masters of Business Administration.
2. Masters-MS. Includes programs that are designed as Masters of Science.
3. Masters-MA. Includes programs that are designed as Masters of Arts.

Pools Based on Dual-Accreditation Affiliation
1. IACBE. Includes business schools and programs affiliated with the International Assembly for Collegiate Business Education. Where available, this pool is further divided by IACBE Region.
2. ACBSP. Includes business schools and programs affiliated with the Accreditation Council of Business Schools and Programs. Where available, this pool is further divided by ACBSP Region.
Aggregate Pool Comparisons

**Blended/Hybrid Delivery** (1 of 3)

[Bar chart showing performance comparisons between Gardner-Webb University and Blended/Hybrid Delivery Mode programs.]
Aggregate Pool Comparisons

Privately Owned University

Overview: Outbound Exam Results Compared to the Aggregate Pool for Privately Owned University Programs

<table>
<thead>
<tr>
<th>Course</th>
<th>Gardner-Webb University</th>
<th>Privately Owned University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>56.8%</td>
<td>62.6%</td>
</tr>
<tr>
<td>Business Ethics</td>
<td>54.6%</td>
<td>57.1%</td>
</tr>
<tr>
<td>Business Finance</td>
<td>54.3%</td>
<td>59.7%</td>
</tr>
<tr>
<td>Business Integration and Strategic Management</td>
<td>50.3%</td>
<td>48.5%</td>
</tr>
<tr>
<td>Business Leadership</td>
<td>48.3%</td>
<td>52.3%</td>
</tr>
<tr>
<td>Economics</td>
<td>52.6%</td>
<td>49.4%</td>
</tr>
<tr>
<td>Global Dimensions of Business</td>
<td>50.4%</td>
<td>46.2%</td>
</tr>
<tr>
<td>Information Management Systems</td>
<td>50.7%</td>
<td>55.3%</td>
</tr>
<tr>
<td>Legal Environment of Business</td>
<td>63.3%</td>
<td>63.5%</td>
</tr>
<tr>
<td>Management</td>
<td>65.4%</td>
<td>64.3%</td>
</tr>
<tr>
<td>Marketing</td>
<td>57.6%</td>
<td>56.2%</td>
</tr>
<tr>
<td>Quantitative Research Techniques and Statistics</td>
<td>35.6%</td>
<td>40.6%</td>
</tr>
<tr>
<td>Total Score</td>
<td>52.7%</td>
<td>53%</td>
</tr>
</tbody>
</table>
Aggregate Pool Comparisons
Faith-Based Institution (3 of 3)

Overview: Outbound Exam Results Compared to the Aggregate Pool for Faith-based Institution Programs

- Accounting: Gardner-Webb 56.4%, Faith-based 54.4%
- Business Ethics: Gardner-Webb 54.9%, Faith-based 53.1%
- Business Finance: Gardner-Webw 49.9%, Faith-based 50.2%
- Business Integration and Strategic Management: Gardner-Webw 48.2%, Faith-based 49%
- Business Leadership: Gardner-Webw 46.2%, Faith-based 49.9%
- Economics: Gardner-Webw 49.4%, Faith-based 46.1%
- Global Dimensions of Business: Gardner-Webw 56.3%, Faith-based 52.2%
- Information Management Systems: Gardner-Webw 63.8%, Faith-based 56.3%
- Legal Environment of Business: Gardner-Webw 62.9%, Faith-based 55.9%
- Management: Gardner-Webw 57.8%, Faith-based 53.4%
- Marketing: Gardner-Webw 37.3%, Faith-based 36.3%
- Quantitative Research Techniques and Statistics: Gardner-Webw 35.6%, Faith-based 36.1%
- Total Score: Gardner-Webw 52.8%, Faith-based 46.6%
Percent change is the difference between the inbound and the outbound scores, the direct measure of learning.
Although the Marketing score was low, the students showed a high percent change in their knowledge of Marketing as a result of their educational experience.
The score in Quant/Statistics was low and the percent change was also relatively low. This finding suggests an area for improvement in how students could better retain their quant/statistics knowledge.
Score & Percent Change Analysis
Business Integration Topic

High score in Business Integration and Strategic Management with also a high percent change between inbound and outbound exams.
Conclusions & Recommendations

Applications of Direct Assessment towards Closing the Loop in Higher Education:
A Gardner-Webb University Case Study
Topic and sub-topic level scores tend to be more significant in terms of analysis value than the total score. Although most exams include all 12 topics, not all exams will include all 12 topics. Therefore, the total score comparisons are shown for relative benchmarking whereas the topic and sub-topic level score comparison will tend to be more meaningful.

If there are topics included on the exam that do not appear to be directly related to your curriculum and/or learning outcomes, consider removing these topics from future testing. It is generally best not to test on topics that are not included in the program’s curriculum.
We have a separate document available that includes the aggregate pool summary data that is used for comparison analysis purposes. If you would like to use these data for your own analysis, we can send this file to you.

Consider the sample size for the exam period before making changes in the program based on the exam results. Lower sample sizes tend to have higher standard deviations. In general, it is best to have a sample of at least 100 exams before the results can be used for program changes. Since report period is a variable, we can go back and include past exam results for future reporting in order to get the sample size high enough for meaningful analysis.
To evaluate the institution’s learning outcomes, consider the table shown for each topic the frequency of questions missed (and correct). These data are most useful when considering learning outcome.
Analysis Guidelines and Recommendations: 
Learning Outcomes Analysis

- Not every subject included on the exam will directly correspond to a program’s learning outcome because this is a standardized test meant to apply to the widest diversity of programs. Therefore, the score for the topic or subtopic must be taken in the context of the subject-level analysis.

- For example, a relatively low topic/sub-topic score may be acceptable provided that the subject-level scores are high for those subjects that are directly related to learning outcomes. Conversely, a high topic/sub-topic score may be unacceptable if the questions missed on the exam were high for key learning outcomes.
○ It is important not to make too many changes in a program at the same time based on one or two exam periods.

○ Instead, it is generally better to make small, incremental changes to the program based on these results and then monitor the results to assess the consequences of the change effort.
Specific ideas for continuous improvement include:

- Updating course content to include more case study type instruction that combines CPC topics in the same analysis.
- Including a review of key business topics towards the end of the program (e.g. in the CAPSTONE course) that includes an application exercise that requires a review and understanding of all the CPC topics included within the program.
Conclusions

- Assessing student retained knowledge is a valid way to demonstrate learning outcomes’ strengths and opportunities for improvement.

- When analyzing the data, focus first on those topic/subject areas that align with the program-level learning outcomes. Next, focus on course-level learning outcomes.
Recommendations (General)

- Test the current class when they are in their final course to generate a pair-wise report for each student. Compare results by student with other measures of learning (e.g. GPA)
- Focus areas for sustaining the business program:
  - Business Integration and Strategic Management
- Focus areas for improving the business program:
  - Review all of the CPC topical areas within the CAPSTONE course experience, particularly those topics taught early in the student’s program (e.g. Marketing and Accounting)
  - Include more quantitative analysis/statistics problems in other CPC topic courses and incorporate more into the CAPSTONE course
Recommendations (Expansion 1 of 3)

- Additional programs, including business related programs, can be included with the overall assessment program using the same CPC-based COMP exam process.

- As shown on the following slide, topic selection for the exam should be based on program content (courses) and learning outcomes.
### Recommendations (Expansion 2 of 3)

An example of how the university can customize the exams by aligning topic selection with program content and learning outcomes. Refer to notes on the following slide.

<table>
<thead>
<tr>
<th>Topics</th>
<th>Associate Management</th>
<th>Associate Accounting</th>
<th>Bachelors Business Administration</th>
<th>Bachelors Marketing</th>
<th>Masters MBA</th>
<th>Masters MS in Accounting</th>
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<tr>
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Recommendations (Expansion 3 of 3)

- **Existing Topics**
  - Alignment of exam topics to course content/learning outcomes is done by selecting topics that match the core courses/learning outcomes of the program.
  - Where there is overlap of exam topics, comparisons can be made.

- **New Topics**
  - New topics can be created for subject areas where we do not have an existing test bank of questions. The faculty should assist with this process. We need 40-60 questions for each new topic (multiple choice, T/F, and perhaps matching).
  - New topics created can be used for internal benchmarking only.
  - New topics are used in conjunction with existing topics to provide for external benchmarking.
Closing the Loop in Learning Outcomes at the Program Level

1. Initial Assessment
2. Remediation Measures of Shortcomings
3. Subsequent Assessment
4. Apply Results
Closing the Loop in Learning Outcomes at the Student Level

1. Initial Assessment
2. Analyze and Make Adjustments
3. Subsequent Assessment
4. Analyze and Make Adjustments
Applications of Direct Assessment towards Closing the Loop in Higher Education: A Gardner-Webb University Case Study

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