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CARI: A Model of Assessment for Educator Preparation Programs

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This paper presents a model of assessment that fosters the development and maintenance of a culture of continuous improvement. Background consisting of a short discussion of accountability, the education standards movement, and a theoretical framework supporting the building of an assessment culture and a model is presented. Seven considerations for developing a model of assessment are presented. A four-phase plan for developing a culture of assessment is discussed. The connection between the considerations for developing a model of assessment, the four-phase plan for developing a culture of assessment and the development of the CARI (collect information, analyze data, report findings, and implement changes) model is woven throughout the document. Finally, a background on the research that supports the development of the CARI model and an example of how the model can be used is provided.

Keywords: assessment, continuous improvement, accountability, assessment culture, model of assessment

Introduction

Assessment serves multiple purposes for students, faculty, and administrators of institutions of higher education. Further, assessment practices have evolved as a result of the demands of external stakeholders. One dilemma faced by stakeholders is that the term assessment is often used in multiple contexts with different meanings (Garfield, 1994). Harlen (2007) indicates that the term assessment describes a process by which evidence is collected for some purpose. Specifically, Harlen (2007) suggests the term assessment refers to the evidence of what students know and can do as well as judgments about their achievements. However, Anderson, Moore, Anaya, and Bird (2005) express their belief that the emphasis of assessment should be to focus on outcomes in a global sense. Furthermore, Wang and Hurley (2012) indicate that an assessment movement in higher education began in the 1980s with an emphasis on student learning. An outcome of this movement has been that accrediting agencies have required institutions of higher education to implement program-level and institution-level assessment procedures in addition to documenting student learning.

Consequently, educational policymakers in the United States over the past several decades have implemented many federal and state mandates requiring the use of assessments to meet external accountability demands. Hence, assessments are often used to make high-stakes decisions in the United States. Interestingly though, there exists another, somewhat individualized, level of assessment data use. Indeed, past research

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indicates that the assessment practices implemented by faculty members are based on their self-held conceptions of assessment. Furthermore, this research also shows the manner in which students approach learning is also affected by these faculty's assessment practices (Cassidy, 2006; Struyven, Dochy, & Janssens, 2005).

In an era of increased accountability, policymakers often use assessment data to determine student learning and to make high-stakes decisions reflected in educational policy. Consequently, accountability exists for faculty members and for students of higher education. Past accreditation requirements allowed administrators of higher education to determine the expertise of the faculty member and assumed the faculty member was an expert able to make judgments about student work. These expert judgments are no longer enough to meet the ever-changing demands policymakers place on educators today. Through the accreditation process, institutions of higher education now face consequences that include the potential to have their programs closed or funding removed if they are unable to provide assessment evidence of increased student learning. Furthermore, students must demonstrate their increased learning via course-based and program assessments. There are often high-stakes for students associated with these assessments, including their timely progression through and, ultimately, successful completion of a program resulting in graduation. Due to the high-stakes nature of such assessments, the pressures for accountability are even more evident and place it at the forefront of the assessment movement.

According to the report of the National Commission on Accountability in Higher Education (2005), a clear vision and purpose for assessment is lacking in higher education. As a result of this lack of vision and purpose, limited transparency exists (U.S. Department of Education, 2006). Faculty and students are aware of this lack of transparency, producing a fear or mystification of assessment.

Accountability and Assessment in Higher Education

Institutions of higher education in the United States have an obligation to provide instruction, research, serve their communities and regions, observe ethical standards, provide a safe environment for students and employees, and comply with all federal and state health, safety, and employment regulations (National Commission on Accountability in Higher Education, 2005). The National Commission on Accountability in Higher Education (2005) indicates several concerns regarding the state of higher education within the United States. Specifically, the United States is no longer the leader in the world with respect to college completion rates. Also, the United States lags behind other countries in its ability to educate scientists and engineers in order to compete in the global economy. Furthermore, the number of minority students enrolling in college is rising in the United States; however, many of these same students do not graduate. Finally, the costs of higher education have consistently grown faster than the consumer price index. Also, financial support (through grants) is lagging behind enrollment demand and inflation (National Commission on Accountability in Higher Education, 2005). It is noted, however, that there is not a problem with either the amount, or absence, of accountability. Clearly, universities are accountable to many stakeholders including but not limited to its student body, trustees, private financial supports, accreditors, and the government. However, it is the case that what matters most in improving student performance is the devotion of resources and the significance and clarity of assessment goals, because these factors most directly impact faculty members and students (National Commission on Accountability in Higher Education, 2005).

The report of the Greater Expectations National Panel (AAC&U (Association of American Colleges and Universities), 2008) indicates that institutions of higher education must hold students to high standards when it comes to its outcomes. The report contains recommendations concerning the knowledge and skills that should be

acquired by higher education students. A partial listing of the skills and knowledge recommended in the report includes that institutions at a minimum require students to develop strong analytical, communication, quantitative, and information skills; an understanding of, experience in, and inquiry into discipline-based knowledge about science, culture, and society; intercultural knowledge and collaborative problem-solving skills; responsibility for individual, civic, and social choices; and integrative ways of thinking and applying knowledge and skills in new settings (National Commission on Accountability in Higher Education, 2005, p. 25). The commission further indicates that simply providing the environment is not sufficient. Indeed, assessing student performance on these outcomes is also important to ensure increased learning.

There is a relatively large degree of autonomy given to institutions of higher education and to faculty who are responsible for establishing curriculum and program requirements. The varying institutional characteristics and the nature of the students who attend colleges and universities are all central components of the higher education system in the U.S. today. Consequently, the complexity associated with such diversity provides a difficult challenge for stakeholders involved in developing or affecting educational reform agendas. The difficulty lies in the fact that in a complex, decentralized higher education system, there is no comprehensive strategy to provide effective public information including better data about real performance and learning (U.S. Department of Education, 2006). "There is inadequate transparency and accountability for measuring institutional performance, which is more and more necessary to maintaining public trust in higher education" (U.S. Department of Education, 2006, p. 13).

Educational Standards Movement

Educational reform is an ongoing topic among policymakers. Over the years, the emphasis of national and regional accrediting standards has shifted from inputs to processes to outcomes. Indeed, a noticeable shift from inputs to outcomes has occurred over the past two decades as can be seen in the requirements of both national and regional accrediting agencies. Due to this shift, institutions began to demonstrate that their faculty were not only qualified, but that they also used research-based best practices as well as demonstrated that their students attained the course learning outcomes. Thus, national standards and reform efforts focus on evaluation and accountability of institutions of higher education with a current emphasis on outputs or outcomes of education rather than the inputs. This shift is evident in education reform from the late 1990s into the early 2000s wherein the focus turned to student learning outcomes. Specifically, Goals 2000, a key education initiative of the Clinton administration, encouraged states to develop content and performance standards that were demanding, shifting the focus to outcomes of education.

As mentioned above, historically speaking, institutions of higher education simply had to provide evidence that their faculty members were qualified and that courses were taught using research-based methodologies and strategies informed by best practices. Although faculty qualifications, teaching strategies, and methodology remain a central component of accrediting agencies' requirements, these have each simply become a point of compliance. Thus, the trend in national and regional standards is to assume that faculty members are qualified, methodologies are research-based, and clinical practices, where appropriate, are completed; therefore, these items have become a simple issue of compliance and no longer the primary barometer of an institution's worthiness of first-time or continued accreditation. Consequently, the national and regional accrediting standards now emphasize the process by which students are educated and the outcomes they achieve. To sum up the current state of accreditation, it is the case that the emphasis of national and regional accrediting agencies standards is on

students' experiences (processes) and their demonstration of competencies (outcomes) as they transition through programs instead of what is taught by instructors (inputs) (NCATE (National Council of Accreditation of Teacher Education), 2007; SACS (Southern Association of Colleges and Schools), 2012).

Educational policymakers consistently focus discussions and legislative mandates on institutional effectiveness defined as "the systematic, explicit, and documented process of measuring performance against mission in all aspects of an institution" (SACS, 2005). Typically, these policies are meant to be used as a way to encourage institutional accountability. Indeed, one measure often chosen by policymakers to determine the effectiveness of an institution is how well its students perform on various assessments. Thus, as the educational landscape continues to shift from inputs to outcomes, the need for improved performance on assessments becomes more evident. Consequently, high-stakes assessment results seem to have become the key measure of the outcomes in today's educational climate.

State and federal policymakers implement educational reform hoping to improve students' academic achievement (Schiller & Muller, 2003). Thus, institutions of higher education have a difficult challenge facing them—in an era of accountability, institutions of higher education have the added responsibility of ensuring their graduates are prepared to become effective professionals who will make a positive impact in their field. With the transition from inputs to outcomes, emphasis on effectiveness and added demands of accountability, faculty members of institutions of higher education today must not only be prepared to teach and lead their students, but also be prepared to be held accountable for the student learning outcomes resulting from their teaching and leadership methods.

Theoretical Framework

According to Bandura (1994), in order for a person to perform tasks that ultimately influence the outcomes of specific events that are occurring or will occur, the person's self-efficacy must support such a belief of personal success. Thus, academic self-efficacy of an educator can significantly influence beliefs about personal ability to meet the demands of teaching in such a way as to positively impact the learning and achievement of students. Highly efficacious educators have a positive outlook with regard to overcoming obstacles that may seem to be impediments to teaching. Thus, an educator's academic self-efficacy as it is related to the teaching process and state-mandated assessments can significantly influence teaching and thus, student performance. Further, educators' beliefs about assessment are impacted and these beliefs then impact their conceptions of assessment. Finally, assessment behaviors are then implemented based upon conceived type of control—actual or perceptual.

Consequently, in order to meet the demands of teaching and assessing effectively, positive self-efficacy needs to be developed. According to Bandura (1994), the best way to produce highly efficacious students is to engage in a variety of designed experiences that foster success through well-developed activities. By providing such experiences, the development of positive self-efficacy will be accomplished; however, experiences that are not well developed may cause failure and thus undermine progress toward positive self-efficacy (Bandura, 1994). As a result, academic self-efficacy increases by successfully engaging in and moving through a variety of well-constructed experiences. These mastery experiences might be carefully constructed activities, courses, or programs that build on each other. Thus, in general, providing extensive opportunities for success impacts one's ability to master one's experiences and become more confident in one's abilities. Specifically, these opportunities foster positive academic self-efficacy that can directly impact teaching effectiveness, with respect to both the delivery of content and assessment, as well as student success.

Indeed, a necessary component in the learning process is ongoing assessment. Holt and Willard-Holt (2000) indicate the importance of dynamic assessment—a way to assess the true potential of learners that differs from conventional tests. The interactive nature of the dynamic assessment process requires that the assessor, or instructor, engage in a meaningful dialogue with the learner, or student in order to (1) find out the learner's current level of performance or understanding on any given task; and (2) discuss strategies for improving the learner's performance or understanding of future tasks. When viewed this way, it is clear that assessment and learning are two processes that should be considered as a whole. That is, it is difficult to separate assessment from the learning process. When assessment and learning are viewed as two equally necessary components of a dynamic process, the development and implementation of quality instructional practices will naturally and continually be fostered.

It is prudent to consider a constructivist view of assessment. Specifically, a social constructivist's view of assessment includes the notion that learning occurs through doing. As such, social constructivism encourages the learner (student) to arrive at a personalized version of the truth—which is influenced by personal background experiences and embedded worldviews. Furthermore, the student is at the center. The student has the responsibility of learning (Glasersfeld, 1989) and the motivation to learn is strongly dependent on confidence and an internal perspective about potential for learning. Vygotsky's (1978) Zone of Proximal Development further supports that if students are successfully challenged within close proximity to, yet slightly above, their current level of development, they will gain the confidence and motivation needed to embark on more challenging endeavors. However, it is important to note that in order for students to gain confidence and to become or stay motivated, they must be continually challenged via a stretching of their zones of proximal development (Brownstein, 2001). These challenges should come in the form of tasks that require students to hone skills and acquire knowledge that have not yet been mastered. Furthermore, according to Derry (1999), the ideal situation is that tasks be selected in such a way as to be representative of the learning environment in which students gain personal understanding through mastering skills and knowledge. These types of tasks will engage and challenge students in such a way that make the goal attainable while allowing the students to experience ownership of all aspects of the learning process. Effective assessment strategies such as the use of dynamic assessments as proposed by Holt and Willard-Holt (2000) can continually expand the learner's zone of proximal development, thus providing more confidence and motivation to continue learning.

Within a social constructivism environment, the approach to learning requires instructors act as facilitators. Students construct meaning via engaging in experiences that provide context within the learning environment. Within this context, the facilitator/instructor provides learning scenarios wherein the student becomes actively engaged in the learning process. These scenarios create an environment and opportunities for students to make sense of the content (Rhodes & Bellamy, 1999) instead of simply memorizing factual content. In order for the instructor to develop a sense of what the learner has gained, it is important that dialogue should be at the center of assessment process. Consequently, acting as a facilitator, the instructor engages the students in activities that promote learning new content. Furthermore, within these activities, assessments are performed that actively engage the learner, that use dialogue, and that use performance-based components. Additionally, these assessments are dependent upon the conceptions of assessment held by the assessor. Thus, at the university level it is then the implementation of assessments that is driven by the faculty members' conceptions of assessment. Consequently, when building a model of assessment, it is both logical and necessary that one must take into consideration, among other issues, these conceptions.

Considerations for Building a Model of Assessment

(1) Determine your goal(s) for establishing an assessment system.

Examples include but are not limited to reasons related to: accountability; program improvement; increase in student learning; become more efficient as a department; continuous improvement; etc.. Are the goals initiated by internal or external reasons or stakeholders or both?

(2) Evaluate to whom and when you are accountable (stakeholders).

Examples include but are not limited to employers that hire graduates from the institution; program administrators or other faculty members; policymakers; accrediting agencies, etc..

(3) Establish the questions that need to be answered based on the goals and stakeholders' needs.

For example, if the reason for developing an assessment system is too purely to meet the needs of external stakeholders, then it is imperative to determine what the needs are of those external stakeholders. If the primary goal is to improve the program, then clearly articulate what it is that needs to be reviewed in order to improve the program.

Courses—How well are students performing in each course? Are there trends in failure rates in specific courses? Are there trends in withdrawal rates within specific courses? Are students performing as well in online courses as they do in face-to-face courses?

Program—How well are our students performing/meeting our defined student learning outcomes throughout their program? What are our completion rates? How long is it taking students to complete this degree? How many students do we have? How many are we losing? What is our faculty to student ratio? What percentage of our graduates is immediately obtaining employment in their field? How satisfied are the employers that are hiring our graduates? How satisfied are our students and recent graduates with their program? Is the sequence of courses appropriate to meet the desired student learning outcomes? How satisfied are our faculty in this program? What is the percentage of full-time faculty and adjuncts teaching coursework in this program?

(4) Establish various types of assessment data required to meet the goals and needs of stakeholders.

Think about three areas: inputs, processes, and outputs.

(5) Determine what evidence is needed from each nested level.

Think about individual students, courses, programs, departments, institutions.

Student level data—Entrance characteristics, performance on assignments, program satisfaction, remediation, etc..

Course level data—Some data are reviewed at the individual student level and others are aggregated for each individual course (Individual and aggregated student performance results on identified course student learning outcomes, course evaluations, course syllabi, etc.).

Program level data—Most data are aggregated across each program (Faculty productivity/qualifications, use of adjuncts, enrollment, curriculum maps, retention and graduation rates, program satisfaction surveys, employer satisfaction, student performance, graduate hire rates, etc.).

Department level data—Most data are aggregated for all programs in a department. Same as program but add budget and efficiency related measures, etc..

College and/or institutional—Most data are aggregated by department or overall by college. Holistic Analyses.

(6) Create and/or determine the measures and establish minimum expectations.
Rubrics, test scores, surveys, advisory groups, syllabi, course evaluations, etc..
(7) Create process for collecting and reporting data (see Figure 1).

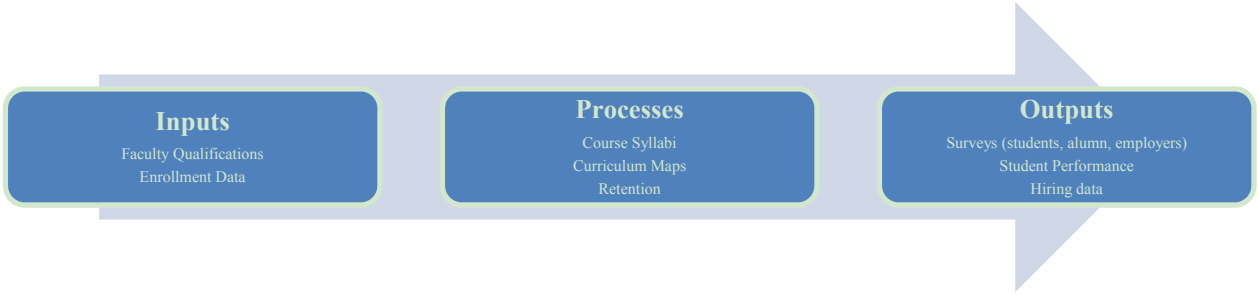

Figure 1. Process for collecting and reporting data.

Historical Context of Teacher Education Unit Within the State of Florida

On September 30, 2011, the U.S. Department of Education released "Our Future, Our Teachers: The Obama Administration's Plan for Teacher Education Reform and Improvement". The blueprint outlined the need for institutions of higher education to be held accountable for its graduates of teacher preparation programs. Specifically, educators must focus on outcomes instead as opposed to inputs as in the past. "Outcomes-based data can inform better decision-making at all stages of teacher preparation" (U.S. Department of Education, 2011). The landscape of education continues to change and the need for institutions of higher education to collect and use data to make instructional decisions is more evident than ever.

Culver (2010) reports that there was a time when Departments of Institutional Research could provide the necessary data for external stakeholders and accreditation agencies; however, times have changed, creating a demand that multiple offices participate in the assessment and data reporting process. Consequently, one of the first decisions made in support of the development of a model of continuous improvement in the unit was to consider the purchase of a data management and reporting tool. And, after several months of reviewing various assessment systems, one was purchased. The following phases detail one institution's journey to creating a culture of continuous improvement.

Phase 1: Addressing Assessment and Accountability

On the heels of a past accreditation visit where several weaknesses related to assessment were identified, the administration and faculty realized the need to place an emphasis on the creation of a culture of assessment. As a result, an institutional level assessment committee was created with a charge to create innovative ideas related to building an assessment culture on campus, to establish systematic goals related to campus assessment, establish a balance between administrator and faculty relationships regarding assessment, and to provide timely advice and recommendations concerning assessment to the university's administration. Concurrently, faced with an impending joint state and national accreditation visit, the leadership of the education unit decided to undertake the challenge of creating a model of continuous improvement. Both institutional and education unit leadership believed that assessment data were not only an accountability mandate from external accreditation agencies, but that they could also be used as evidence of student performance evident at the institution.

Initially, the leadership within the education unit addressed the mystification of the terms assessment and accountability by adopting a vision based on the consensus of a usable definition of each. The definition the faculty, staff, and administrators within the unit determined best met the needs of this particular institution was,

"A periodic report of performance and a process often in response to a policy demand" (Levin, 1998). The chosen definition of assessment was the "Process by which evidence is collected for some purpose and the judgments made" (Harlen, 2007).

Culver (2010) also reported that there was a time when Departments of Institutional Research could provide the necessary data for external stakeholders and accreditation agencies; however, times had changed creating a demand that multiple offices participate in the assessment and data reporting process. Consequently, one of the first decisions made in support of the development of a culture of assessment in the unit was to consider the purchase of a data management and reporting tool. After several months of reviewing various data collection, management, and reporting tools, one was purchased. The purchase of a data management tool and the elimination of the existing "home grown" system was finalized during the summer of 2008. Implementation of the new system was to be accomplished in phases, with the initial phase occurring during the fall semester of 2008.

Phase 2: Creating a Culture of Assessment and Implementing an Assessment Tool (Data Management and Other Items)

The initial thoughts about implementing an assessment system arose due to external accreditation mandates. However, in order to foster a culture of continuous improvement, those in charge of accreditation and assessment related activities knew they had to broaden faculty perspectives concerning the use of data. This included helping faculty move away from the singular view of using data to simply satisfy a mandate to a broader view of using data-driven decisions for course, program, unit, and institutional improvements.

An initial planning committee was established and was charged with meeting two objectives: (1) establish an overall assessment plan; and (2) develop an assessment timeline. Furthermore, the timeline was to focus on two efforts: (1) the implementation of a data management system; and (2) the creation of a culture of continuous improvement.

The level of resistance from internal and external stakeholders served as a barometer of success of the first semester of implementation. Although there was some resistance, many faculty members, students, and other stakeholders endorsed the implementation of the commercial product. Thus, the first-semester implementation was deemed successful.

Haviland, Turley, and Shin (2011) reported that faculty response to the idea of assessment includes a range of emotions such as being cautious or even negative; however, it is interesting to note these same faculty members assess their students regularly. Unit leadership witnessed these same emotions from its own faculty—Some faculty members did question the need for such a product as well as the idea of assessment. It was determined that in order to have continued success, removing accountability from the picture was a must. If faculty members thought there was a chance that they would be held accountable based on some data, then they were less willing to assist, serve on committees, use rubrics to evaluate student performance, etc.. The planning committee took this legitimate fear into consideration when continuing the roll-out process.

At the conclusion of each semester, data reports were shared with faculty and presented at various committee meetings at all levels (program, unit, college, and institution). It became quickly apparent that the initial investment in a commercial product was not only effective but also a necessity. Faculty members and administrators were quick to state that they could not imagine not having this newfound access to data, as was the case prior to adopting an electronic data management system. Indeed, as a result of the adoption of the data

management system, systematic planning and systemic changes created the path to establishing the beginnings of a legitimate culture of assessment where data were used to make many decisions and faculty no longer feared accountability.

The functionalities of the data management system employed the first-semester consisted of course-based assessments and initial field experiences. In order to accomplish successful adoption of these first-semester goals for adoption, both faculty members within the institution and mentor teachers within the school districts had to be trained on the system. The initial planning committee had to develop a plan for training these individuals, including faculty, supervising teachers, principals, placement officers, and others involved in the process. After using the system for one semester, it was determined that course-based assessment data were much easier to obtain and the number of hours formerly required to manually enter student evaluation data provided by supervising teachers was drastically reduced.

Phase 3: Using an Assessment Tool to Collect and Analyze Data

At the conclusion of each semester, data reports were shared with faculty and presented at various committee meetings at all levels (program, unit, college, and institution). It became quickly apparent that the initial investment in a commercial product was not only effective but also a necessity.

Faculty members and administrators were quick to state that they could not imagine not having this newfound access to data, as was the case prior to adopting an electronic data management system. Indeed, as a result of the adoption of the data management system, systematic planning and systemic changes created the path to establishing the beginnings of a legitimate culture of assessment where data were/are used to make many decisions.

Phase 4: Making Data-Driven Changes as a Result of Data Analysis

Over time, faculty members not only embraced the use of an assessment tool, but also began to participate in the decision-making process to change courses, programs, and unit policies and practices. Some examples of changes that resulted by employing a data management tool and having a faculty involved in a culture that promotes the use of data include:

(1) Specific course-based assignments were modified;
(2) Standardized rubrics for fairness and consistency;
(3) Sequence of courses offered;
(4) Addition/Deletion of courses within program;
(5) Planned reduction of undergraduate enrollment;
(6) Hired additional faculty;
(7) Hired additional academic advisors;
(8) Eliminated one program offered at a branch campus; and
(9) Established graduate advising office.

Development of CARI

Once the involved stakeholders had established a plan to address the items listed for consideration, then an overall model of assessment was established. In this case, faculty, staff, and administrators of the education unit determined to implement a continuous improvement model of assessment described as CARI (collect information, analyze data, report findings, and implement changes) (see Figure 2). This process is continuous

and cyclic; always allowing the user to return to the starting point in order to refine and review proposed solutions to issues encountered. That is, it is a circular process in which stakeholders regularly gather information at any time in order to solve problems, improve curriculum, increase student learning, obtain additional resources, etc. Thus, the details of the way in which the education unit transitioned from a conceptual understanding to an implemented model can be seen in the phases described above.

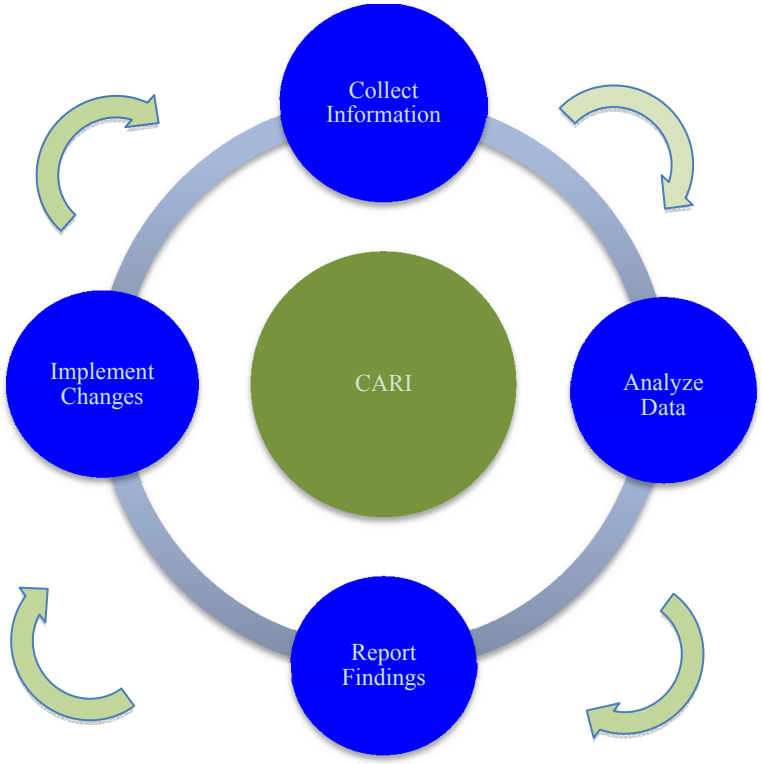

Figure 2. CARI Model of Assessment.

Conclusion

According to Feuerstein (2011), multiple considerations must be taken into account when building constructive accountability systems. The development of a culture of assessment is a dynamic endeavor that moves through phases, such as those described above, and allows for the continuous improvement of program content, delivery, assessment, and student learning. The consistent movement through these phases fostered the development of the CARI model as described herein. In this article, we have provided the background research on developing such a model as well as an example of how the model was implemented within an education unit at a southeastern regional comprehensive university. Additionally, a journey of creating a culture of continuous improvement with an emphasis placed on performance-based assessment within a large education unit was provided. Using the CARI model of continuous improvement within a performance-based assessment culture continues to foster change by reducing the emphases of external compliance and by changing the focus to one of internal continuous improvement.

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