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Can Curricular Reform for Coherence and Efficiency Occur Quickly in Higher Education

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The purpose of this research was to investigate whether a mid-sized public university could create a more coherent and efficient undergraduate curriculum over a short period of time with minimal resources. We pursued this question using an action research design. Using a curriculum model, we developed that focused on foundational, breadth, and depth of knowledge as a framework, we asked academic programs at the targeted university to evaluate and reform their degree programs for coherency and efficiency. Data were collected using a summary data template for curriculum framework during the planning year and then again after two years of reform. Data were also collected on the number of program and course revisions implemented throughout the study. Additionally, using the Stages of Concern Questionnaire and an ad hoc survey, we gathered faculty and department chairs' perceptions about the process. The results indicate that systemic change to a university's curriculum can occur relatively quickly and with limited financial investment. However, the study suggests that for significant change to occur, faculty must be given time to process the paradigm shift. Additionally, when engaging in curriculum renewal, department chairs require opportunities to discuss the process with their peers and often need individual, targeted assistance.

Student learning is greatly influenced by what we teach and how we teach the content. Imagine Socrates and Plato sitting around the Academy in Athens asking, "Does Aristotle really need to know that?" If that conversation happened, it would be the first example of a discussion on the importance of curriculum coherency. A coherent curriculum has been defined as an "academic program that is (1) well organized and purposefully designed to facilitate learning, (2) free of academic gaps and needless repetitions, and (3) aligned across lessons, courses, subject areas, and grade level" (Glossary of Education Reform, n.d.). Achieving curriculum coherence can be especially challenging. However, without coherence, a curriculum's purpose and the progression of student learning can be lost.

Curricular Reform for Coherency and Student Success: A Brief Review of the Literature

According to the Teagle Foundation (Green, 2018), our current discussion of the importance of curriculum coherency can be traced to the 1983 A Nation at Risk report from the National Commission on Excellence. The commission examined the curricula of various secondary schools and found that most lacked a central purpose. Furthermore, the commission found that the curricula were often fragmented and incoherent (National Commission on Excellence in Education, 1983). Two years after A Nation at Risk, a similar report from the Association of American Colleges and Universities (AAC&U), formerly known as The Association of American Colleges, was published. AAC&U examined the curricula of several undergraduate programs throughout the United States and concluded that the curricula were also incoherent and inefficient (Green, 2018).

In addition, with too many undergraduate programs being incoherent and inefficient, higher education had become both expensive and cumbersome (Zemsky & Finney, 2010). Over the past decades, colleges and universities have created a smorgasbord of majors and courses that have increased student choice. However, it has also increased the cost of a college degree. Fear of limiting student choices plus the explosion of new knowledge within fields have contributed to this problem (Pazich, 2017). This is in spite of a history of "leading educators [who] have questioned the effectiveness of a system built on the specialized interests of faculty and often uninformed choices of young adults" (Phillips & Poliakoff, 2015, p. 1).

Faculty play an essential role in advancing curricular coherence by creating maps or pathways that sequence classes and provide a "transparent and navigable curriculum" (Green, 2018, p. 10). The Teagle Foundation has identified the following components as necessary to enhance the likelihood of successful reform: (a) the need for up-front work in acknowledging the problem, (b) the recognition that reform is a learning process for faculty, (c) the identification and addressing of any barriers that might exist, (d) the consideration of reform sustainability from the beginning, (e) the understanding that collaboration is a complicated process, (f) the realization that there is more than one path toward goals, (g) the need to be cognizant of the importance of institutional context, and (h) the need to be mindful of the additive nature of reform in terms of both human and financial resources curriculum (Green, 2018). This also leads to the question, "Can an institution create a more coherent and efficient undergraduate curriculum for its students over a short period of time with minimal resources?"

Curricular reform is the responsibility of the faculty (Pazich, 2017). "Precisely because curriculum is within the control of faculty members, we have the opportunity to profoundly reshape students' college experiences for the better while also restoring the public's respect for faculty members and trust in higher education" (Pazich, 2017, para. 18). Curriculum reform is more than what some consider a passing academic phase. It is both a charge to individual faculty members as well as part of the mission of the university as an institution of higher education. Curricular reform that reduces the number of well-organized curricular pathways with ordered sequences of courses can benefit universities by containing or reducing costs, enhancing overall graduation rates, and increasing 4-year degree completion rates (Zemsky & Finney, 2010). Such reform benefits the students, faculty, and institution overall. Some essential elements of curricular reform include defining student learning outcomes, deploying faculty resources in new and innovative ways, engaging in continuous assessment of progress, and proactively reforming curricula based on future needs.

Historically, colleges and universities have not paid attention to the broader picture of reforming curricula for efficiency and effectiveness (Ferren & Slavings, 2000). When they have engaged in the curriculum reform process, it has often become a slow, difficult, and challenging endeavor.

> Academics are seldom willing to delegate to colleagues anything on which they have a strong opinion—whenever (or not) they decide to get involved. So decisions get stalled or revisited, initiatives start without widespread support and just trickle along, many individuals and groups can say no, but almost no one is legitimized to say yes or insist on it against (loud) minority opposition. (Cohen, Fetters, & Fleischmann, 2005, p. 328)

Past research suggests that major curriculum reform takes a long time to implement, generally as long as the undergraduate curriculum takes the average student to complete, with additional time required for planning and gaining support (Blackmore & Kandiko, 2012). Ferren and Slavings (2000), however, suggested that universities need not increase resources to improve educational outcomes significantly. Efficiency/cost-effectiveness can be attained without reducing the quality of education or limiting student resources. They propose that universities can efficiently and effectively improve the quality of the education they provide their students in three different ways: (a) by reducing services offered to their students, (b) maintaining services but limiting waste, or (c) increasing costs of education.

After self-examination and believing that curriculum reform could occur without increasing the cost of tuition for students or decreasing the quality of the education, we decided to boldly move forward to the rest of our university community and address curriculum reform.

Our Context for Institutional Reform to Achieve Curricular Coherence

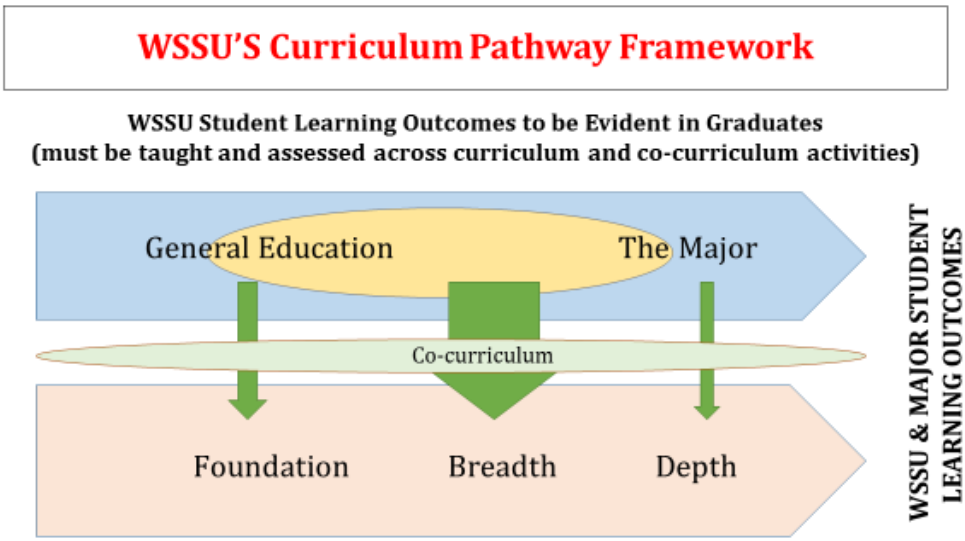
Our university found itself in the position of offering majors without sufficient students to justify the faculty and specializations built around a single faculty member's academic interest. We also saw what has been termed curriculum creep. This "chaos in the curriculum" has significantly increased the cost of a college degree, harmed students' academic progress, and lowered graduation rates (Phillips & Poliakoff, 2015).

We realized that incremental changes to the curriculum without a comprehensive plan would likely result in disjointed curricula that students neither understand nor could navigate on their own. Therefore, in 2016, our university embarked upon a university-wide curriculum reform process designed to address curriculum creep, inefficiencies, and curriculum coherency. The reform included a redesign of curricula, a review of the integration of co-curricular activities, and an assessment of the faculty resources and pedagogical practices of various disciplines to facilitate this process.

As a university, we adopted Ferren and Slavings' (2000) second approach to curriculum reform, maintaining resources while streamlining or eliminating waste in the form of duplication and distractions, all while improving the quality of instruction. One priority of the process was to reduce the negative factors that drive up costs for students while simultaneously attempting to enhance our educational quality. While there are many ways in which we could have addressed our goal, we as a university decided to use a 5-pronged attack: (a) create a curriculum pathway model that focuses on foundation, breadth, and depth courses of knowledge; (b) improve course sequencing; (c) reduce the number of credit hours required per major, where appropriate; (d) reduce course proliferation; and (e) streamline the number and frequency of course offerings in an effort to reduce or eliminate under-enrolled classes.

The primary goal of our reform endeavor was to strengthen the curriculum and ensure that intentional learning was taking place within the framework of the university's strategic goals. As such, major programs would streamline the curricula through revisioning to enhance program coherence, integration, and efficiency. We defined curriculum coherence as a process that produces coherent major programs, one that starts in general education and maps to clear outcomes that are supported by aligned co-curricular activities. Along

Figure 1
WSSU's Curriculum Pathway Framework



with curricular elements, these co-curricular activities would be assessed continuously, with the results used to improve student learning outcomes. By refining our curriculum, we expected to realize efficiencies in both student time to degree and the institutional resources required to deliver student learning successfully. While there are many educational frameworks that can be used, the university created a structure that we believed best fits our designation as a liberal arts university. Our WSSU Curriculum Pathway Framework (foundation, breadth, and depth model) focused on both the importance of general education in the first two years and successful navigation through a major (see Figure 1).

The general education portion of our curriculum challenges students to broadly explore the academy where they are actively engaged across the arts, humanities, and sciences. This broad exposure helps to build a foundation from which new and novel views can be generated with the major providing students with the opportunity to delve more deeply into a particular area of study. Students may acquire foundational knowledge within the discipline and broadly explore subdisciplines within their major. The final process is a deep dive into a specific area of knowledge within the major in which the student has an interest and the faculty have the expertise (Leskes & Miller, 2006).

As part of the curricular coherence reform process, the faculty within each major were encouraged to explore three questions as they reviewed their curricula:

- What are the concepts (not courses) that are foundational to your discipline?
- What are the sub-disciplines within your discipline which you would expect a well-rounded undergraduate to encounter?
- What are some areas where a student may take a deeper dive by taking an additional three to four courses?

The university entered the process of curriculum reform recognizing there were many potential threats to its success. We encountered seasoned faculty members who were jaded from long-standing memories of past experiences with curricular change over the years, faculty who did not see the value in applying all of the university's outcomes to all majors (e.g., it was difficult for English faculty to see the value in scientific literacy in their academic area), and faculty that, in general, were wedded to the status quo. Another challenge we faced was inspiring faculty to look beyond their areas of expertise (e.g., specific course or courses) to view the curriculum holistically. Additionally, some faculty understood the big picture of curriculum reform but had difficulty getting to implementation. Finally, there was the major challenge of eliciting engagement and commitment from the faculty (including department chairs) for the curriculum reform process. Since curriculum coherence is a shared responsibility and each major was being asked to spend quality time taking a critical look at their curricula in a timely manner, the goal of curriculum reform would have a limited probability of success without the active engagement of all stakeholders.

Figure 2
Seven Stages of Concern

Broadening Our Lens of Inquiry: Action Research into Curricular Coherence

The purpose of this research was to examine the outcomes of our recent curricular coherence work to investigate the feasibility of reforming curricula quickly in higher education. In particular, we examined the ability of the university to improve curricular coherence and efficiency quickly (i.e., in less than three years) and within the confines of minimal financial support.

Participants

The university engaged in this research is a Southeastern mid-sized, Historically Black College and University (HBCU), which is accredited by the Southern Association of Colleges and Schools-Commission on Colleges (SACS-COC). The university enrolls approximately 5,100 students and has a faculty-to-student ratio of 16:1. Students can enroll in one of the more than 34 bachelor's programs or 16 graduate-level programs.

All of the full-time faculty members of the university were potential participants for this research study. As of November 2016, the university had 302 fulltime and 125 part-time faculty members. Approximately 58% of fulltime faculty members were female; 54% were African American and 34% Caucasian. Eighty-seven percent of part-time faculty members were female; 50% were African American and 40% were Caucasian. All faculty members met at least the minimum academic requirements of the accrediting agency, SACSCOC.

Research Design

In this study, we used an action research design to evaluate the university's ability to reform its curriculum. The four-stages (i.e., planning, acting, developing, and reflecting) of the action research design allow researchers to address reform concerns in an ongoing manner (Mertler, 2019). The overarching goal of action research is to improve practice immediately; its design allows the researchers' investigation to be cyclical as opposed to the linear process of many other research designs. The design enables researchers to be both reflective and responsive to the needs of the project (Mertler, 2019). Throughout the research, based on the researchers' critical analysis of the status of the study, changes can be developed and implemented to enhance the likelihood of the project's success without needing to adhere to an initial plan.

Measures

Stages of Concern questionnaire. The Stages of Concern questionnaire is the diagnostic tool of the Concern-Based Adoption Model (CBAM; Hall & Hord, 2020). The underlying principle of this model is that it is not enough to merely provide individuals with the materials and resources needed to implement a change. For real change to occur, "it requires the understanding that each person involved will respond to the new initiative with unique attitudes and beliefs. Moreover, each person will use a new program differently" (American Institutes for Research, 2010).

The Stages of Concern survey consists of 35 items measuring attitudes and beliefs of those engaged in implementing the targeted innovation. The survey examines seven domains, which the designers referred to as the seven Stages of Concern. According to George, Hall, and Stiegelbauer (2006), these seven stages can be divided into three major categories: Self, Task, and Impact (see Figure 2).

The Self stage examines the respondent's (a) connection to the project, (b) level of concern or involvement in the project, (c) awareness and interest in the details of the project, and (d) concern about the demands of the project and the ability to meet them along with any other potential personal conflict. The Task stage focuses on the individual's perceptions of the processes being used. Task stage questions explore issues related to the efficiency, organization, management, and the timetable of the project. The final stage, Impact, focuses on the respondent's view of (a) the impact of the project on their students, (b) collaboration, and (c) exploring ways to enhance the innovation. Data allow those driving the change to "respond to the worries, attitudes, and perceptions of staff as they deal with the challenges of changing the way they work" (American Institutes for Research, 2010).

Summary data template for curriculum. Pre and post data regarding the number of total required credit hours for each program were gathered via the summary data template for curriculum (see Appendix B).

Department chairperson questionnaire. Department chairpersons were asked the following questions:

- Now that we are a couple of years into the curriculum coherence project, how do you feel about the project and the revisions you are making to your major?
- What kinds of changes have you been able to make to your curriculum this past year?
- What has helped you and your department the most with curriculum revisions this year?
- What, if any, roadblocks have you encountered in revising your curriculum?
- What suggestions do you have for ways that the Curriculum Coherence Committee can help you the most next year?

Chairs completed and submitted the surveys either by in-person hard copy at a curriculum coherence committee (CCC)/department chairs meeting or electronically through an e-mailed survey.

Procedures and Data Collection

Year 1: Planning year. In the fall of 2016, the university provost and senior staff identified a small group of key faculty members to serve on the CCC and began the process of curriculum reform. During the first year of the project, the CCC met regularly, one to two times a month, and identified the project's goals and outcomes, possible barriers to success, and opportunities for support. They used this information to create an implementation plan of engagement for stakeholders and communication strategy.

Baseline data regarding the curriculum of program areas were collected with the summary data template for curriculum framework. Using the summary data template, department chairs were asked to provide the provost's office with a description of the curriculum for each degree program their departments offered. Furthermore, we asked chairs, in conjunction with faculty for each program area, to identify the courses and number of credit hours the program required for completion, excluding general education coursework. Additionally, programs were asked to classify these courses as foundation, breadth, and depth courses.

Year 2: Implementation year. During the second year, 2017-2018, the CCC expanded its numbers to include additional faculty and university personnel to assist with implementation of the curriculum reform and to ensure the project's success. The committee grew to 13 members, of which 11 were faculty. Each undergraduate program area was assigned two faculty members from the CCC to act as their CCC consultants. On average, each faculty CCC member was appointed to five programs. While there was an attempt to assign CCC members to areas where they would have some knowledge, members were not assigned to programs within their department.

Then, each team reached out to their assigned programs to facilitate or assist with the revisioning process. Generally, teams met with small groups of program faculty. This was often followed by the CCC members meeting with the whole department or program. The goal of the program meetings for 2017-2018 was a reexamination of the curriculum organization with an eye on efficiency and coherency. We asked program faculty to examine each required course and its contribution to the student's knowledge base.

During the fall semester of the 2017-2018 academic year, the faculty's level of concern regarding the need for curricular coherence and their comfort level with the changes was assessed via the Stages of Concerns survey. The survey was sent electronically to all faculty members, with follow-up reminders sent over the next two months.

Additionally, during the second year of the project, the CCC reflected on how the project's goals would continue after the project was completed. The committee suggested revisions to various university procedures regarding curricula. Therefore, during the second and third years of the project, two forms used by the Academic Standards and Curriculum Committee (ASCC) were revised, two new forms were developed, and a curriculum template for the university catalog was created and shared with programs (see Appendices C, D, and E).

Year 3: Examination of major program outcomes. During the third year, CCC members continued to assist individual programs with curricular changes and looked for ways to ensure the project had a long-term impact on the curriculum of the university. The focus for this year was to examine and revise programs' major program outcomes (MPOs) and map them through the curriculum. However, not all programs were in the same place in the process. Some programs were still focusing on streamlining their curricula and others were examining and mapping MPOs while still others were beginning to look at university-wide student learning outcomes as they related to their majors.

As in the implementation year, we sent faculty the Stages of Concern questionnaire electronically to complete during the fall term. During the spring of that year, department chairs completed the summary data template for curriculum framework form again, identifying the number of credit hours and courses required for the major as well as the programs' foundation, breadth, and depth courses and MPOs. Also, we asked department chairs to complete a short, open-ended question survey to gain further knowledge about their understanding of curricular coherence, accomplishments, barriers, and suggestions.

Data Analysis

Data were collected and analyzed to examine whether there was a change in the university's curriculum efficiency as well as faculty's and department chairs' perceptions of the process used to enact this change. We gathered additional data on the number of program and course revisions that were approved by the university's ASCC.

Stages of Concern data analysis. Stages of Concern Questionnaire data were analyzed following the methods described by George et al. (2006). Respondents answered each item on a 0 (irrelevant) to 7 (very true of me now) scale to produce raw data. Items aligning with each stage were summed to create raw scale score totals for each stage (0-6). For the group analysis, we averaged the raw scale score totals, which we converted to percentile scores based on the percentile score table (Crist, 2017).

Curriculum efficiency. Curriculum efficiency was evaluated by the change in the number of major area credit hours required for each program. We calculated this credit hour change through a comparison of the data collected from the summary data template for curriculum framework submitted before the onset of the curriculum review process and the data provided after two years of reform. If there was a need for any clarification (e.g., the data regarding the number of credit hours for a particular program area were unclear, or a program did not submit baseline data), the university's catalog was used as a reference. If an inconsistency arose that could not be addressed regarding a program's curriculum, the program's change in credit hours was not included in the calculations of the university's curriculum efficiency change. Additionally, only programs that submitted the summary data template during the spring of 2019 were included in the analysis.

Department chair's perceptions of the project. Data were entered into Qualtrics and analyzed using a conventional qualitative data analysis approach (Hsieh & Shannon, 2005). This approach is used for studies that are designed to describe a phenomenon (e.g., curricular reform) using an inductive approach in which researchers interpret information gained directly from the unique perspectives of study participants. Themes or concepts are extracted from the data without imposing preconceived categories. Data analysis follows several steps beginning with an initial reading of the data to gain an overall impression or sense of the whole. This is followed by a slower, word-for-word analysis of the data to capture more specific information and organize it into categories. As such, subcategories are combined into broader, more comprehensive groupings that can be defined, described, and illustrated with quotes from respondents.

Results

Stages of Concern results

Based on the University Institutional Research and Assessment Report (Crist, 2017), 88 surveys with complete data were submitted in the fall of 2017. At that time, 70% (n = 60) of responding faculty had not received formal curriculum coherence training and 60% (n = 48) had not yet met with their CCC faculty consultants. On average, completers had the highest percentile scores for the Self dimensions of the Stages of Concern questionnaire (Stage 0, Stage 1, and Stage 2). Respondents indicated less concern regarding Task dimensions (Stage 3) and the least concern with Impact dimensions (Stage 4-6). In addition, most respondents' highest stage of concern was Stage 2: Personal. Respondents with high Stage 2 scores "are most concerned about status, rewards, and what effects the innovation might have on them" (George et al., 2006, p. 33).

The subsequent report in early 2019 (Crist, 2019) indicated that 76 complete faculty surveys were submitted between December 2018 and early January 2019. Twenty-one percent (n = 16) reported receiving formal curriculum coherence training, slightly less than the preceding year. Forty-six percent (n = 35) had met with their CCC faculty consultants at least once, representing an increase from the prior year's 36%; some had met with their consultants three or more times.

Similar to the 2017 responses, Stage 2: Personal was still the highest stage of concern for most respondents.

Stages of Concern data from years 2017 and 2018 were relatively consistent (see Figure 3). However, generally less intensity of concern was reported in 2018. For both 2017 and 2018, completers had the highest percentile scores for the Self dimensions of the Stages of Concern questionnaire (i.e., Stage 0, Stage 1, and Stage 2). Respondents indicated less concern regarding Task dimensions (Stage 3) and the least concern with Impact dimensions (Stage 4-6). The high Stage 0 score indicates there "are a number of other initiatives, tasks, and activities that are of concern to him or her. In other words, the innovation is not the only thing the respondent is concerned about" (George et al., 2006, p. 33). Aside from Stage 0, respondents had lower percentile scores for all other stages in 2018, which indicates less intense concerns (Crist, 2017; George et al., 2006).

Curriculum Efficiency

Throughout this project, a total of 30 curriculum changes were presented and passed by the university's ASCC. These changes reflected MPO revisions (five), revisions to the program area's plan of study (17), sequencing of the curriculum (two), and the development of six new tracks/concentrations of study for various programs. Additionally, there were 72 courses presented and approved by ASCC. Fifty-four courses were revised, 10 new courses were approved, and eight courses were discontinued.

Regarding improvement in the efficiency of the curriculum, 19 program areas met the requirements to be included in this analysis. Data we collected from these programs showed an average decrease of 7.61 required major credit hours for program completion. In the fall of 2016, students on average needed to complete a total of 61.06 major credit hours. This number was reduced to 53.44 by the spring of 2019.

Department Chairs' Perceptions of the Project

As noted earlier, 25 chairs completed the survey either by hard copy or electronically. The department chairs' views on curricular coherence reform process after three years ranged from positive (i.e., helpful, valuable, satisfied) to tedious and unnecessary (e.g., "Just another directive"). Additionally, some noted that working meetings with the chairs was helpful. For example, one respondent noted, "The process works well. Working with other chairs helps with the process."

Changes made during year three varied between significant changes, tweaking prior revisions, and no changes at all. Most departments seem to have organized their curricula into foundation, breadth, and depth areas; several had reduced the number of required courses and added an honors concentration. One chair reported, "I don't think we've changed much recently. We started the process early, and things slid inline rather logically." Positive views on the process included, "We have had the opportunity to truly reflect on how courses fit into breadth and depth" and "It is believed that this change will improve our advising, improve our students' understanding of their academic path within our major and will simplify our academic scheduling as well."

Chairs' views on what had been most helpful varied widely from "absolutely nothing" to having meetings, mentors, and consultations with CCC members. For example, several chairs reported, "The coherency team consultants were helpful to streamline the process and our thought process," "Regular Curricular Coherence meetings with the chairs and consultants and follow-up department meetings with designated time for discussion and actions," and "Having a university person who understands curriculum coherence process."

We asked chairs to identify roadblocks to the curricular reform process. Responses from the 25 respondents ranged from no roadblocks (n = 8) to difficulties such as lack of time, resistance to change, conflicting directions, and lack of understanding of accreditation issues. Some major roadblocks that were reported include the following:

- "At times, difficult to devote enough time to complete the steps/projects as we would like."
- "Lack of flexibility in addressing program requirements."
- "Lack of understanding by those outside our department / major on what is required by accreditation, licensing, and certification organizations."
- "The major roadblock is resistance to change. However, with repeated encouragement for faculty engagement, the resistance has decreased."

Department chairs provided several potentially useful suggestions for the final year of the process. Suggestions included continued assistance and meetings, student input on how changes are working, timely feedback from the committee, and separate meetings for graduate programs. Some specific recommendations are listed next:

- "Keep providing feedback and examples of what other programs are doing."
- "We keep making changes to the curriculum that we believe have a benefit for student learning and which are evidence-based from the faculty perspective of where student weaknesses may be. Having student input might provide additional evidence for making appropriate changes."

- "The committee does a wonderful job with assisting departments with the process and addressing questions. I suggest that the committee help departments with completing paperwork for ASCC approval."
- "Make sure curriculum coherence committee gives feedback in a timely manner."

Discussion

Our action research interrogation of our experience in working to create a more coherent and efficient curriculum offers some lessons for others looking to implement change promptly. Although we continue to work through the process, we have identified some potential best practices. We have also had the opportunity to work through several challenges. This discussion is organized by level: faculty, departmental majors, and university-wide concerns. See Figure 4 for a summary of best practices.

Level 1: Faculty

Survey results and feedback/observations of department chairs provided evidence that curricular reform indeed occurred, and that faculty were generally satisfied with the reform process and the role of the CCC in facilitating and overseeing the process. Initial resistance to change among chairs and faculty seems to have dissipated some, as evidence of faculty and students' benefits of a more streamlined curriculum emerged. Regular meetings with the committee and consistent communication and timely feedback from their committee representatives have assisted with the process.

Approximately 20% of the faculty participated in the initial stages of concern survey at the end of 2017, with close to the same percentage at the beginning of 2019. As discussed earlier, faculty play an essential role in advancing curricular coherence (Green, 2018). After three years, of those faculty that participated in the survey, most were still in the Self dimension of the stages of concern. This could be discouraging after three years if interpreted as a lack of interest by faculty. However, we recognized it as part of the natural progression that faculty move through in their adoption of new curricular innovation. Before faculty can focus on the impact of innovation on the institution, they need to work through the personal impact of change on themselves and how it affects their standing within their departments. They focus on what classes "I" teach that might be streamlined or how a change in the sequencing of "my" class may affect the number of students taking the class. Despite fewer participants in the second survey of the Stages of Concern, a higher percentage reported meeting with a faculty consultant about curricular coherence. In fact, many met with their faculty consultant numerous times. We interpreted this as a signal that those faculty who started the process were engaged and actively participating.

In the first few years of this project, we had to address several challenges specific to faculty. There were some faculty who were reluctant to reform courses and the overall curriculum as well as instructors who were resistant to change in general; they were comfortable with the classes they taught and the existing curriculum for their areas. Along these same lines, there were some faculty that were more concerned with what they got to teach rather than being concerned with how their classes fit within the overall curriculum. Among some faculty, there was (a) a misunderstanding of what curricular coherence meant, (a) confusion about the connection between our general education student learning outcomes and major outcomes, or (c) an understanding of curricular coherence but difficulty reaching implementation. Our most significant barrier was the lack of an obvious reward structure for faculty engaging in this type of departmental service. As faculty are the backbone of an academic institution, we needed to both recognize and address these challenges.

Despite these challenges, our conversations with faculty and the Stages of Concern survey responses demonstrated their increasing engagement. Through the process of addressing these challenges, we have developed some potential best practices for engaging faculty in the curriculum reform process:

- Start with engaging faculty influencers on campus. During our implementation stage, we were intentional in choosing faculty committee members who were involved in specific university workgroups or were leaders in their departments.
- Communicate with faculty about curricular coherence and the university goals often. The message needs to be consistent and clear. It should be shared through multiple channels.
- If there are limited funds for incentives or rewards, then use a recognition reward system. We choose to recognize those faculty and faculty groups that were active with curricular coherence at our year-end faculty awards ceremony.

Level 2: Department Chairs, Departments, and Majors

At the start of the curriculum coherence process and again in early 2019, department chairs were asked to complete a summary data template for curriculum framework form for each major within their department. Initially, the form was used to examine courses and hours required to graduate, mapping to the university student learning outcomes as well as what

area (i.e., foundation, breadth, depth) each course fell into within the major. In the second iteration, we revised to include the major program outcomes along with the student learning outcomes for each class.

In 2016, many majors were struggling to fit their courses into the foundation, breadth, and depth framework. They found that they were heavy in foundation courses with little depth or heavy in multiple depth areas with missing foundation and breadth classes. There were also issues with the numbering and sequencing of classes not being representative of a scaffolding process. Some considered the university student learning outcomes as a general education process and did not recognize that the role of the majors was to build upon these skills as they provided content knowledge. In the 2019 iteration of the summary data template for curriculum framework form, we were able to see significant changes. Almost every major went through a review of their course numbering and sequencing. The second iteration also showed more mapping to both the university student learning outcomes as well as major program outcomes. These changes reflected the conversations within departments and majors that were spurred by the submission of the template forms.

To better understand the changes, we began to have monthly meetings with department chairs in spring 2019. As a part of this process, we administered a short survey to understand their engagement with the curricular coherence process better. The chairs clearly indicated that they found roadblocks to engagement (e.g., conflicting directions or a lack of time). However, they also expressed an appreciation for meetings with the curriculum coherence implementation team and an opportunity to discuss challenges and solutions with other department chairs. Overall, department chairs provided evidence that curricular reform is occurring and that many chairs and their faculties were generally satisfied with the reform process and the role of the committee in facilitating and overseeing that process.

The challenges with department chairs were similar to the difficulties we experienced with the general faculty. Some chairs were resistant to change and others initially felt like we were interfering with their academic freedom by having individuals advising on changes to the curriculum who were outside of the major. As with rank-and-file faculty, there were others who had a misunderstanding of what curricular coherence involved, or they understood curricular coherence but had difficulty understanding their role in the implementation. One of the most prominent issues was the overall lack of time to devote to this process. This involved both time to understand what was needed and time to meet and lead faculty in each major. Several department chairs felt that there was no understanding of their accreditation, licensing, or certification requirements.

In spite of these challenges, we saw many successes at the end of the third year. We recognized that we were offering classes less often while students were still able to stay on the pathway to graduation. Programs that completed at least one level of revision were realizing efficiencies in the deployment of faculty resources. Departments that were seeking faculty resources could now provide clearer criteria for the justification of a new faculty hire contingent upon demonstrating a need to fill a gap in the curriculum. Feedback from the department chairs has helped us develop some potential best practices for engaging department chairs:

- Regular meetings with department chairs arranged by the provost in order to let them network and talk with peers. The Curriculum Coherence Implementation Committee would open with a discussion on a particular subject around the curriculum coherence process and then let the chairs follow up with questions or concerns.
- Assignment of specific faculty consultants from the curricular coherence implementation committee for each major. Most of the consultants did not work with their departments to avoid conflicts of interest or department politics.
- Thorough preparation before meeting with the department chair or department faculties. We asked the faculty consultants to read and be familiar not only with the department curriculum but also any accreditation, licensing, or certification requirements within the departments as well as programs they considered to be the best liberal education universities.

Level 3: University-Wide

The curricular coherence process involved a significant paradigm shift for the whole university. The need to streamline the curriculum while providing students with a clear pathway to graduation goes beyond just the academics. We recognized early on that there was a lack of process to engage student services as a partner with the co-curricular activities needed to support curriculum reform. There was a need for the departments within student services to also align their goals with the university student learning outcomes. Although these challenges could not be avoided, they could be addressed. We committed to working closely with academic administrators, faculty, and student service administrators. Our goal was to educate each of these groups on both the purpose and the importance of this process to the long-term success of the institution. We also partnered with these stakeholders in the

implementation of curriculum changes by inviting representatives to serve on the Curriculum Coherence Implementation Committee. Finally, as a part of the action research design, we consistently sought feedback on the process from our many university stakeholders.

In answer to the question, "Can curricular reform occur quickly with limited funds?" our resounding response is yes. In the first three years, 24 programs (62%) engaged formally in a discussion about curriculum reform using the framework. Seventeen programs (44%) took a revised curriculum to the Academic Standards and Curriculum Committee. Of the programs that reviewed their curricula, 63% reduced the hours required in the major. The averages for completion of a major decreased from 52.9 semester hours to 44.4 semester hours. Using Fall 2017 major and pre-major data for revised programs, we estimate that the process of curricular reform impacted roughly 1,600 students (~33%). From our initial success in this process, we have developed some potential best practices for university-wide engagement:

- Coordinate and communicate with key faculty committees. We had representatives from Academic Standards and Curriculum, Faculty Assessment, Faculty Senate, and other faculty groups.
- Coordinate and communicate with key campus partners. We had representatives from University College of Lifelong Learning, Student Affairs, University Assessment, and other administrative groups as our partners in this process.
- Provide training workshops for interested faculty, administrators, and staff on the curriculum coherence process. We provided training through our Center for Excellence in Teaching and Learning.
- Work with student leadership groups—both campus-wide and those associated with the majors—to get feedback on both the direction and the messaging around intentional learning and guided pathways.

Although there are still pockets of faculty resistance, this can be mitigated through peer influence, discussion, and training in order to encourage a change in mindset, language, and curriculum mission. It is incumbent upon us to continue to educate our administrative partners and students as well on the importance of this process to the university.

Future Research and Limitations

As we continue in the action research design process, we will continue to measure progress, reflect on our process, and use this information to improve the curriculum reform process. We anticipate continuing to assess our progress through our current methods of measurement, including ASCC changes to the curriculum, feedback from the Stages of Concern surveys, and subsequent department chair surveys. We also intend to measure our progress through testing student knowledge of their pathways to graduation, changes in faculty satisfaction and motivation, improvements in our student time to graduation and graduation rates, and students' increased ability to clearly articulate (i.e., various modes) the meaning and structure of their majors (i.e., foundation, breadth, and depth) and their mastery of essential skills at graduation.

While there are no inherent limitations within an action research design, there are those that question the generalizability of action research because of the design's cyclical nature (Mertler, 2019). Beyond the action research design, this current study did have some limitations. Greater participation could have led to more substantive changes in the curricula. Data from the qualitative surveys indicated that most of the responding chairs were satisfied with their progress and recommended continuing the current practice of monthly meetings with chairs and committee department liaisons in order to provide assistance. We recognize that a limitation of this study and a possible bias is that we did not receive feedback from all department chairs nor did all department chairs participate in the monthly meetings. Those who did not participate are most likely still resistant to the changes.

The data collection process would also have been significantly enhanced by greater participation among faculty. Only 20% of faculty on average participated in the Stages of Concern Survey. Without greater participation, it is difficult to assess the general engagement of faculty in the process.

Survey responses provided excellent suggestions that can be implemented during the coming academic year. One notable suggestion was to add student input on curricular changes. This idea supports the importance of students' role in curriculum change as noted by Green (2018). We acknowledge that our failure to measure student responses to the changes in the curriculum is a limitation in our research. We anticipate completing this method of measurement during the 2021-2022 academic year.

Other suggestions included challenging programs to address under-represented program goals, providing assistance with best practices for assessing student learning outcomes, and working with graduate programs separately from undergraduate programs. We believe that graduate programs have some unique needs that are not fully addressed in our current research. Our goal is to develop a separate and unique measurement for graduate programs.

The results of our study show that curricular reform can occur relatively quickly within a university setting. Reform inherently encounters resistance from

different quarters and there are challenges to getting the process started. However, once some changes have been implemented and the results become noticeable in terms of both efficiency and effectiveness, the momentum is likely to increase. The benefits of curriculum reform to students, faculty, administration and the university are undeniable.

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Author's Note

The first two authors, Lynn Roche Zubov and Monica D. Guillory, are listed in order of seniority and contributed equally to this article.

Appendix A
Integrative Learning

The university was committed to the process of integrative learning. We defined integrative learning as the integration of university learning outcomes across the curriculum in both general education and the academic major through seven primary student learning outcomes: critical thinking, critical writing, information literacy, oral communication, quantitative literacy, scientific literacy, and written communication. Additionally, within the major, the curriculum should also be designed with the same framework and build further upon the seven primary student learning outcomes.

Appendix B
Summary Data Template for Curriculum

Program Description:

Major Program Outcomes (MPO)- List all MPO.
1.
2.
3.
_.
_.

Major Requirements

Foundation (XX hours)

These courses will provide students with basic knowledge and skills needed for . . .

Breadth (XX hours)

These courses will broaden student's knowledge in . . .

Depth (XX hours)

These courses provide students with deeper knowledge in a sub area of the discipline. The program may have more than one depth from among which the students can choose.

Organize Curriculum in Year 1			Map Courses to Major Program Outcomes in Year 2							Map Courses to WSSU SLOs in Year 3						
Course Number	Sem Hours	Course Title	MPO 1	MPO 2	MPO 3	MPO 4	MPO 5	MPO 6	MPO 7	WSSU Learning Outcome						
FOUNDATION COURSES (xx HOURS)										CR.	CT	IT	OC	QT	SL	WC
BREADTH COURSES (xx HOURS)																
DEPTH AREAS (x) AND COURSES (xx HOURS)																
Total Required																

Appendix C
ASCC New-Combined-Revised Course form

- ☐ New Course
- ☐ Combined Course
- ☐ Course Revision
- ☐ Discontinued Course
- ☐ Other

Department: Date:
Current Title of Course: Course Number:

New Title of Course New Course Number (Registrar):
Current Credit Hours: New Credit Hours: Current Level: New Level:
Effective Date:

Prerequisites:
New Course Description:
Justification:
Identify which level of knowledge this course addresses:

Major Program Student Learning Outcome(s) this course supports:
WSSU Student Learning Outcome:
What WSSU SLO is or will be the primary focus of the course?
What proposed activities will be used to address the WSSU SLO?
Which proposed activity will be evaluated using the WSSU SLO Rubric?
Discuss the data or evidence used to recommend a new course or change in existing course(s).

Approvals:

Departmental Faculty or Curriculum Committee: Date:
Chairperson: Date:
Dean: Date:

Other Approvals That May Be Required For Specific Curriculum Changes:
Teacher Education Committee: Date:
General Education Core Committee: Date:
Chairperson of Department Directly Impacted by Change: Date:
Dean of College/School Directly Impacted by Change: Date:
Academic Standards and Curriculum Committee Action: Date:
Approval (Committee Chair): Date:

Approval (Provost and VC for Academic Affairs): Date:

Action Completed by Registrar: Date:
Completed form filed by Registrar and Academic Affairs. Registrar sends copy to Institutional Effectiveness & Planning and posts on intranet.

Appendix D
ASCC Changes to the Major Program Requirements Form

Choose the type of change being requested
- ☐ Revisions to the Minor
- ☐ Revisions to the Major
- ☐ New Curricular Sequence in the Major
- ☐ New track, option for the Major
- ☐ Other _____

School or College: Date of submission:

Department and program:

Required Gen Ed Hours in the Major: Effective Date:
Required Semester Hours in the Major:
Additional hours required by the major, if any:
Explanation of additional hours

*Total number of required hours in the Major: _____

Description of new or revised major/minor requirements including prerequisites requirements:

Justification- (In addition to the justification for the change in the major, discuss what changes are taking place to the current major):

Prerequisites:

Department and or Program Goals this request supports:

Program Student Learning Outcomes the proposed changes support:

Do the proposed changes impact other departments? ☐ yes ☐ no

If yes, have conversations been held with affected departments? ☐ yes ☐ no

I have read and understand the WSSU and SACSCOC policies on Substantive Change. I believe that this curriculum or program change is ___ is not ___ a substantive change as defined by SACSCOC. If it is a substantive change, approval from SACSCOC will be sought before the change is implemented.

Provide information new curriculum requirements on chart below.

Degree program name: _____

Prerequisites for courses required by the major:			
Requirements for the Major			
Foundation Courses			
Breadth Courses			
**Depth/Concentration/Track Name	Insert name of track	Insert name of track	Insert name of track
Depth Course			
**Total credit hours			

WSSU SLO Curriculum Mapping

	SLO focused course	SLO focused course	SLO focused course	SLO focused course
Critical Reading				
Critical Thinking				
Written Communication				
Oral Communication				
Information Literacy				
Scientific Literacy				
Quantitative Literacy				

Additional Information

*Total is for major only, not degree total
** Add additional columns if the major has more tracks

Reviewed by Curriculum Coherency Committee
_____Date_____

Approvals:

Departmental Faculty or Curriculum Committee: _____ Date: _____

Chairperson: _____ Date: _____

Dean: _____ Date: _____

Academic Standards and Curriculum Committee Action _____ Date: _____

Approval (ASCC Committee Chair): _____ Date: _____
Approval (Provost and VC for Academic Affairs): _____
Date_____

Action Completed by Registrar: _____ Date: _____

Appendix E
Changes to Major Program Outcomes Form

School or College: Date of submission:

Department and program: Effective Date:

Justification for changing major program outcomes (MPO):

Old Major Program Outcomes:
1.
2.
_.
_.

*New Major Program Outcomes:
1.
2.
_.
_.

Assessment data to be collected for each Major Program Outcome:
1.
2.
_.
_.

Does the proposed changes impact other departments? ☐ yes ☐ no

If yes, have conversations been held with affected departments? ☐ yes ☐ no

I have read and understand the WSSU and SACSCOC policies on Substantive Change. I believe that this curriculum or program change is ___ is not ___ a substantive change as defined by SACSCOC. If it is a substantive change, approval from SACSCOC will be sought before the change is implemented.

Degree program name: _____

Prerequisites for courses required by the major:	
Requirements for the Major	
Foundation Courses	

Breadth Courses			
**Depth/Concentration/Track Name	Insert name of track	Insert name of track	Insert name of track
Depth Course			
***Total credit hours			

WSSU MPO Curriculum Mapping

	MPO focused course	MPO focused course	MPO focused course	MPO focused course
MPO #1				
MPO #2				
MPO #3				
MPO #4				

Additional Information

* The number of student learning outcomes are determined by the program
** Add additional columns if the major has more tracks
***Total is for major only, not degree total

Reviewed by Curriculum Coherency Committee
_____Date_____

Approvals:

Departmental Faculty or Curriculum Committee: _____ Date: _____

Chairperson: _____ Date: _____

Dean: _____ Date: _____

Academic Standards and Curriculum Committee Action _____ Date: _____

Approval (ASCC Committee Chair): _____ Date: _____
Approval (Provost and VC for Academic Affairs): _____
Date_____

Action Completed by Registrar: _____ Date: _____

Completed form filed by Registrar and Academic Affairs. Registrar sends copy to Institutional Effectiveness & Planning and posts on intranet.