



Validating the Collaborative Regional Education (CORE) Comprehensive Model in Rural High Schools

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**Validating the Collaborative Regional Education (CORE)
Comprehensive Model in Rural High Schools**
Investing in Innovation Validation Grant Proposal - Jacksonville State University

Response to Priorities

Absolute Priority 3- Implementing Comprehensive High School Reform and Redesign

This Collaborative Regional Education (CORE) model is comprehensive in that it integrates technology and active learning methods in classrooms by providing teachers with professional development and classroom support that better prepares students for college and career through increased 21st century and non-cognitive skills. In addition, the CORE model addresses change throughout the system by creating and leveraging partnerships, supporting administrators in change management, and assessing school-wide technology infrastructure needs, resulting in change management and technology plans that lead to creation of learning environments that support individualized learning, college and career readiness and increased graduation rates.

Absolute Priority 4- Serving Rural Communities

Jacksonville State University's (JSU's) CORE model will be used to improve college and work readiness among high schools students in primarily high need and rural schools. The CORE partnership will expand to involve private sector partners, ten regional universities in nine states and, in Alabama, 26 public LEAs, of which 13 are rural as defined by Rural and Low-Income Schools (RLIS). In Alabama, the CORE partnership makes up 12% of all Alabama students. More than 50% of these students qualify for free or reduced lunch.

Competitive Preference Priority 1- Improving Cost Effectiveness and Productivity

CORE was developed due to the realization that regional universities and PK-12 systems were going through similar issues related to integrating technology and new methodologies in the classroom to support student learning, despite decreases in state funding. Therefore, it was imperative that CORE support substantially improving student outcomes without

commensurately increasing per-student costs. Partnering with CORE creates efficiency by sharing best practices so teachers and their systems don't have to "reinvent the wheel." This project supports teacher mentoring, networking, sharing of lesson plans and learning objects, and leveraging school system dollars through partnerships with learning management system, curriculum, publishing, technology and other private industry partners. This allows systems to reallocate existing funds to purchase technology and other activities that will sustain change. The CORE model also includes professional development for administrators in developing community-based partners, change management planning and sustainability planning. Treatment principals will analyze pre- and post- implementation cost per student calculations. Each treatment school leadership team will create a change management and sustainability plan as part of their activities and identify cost-effective practices implemented.

Competitive Preference Priority 2- Broad Adoption of Effective Practices

The CORE model has the capacity to impact education broadly through multiple components that support and sustain system-wide change. By validating the CORE model, with the regional university providing the supports that empower schools to leverage partnerships, gain targeted professional development, and network teachers around best practices, it is anticipated that CORE will demonstrate an ability to identify, share and sustain effective practices quickly and with impressive student outcomes.

A. Significance

1. Promising New Strategies

CORE will validate the CORE model for high school reform by improving student outcomes through a two-year interactive school certification program that provides professional development for active learning methodologies, technology integration, change management and other teacher and administrator supports. The goal is to improve high school graduation and

college and work readiness among 10th-12th grade students in high need and rural schools through implementation and replication of the CORE components.

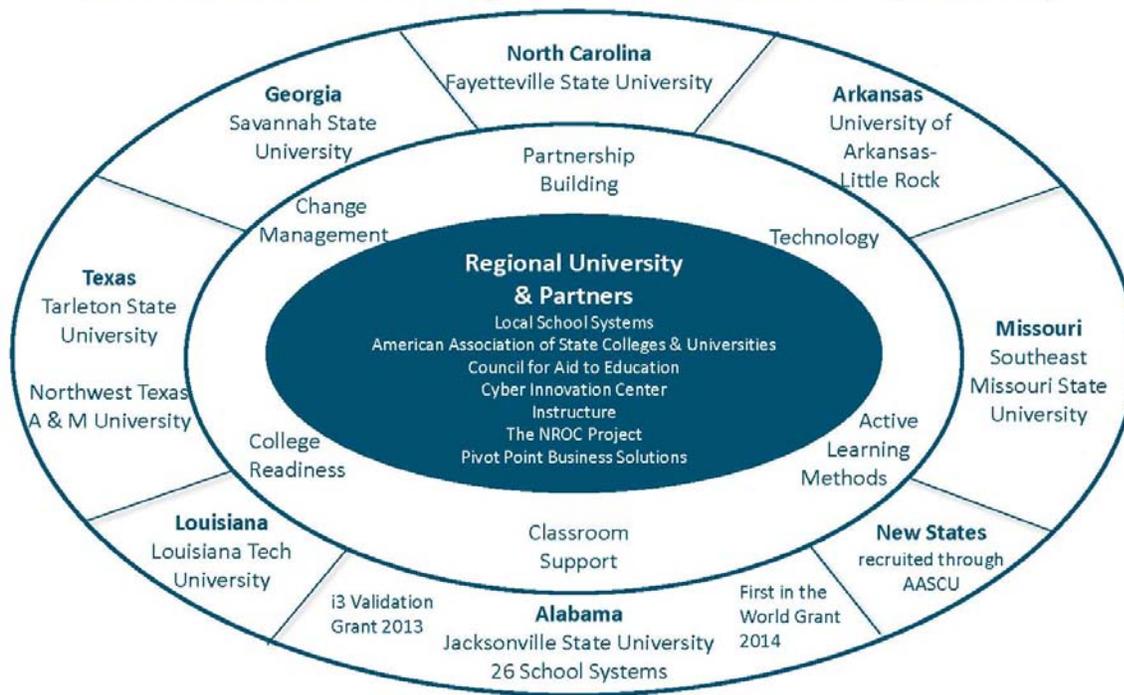
Lezotte and McKee (2002) provide attributes necessary for school transformation in their book, *Assembly Required: A Continuous School Improvement System*. The attributes schools need to demonstrate are: 1) focus on results; 2) simultaneously consider quality and equity; 3) be data driven; 4) focus on research-based practice; 5) collaborate; and 6) focus on ongoing and self-renewing change. CORE supports schools in acquiring these attributes through six CORE components that through a network of key partners, builds capacity of schools, teachers and administrators to improve student success and readiness for college and career. The six CORE components are: 1) partnership building; 2) technology; 3) active learning methods; 4) classroom support; 5) college readiness; and 6) change management. With the regional university at the core of the partnership, the local, state and national partners are leveraged to provide supports to member schools in implementing research-based practice and sustaining improvements through evaluation and change management. Figure 1 depicts the CORE model, the partners and the primary service components.

This proposal is built around a model of integrated components supported by at least moderate evidence of effectiveness. This evidence and other research is referenced in support of the CORE model components. Appendix D provides references and copies of research reports supporting rigorous evaluation of components comparable to those proposed.

Partnership-Building- CORE begins with partnership building. It is the belief of all involved that working together is more likely to result in positive outcomes. Dwindling resources ensure that it is not cost beneficial for schools to stand alone in their efforts. Newmann and Wehlage (1995) found that external support for setting high standards, providing professional development, and increasing school autonomy were common needs identified in four large

Figure 1. The CORE Model

Collaborative Regional Education(CORE)



school restructuring studies. Partnerships, particularly from the community, help ensure that reforms are sustained (Consortium for Policy Research in Education, 1998).

Technology- In a report on the *Apple Classroom of Tomorrow – Today (ACOT²): Learning in the 21st Century* (2008), a culture of innovation and technology is acknowledged as the fuel that not only drives today’s economy, but also is vitally important to student learning and the school environment. Innovative approaches to teaching in the 21st century are necessary to meet the needs of today’s student. The media rich, connected lifestyle that students live today has changed the way students expect to be taught, and is very different than just one generation ago.

Several studies support the role of technology in the 21st century classroom (CDW-G 2011 21st-Century Classroom Report, 2011; Penuel, Korbak, Yarnall & Pacpaco, 2001; Honey & Henriquez, 1996), while new electronic tools are replacing textbooks with a digital environment (Desoff, 2010), assessing student learning online (Wu & Chen, 2008), and

supporting laboratory e-notebooks (Abari, Pierre & Saliah-Hassane, 2006). Hoffman and McGuire (2010) suggest that four processes: empathy, active learning, interaction among students, and empowerment, remain important in enabling learning in the technology supported classroom.

The Maine Education Policy Research Institute examined the effects of laptop computers used to facilitate science learning in a middle school. The two classroom comparison study found that students in the treatment group who were asked to demonstrate their learning using a laptop, answered more questions correctly on the post-assessment, had higher levels of comprehension and retained knowledge at higher levels (Silvernail, et al., 2011).

Active Learning Methods- Project-based learning (PBL) is grounded in constructivism (Piaget, 1969; Perkins, 1991), which holds that learning is constructed through interaction with the environment through investigations, conversations and activities that build on current knowledge in individualized ways. PBL is known in several forms and found to be successful in many settings (Thomas, 2000; Udall & Rugen, 1996; Hmelo-Silver, 2007, 2004; Mergendoller, Maxwell and Bellisimo, 2006; Cognition & Technology Group at Vanderbilt University, 1992).

Place-based learning is a variant of project-based learning that will be emphasized in the CORE Academy (a three-day conference) and CORE workshops (one day) through the CORE Active Learning Model (CALM), another variation of PBL. Rooted in a local area, place-based learning focuses on the unique history, environment, culture, economy, literature, and art relevant to the communities that schools serve. Communities provide the context for learning, students focus on curricula reflecting community needs and interests, and community members serve as resources and partners in teaching and learning (Rural School and Community Trust, 2010). Place-based learning is employed to 1) make instruction more relevant to students' lives, 2) support curriculum standards, 3) leverage community resources when financial resources are

limited, and 4) encourage strong school-community relationships (Azano, 2011). It has also shown promise in many rural settings (Gruenewald & Smith, 2008; Haas & Nachtigal, 1998; Shamah & MacTavish, 2009; Smith, 2002; Wigginton, 1985; Loveland, 2003; Emekauwa, 2004; Barnett, 2009; Lieberman & Hoody, 1998).

One of the most important aspects of successful implementation of PBL is the knowledge, skills and confidence of teachers (Marx, Blumenfeld, Krajcik & Soloway., 1997; Blumenfeld, et al., 1991; Good & Brophy, 1986; White & Smith, 2010). A randomized controlled trial study of 56 schools found that students in the classrooms of the teachers receiving professional development scored higher on math achievement tests than students in the control group (Silvernail & Buffington, 2009; Silvernail, et al., 2011). Comparable findings were found in the clustered randomized controlled trial among students in the Alabama Math, Science and Technology Initiative (AMSTI) who achieved statistically higher in math in one year and in science in two years than students in control groups (Newman, et al., 2012).

Classroom Support- CORE classroom support includes providing an online learning ecosystem, mentorship, online professional learning communities and virtual workshops supporting teacher skill development. The online learning ecosystem, based on the Canvas/Catalog learning management system platform, allows teachers across schools, districts and states to collaborate and share learning objects, lesson plans and teaching strategies.

In addition to knowledge, skills, and resources, teachers need a community of support to sustain their classrooms (Barron, et al., 1998). A body of research suggests that ongoing mentorship after an initial intensive training session helps to ensure that teachers fully adopt the research-based, best practice methods they learned during training and that they make these methods a permanent part of their classroom practice (Kohlmeier, Saye, Mitchell, & Brush, 2011; Saye, Kohlmeier, Mitchell, & Farmer, 2009; Miller & Glover, 2007; Barksdale, Woodley,

Page, Bernhardt, Kowlowitz, & Oermann, 2011; McCann, 2011; Poyas & Smith, 2007; Roney & Davies, 2007; Wepner, Bowes, & Serotkin, 2007; Adams, 2010).

In addition to the need for ongoing mentoring after an initial, intensive training period, there is compelling research that indicates a need for well-developed tools, scaffolds, and an overall communication plan to complement the mentorship program, including online communications (Zubrowski, 2007; Kohlmeier, Saye, Mitchell, and Brush, 2011; Saye, Kohlmeier, Mitchell, and Farmer, 2009; Browne-Ferrigno, 2007; & Klein, 2007).

College Readiness- JSU provides remediation to first-year students who are not prepared for college through its work with NROC and the EdReady project. EdReady allows students to test on math and soon, English, skills; identify deficiencies; take online instruction specific to those deficiencies; and test again to show remediation has taken place. Through this grant, NROC will be provided to all regional university partners for implementation and collaboration with chosen high schools to provide a bridge for remediation to 10th – 12th grade students using EdReady prior to college. At JSU, the NROC EdReady Development Math assessment is being used as the math preparation and placement exam. EdReady is an open-resource preparation tool which is also used in JSU's developmental algebra course, Fast-Forward Algebra. Most recent data shows that 77% of Fall 2014 students in Fast-Forward Algebra passed MS100 (Intermediate Algebra), up from an historical average of 40-50%. Of those passing, 83.3% passed their first college credit math course in Spring 2015.

Calderon, Klein, Fitzgerald & Berger (2005) identified four high school remediation programs that showed promise for preparing students for remediating students in high school instead of waiting until college. Myers and Shirm (1999) studied Upward Bound in a longitudinal study with approximately 3,000 students assigned to control and treatment groups. Findings for the program that provided tutoring and study skills, college prep and enrichment

workshops showed significant gains for lower-performing students, reducing the probability of drop-out. Balfanz, Legters and Jordan (2003) studied a program that focused on reading and math skills among 9th grade students. The treatment group significantly outperformed the control group on several levels. When combined with two additional rigorous studies (Gamoran, Porter, Smithson & White, 1997; Woodruff, Schumaker & Desler, 2002), academic support in high school was judged to be a promising reform strategy using What Works Clearinghouse standards (Calderon, et al., 2005).

Change Management- The primary framework for this change management strategy is based on the administration of the Change Diagnostic Index (CDI), identification of stress areas within the school system, and mitigation of organizational instability through leadership, professional development and planning. The CDI, developed by Dr. Victoria Grady, is derived from work by Kurt Lewin, John Kotter, Rene Spitz, and John Bowlby (Harvard, 1998; Grady, 2005; Grady & Magda, 2007; Grady & Grady, 2008; Grady, Gleckel & Grady, 2009; Grady & Grady, 2011). It was developed and validated to identify behaviors, perceptions, and attitudes predicted to emerge in the individual as a response to change, enabling the organization to identify and track emerging symptoms, and provide them with information that will allow them to react and plan more efficiently as they deal with the impact of the change. This is critical since previous research suggests that a significant number and/or intensity of the symptoms will negatively impact the overall performance of an organization and lead to organizational instability (Grady, 2005).

2. Potential Replicability

For more than five years JSU has partnered with a growing number of PK-12 school systems. Currently, the 26 public systems in Alabama alone represent 86,500 students, 12% of all Alabama public school students. This includes 13 RLIS systems with more than 31,000 students.

Through its partnership with six regional universities developed through another i3 grant, CORE serves school systems in five additional states: Arkansas, Georgia, North Carolina, Missouri and Texas. We are in the process of adding Louisiana Tech University and plan to recruit two additional regional universities in different states through this award.

The three-day conference, CORE Academy, is a key professional development feature of the CORE model. The first CORE Academy was held on the JSU campus in 2013 with 280 attendees. Of the attendees who responded to an online survey, 91% reported that the CORE Academy met their needs, 90% reported that the technologies and methodologies shared were useful, 91% planned to implement what they learned, and 92% said the 3-day conference met their expectations. In 2014, more than 300 teachers, faculty, students, administrators, sponsors, and other partners attended CORE Academy and in 2015, 450 attended with sustainable results from attendees of whom 91% reported that the content was of high quality and 96% reported that the content was relevant. With a cap for attendance set at 480 – 500, JSU realized that instead of increasing the attendance of CORE Academy by holding it a conference hotel, having teachers “come home” where most achieved their teaching credentials was too important to give up. At this time it was decided that replicating CORE Academies at other regional universities was the direction needed. With this grant, CORE Academy will be replicated in three additional locations. In addition, JSU will identify characteristics of CORE Academy and regional universities that best ensure the CORE experience. It is believed that the following are key: readiness for change; a commitment to collaboration and involvement across the regional university; a grassroots PK-20 approach; a commitment to learning from each other; providing national keynote speakers; involving students; involving technology sponsors; and broadly represented and engaging concurrent sessions. JSU is in the process of documenting all components of the regional university’s responsibilities for convening a CORE Academy,

workshops and all other components of the model (see Appendix J). Some components however, like online classroom supports, will be provided by the JSU, CORE's central office, ensuring economies of scale and expanded opportunities for networking and collaboration across schools, regions and states. The CORE Strategic Plan includes expanding the model to every state through our partnership in collaboration with the American Association of State Colleges and Universities (AASCU). We will make the model available to regional universities through AASCU, provide a streamlined process for implementing the CORE components, require documentation of successful administration of the PK-20 partnership; and convene a national education network striving to make the United States first in the world again.

3. National Need

The number of students qualified to attain a college education is not increasing. As reported by the White House (2014), in 1990 the United States was ranked first in the world in bachelor's degree attainment; today the U.S. is ranked 12th (OECD, 2013). This fact is supported by low college achievement among low-income students. Research found that 50% of high income 25 year olds attained an undergraduate degree, while only 10% of low-income students have (Bailey & Dynarski, 2011). In addition, researchers found that the number of students applying for college has doubled since 1970, but competitiveness among colleges for highly qualified students resulted in little change in the number of students admitted (Bound, Hershbein & Long, 2009).

One in four rural students do not graduate from high school and only 17% of adults in rural areas have a college degree (Alliance for Excellent Education, 2010). Howley and Hambrick (2011), report that the best way to address low graduation rates is well-prepared teachers holding students to high standards. The CORE partners are aware of the issues facing rural schools in the United States. One of our partners, in fact, recently consolidated two rural high schools in response to the need to increase services at a time when resources were

decreasing. Leveraging the budgets of small rural schools will provide for greater efficiencies, as will partnership building in the community. Rural CORE partner Winterboro High School in Talladega County reports that after implementing technology and project-based learning in their classrooms, graduation rates increased from 63% in 2009 to 88% in 2013, while college acceptance rates increased from 33% to 79% in the same timeframe. In rural schools, CORE will also support teachers with implementing place-based learning, a variation of project-based learning that holds promise for improving outcomes for rural students.

Innovations that Support College and Work Readiness

CORE partners know that we are preparing students for careers that don't exist yet. The Framework for 21st Century Learning, developed by the Partnership for 21st Century Skills (2007), identified four sets of student learning outcomes for teaching and learning in the 21st century: 1) Life and Career Skills; 2) Learning and Innovation Skills- 4Cs; 3) Core Subjects- 3Rs; and 4) Information, Media, and Technology Skills. While just one component of the framework, the 4Cs - critical thinking, communication, collaboration, and creativity - are identified as critical to the success of students in both their work and personal lives in the 21st century. A pre- post-comparison by CORE teachers implementing CALM, the CORE Active Learning Model of project-based learning, included 70 students assessed on the *CORE 21st Century Skills Rubric*. A paired-samples t-test found significant gains in technology use, critical thinking, problem-solving and overall classroom success in one semester (Simmons, 2013).

Non-cognitive skills, including information processing, attitude, motivation, time management and testing skills, are also important for college readiness. Several studies have found that non-cognitive factors have a direct positive relationship to students' school performance as well as future outcomes (Bowen, Chingos, & McPherson, 2009; Duckworth & Peterson, 2007; Heckmann, Humphries, & Mader, 2010).

Technology

The CORE technology initiative builds on the work of others. Several states, including Maine, Indiana, Michigan, New Hampshire, Texas and Vermont (Bonifaz & Zucker, 2004) have implemented technology management solutions referenced by this project. In addition, Piedmont City Schools (PCS), a member of the 21st Century Classroom Collaborative, initiated a one-to-one laptop program in grades 4-12 for which they learned lessons to share with this project implementation team. Six other school systems are expanding technology in classrooms as well. These systems share findings and experiences during CORE Workshops.

Research related to technology integration is plentiful, although causal studies are scarce. However, several studies documented gains in higher order skills when classrooms were technology rich (Baker, Gearhart, & Herman, 1994; Penuel, et al., 2001; Boaler, 1997, 1998; Shepherd, 1998). The most rigorous studies with comparison groups documented the positive effects of one-to-one technology programs. Schaumburg (2001) concluded that students with laptops had greater gains in technology literacy than the comparison group. Silvernail and Buffington (2009) conducted a randomized controlled trial that compared the impacts of a professional development program that supported teacher improvement in using technology in one-to-one mathematics classrooms. The study revealed that this type of instruction was effective in creating changes in teacher practice.

JSU's partnership with Piedmont City Schools (PCS) led to the formation of CORE. Five years ago, JSU and PCS defined its partnership by implementing research-based practices believing that improving learning in a classroom is good, but whole system change is necessary for sustainability. As a result, once PSC began their one-to-one initiative, JSU and PCS engaged in professional development together; technology support; learning communities that brought JSU faculty, teachers and administrators around the table to discuss and support new strategies

and activities; and change management strategies that ensured administrators were aware of the impact of reform on teachers and staff. PCS was nationally recognized as the #2 *Most Connected High School* by U.S. News and World Report, a charter member of *The League of Innovative Schools*, one of 57 *Apple Distinguished Schools* in the U.S., and nominated for the U.S. Department of Education *Blue Ribbon Schools*.

B. Strategies to Scale

1. Unmet Demand

As reported above, 25% of rural students do not graduate from high school and only 17% of adults in rural areas have a college degree (Alliance for Excellent Education, 2010). (State college readiness stats) Comprehensive approaches to change are the only way real reform can be sustained. And change requires support. Regional universities provide a feeling of “going home” for many teachers. By providing a guided two-year comprehensive, participatory teacher and school certification program, CORE builds on relationships that can drive and sustain change. It also then completes a cycle of teacher and school support by providing teacher preparation, continuous professional development and a community that learns from each other and thus creates ownership from PK-20. JSU teacher preparation is also impacted by CORE PK-12 partners. JSU’s College of Education and Professional Studies implemented full year internship placements for student interns in response to CORE school systems. JSU students are equipped with technology prior to internships to ensure they know how to effectively use technology in the classroom, thus offering technology support and co-teaching capacity immediately upon entering the sponsoring teacher’s classroom.

2. Addressing Barriers to Scale

The CORE model is built around the regional university and its ability to work closely with PK-12 school systems due to its role in preparing teachers and administrators for the workplace.

Regional universities have vast resources that can support schools with a wide variety of needs, as discussed throughout this proposal. It is a natural fit that has been explored through statewide K-20 initiatives, but there are unique characteristics of the CORE model that make it more comprehensive and relationship driven. First, it includes faculty and PK-12 teachers both leading and attending professional development opportunities. Second, it requires input from the school systems during the planning phase to ensure the intervention is consistent with the school's needs. In fact, all aspects of the program are based on input from superintendents as a result of previous meetings and collaborative efforts. Third, it is focused on increasing the expectations of high need and rural students by providing linkages to college and solutions to the digital divide. Finally, the CORE model is inclusive of communities and partners that will be able to sustain the funding and supports so schools will continue to prepare students for college and work. It is believed that this model will prove successful through the proposed expansion and will lead to improved student outcomes.

Failure of change initiatives- Since more than 70% of change initiatives fail, the CORE model seeks to ensure scalable, sustainable change with a comprehensive approach that focuses on change management. The CORE components are designed to support system-wide change on three levels: the system, the teacher/classroom and the student. As seen in figure 2,

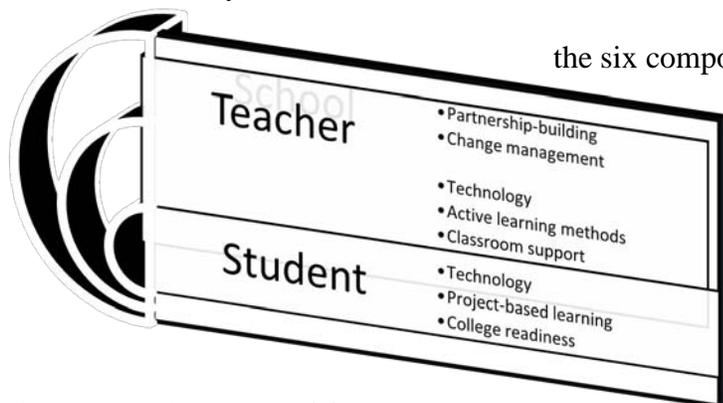


Figure 2. Multiple Levels of Change

the six components are interdependent and inclusive

of all six of the CORE components.

Using Kotter's 8 change process (1996), the system will engage in partnership-building and change

management, while teachers and students engage in technology and new methods in the

classroom. Teachers will be supported by different methods of classroom support, and high school students will be better prepared for college through CORE's partnership with NROC.

Sustainability- The network of partners that the CORE model represents are all committed to sustainability of the activities and focus of the proposed grant. These partners are detailed elsewhere, but include the American Association of State Colleges and Universities (AASCU), the Council for Aid to Education, Pivot Point Business Solutions, the Cyber Innovation Center, 10 regional universities, and approximately 60 school districts.

The commitment of JSU to CORE cannot be overstated. Supported by the University's 2011-16 Strategic Plan, JSU's commitment to student engagement and academic success provides faculty the opportunity to lead in classroom innovation using new methodologies and technologies that better meet student needs. As a result, CORE has become part of the university's new culture with senior administrators, faculty and staff committed to its continuation. This grant includes funding for existing grant supported positions that will extend the infrastructure supporting CORE activities and collaboration at the national office.

3. Broad Dissemination Supporting Replication

High schools selected for the treatment group that successfully complete all aspects of the CORE program will receive CORE School Certification. All certifications will include a set of requirements, guidelines, workbooks and other materials directing individuals through the protocol. In addition, CORE Regional Universities will be certified through this grant. JSU has begun developing materials/guidebooks, systems and validated research measures that can be replicated more broadly by CORE universities. JSU will serve as the national center that will support replication of the CORE model throughout the United States, especially in states that do not have meaningful PK-20 initiatives. Recently, a guidebook for regional university collaboration with K-12 schools to implement a Randomized Control Trial was developed

(**Appendix J**), and shared with the CORE regional university partners. Similar guidebooks will be developed for implementing a CORE Academy, building CORE partnerships, change management and providing classroom support. JSU will achieve this plan in collaboration with the American Association of State Colleges and Universities with approximately 300 member regional universities. In addition, JSU and ICF are already presenting findings at i3 project director meetings, the American Evaluation Association, American Educational Research Association, and other national conferences.

C. Quality of the Project Design and Project Management

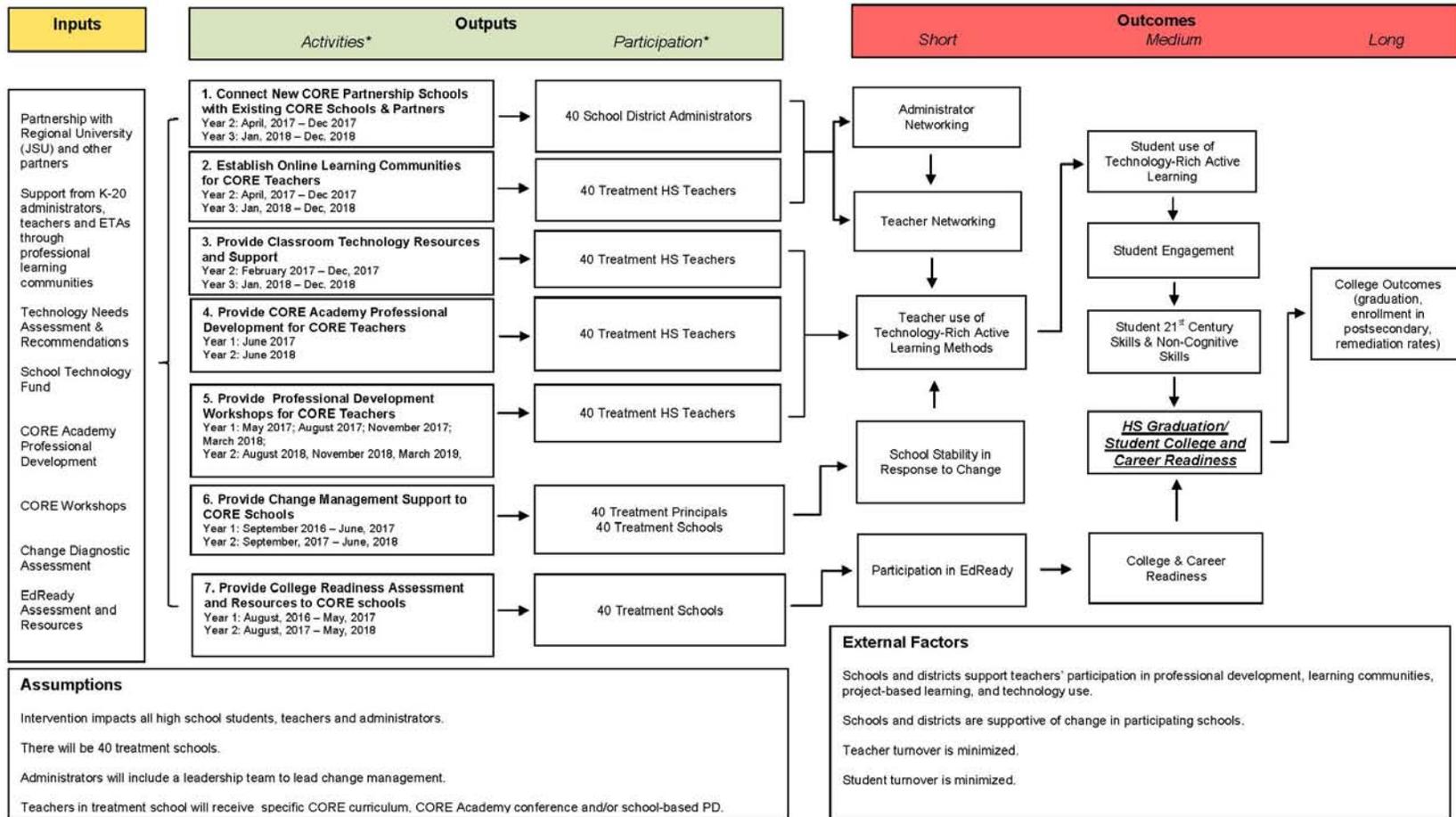
1. Project Plan

CORE's overarching goals are to improve graduation rates and college and work readiness skills among high school students in high need and rural schools. These goals will be supported through six major objectives and corresponding action items that will lead to an ambitious set of process and learning outcomes. Funding for this project will ensure that more schools will have an opportunity to implement CORE and achieve CORE certification. It will support research that schools have not been able to invest in and allow the full comprehensive CORE model to be validated in primarily rural high schools. Figure 3 provides the JSU CORE Rural High School Validation Logic Model.

Objective 1: Expand partnerships with high schools serving high need and rural students. JSU and its nine partner regional universities will recruit and randomly select 80 high schools to participate in the study. In total 5,600 high school students across the country will participate in this study each year, totaling at least 11,200 students. The schools randomly selected to participate in the treatment group will fully participate in CORE and all of its components. We

Figure 3. JSU CORE High School Reform Logic Model

Program: CORE i3 High School Reform Logic Model



JSU July 2015

anticipate that more than 20,000 students will benefit from the CORE high school reform initiative during the grant period.

Upon award and random selection of participating schools and teachers, the CORE liaisons at each regional university will meet with chosen school administrators to discuss technology needs, review current strategic plans and develop new plans for CORE implementation. Building relationships with the system and school administrators is vital to the success of this project. Classroom funding for hardware, classroom support and technology will be provided to treatment schools so they can begin procuring needed items. In addition, robotics and other technology kits will be provided to teacher classrooms based on participation in the Cyber Literacy curriculum at CORE Academy.

Control schools will participate in system-, school- and classroom-level data collection. Incentives, including a school fund of \$2,500 per year will be provided to all control schools.

Partnership Expansion: Additional regional universities will be recruited in collaboration with AASCU during the first year’s winter and summer conferences. CORE regional universities will attend AASCU sponsored workshops to assist them in preparing for implementing the study and CORE Academy. After random selection of classrooms, CORE regional universities will begin preparing for the study and three will be selected to convene CORE Academies on their campuses.

National Partners: The table below details the CORE national partners on this project.

Table 1. CORE National Partners

National Partner	Contribution	CORE Component
American Association of State Colleges and Universities (AASCU)	Regional university recruitment; Pre-conferences; CORE promotion; Support for CDI study and identification of CORE university characteristics	Partnership Building Change Management
Council for Aid to Education (CAE)	Assessment of student 21 st Century skills	Research & Evaluation
Cyber Innovation Center (CIC)	Cyber Literacy and Cyber Society curriculum for teachers	Technology Active Learning Methods
Instructure	Canvas/Catalog Learning Management System	Classroom Support

National Partner	Contribution	CORE Component
The NROC Project	EdReady math and English assessments and online remediation	College Readiness
Pivot Point Business Solutions	Change Diagnostic Index (CDI)	Change Management

Objective 2: Expand use of technology in CORE High Schools.

Technology support will include the assessment of all treatment schools, recommendations for technology infrastructure support and funds to purchase technology. JSU Educational Technology Assistants (ETAs) will be assigned to assist schools with hardware and software management through online support. The ETAs who are trained by the Director of Learning Technology are certified teachers who have developed online videos, powerpoints and other supports as a result of their experience in the classroom with treatment teachers in another study. This resource will be available online through CORE’s learning management system, Canvas. In addition, treatment schools will receive a technology package designed to support the Cyber Innovation Center curriculum delivered to teachers at each CORE Academy.

CORE Workshops will also provide lessons learned and technical assistance to school IT directors, principals and teachers to help identify needed technology to support wireless classrooms. The CORE Academy also includes workshops that focus on high school technology including access points, switches, cabling and bandwidth requirements in addition to software and apps available that support classroom objectives. Technology firms including Apple, Dell, Blackboard, Canvas, Desire to Learn and other technology providers have sponsored the CORE Academy conference in the past and will provide sessions that support technology integration in the system infrastructure and in the classroom.



Objective 3: Expand use of Active Learning Methods in CORE High Schools.

Learning is the key to change (Senge,1990) and professional development is key to CORE.

CORE Academy: JSU will convene a three-day CORE Academy each year to provide CORE treatment teachers and administrators with discipline-specific, technology rich and active learning-centered professional development. Treatment schools that complete all assignments associated with the workshops below will earn a CORE School Certification. Workshops include: Change Management Workshop for Principals facilitated by Pivot Point and convening for two years; Cyber Literacy and Cyber Society provided by The Cyber Innovation Center; CORE Classroom Transformation Workshop for Teachers provided by JSU for two years; EdReady Workshop for English and Math Teachers facilitated by the NROC Project; and the Educational Technology Assistant Workshop provided by JSU. In addition, CORE Academy provides concurrent sessions provided by teachers, administrators, JSU faculty and CORE partners. Table 2 provides the workshops required for CORE School Certification and Table 3 provides a sample of the curriculum for the CORE Classroom Transformation Workshop. Figure 4 provides the CORE School Certification Professional Development Model.

Table 2. CORE Academy School Certification			
2017		2018	
Workshop 1:	Change Management Workshop for Principals	Workshop 6:	Change Management Workshop for Principals
Workshop 2:	Cyber Literacy Workshop for Teachers	Workshop 7:	Cyber Society Workshop for Teachers
Workshop 3:	CORE Classroom Transformation Workshop for Teachers 1	Workshop 8:	CORE Classroom Transformation Workshop for Teachers 2
Workshop 4:	EdReady Workshop for English and Math Teachers	In addition, CORE Academy Concurrent Sessions provide the latest information about technology and active learning methods, allowing teachers to choose sessions and practice new classroom strategies.	
Workshop 5:	Educational Technology Assistant (ETA) Workshop		

Table 3. Sample Classroom Transformation for Teachers Curriculum Year 1			
Session 1:	Introduction to Technology: Basic iPad use, Apple TV, Cloud	Session 6:	Co-Teaching with an ETA
Session 2:	Critical Thinking Concepts	Session 7:	Creating iBooks and iTunes U Courses
Session 3:	Assessing Courses for Learner-Centered Teaching Strategies	Session 8:	Creating Instructional Media
Session 4:	Universal Design and the Development of Online Materials	Session 9:	Discipline Specific Apps
Session 5:	CALM- Challenge-Based, Project-Based, and Place-Based Teaching Strategies	Session 10:	Planning for Fall

The Change Management Workshop requires principals to develop change management plans with their leadership teams, among other assignments. The Educational Technology Assistant workshop is aligned with Alabama College and Career Readiness Standards, Common Core and ISTE standards. In addition, all teachers will receive CEUs in accordance with their state requirements.

Nationally prominent speakers, like Dr. Mark Milliron (2013), Marc Prensky (2014), Ruben Puentedura and Ron Clark (2015), are another important component of the CORE Academy. JSU's partners, including Pivot Point and Council for Aid to Education provide assessment sessions that train teachers and school officials to accurately administer the Change Diagnostic Index (CDI) and CWRA+ and interpret the results for formative and summative purposes. The CORE Academy will also feature the CORE app, used in place of paper programs, as an interactive technology-based solution to find out about sessions, presenters, venues, attendees and to create a personalized schedule. More than 98% of CORE Academy attendees were satisfied with the CORE app in the past.

Through a competitive process, three CORE regional universities will also offer CORE Academies on their campuses beginning in year two. JSU will provide guidance and oversight to ensure each CORE Academy represents partnerships, collaboration, relevance and high quality.

Quarterly Workshops: Three professional development workshops will be offered throughout the school year at JSU and simulcast to partner universities through Google Hangout. Workshop topics will reinforce CORE Academy professional development and require teachers to share lesson plans for networking and verification of implementation of the CORE curriculum.

Workshops may include partner institutions, like St. Cloud State University and the NROC Project, who recently provided sessions at JSU on co-teaching and math remediation. Workshops immerse teachers in active learning methods and technology to support classroom replication. In

addition to teacher professional development, superintendents and principals will be provided strategies to develop meaningful change management plans, form collaborative relationships with the private sector and their communities and to develop sustainability plans. Information technology sessions will be led by JSU IT professionals, technology in motion staff, vendors, and school system professionals who have implemented technology.

Objective 4: Increase classroom support for CORE Teachers

Online support and technical assistance will be coordinated through JSU's Director of Learning Technology through CORE's online learning management system. She will coordinate technology evaluations with regional universities for all treatment schools, provide recommendations and support to schools in purchasing technology needed. She will provide online videos, guides and even live phone support to treatment teachers related to integrating technology into the curriculum in a meaningful way.

Treatment teachers will also be able to network online through the learning management system, sharing curriculum, teaching strategies and other resources through discipline-specific online professional learning communities that will be guided by the Assistant Project Director.

Goal 5: Prepare students for college and career.

In a study supported by the Gates Foundation, the Council for Aid to Education found that performance-based instruction is as good or better at preparing students to succeed in the first year of college (Steedle, Zahner, & Patterson, 2013). CORE will better prepare students for college and employment by increasing 21st century skills in technology rich, active learning-centered classrooms. Assessment of 21st century skills will take place twice per year through administration of the *CWRA+* and the *CORE 21st Century Skills Rubric*. CORE has special permission to implement a 30-minute version of the *CWRA*, versus the 90 minute version, which will improve teacher administration and student completion rates.

Another opportunity for preparation for college is CORE's partnership with the NROC Project through EdReady math and English proficiency support. Currently being used at JSU for math remediation and instruction, EdReady will be used by treatment schools to assess college readiness of 10th – 12th grade students. EdReady then provides a thorough list of online courses to remediate deficiencies at the student's pace and then assessment to indicate college readiness. The current CORE regional universities are members of the NROC project and are working to set up EdReady websites for initial use with their college students. This project will expand the use to create a bridge with high schools to better prepare students for college that will increase graduation rates, college acceptance rates and reduce remediation and the costs related to it upon college admission.

CORE universities will also administer the Learning and Study Strategies Inventory (LASSI) to treatment school students to provide diagnostic information related to student study skills and other non-cognitive skills necessary for college success. The information from LASSI will help counselors and students create meaningful discussions about majors and career choices, while helping students identify areas for improving skills necessary for college success. This approach is consistent with Tinto's (2012) framework for student success: expectations, support, assessment/feedback and involvement.

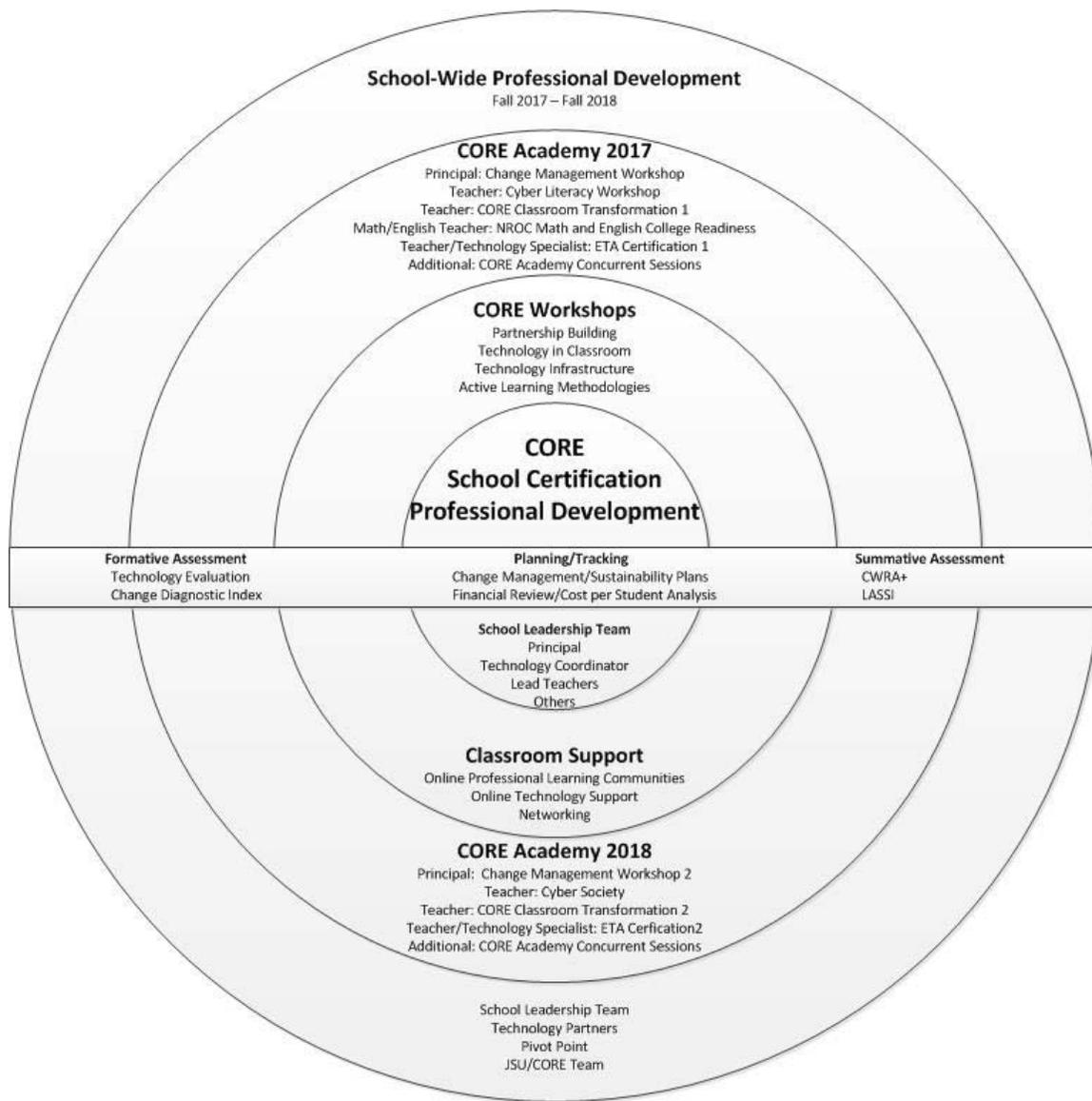
Objective 6: Support change management in CORE High Schools.

In order for teacher changes in practice to be sustainable, whole-system strategies must be engaged that support classroom change. Through the CORE Academy and workshops, administrators will be engaged to focus on change management, private industry partnerships, and sustainability. Pivot Point, the Project Director and Assistant Project Director will provide a Change Management Workshop to administrators during CORE Academy each year.

Administrators will be asked to identify school system financial data, and track annually to

determine costs per student, state allocations and impact of partnerships. Change management plans will be created based on results from the school's Change Diagnostic Index (CDI) collected annually to determine school personnel reaction to change and to identify strategies to mitigate stressors related to change. In addition, the CDI will be used with AASCU universities to support definition of the optimal CORE regional university based on characteristics that support collaboration, readiness for change and leadership commitment to PK-20 partnerships.

Figure 4. CORE School Certification Professional Development Model



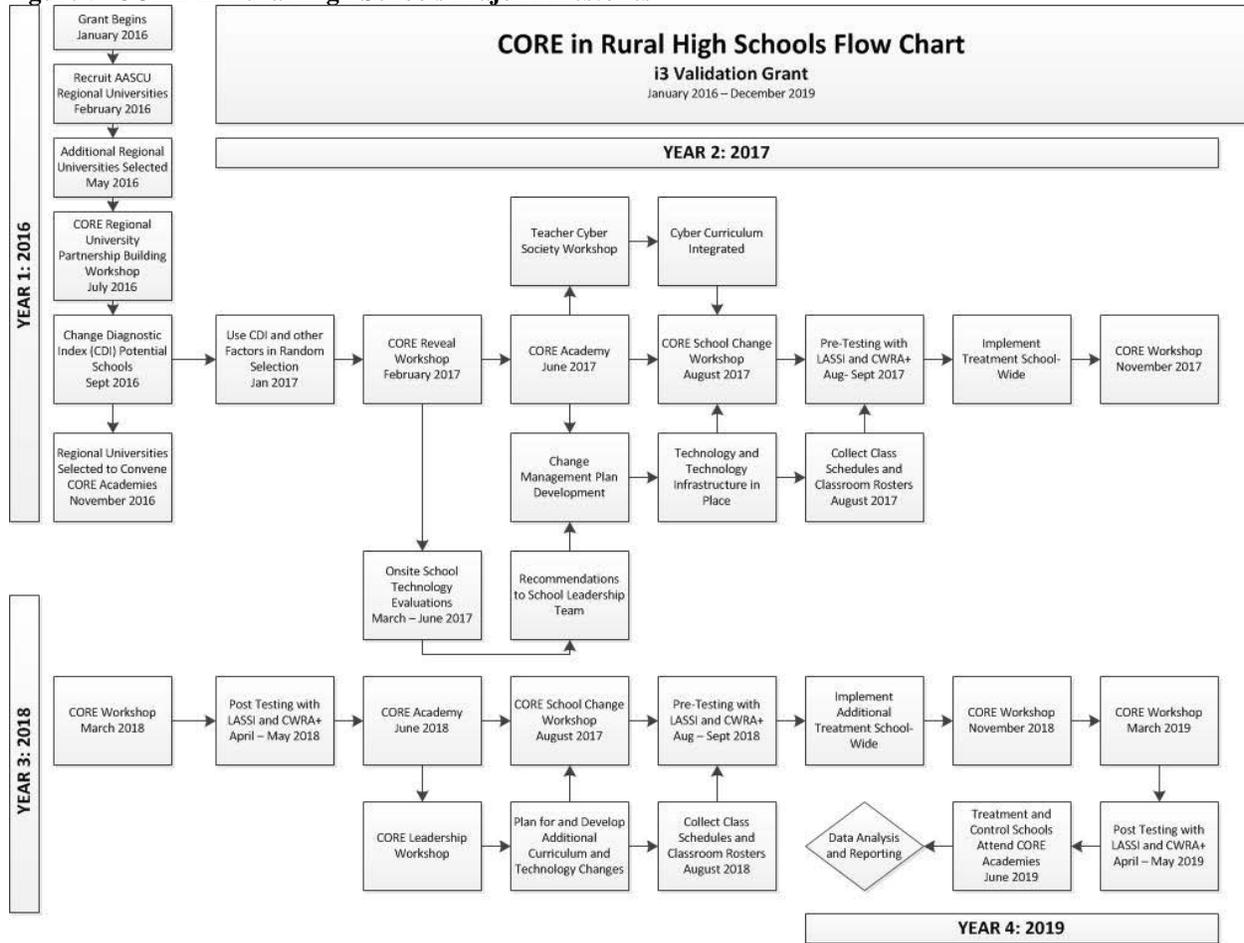
2. Adequacy of the Management Plan

A project timeline organized by the project objectives is provided in Appendix J. The plan includes activities, due dates and responsible parties for the five years of the funded project. The CORE management team, including the evaluators, will continue to meet at least monthly to review the project plan, formative data, and results from the fidelity of implementation study. During data collection windows, these meetings will take place weekly. Updates to the management plan will be made annually and within three months of the grant award. The goal for the management team is 100% compliance with the project timeframes as presented, but changes will be made on a continuous basis based on data, team member concerns and feedback from CORE partners. The Project Director will be responsible for ensuring communication between teams is constant, accurate and leads to increased efficiency. Figure 5 is a flowchart of the major milestones across the four-year project.

3. Capacity to Bring the Project to Scale on a National Level

The proposed management plan includes teams of staff and partners to support service delivery, coordination and communication. Currently directed by Dr. Simmons, JSU developed and implemented CORE with no new funding. The senior administrators of the Center for Collaborative Regional Education initially provided direction and funding for CORE and are committed to its continuation. The IRC Project Manager oversees the logistics of workshops and conferences. JSU coordinating departments work together, across silos, to implement conferences, coordinate with PK-12 partners and provide professional development. The lateral team approach and dedication of JSU staff time over the past five years came out of commitment to the concept and continued validation from partners that CORE is needed. Figure 6 illustrates the JSU team approach to this project, which also adds to the sustainability long term and the capacity for other regional universities to replicate the model.

Figure 5 CORE in Rural High Schools Major Milestones

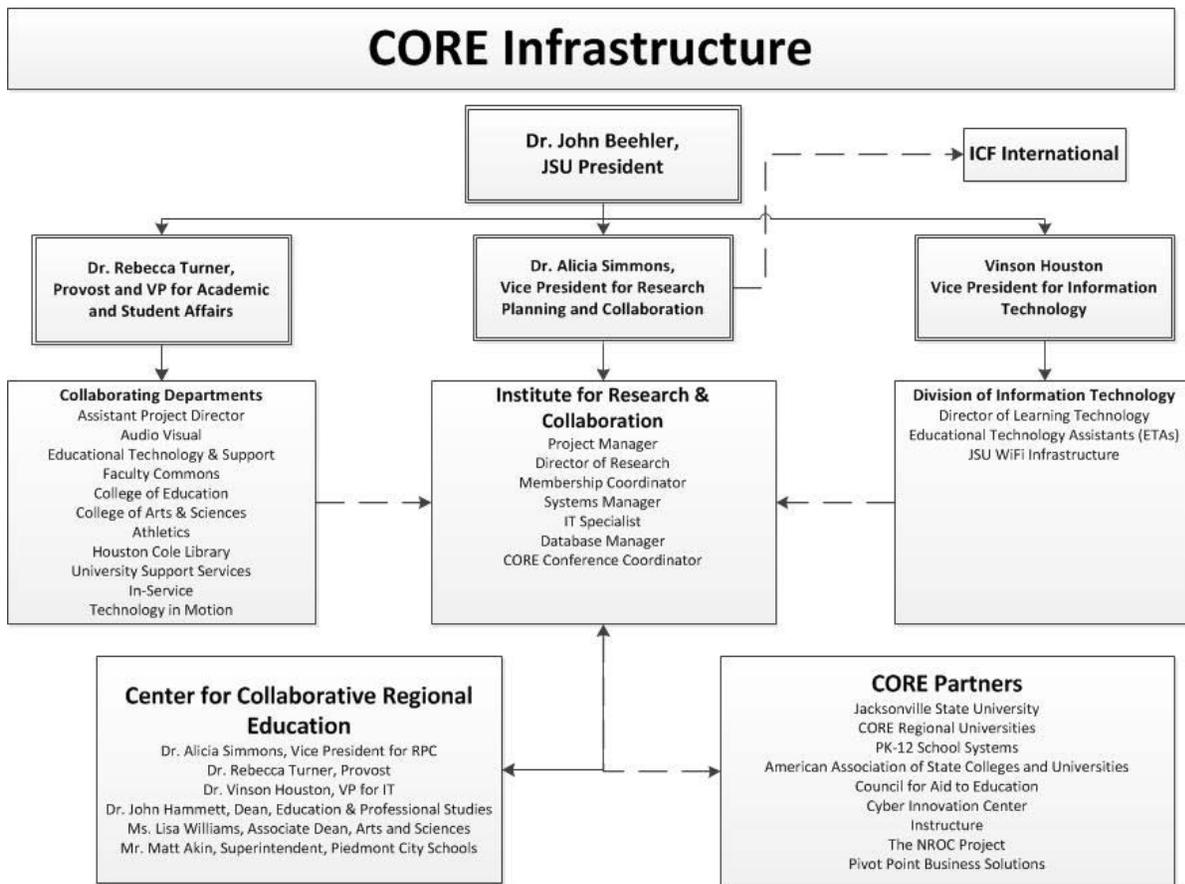


JSU’s Project Director has extensive experience on the national-level, working with U.S. government agencies to carry out state, regional and national initiatives. Additionally, expanded partnerships with state, regional and national partners will propel this project further. AASCU is committed to providing national conferences, promoting regional university partnerships with PK-12 schools to expand supports and improve educational outcomes for students nationwide. JSU recruited the current six CORE regional universities through AASCU and provided two pre-conferences for CORE regional universities at the AASCU Academic Affairs conferences in February and July 2015. Additional regional universities will be recruited and trained through this established successful collaboration. This partnership is key since the CORE model relies on services and resources already available at regional universities, ensuring that a redefinition of

role within current structures allows for a cost effective mechanism to create true PK-20 partnerships that are grassroots in nature instead of mandated.

The proposed management team is already in place and functioning in the roles proposed. These positions include the Project Director, Project Manager, and ICF, International evaluation team. In addition, another i3 grant supports many of the team members in Figure 6, including the database manager, conference coordinator, director of learning technology and the educational technology assistants (ETAs).

Figure 6. JSU CORE Infrastructure



Upon funding the following staff positions will be hired: director of research, systems manager, IT specialist and membership coordinator. JSU collaborating partners, including information technology, education technology, and academic departments will continue to work together to

support CORE.

Qualifications and Responsibilities of Key Personnel

Dr. Alicia Simmons will serve as **Project Director** providing overall leadership for the project. Her experience in overseeing large, complex projects is extensive and includes management of multi-year, multi-million dollar contracts with Federal clients. She will coordinate the overall efforts of all project teams, ensuring objectives are met according to the Project Timeline of Activities presented in Appendix J. Dr. Simmons has been coordinating the activities of CORE since 2010 and is largely responsible for the development of the multi-faceted partnership. She works closely with all national and state partners to leverage technology and services for CORE school systems. She will work closely with AASCU to recruit additional regional universities and support them in replicating the model. Dr. Simmons is Vice President for Research, Planning and Collaboration at JSU, ensuring continued collaboration across the JSU community and providing the resources needed to successfully coordinate with all partners, while leveraging current funding to support efficiencies and economies of scale across grants.

Lynn Garner is Project Manager for the Institute for Research and Collaboration (IRC) and has been managing the logistics for CORE workshops and the CORE Academy since CORE's inception. She developed sustainable relationships with PK-12 school systems, regional university partners and will coordinate staff, partners and study participant activities throughout the life of the grant. She will support the Director with project reporting requirements and publish progress on the CORE website (www.corepartners.org). Ms. Garner will also develop guidebooks for CORE Academy replication, comparable to the CORE Regional University Study Guidebook (Appendix J) currently being used in a CORE national study.

Mr. Nate Hixson, Evaluation Manager, has nearly a decade of experience leading rigorous education research and program evaluation studies. This includes leading two i3-funded

studies that utilize Randomized Control Trial (RCT) and quasi-experimental designs. Both are designed to meet What Works Clearinghouse group design standards with or without reservations. He will ensure all evaluation data are gathered, analyzed and reported in a manner consistent with the project plan and National Evaluation of i3 (NEi3) standards.

Dr. Kaz Uekawa, Impact Study Lead, is an experimental design expert, who reviews educational intervention literature for the What Works Clearinghouse (WWC) project. A SAS programmer, Dr. Uekawa will lead development of the NEi3-approved contrast tool, analyze impact data according to study design plan, and report findings to NEi3 and broad audiences.

Dr. Johnavae Campbell, Implementation Study Lead – Dr. Campbell is an expert in educational program evaluation, equity, and college access. She currently serves as implementation study lead for two i3-funded studies. She will lead the development of the fidelity of implementation measurement tools required by NEi3. Dr. Campbell will also oversee the collection, analysis, and reporting of all program implementation data.

4. Continuous Improvement

The proposed fidelity of implementation will ensure not only that the intervention proposed is delivered consistently and as proposed, it will also be used as a continuous feedback loop to ensure the intervention is received by school teachers and administration in a useful and supportive way that promotes change and reform. Data from multiple sources, including CORE Academy and workshop evaluations will be shared just-in-time with project staff, and explored during team meetings to inform program course correction and decision making.

D. Quality of the Project Evaluation

1. Producing Evidence of Effectiveness to Meet WWC Evidence Standards

The four-year validation study of CORE will be conducted using a cluster-level Randomized

Control Trial (RCT) design, the purpose of which is to assess the impact of CORE upon participating schools’ mean college/career readiness outcomes for grade 10-12 students. We will treat the participating nine states as the blocks within which random assignment of schools occurs, producing 40 CORE treatment schools and 40 “business as usual” control schools. Year one of the study will involve randomly assigning schools to conditions and building the necessary infrastructure to implement CORE schoolwide. The impact study will begin in the fall of year two when the CORE model is expanded to all teachers within participating schools. At this time, we will select a representative random sample of 70 10-12 grade students per school (N =5,600) to participate in outcomes data collection. At the outset of year three, we will draw a second random sample of 70 additional 10-12 grade students per school. Both years, will involve the deployment of pretest and posttest measures of college/career readiness. Initial impact analyses will be conducted at the end of Year 2 to estimate the impact of one year of schoolwide participation in the program, and then replicated at the end of Year 3 to estimate the impact of two years of schoolwide participation. This RCT design eliminates the most serious validity threats, and has the potential to meet WWC Evidence Standards, without reservations.

2. Key Questions and Data Sources

The evaluation of CORE includes four major evaluation questions, one focused on implementation and three on impact. We will used mixed methods for the implementation study and conduct an RCT to estimate the impact of CORE. EQ2 is the confirmatory research question.

Table 4.Evaluation Questions

Questions	Category	Design/Analysis
EQ1. Are the seven key components of the CORE model implemented in CORE schools as intended?	Implementation	Mixed method implementation study; descriptive statistics; thematic analysis
EQ2. What is the difference in mean school-level college career readiness outcomes for grade 10-12 students in CORE schools vs schools implementing business as	Impact (confirmatory)	RCT study using hierarchical linear modeling (HLM) with treatment

usual instruction after one and two years of schoolwide implementation?		variable (1/0) and covariates
EQ3. What is the difference in mean school-level non-cognitive outcomes including use of learning and study skills related to skill, will, and self-regulation components of strategic learning for grade 10-12 students in CORE schools vs schools implementing business as usual instruction after one and two years of schoolwide implementation?	Impact (exploratory)	
EQ4. To what extent do the CORE program impacts on college and career readiness and non-cognitive skill outcomes (outcome differentials between T and C schools) vary by student subgroups defined by grade, gender, poverty status, race/ethnicity, and English language learner status?	Impact (exploratory)	HLM with the treatment variable, covariates, and a statistical interaction term between a subgroup characteristic and the treatment variable.

Several data sources will be used to address the implementation study (EQ1). Two survey instruments will be delivered online to all grade 10-12 teachers in treatment and control group schools twice annually to measure teacher outcomes. The *CORE Teacher Methodology Scale* includes 32 items assessing teacher self-efficacy, comfort with methodologies and technologies, and the presence of other training initiatives the teacher has engaged in. The *CORE Technology Implementation Scale*- based on the SAMR Model of Technology Integration by Ruben R. Puentedura (2013) includes a 44 item scale assessing the tendencies of teachers to use technology to supplement, augment, modify, or replace instructional practices in the classroom. ICF will also develop and administer an end-of-year *school administrator survey* to all treatment group schools to measure the implementation of schoolwide supports related to the CORE model and gauge the extent to which principals and other school administrators engaged in networking with other CORE schools, both key elements of the logic model. A faculty-wide survey administered once per year, the *Change Diagnostic Index* (CDI: Grady, et al., 2009) will be used to assess how schools are reacting to changes associated with the CORE model. A variety of additional *project records* will also be provided to ICF for analysis as part of the implementation study including: (1) technology distribution logs, (2) online learning community rosters and monthly participation data by teacher/school, (3) monthly technical

assistance logs maintained by educational technology assistants (ETAs), and (4) annual technical assistance logs maintained by external project partners (e.g, Pivot Point). These data will be used to track the provision of key technical assistance supports related to the CORE model. Finally, JSU will maintain *event activity logs* and *participant sign-in sheets* and distribute *event evaluation surveys* for each required professional development. These sources will help determine if and when events took place, and track attendance and learning outcomes for teachers and administrators from CORE schools at the individual level.

The *College and Work Readiness Assessment+* (CWRA+) will serve as the confirmatory outcome measure aligned to EQ2. CWRA+ is a standardized assessment that measures students' competency in critical thinking, analytic reasoning, and problem solving and written communication skills. ICF will analyze the CWRA+ data collected for students in Grades 10-12 in September/October (pretest) and April/May (posttest) for two years, beginning in year two. The test will be administered online by the Council for Aid to Education (CAE), an independent third party. We also propose to administer the *Learning and Study Skills Inventory (LASSI)* alongside the CWRA+ to treatment and comparison group students as a measure of non-cognitive skills. The LASSI is a 10-scale, 80-item instrument that will be used in exploratory analyses to examine how CORE is associated with students' increased use of learning/study skills related to skill, will, and self-regulation components of strategic learning.

3. Project Scale/Ability to Produce Evidence for Diverse Settings/Populations

As noted above, the evaluation will study the schoolwide impact of CORE using two representative samples of 5,600 students situated in 9 states in 80 schools. Such a study is not only congruent with the proposed scale of the project, but also has the potential to be broadly generalizable nationwide because of the diverse settings in which the study will take place. Our evaluation also includes exploratory analyses specified in EQ4 that use a rigorous RCT to

determine if the program impact differs for important subpopulations including students who live in poverty, those who are English learners, and historically underserved racial/ethnic groups.

4. Analysis Plan

ICF will conduct a variety of descriptive analyses to examine implementation outcomes associated with EQ1 (e.g., frequencies, means, standard deviations). Data will be analyzed both at the program- and school-levels. When appropriate, evaluators will also conduct t-tests to compare means of the treatment and comparison group samples. For qualitative data, ICF will conduct thematic analysis via descriptive coding. To address impact questions associated with EQ2 and EQ3, evaluators will conduct a multivariate statistical comparison of CORE and control group students' CWRA+ and LASSI scores collected at the end of school year and derive a program impact coefficient. The proposed Hierarchical Linear Modeling framework (HLM) (Raudenbush & Bryk, 2002), wherein students are nested within schools, explicitly models the structure of the data and adjusts for between-school clustering effects. The impact coefficient will be adjusted for pretest scores on both measures collected at the beginning of each school year, and models will include additional covariates to improve precision of estimates, including proxy measures of poverty (e.g., free/reduced lunch eligibility, parent education levels), race/ethnicity, and English learner status. The following summarizes the analytic model proposed to estimate the program impact effect (expressed as β_{20}).

$$Posttest_{ij} = \beta_{00} + \beta_{10} * pretest_{ij} + \beta_{20} * treatment_j + \dots + r_{ij} + u_j$$

where postscripts i and j index, respectively, student and school, β 's are parameters to be estimated, $posttest$ represents a posttest score and $pretest$ represents a pretest score, "... " indicates that the model will include multiple predictors and corresponding parameters, r 's are independently and identically distributed residuals with a mean of 0, and u 's are school

effects estimated as random effects that are independently and identically distributed with a mean of 0.

HLM will also be applied to address EQ4 whereby the study team will test the presence of interaction effects between the intervention and subgroup variables, such as grade-level, socioeconomic status, race/ethnicity, gender, and English learner status. The following summarizes how the model will test the interaction effect between the treatment variable and gender, an example of a subgroup variable. The statistical interaction effect β_{40} will help evaluate if the impact effect varies by a subgroup characteristic.

$$Posttest_{ij} = \beta_{00} + \beta_{10} * pretest_{ij} + \beta_{20} * treatment_j + \beta_{30} * Boy_{ij} + \beta_{40} * Boy_{ij} * treatment_j \dots + r_{ij} + u_j$$

In this model, as above, postscripts i and j index, respectively, student and school, β 's are parameters to be estimated, $posttest$ represents a posttest score and $pretest$ represents a pretest score, "... " indicates that the model will include multiple predictors and corresponding parameters, r 's are independently and identically distributed residuals with a mean of 0, and u 's are school effects estimated as random effects that are independently and identically distributed with a mean of 0.

Using Optimal Design Software (Spybrook, et al., 2011), we conducted power analysis to assess whether the proposed design can produce meaningful levels of Minimally Detectable Effect Size (MDES) for the confirmatory analysis, while retaining statistical power greater than .80. The year two and year three impact analyses will be identical, and thus have the same parameters and assumptions as follows. The design treated states as the block within which schools are randomly assigned. The design will include a total of 80 schools (approximately 8.8 per block). Each school will assess 70 randomly selected grade 10-12 students, and the alpha

level to use for statistical tests will be 5%. ICF assumed that the variances explained by blocking and school-level predictors (including pretest school-average scores) were both .20, and the between-school Intraclass Correlation (ICC) was .15. The results indicate that the proposed number of students, schools, and blocks will permit the evaluation to detect effect sizes as small as .23, and larger effect sizes easily.

5. Key Components and Measurable Thresholds for Implementation

The program logic model specifies seven key components of CORE. ICF has previously developed a set of existing measurable indicators, operational definitions, and associated fidelity of implementation scoring criteria for each of these key components. Scoring criteria specify how ICF assesses fidelity for each individual indicator and across indicators at the component level (See Appendix J). As part of this study, ICF will modify these existing indicators and fidelity thresholds.

6. Adequacy of Resources

Independent evaluation of CORE will be conducted by ICF, International (ICF). ICF has provided research and evaluation services to a wide variety of clients since 1969. ICF has extensive experience conducting objective, comprehensive program evaluations and has led numerous large-scale research and evaluation efforts, including two i3-funded studies, a 2013 Randomized Control Trial (RCT) validation study and a 2014 Quasi-Experimental Design (QED) development study. ICF has been a subcontractor to the What Works Clearinghouse (WWC) since its establishment, leading syntheses of rigorous research on a variety of topics, and facilitates the Regional Educational Laboratory for the Mid-Atlantic region (REL MA). JSU has dedicated a significant percentage of the overall project budget for evaluation. Based upon prior experience in conducting evaluations of this scope and size, ICF believes this level of funding to be sufficient to support the proposed activities.