LOUISIANA SYSTEMIC INITIATIVES PROGRAM
2011-2012 PROFESSIONAL DEVELOPMENT PROJECTS

COVER PAGE

Indicate content focus: Math Grade Level(s) Targeted: Grades 5 - 8 Number of Targeted Participants: 30 Number of Targeted LA GEAR UP Schools: 1	School Districts To Be Served: Caldwell Catahoula, Franklin, Jackson, Monroe City, Morehouse, Caldwell, Winn

Name(s) of Submitting Institution(s) of Higher Education (Include Branch/Campus/Other Components): SciTEC, College of Education, Louisiana Tech University		
Address of Institution of Higher Education (Dept/Unit, Street Address/P.O. Box Number, City, State, Zip Code): P.O. Box 3163, Ruston, LA 71272		
Title of Proposed Project: Project PAT - Promoting Algebraic Thinking		
Funds being requested for each funding cycle:		
7/1/12-9/30/12 $79,731.68	10/1/12-6/15/13: $129,741.74	Total Requested: $209,473.41
Matching funds from partners:		
University: $49,708.51	High-need LEAs:	Business/Community:

The signatories certify that the institution and the proposed project are in compliance with all applicable Federal and State laws and regulations.

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LOUISIANA SYSTEMIC INITIATIVES PROGRAM
2011-2012 PROFESSIONAL DEVELOPMENT PROJECTS

PROJECT ABSTRACT

Name of Institution (Include Branch/Campus): **Louisiana Tech University**

College/Department: **College of Education**

Principal Investigator: **Dr. Carolyn Talton** **Dr. Charles Patterson, Co-Director**

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Title of Project: **Project PAT: Promoting Algebraic Thinking**

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(1) The ***vision*** of this project is to increase teacher content knowledge of and practices in *Number/ Number Relations* and *Algebra* that will result in increased student achievement. Literacy and numeracy skills will be enhanced through children's literature, literacy strategies, and ALEKS Quick Tables, a math fact mastery program. All districts are identified as "high need" and 4 are targeted GEAR UP schools.

(2) **Focus** will be increased teacher content knowledge of and improved instructional strategies for *Number Relations* and *Algebra* (as revealed by pre- and post-test EXPLORE Math Test scores) resulting in increased student achievement on the 2012 iLEAP and LEAP assessments. Specific content will be *Number/Number Relations* and *Algebra* due to low scores in affected schools. Skills and practices identified in the *Common Core State Standards for Mathematics* and the revised *Louisiana's GLEs* will provide content direction for the Summer Institute and follow-up. Objectives include:

Goal 1, Objectives 1 & 2 - Students scoring at or above Basic on the 2012-13 iLEAP and LEAP tests will increase by at least 5%, including Constructed-Response items.

Goal 2, Objectives 1 & 2 - Teachers' knowledge of math content and research-based teaching practices for *Number* and *Algebra* will increase by at least 20% as measured by pre and post EXPLORE Math Test scores and observational checklists.

Goal 3, Objectives 1 & 2 - Leadership capacity will be enhanced as secondary content coaches will assist with institute content instruction and monitor implementation of recommended content and practices, and serve as peer mentors to 5-8 teachers in their respective systems.

(3) High-need districts include Catahoula, Franklin, Monroe City, Morehouse, Richland, and Union. GEAR UP targeted high schools are Bastrop, Mangham, Rayville, and Farmerville.

(4) 30 math teachers, grades 5 - 8, including an algebra teacher from each system.

(5) 90 hours in July, 2012 and 24 hours during academic year 2012-2013.

(6) 30 participants, including one content coach per system.

(7) Grades 5 - 8, and 9th grade algebra.

(8) Primary activities will be coursework and application strategies for *Number* and *Algebra* to enhance teacher math content knowledge and classroom practices. Proposed outcomes include:

- Teacher participation in algebra coursework that is guided by revised Louisiana GLEs, *Common Core Standards for Math*, and delivered by a university mathematician, practicing secondary algebra teachers, and a teacher educator. Teacher knowledge of algebra is expected to be above 90% on the post test of the EXPLORE Math Test.
- Increased teacher utilization of research-based strategies that implement the *Standards for Mathematical Practice* in the *Common Core State Standards for Math*. This change will be observed and documented in follow-up classroom visits using the revised LOT observation form. It is expected that over 90% of teachers will implement the strategies practiced in the Summer Institute and follow-up sessions.
- Increased student achievement on the 2013 iLEAP and LEAP, PARCC assessments, as available, and increased classroom participation reflected in measures of self-efficacy using Schwarzer and Jerusalem's *General Self-Efficacy Scale*, participant-designed observation checklists, and journal entries.

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Project Progression Timeline with Measureable Objectives

Time line	Content Hours	Action/Activities	Measureable Objective for each activity	Staff Responsible
April and May 2012		Recruitment of 30 participants to include math teachers grades 5-8 and one algebra teacher per system. Brief meetings will be held with coaches identified by systems	**Goal 3, Obj 1&2**, 30 participants (math teachers grades 5-8 and 6 algebra teachers will be recruited to attend project activities. Meetings held at local districts.	Project Director and system Administrators
June 2012	12 hours	3 of the 6 coaches will be identified to be consultants for the development of the summer institute coursework. Collaborative planning will result in authentic content required for success in algebra.	**Goal 2, Obj 1**, Summer coursework will be outlined to present CCSS and STEM type material to teachers of grades 5-8.	Dr. Charles Patterson 3 algebra consultants Dr. Carolyn Talton
July 2012	7 hours a day, 4 days a week, 3 weeks for a total of 84 hours	Orientation, planning, registration, Pre-test of the EXPLORE Math Test Presentation of 12 days of content and instructional practices by project staff Post-test of the EXPLORE Math test	**Goal 2,Obj 1 & 2**, Following orientation, 30 teachers will complete summer institute and score at least 90% on post Explore test.	Dr. Charles Patterson 3 algebra consultants Dr. Carolyn Talton
Sept 2012 – Jan 2013	3, 7.5 hour follow up Saturday meetings, total 22.5 hours	Follow-up sessions to share classroom implementation of content strategies , reflections and observations from peer classroom visitations, reflecting on STEM	**Goal 1, Obj 1 & 2** Teacher practices will result in increased opportunities for student	Teacher participants Dr. Patterson Dr. Talton site coordinator 3 algebra

		activities	achievement to increase on state tests. **Goal 2,Obj 2** Teachers will network electronically to share plans and teaching materials.	consultants
Fall 2012 and Spring 2013	Classroom visits with participants	Classroom visits by site coordinator, complete required observation forms and	**Goal 3,Obj 1**, Site coordinator will document implementation of newer content and strategies using Standards of Math Practice checklist and the LOT.	site coordinator
Fall 2012	7.5 hours on site PD with content coach	Coaches document 7.5 hours of follow-up with teachers, after school	**Goal 3, Obj 1** Coaches will mentor teachers as they implement CCSS pre-algebra tasks, implement STEM-type activities, and practice using rubrics and literacy strategies designed to enrich students' abilities to express their thinking.	Content coaches
	Total 114 hours			

Narrative

A. Rationale and Need for the Project

Rationale. The proposed LaSIP math partnership brings together dedicated and experienced staff from Louisiana Tech University and systems in north Louisiana. Reported math achievement scores show as many as 50% of students in the participating systems score *Approaching Basic* or *Unsatisfactory* on the iLEAP and LEAP tests in grades 5 thought 8. With the coming implementation of the *Common Core State Standards for Mathematics*, there is a belief that many classroom teachers, grades 5 - 8, lack the in-depth knowledge of algebra to teach with the rigor and relevance that their students deserve and the newer curriculum requires. System supervisory personnel report that many teachers still use outdated classroom practices such as lecture and worksheets instead of practices that meaningfully engage students in the learning process, as recommended by the *Standards for Mathematical Practice* outlined in the widely adopted *Common Core State Standards for Mathematics.*

The proposed changes to the mathematics curriculum demand more and better professional development, particularly for those teachers holding elementary certifications. This project will focus strongly upon the *Common Core State Standards* (and *Standards of Practice*) *for Mathematics* that have been adopted by the District of Columbia and at least 35 states, including Louisiana. Another focus will be on STEM-type activities that seek to deepen student's mathematical discourse in justification and generalization and that promote effective algebra teaching at all levels.

In addition to the *Standards* identification, a *Partnership for Assessment of Readiness for College and Careers* (PARCC) consisting of 24 states including Louisiana, will design instruments to measure how well 3rd to 12th grade students in Louisiana and partnering states perform based on the standards outlined in the *Common Core Standards in English and Math*. State leaders in the PARCC partnership share one fundamental goal: building collective capacity to dramatically increase the rate at which students graduate from high school prepared for success in college and the workplace. One or more of the supervisors in systems participating in this proposed project are members of the Louisiana PARCC committee and will provide guidance to project activities assuring student preparation for newer assessments that will be in

place in the 2014-2015 academic year. Assessments developed by this partnership, will greatly affect the curriculum; therefore, having PARCC representation into the content of this project will be indeed valuable and assure validity of coursework content.

The participating systems represent economically poor populations, as defined by the *2009 U.S. Census Data*. Students in these districts are classified by NCLB as "high need" as 20% or more of the school age children, ages 5 - 17, are living in poverty. Research shows that student populations have a higher than average potential for failure due to home and environmental conditions where poverty is persistent (*Teaching with Poverty in Mind*, Eric Jensen, ASCD, 2009. Ch. 2, *How Poverty Affects Behavior and Academic Performance*).

> *There is no shortage of theories explaining behavior differences among children. ….. Genes begin the process: behavioral geneticists commonly claim that DNA accounts for 30–50 percent of our behaviors an estimate that leaves 50–70 percent explained by environment.… Children raised in poverty rarely choose to behave differently, but they are faced daily with overwhelming challenges that affluent children never have to confront, and their brains have adapted to suboptimal conditions in ways that undermine good school performance.*

(1) Profile of students and teachers to be served

Table 1 summarizes some of the demographics of the participating systems which may affect school performance. Considering what we know about the effect of poverty on learning potential of children, it behooves educators to provide the best possible classroom setting. This proposed project will equip math educators to provide that setting.

Table I

System	Percent of free and reduced price lunch	Percent of non-white students	Attendance Rate	In-school suspension rates	Performance Label / Letter Grade*
Catahoula	76.6%	42.9%	93.4%	4.1%	C
Franklin	73.6%	50.6%	92.2%	11.4%	D-
Monroe City	80.9%	87.2%	94.5%	1.9%	D
Richland	80.5%	52.9%	94.1%	1.6%	D
Morehouse	82.8%	67.7%	95.1%	7.7%	D
Union	77.4%	53.3%	94.4%	1.8%	D

Reported system performance label letter grades are C or D for all systems. This puts students in the participating schools at a very high risk of school failure. It is necessary, therefore, that teachers of these student populations do everything possible to see that students graduate from high school prepared for success in college and/or the workplace.

The content background of teachers will need to be enhanced as most teachers grades 5 – 8 are elementary certified and unprepared to address the demands of the rigor and relevance that will be required by the *Common Core State Standards for Math*. One system, Richland Parish, is reported to have 20% of their teachers teaching outside of their certification area (reported in LaSIP, 2011 RFP).

The Louisiana Department of Education *"District At-A Glance*" document provides very telling evidence of the achievement status of the participating systems. The following is a sampling of *School Performance Scores* for schools in the participating districts that have grades 5 – 8, and a high percentage of students performing below grade level.

Table 2 – Districts At A Glance

Catahoula Parish Schools, Harrisonburg, LA			
Low Performing Schools	**Letter Grade**	**SPS**	**Percent performing below grade level**
Jonesville Junior High	D-	86.4%	41.8%
Martin Junior High	C-	94.9%	30.9%
Franklin Parish Schools, Winnsboro, LA			
Baskin School, K-12	D	53.5%	46.5%
Crowville School, K-12	D	64.3%	35.7%
Fort Necessity School, K-12	D-	43.5%	56.5%
Winnsboro Elementary	D+	63.1%	36.9%
Union Parish Schools, Farmerville, LA			
Bernice School, K – 6	D	73.7%	55.5%
Farmerville Elementary, K – 5	D	77.4%	45.6%
Farmerville Junior High	D+	87.1%	38.9%
Marion School, K – 8	D-	79.5%	51.9%
Spearsville School, K – 8	D-	76.3%	55.5%

SPS: **A**= 120.0-200.0; **B** = 105.0-119.9; **C** = 90.0 – 104.9; **D** = 65.0 – 99.9; **F** = 0 – 64.9

The website (http://www.louisianaschools.net/topics/sag.html) provides the following snapshot of the system, provided by the Louisiana Department of Education.

- Total Elementary/Secondary Enrollment (2010-2011): **696,558**
- Percentage of Free and Reduced Lunch Students (2010-2011): **66.2%**
- Percentage of Minority (non-white) students (2010-2011): **52.2%**
- Attendance Rate (2009-2010): **93.9%**
- In-School Suspension Rate (2009-2010): **12.3%**
- Out-of-School Suspension Rate (2009-2010): **10.4%**
- Percentage of Classes Taught by Highly Qualified Teachers: **86.4%**

In light of the increased rigor and relevance that will be required to implement the *Common Core State Standards* and the accompanying *Standards for Practice*, the number of teachers considered "highly qualified" must increase. This project should encourage additional teachers to pursue these requirements.

(2) Content needs of teachers and students

LEAP and iLEAP 2010 Test data provided by participating systems indicate general weaknesses in math, across grades 5 to 8. The following table is a sample of student performance in one of the selected districts. Particular content focus will be placed on increasing student achievement in *Number and Number Relations* and *Algebra* during this professional development project. The results are for Jonesville Junior High, Catahoula Parish, a school with a *SPS* of D-. The percent correct for *Constructed Response* items and the percent of students scoring *Approaching Basic* and *Unsatisfactory* is also reported. These scores are indicative of the critical need for this content enhancement project.

Table 3 – Academic Achievement of Students in the Proposed Population

	Number and Number Relations				Constructed Response				Approaching Basic/ Unsatisfactory			
	5th	6th	7th	8th	5th	6th	7th	8th	5th	6th	7th	8th
Jonesville Jr Hi	54	52	64	46	34	44	36	48	51	38	28	58
	Algebra											
	5th	6th	7th	8th								
	71	58	56	56								

Examination of these scores shows that students in grades 5 – 8, are weak in *Number* and *Number Relations* and with the exception of the 5th grade, students in these grades obtained low scores on the *Algebra* strand as well. With reported achievement percentages on the *Constructed Response* area ranging from a low of 34% to 48%, that results in more than 50% of the students across grades 5 – 8 who lack ability to explain their thinking in mathematics.

The *Approaching Basic/Unsatisfactory* category is perhaps the most telling of all. These data translate to from 48% to 72% of all students at Jonesville Junior High are likely to fail in school. Unless these situations, which are rampant across the districts in this project are changed, many students will not be successful in school. This failure rate will most certainly increase as a more rigorous curriculum in put into place in the coming years. Clearly students need to explain their thinking and use scoring rubrics for self-reflection. This project will address constructed, open-response type items.

To assure a firm knowledge of the mathematics required to teach for increased student achievement in *Number and Number Relations*, and *Algebra*, teachers will be given the *EXPLORE Math Test*. This standardized metric is designed to determine student readiness for algebra by the eighth grade. Teachers in grades 5 - 8 will become very aware of the types of skills that students must master to assure readiness for the important, secondary course in algebra. Results from the 30 teachers will be used to provide small group instruction by project staff, during the 3-week summer institute. A post-test provided by **EXPLORE** will be reviewed to determine knowledge gains. It is reasonable to expect teachers will score at or above 90 percent proficient in the math content.

The math content portion of the *Project PAT* summer institute will consist of topics jointly planned by Dr. Charles Patterson, an Assistant Professor of Mathematics at Louisiana Tech (also a high school algebra teacher), and by three of the algebra content coaches who will be considered “consultant” to the project. This group will be guided by the *Common Core Standards for Mathematics* and the revised *Louisiana Comprehensive Curriculum, Algebra* skills. STEM activities that seek to find real-world applications for the math content will be included as appropriate.

(a) Other needs to be addressed. A glaring weakness revealed in LEAP and iLEAP results is students' performance on *Constructed Response* test items, shown in Table 3. Teaching resources will concentrate on preparing independent and small-group activities that require students to construct written responses and provide explanations for answers and then evaluate their responses with rubrics that were collaboratively developed by teachers and students, as appropriate. Released NAEP assessment items will assist teacher participants to engage in activities designed to increase their students' content knowledge of *Number Relations* and *Algebra*. Presenters will model ways to vary instruction to address the wide range of learning styles of students and the use literacy strategies such as concept maps and others outlined by Brazzo (LDE). Experts have identified three basic learning styles:

- Auditory learners remember by talking out loud, like to have things explained orally and may have trouble with written instructions. Auditory learners may talk to themselves when learning something new.
- Visual learners easily remember visual details and prefer to see what they are learning. They prefer to write down instructions and may have trouble following lectures.
- Kinesthetic or tactile learners prefer activities that allow them to move around when talking or listening.

(b) Planning to assess district needs and recruitment Planning meetings were held with the Elementary Math Supervisors and Directors, and Superintendents in systems across north Louisiana during the week of February 6 - 10, 2012. The purpose of those meetings was to review test data and determine ways to address concerns revealed by the data, through a proposed professional development project funded by LaSIP. Superintendents have written letters of support for the professional development project and have pledged cost-share support in the form of two days of staff salary and expenses associated with school site availability for the summer 2011 institute as well as assistance with travel.

A close relationship exists between administrators in participating school systems and the project director and co-director for this project. We (Dr.Talton and Dr. Patterson) are providing Saturday teacher inservice and job-embedded classroom teaching in mathematics to introduce teachers of all grades, K – 12, to the upcoming

changes in math curriculum. Teachers feel comfortable with the university staff and frequently e-mail or call asking for ideas and suggestions to present math topics. On-going discussions with system personnel actually encouraged the submission of this proposal. System leaders have indicated they are aware of teacher weaknesses in math and will encourage the participation of those teachers who teach in the more difficult settings and find themselves unprepared for content and curriculum changes that lie immediately ahead. All wholeheartedly support this project and will work to identify teachers and schools who will benefit most from this project.

Systems have indicated that the proposed professional development project fits exactly into their *School Improvement Plans* and *School Progress Plans (SII/SPP)* as they recognize the widespread difficulties students have with mathematics in general and specifically, recall of basic number concepts critical for a study of algebra

B. Project Design

The proposed *Project PAT* will serve 30 teachers, grades 5 - 8 and one algebra teacher for each of the six systems. The systems identified for this project represent some of the most economically depressed and low performing students in the state. Five of the 6 systems have System Performance Scores (SPS) of D and D-. All of the systems are identified as "High Need" having more than 20% of the school age population living below the poverty level according to *2009, U. S. Census Data*. One or more of the included schools (Bastrop High School, for example) is identified as a GEAR UP schools.

i. Measureable Objectives

LaSIP Goal 1: Increase student achievement on State high-stakes testing.

Who is involved? Students in grades 5 – 8
What is the desired outcome? Students will receive enhanced preparation for algebra as teachers increase their knowledge of number relations and algebra and improve teaching practices. This will result in higher achievement and confidence for math.
How will progress be measured? A variety of math tasks and practices will be delivered to students providing the visual, auditory, and kinesthetic learner maximum opportunity to learn. Formative assessments will provide on-going progress.
When will the outcome occur? During academic year 2012-2013 (formative) and following spring 2013 testing (summative).
What is the level of proficiency? Students scoring at or above Basic on the spring

2013 iLEAP and LEAP tests will increase by at least 5%. Achievement on Constructed Response items will increase by 5% as well..

Goal 1, Objective 1: Student performance on the 2013 iLEAP and LEAP will increase by at least 5% in content and constructed response items

Who is involved? Students in grades 5 - 8
What is the desired outcome? Math instruction that is rigorous and has relevance to students' lives. Students will gain confidence in their ability to explain their thinking.
How will progress be measured? Students will maintain a learning log that will reflect skills, feelings, and attitudes toward math. Academic tasks will be evaluated via rubrics developed jointly between teachers and students to assure understanding of assignments.
When will the outcome occur? Students will complete open-ended, higher-order thinking tasks daily and record their reflections in their journals. This is on-going.
What is the level of proficiency? 100% of students are expected to participate

Goal 1, Objective 2: Students in grades 5-8 will receive instruction that has rigor and relevance and varied in format in order to address the range of their learning styles, interests, and abilities.

LaSIP Goal 2: **Plan effective PD based on the high-need LES(S)/schools' data-driven needs and developed using research-based PD strategies that will take place in summer institutes, during the academic year (AY) and/or through on-line or web-based assignments and job-embedded activities.**

Who is involved? : 30 math teachers, grades 5 - 8 from Catahoula, Franklin, Monroe City, Morehouse, Richland, and Union Parish systems. 6 of the participants will be exemplary secondary algebra teachers who will assist with project activities and serve as coach/mentors in their systems. Teachers will receive instruction in number and number relations skills that are critical to algebraic thinking. The instruction will be delivered by exemplary university faculty and secondary teachers of algebra.
What is the desired outcome? Teachers will gain personal confidence in and knowledge of algebra and will acquire research-based teaching practices set by CCSS.
How will progress be measured? The EXPLORE Math Test will be given prior to and following the summer institute. It is expected that all teachers will achieve a minimum of 90% on the post-test. Implementation of exemplary practices will be measured by a checklist using a Likert scale that has been developed by *Key Math Strategists* (www.keymathstrategists.com). This observation form will be utilized as the site coordinator visits participants during the 2012-2013 academic year. Teachers will use this instrument themselves as they complete peer-visitations supported by the project and their systems as in-kind.
When will the outcome occur? During academic year 2012-2013 and thereafter as teachers acquire greater confidence in the content and instruction of pre-algebra math.
What is the level of proficiency? 100% of teacher participants will implement newer strategies, conduct peer-observations, engage in web-based activities required by

project staff, and share instruction via interactive SmartBoard technology for which they were trained in the summer institute by a teacher who uses this medium regularly. 100% of teachers will share technology uses at the academic year follow-up sessions. All of the teachers will obtain an EXPLORE post-test score at or above 90%.

Goal 2, Objective 1: Teachers of mathematics grades 5 – 8, will increase their knowledge of and confidence in the teaching of algebra skills that will better prepare their students for success in algebra**.**

Who is involved? 30 math teachers, grades 5 – 8, in 6 systems in Louisiana, including 6 secondary algebra teachers.
What is the desired outcome? Math instruction that is rigorous and has relevance to students' lives. Students will gain confidence in their ability to explain their thinking.
How will progress be measured? Students will maintain a learning log that will reflect skills, feelings, and attitudes toward math. Academic tasks will be evaluated via rubrics developed jointly between teachers and students to assure understanding of assignments.
When will the outcome occur? Students will complete open-ended, higher-order thinking tasks daily and record their reflections in their journals. This is on-going.
What is the level of proficiency? 100% of students are expected to participate

Goal 2, Objective 2: Teachers of mathematics grades 5 – 8 and algebra coaches will engage in technology exchanges via a project web site, shared e-mail correspondence with peer partners established during the summer institute, video conferences, job-embedded assignments, and shared lessons via the interactive SmartBoard, and Moodle assignments required by project staff.

LaSIP Goal 3: Increase leadership capacity and pedagogical skills for target schools through school/district buy-in, school-based implementation, and mentoring during the AY.

Who is involved? 6 systems in north Louisiana – Catahoula, Franklin, Monroe City, Morehouse, Richland, and Union Parish systems; math teachers grades 5 – 8; 6 secondary algebra teachers to provide assistance during summer institute coursework presentations and support for elementary and middle grades teachers in their systems during subsequent academic years following the completion of this project.
What is the desired outcome? A core of system-level mentors who will assist elementary and middle grades teachers as they embrace the Common Core State Standards in Mathematics, support teachers as they put into practice the *Standards for Practice* and teach for rigor and relevance all of which will lead to students being better prepared for a course in algebra and assure readiness for college or the world of work. These coach/mentors will provide leadership capacity and assure institutionalization of project activities and objectives. Also, a proposal will be submitted to the fall conference of LATM (Louisiana Association of Teachers of Mathematics) for selected teachers to share project activities relating to newer skills and practices they will have acquired during this professional development project.
How will progress be measured? The site coordinator and coaches will maintain an

electronic dialogue and complete progress charts regarding implementation of research-based strategies acquired in the summer institute. Moodle activities will also monitor progress and provide classroom support. A Likert scale has been devised to capture snapshots of classrooms and the degree to which *Standards for Practice* are being implemented. These data will be collected and included with reports of progress to LaSIP governance. Sign-in sheets will be maintained by coaches to verify after school meetings that will complete the 114 hours of professional development (84 summer + 22.5 on 3 follow-up Saturdays, and 7.5 after school in local systems = 114).
When will the outcome occur? Leadership capacity will be available immediately as coach/mentors begin the 2012-2012 academic year. It is expected that coaches and selected teachers will provide inservice for their peers regarding the implementation of the Common Core State Standards for Mathematics.
What is the level of proficiency? 100% will provide assistance during upcoming academic years and in local inservice programs.

Goal 3, Objective 1: A cadre of 6 content coaches/mentors will be identified to assist with summer institute coursework delivery and to provide support and encouragement to elementary and middle grades teachers as they embrace newer content and practices resulting from the revised GLEs and the *Common Core State Standards for Mathematics* and accompanying *Standards for Practice*.

Who is involved? 6 systems in north Louisiana – Catahoula, Franklin, Monroe City, Morehouse, Richland, and Union
What is the desired outcome? Wide spread implementation of rigor and relevance in newer math content and practices outlined in the **Common Core State Standards for Mathematic**s; improved teacher competency resulting in increased student achievement.
How will progress be measured? Sign-in sheets from meetings, Observation checklists using a Likert scale to determine implementation of *Standards of Practice*, and site coordinator observation data using the LOT provided by LaSIP
When will the outcome occur? Summer 2012 and academic year 2012-2013.
What is the level of proficiency? 100% of the systems will be empowered to implement the newer curriculum that is designed to better prepare students for school achievement and post-secondary pursuits.

Goal 3, Objective 2: Participating school systems have expressed strong support for this project as evidenced by letters of support for cash contributions to offset teacher travel, supervisory attendance at summer institute and academic year follow-up sessions, school site availability for project activities, use of computer equipment, copiers, and library resources and payment of the $55 registration for their teachers.

ii. Specific Subject-Matter Content

This project will address *Number/Number Relations* and *Algebra* in grades 5 – 8 as these two areas are critical to success in a secondary course in algebra. *School Performance Report*s as reported in Table 3, is typical of the low performance of

students in these areas. Content will be guided by the **Common Core State *Standards in Math***, *the soon to be revised Louisiana Comprehensive Curriculum, and the Standards for Practice*. Appropriate literacy/numeracy strategies will be utilized as well as technology applications. A teacher using SmartBoard video conferencing in her classroom across the Monroe City School System will train the teachers in the use of this, and other innovative web-based technologies,as appropriate. The ALEX Quick Table basic fact mastery program will be shared with teachers. This program is designed to provide diagnostic/prescriptive intervention for students lacking proficiency with basic facts of addition, subtraction, multiplication, and/or division.

iii. Delivery Method.

Project staff and content consults will collaborative plan the summer institute. All will be present each of the meeting dates in July. The technology consultant will demonstrate the use of SmartBoard conferencing and other technologies in a computer lab or classroom at the selected school site. Teachers will be asked to work in grade-level groups to collaborate and share experiences. Each group will collect a resource file of classroom-ready teaching activities prepared by project staff. They will be encouraged to share other resources via e-mail, Moodle, or other electronic applications.

i**Iv. Collaborative Partnerships and Participant Recruitment**

System-level cost share: Superintendents have pledged support for project activities by providing released time for the respective elementary supervisors/ directors to attend at least 2 days of the summer 2012 institute and to meet as needed, after school during the 2012-2013 academic year with the project coaches. Several systems have pledged funds to offset university costs for graduate credit for project activities.

During the first week of the summer institute, a school in Monroe City, Sherrouse Alternative School, will serve as the meeting site for the summer institute with utilities contributed as a further show of project support. A meeting site will be identified in each participating system for teacher groups to meet during the week of independent, self-directed work with their content coach. During the third week of the project all participants will again meet at the Monroe City system site, Sherrouse Alternative School. All Superintendents indicated an interest in participating in the selection of

project participants to assure maximum project benefit and institutionalization of project activities and products. They have indicated that selection will be based on the schools having the greatest need as indicated by iLEAP and LEAP data.

Teachers who successfully complete the program requirements will earn 3 hours graduate credit. A part-time site coordinator will provide continuous oversight of the project. Project staff and school system personnel have worked closely to plan and oversee the project so that it meets student and district needs as identified on iLEAP and LEAP data. Resources such as websites, children's literature, home-school connections, literacy and numeracy strategies, etc., will be collected for classroom implementation of project content.

Extensive use of open-ended response items will be included at the workstations and centers. These tasks will be derived from released test items in the iLEAP and LEAP format as well as NAEP and other state documents. Other materials that are recognized for their effectiveness in challenging students to think and apply their understandings includes extended-response materials being made available through a contact with McGraw-Hill publishers. Rubrics will be included so that students can assess their own work and chart progress in their Learning Logs.

Technology will be embedded throughout this project. Websites, tutorials, sites for teacher use in instruction and background reading, list-serves to share resources, e-mail buddies, Moodle assignments, etc., will be an integral part of the project. A practicing teacher will inservice the participants on how to use the SmartBoard for video conferencing. Of particular importance is the *ALEKS* program. The budget allowance of this proposed project will place software for math fact practice (*Quick Tables*) usage for up to 100 students per school. Most likely, this software usage would be available in the school library. Scheduled use can be made for those students who are in need of intense practice with basic fact recall. Teachers will receive diagnostic information for each student and progress information. This component will be a very positive contribution toward student mastery of basic facts which inhibit higher-order math content learning. The following summarizes the likely recruitment steps. A plan of action to recruit participants pending funding will be:

- Develop and circulate an informational brochure describing project. Systems will circulate to schools and collect potential recruits (February)
- Systems will select teachers from high need schools and submit to project staff; systems will identify secondary algebra coach/mentor (March/April)
- Names will be compiled by project staff to pool critical mass by schools and representative of grades 5 – 8 (April)
- Teacher lists, after approval of system administrators, will be completed by project staff and teachers notified; (April)
- School sites will be identified for the 3 week summer institute
- Project staff will hold brief, after school meetings in participating systems in April to provide participants an overview, clarification of project goals, and determine desire of teachers to participate and implement project goals and objectives in AY 2012-2013 (April)
- From the pool of identified content coaches, 3 will be identified as project consultants to assist with planning of course content (April/May)
- Summer institute number relations and algebra course will be finalized in collaboration with project staff and content consultants using the soon to be revised LCC, CCSS including Standards for Practice, released test items from NAEP and PARCC, EXPLORE tests, etc. Literacy strategies such as concept maps, think-pair-share activities, jigsaw activities, structured notetaking, and researched numeracy strategies following STEM format will be incorporated, as appropriate May/June)
- Materials and resources will be collected as content guide for teacher participants (June)
- System technology consultant will incorporate websites, SmartBoard applications, free resources for teachers, sites for individual practice, etc. into coursework (June) and will train teachers in this technology during the summer institute (July)
- July 9, first meeting, introduction of participants and staff, course registration, project activities discussed, teachers sign commitment letters showing intention of using project content and activities in their classrooms, pre-test of EXPLORE

- July 9 – 12, 7:45 – 3:15 daily, all meet at selected site (Sherrouse El) (7 hr with 30 minute lunch break), total 28 hours
- July 16 – 19, work independently in local systems with content coach, sign-in sheets to document attendance and participation (content and activities preplanned by project staff); project staff will travel to sites to assist and observe; some activities delivered electronically such as using SmartBoard video conferencing, web-based assignments, etc.
- July 23 – 26, all meet at selected site to complete project activities; July 26, post-test of EXPLORE; participants share-fair
- 3 follow-up days in fall, 2012. Dates to be determined by participants and staff in effort to avoid conflicts, as much as is possible
- Site coordinator will visit participants and collect observational data showing implementation of coursework and teaching practices using a form that addresses the Louisiana Components of Effective Teaching and a Likert scale instrument documenting implementation of Standards for Practice (CCSS)
- Teachers conduct peer observations and record practices; share experiences in follow-up sessions
- Reports submitted to LaSIP, as requested

C. Quality of Key Personnel

The Project Director, Dr. Carolyn Talton and Project Co-Directors Dr. Glenn Beer and Dr. Charles Patterson have extensive experience providing professional development programs for classroom teachers. Dr. Talton is currently a system-level math consultant for Madison Parish, Catahoula Parish, and Winn Parishes. Approximately 20 days have been spent in each system providing Saturday sessions for teachers followed by job-embedded classroom teaching to model practices designed to move students grades K – 8 toward the expected implementation of the Common Core State Standards for Math in academic year 2011-2012. Dr. Talton is a trainer for the internationally known *Hands-On-Equation* algebra materials.

Dr. Beer has extensive experience directing state and national awards in teacher development and GEAR UP camps statewide for middle and high school at-risk students.

Dr. Patterson has served as a math consultant in numerous state and federally funded projects for classroom teachers. He is currently an Assistant Professor in Mathematics and Dr. Talton is a Professor Emeritus in the College of Education. Both have extensive classroom teaching experience at the K-12 and university setting.

Mrs. Diane Madden will serve as site-coordinator. She has many years of elementary and middle school teaching and most recently has served as STEM coordinator for various state funded teacher professional development projects. In addition, she is a trained presenter *of Dinah-Zike Foldables* and is frequently sought after for classroom demonstrations. For more than 8 years, she has served as site-coordinator for numerous awards statewide.

D. Project Evaluation

Pre-and post-tests of the EXPLORE Math Test will determine the knowledge increase in algebra for teacher participants. It is expected that all teachers will score at or above 90% on the post-test. Pre-test results will be analyzed and item analysis will determine focus areas for the coursework. To determine the extent that teachers use the research-based *Standards of Practice*, a likert-scale instrument will be used by the site-coordinator. Responses will be shared with teachers in academic year 2012-2013 follow-up sessions in an effort to encourage more use of newer strategies. Further project evaluation will be participants use of a guided observation form as they complete peer visitations. These reflections will be shared during academic year follow up meetings. The LOT instrument will also be utilized by project staff in classroom visits to document implement methods modeled in the project coursework.

Administration of the spring 2013 iLEAP and LEAP is expected to an increase of at least 5% in *Number/Number Relations* and *Algebra* content and on *Constructed Response* items for students whose math teachers participated in this project.

APPENDIX A

BUDGET REQUEST FORM

LOUISIANA SYSTEMIC INITIATIVES PROGRAM

PROPOSED PROJECT BUDGET REQUEST - FORM BR

PROJECT NAME: Project PAT: Promoting Algebraic Thinking

PROJECT CONTENT AND STRAND FOCUS:Mathematics

PROJECT DIRECTOR, UNIVERSITY:Carolyn Talton

A	B	C	D	E	F
Reference	**Budget Item**	**Brief Description of Budget Item**	**Funds Requested 7/1/12-9/30/12 Max of $80k for this period**	**Funds Requested 10/1/12-6/15/13**	**Total Funds Requested**
A. University Employed Staff					
1	Director/Faculty Member	Carolyn Talton	0.00	24,000.00	24,000.00
2	Co-Director/Faculty Member	Charles patterson	0.00	6,012.00	6,012.00
3	Faculty Member		0.00	0.00	0.00

4	Faculty Member		0.00	0.00	0.00
5	Graduate Student		0.00	0.00	0.00
6	Secretary/Student Worker	Misty Byrd	0.00	6,000.00	6,000.00
7	Site Coordinator	Diane Madden	0.00	12,000.00	12,000.00
8	Other (Specify)		0.00	0.00	0.00
9		**Total Salaries and Wages**	**$ -**	**$ 48,012.00**	48,012.00
10	Fringe Benefits: Rate__41.86%__ ____		0.00	20,097.82	20,097.82
11		**Total Salaries, Wages, and Fringe**	**$ -**	**$ 68,109.82**	**$ 68,109.82**
B. Staff Not University Employed					
12	Consultant	Technology Presenter (Smartboard)	300.00	0.00	300.00
13	Consultant		0.00	0.00	0.00

14	Consultant		0.00	0.00	0.00
15		**Total Staff Not University Employed**	**300.00**	**0.00**	**300.00**
16		**Total Staff Costs**	**$ 300.00**	**$ 68,109.82**	**$ 68,409.82**
C. Participant Support					
17	Stipends	27*25*114	56,700.00	20,250.00	76,950.00
18	Employer Contributions on Stipends: Enter rate (TRSL 25.15%)	25.15%	15,957.68	8,693.13	24,650.80
19	School Based Consultant/mentors	3 at 138 hours @ $25 ea	6,750.00	3,600.00	10,350.00
20	School Resource Materials	7 * 700	0.00	4,900.00	4,900.00
21	Project Supplies	Project Supplies: 30 @ $100 ea	0.00	3,000.00	3,000.00
22	Other		0.00	0.00	0.00

23	Other				
24		**Total Participant Support**	**$ 79,407.68**	**$ 40,443.13**	$ 119,850.80
D. Travel					
25	Staff Travel		0.00	3,000.00	3,000.00
26	Participant Travel		0.00	12,500.00	12,500.00
27		**Total Travel Costs**	**0.00**	**15,500.00**	**15,500.00**
E. Indirect Costs					
28		**Direct Costs Minus Participant Support**	**$ 300.00**	**$ 71,109.82**	**$ 300.00**
29	Indirect Costs	Line 27 x 8%	24.00	5,688.79	5,712.79
30		**TOTAL FUNDS REQUESTED**	**$ 79,731.68**	**$ 129,741.74**	**$ 209,473.41**
F. Core Costs					

31	Core Costs	$ 188,260.62			
32	Number of Participants	30			
33	**Core Cost per Participant**	**$ 6,275.35**			

APPENDIX B

BUDGET NARRATIVE

Section 2				
Form BR Line Item	Other Expenses	Description or Purpose	Cost Basis	Rationale/Justification
13	Technology Presentation	One teacher from Monreo City Schools will make a one-half day presentation on how to best utilize Smart Boards in the mathematics classroom	Funds requested are based on 1/2 day presentation with additional half day for preparation	Based on prevailing rate for expert presenters of $300 per day
17	Stipends for Participants	Participants will be paid a stipend of $25 per hour for participation in the project	12 days at 7 hours each plus 3 7.5 hour days plus 7.5 hours with content coach after school on site	based on $25 per hour
18	Fringe benefits	All participants and school-based consultants will be paid through their respectiove school districts. Fringebenefits must be provided for those payments	Requested funds are based on most recent fringe benefits rates provided by school systems	Mandated cost of 25.15%

19	Stipends for School-based consultants	Three outstanding math teaxchers will be identified by participating school districts. In addition to participating in the project, these teachers will assume a leadership role in planning for the project as well as in sharing best practices during the project (included in 30 total prticipants)	Funds requested are based on a total of 138 hours at $25 per hour	114 project hours plus an additional 24 hours for planning and preparing presentations.
20	School Resource materials	ALEX math program will be provided for up to seven schools that do not have a similar program available	Funds requested based on seven schools at $700 each. License covers up to 500 students	Program provides individualized student support to assess student progress and to provide practice for students to strengthen math skills
21	Project Supplies	Materials necessary to deliver proposed professional development including binder for project	Funds requested are based on an estimated $100 per participant	Includes all materials necessary to conduct project successfully

		materials and other basic supplies to support project goals		
25	Staff Travel	Travel for site visits and to project site in Monroe as well as to state math conference	based on estimated 5800 miles @ .51	Travel to and from Monroe for project days as well as site visits during Academic Year
26	Participant Travel	Travel to and from project site, travel for consultant/mentor participants, and for up to three project participants to present at state math conference	based on average distance and estimated costs of conference travel of $1250 each	necessary to accomplish project goals

APPENDIX C

COST SHARE WORKSHEET

PROPOSED COST SHARE - FORM CS				
LaSIP PROFESSIONAL DEVELOPMENT RFP 2012-2013				
PROJECT NAME: Project PAT: Promoting Algebraic Thinking				
PROJECT DIRECTOR, UNIVERSITY: Carolyn Talton, Louisiana Tech University				
A	**B**	**C**	**D**	**E**
Description	**Type of Matching Funds (Cash or In-Kind)**	**Partner Providing Matching Funds (University, District, School, or Private)**	**Source of Funds (Federal, State, Local, or Private)**	**Cost Share**
Staff:				
Charles Patterson, 1/2 month based on $4008 per month	K	University	State	2,004.00

Glenn Beer, Co-PI (fiscal management of project), 1/2 month based on salary of $7,500/mo	K	University	State	3,750.00
				0.00
				0.00
				0.00
Sub-Total Staff Cost Share				**$ 5,754.00**
Participant Support:				
Tuition waiver for graduate credit earned: 30 @ $634 each	K	University	State	19,020.00

				0.00
				0.00
				0.00
Sub-Total Participant Support Cost Share				**$ 19,020.00**
Travel and Other Costs:				
Fringe benefits for matching salary @ 41.86%	K	University	State	2,408.62
Indirect costs waived at 52.23% of salaries and wages less allowed	K	University	State	$19,520.27

Sub-Total Travel and Other Cost Share				**$ 21,929.19**
Indirect Costs (on match):	K	University	State	3,005.31
COST SHARING TOTAL				**$ 49,708.51**

APPENDIX D
CURRICULUM VITA

2012-13 LaSIP PROFESSIONAL DEVELOPMENT PROJECTS

CURRICULUM VITAE

Name Dr. Carolyn Talton	**Current Position Title, Math Site Coordinator** **SciTEC, Louisiana Tech** **Project Position Title, Project Director**

EDUCATION (Begin with baccalaureate or other initial professional education and include postdoctoral training.

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
EDUCATION University of Monroe, Monroe, LA	Bachelor of Arts, BA	1965	Elementary Education
Northwestern State University, Natchitoches, LA	Master of Arts, MA	1970	Elementary Education
Northwestern State University, Natchitoches, LA	Doctor of Education, EdD	1973	Elementary Education, Math Education and Statistics
POST-DOCTORAL Northeast Louisiana University, Monroe;			
University of Arkansas, Little Rock;			
University of California, Los Angeles, Marianne Frostig Institute, Certification in Learning Disabilities;			
Louisiana Tech University, computer education			

UNIVERSITY PROFESSIONAL EXPERIENCE, 1977 - PRESENT

- Serve currently as a math consultant to school systems providing inservice and job-embedded teaching, curriculum mapping, materials developer, and author of educational materials
- Served as Director of Graduate Studies
- Served as Director of Laboratory Experiences
- Served as Director of Teachers' Institute
- Served as Director of The **IDEA** Place, College of Education
- Served as Co-Director for SciTEC, the Science and Technology Education Center, a research and service component of the College of Education
- Taught inservice and preservice methods courses in mathematics, language arts and reading
- Directed all field placements in the College of Education

- Supervised practicum and student teachers
- Served as Principal Investigator on numerous National Science Foundation awards and as Co-director on professional development for inservice and preservice teachers funded through LaSIP, LaCEPT, Toyota USA Foundation, Dwight Eisenhower Math and Science Education Act, Goals 2000, Louisiana LEARN, and the National Science Foundation.
- Conducted on-going research on the quality of the student teaching program Education
- Conducted 15 live and interactive programs entitled "Algebra Inservice for Teachers" over the Louisiana Public Broadcasting satellite transponder program, to 600 high school sites across the United States and Mexico
- Author of three books for the 1991 edition of Houghton-Mifflin Publishing Company's *Mathematics Today*, Fifth Grade
- Serve on advisory board for two publications: National Council of Teachers of Mathematics' *Arithmetic Teacher* and *The Journal of Research in Mathematics Education*
- Taught mathematics and comparative education courses in the Louisiana Tech Rome program, Rome, Italy, 3 years
- Serve as per diem consultant with Hands-On-Equations, Incorporated and Phi Delta Kappa
- Member of Louisiana Education Consortium doctoral faculty
- Served as Principal Investigator on two National Science Foundation Teacher Enhancement awards
- Travel/math study program to three cities in the Soviet Union: Moscow, Tashkent and Odessa
- Served on panel group, Sixth International Congress on Mathematics Education, Budapest, Hungary
- Taught mathematics and comparative education courses in the Louisiana Tech Rome program, Rome, Italy

SELECTED PUBLICATIONS

- 10 articles in professional journals for mathematics teachers
- Field author for Houghton-Mifflin, 1991-92
- Currently field author for GeoLegs, geometry products for elementary and middle grades teachers
- Currently national mathematics consultant for professional development seminars in algebra, Hands-On-Equations

FUNDED RESEARCH – OVER $5,500,000 , NSF, EISENHOWER MATH AND SCIENCE, LA LEARN, TOYOTA AND OTHERS

AWARDS AND RECOGNITIONS

Louisiana Tech University Foundation Professorship, 1991
Louisiana Governor's Award for Contributions to Reform in Mathematics and Science Teaching, 1992 & 1993
Louisiana Governor's Award for Contributions to Reform in Excellence in Teacher Education, 1994 & 1995
College of Education Endowed Professorship Award

PUBLIC SCHOOL TEACHING EXPERIENCE, 1965 - 1976

8 years classroom teaching experience - 3rd grade, Bastrop, LA; 4th grade, Shreveport, LA; 7th and 8th math and science, NSU Laboratory School, Natchitoches, LA; 6th grade, Ruston, LA; and University Professor of Math Education, 15 years

Dr. Charles W. Patterson

Louisiana Tech University
Mathematics
(318) 257-2538
Email: charlesp@latech.edu

Section 1.01 Education

EDD, Louisiana Tech University, 2002.
Major: Educational Leadership
Supporting Areas of Emphasis: Curriculum & Instruction
Dissertation Title: Comparison of the Transformational Leadership Practices of Principals of Charter Schools and Principals of Traditional Public Schools in Louisiana
MS, Louisiana Tech University, 1990.
Major: Mathematics Education
BS, Louisiana Tech University, 1989.
Major: Mathematics Education
Supporting Areas of Emphasis: Chemistry

Section 1.02 Professional Positions

Academic

Mathematics Instructor, Louisiana Tech University. (September 2000 - Present).
Adjunct Mathematics Instructor, Louisiana Tech University. (September 1998 - August 2000).
Mathematics Teacher, Choudrant High School. (August 1990 - May 2000).

Section 1.03 Professional Memberships

Member, Louisiana Association of Teachers of Mathematics. (January 2007 - Present).
Member, National Council of Teachers of Mathematics. (January 1988 - Present).
Member, Association of Professional Educators of Louisiana. (August 1990 - July 2007).

Section 1.04 Teaching Experience

Louisiana Tech University

MATH 099, Preparation for College Math
MATH 100, College Algebra
MATH 101, College Algebra
MATH 112, Trigonometry
MATH 113, Plane Geometry
MATH 125, Algebra for Management & Social Sciences
MATH 203, Introduction to Number Structure

Section 1.05 Awards and Honors

F Jay Taylor Undergraduate Teaching Award, LA Tech University. (May 2009).
Outstanding Teaching Award, College of Engineering and Science, Louisiana Tech University. (September 2006).
Outstanding Teaching Award, College of Engineering and Science, Louisiana Tech University. (September 2002).

Section 1.06 RESEARCH

Section 1.07 Presentations Given

Patterson, C. W. (Presenter Only), State Conference, "Read All About It!," LATM, Lafayette, LA. (October 11, 2007).

Patterson, C. W. (Presenter & Author), State Conference, "Serving Up the Comprehensive Curriculum with a Side of Data Analysis," LSTA/LATM, Shreveport, LA. (October 19, 2006).

Section 1.08 SERVICE

Taught a one week summer workshop, with planned academic year follow-up, to high school math teachers in the Monroe City School System through the K-16 Partnership for School Reform: Mathematics Professional Development Project. This project was funded by a Board of Regents Partnership Grant between the Louisiana Tech University College of Education and Monroe City Schools. Focus was on Measurement and Algebraic Reasoning.

Taught a two week summer workshop, with planned academic year follow-up, to middle school math teachers in the Monroe City School System through the Center for Applied Teaching and Learning to Yield Scientific Thinking (CATALyST). CATALyST is a regional science/math education center that serves the primarily rural school systems of Louisiana and the surrounding states. Focus was on Geometry and Measurement.

Taught a two week summer workshop, with academic year follow-up, to middle school math teachers in the Monroe City School System through the Center for Applied Teaching and Learning to Yield Scientific Thinking (CATALyST). CATALyST is a regional science/math education center that serves the primarily rural school systems of Louisian. Focus was on Patterns, Relations, Functions, and Data Analysis.

Taught a three week College Algebra workshop to visually impaired high school students from across the nation. The workshop (Project VROOM) was funded by a NSF grant provided to the Center for Biomedical Engineering and Rehabilitation Services and the Louisiana Tech Institute for the Blind.

Taught a two week summer workshop, with academic year follow-up, to elementary school math teachers in Region VII through the Center for Applied Teaching and Learning to Yield Scientific Thinking, a regional science/math education center that serves the primarily rural school systems of Louisiana and the surrounding states. Focus was on Measurement, Numbers, and Number Relations.

Taught a three semester credit course to middle school math teachers in Ouachita Parish through the Center for Applied Teaching and Learning to Yield Scientific Thinking (CATALyST). Focus was on Algebraic Reasoning.

Served as a math content consultant for the Teachers' Institute for Partnership in Educational Excellence (TIPEE). TIPEE is a project of the College of Education at Louisiana Tech University that seeks to positively impact student achievement in rural schools by improving teacher quality through professional development.

Served as a textbook reviewer for McGraw-Hill Publishing. (Aug 2006 – Aug 2009)

LOUISIANA SYSTEMIC INITIATIVES PROGRAM
2012-2013 PROFESSIONAL DEVELOPMENT PROJECTS

CURRICULUM VITAE

Name Diane S. Madden **309 Forest Creek Drive** **Ruston, LA 71270**	**Current Position Title** **STEM Outreach Coordinator** **Science and Technology Education Center** **Project Position Title: Site Coordinator**

EDUCATION (Begin with baccalaureate or other initial professional education and include postdoctoral training.

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
Louisiana Tech University	**Bachelor of Arts (BA)**	**1966**	**Elementary Education (Grades 1-8)**
Louisiana Tech University	**Masters of Science (MS)**	**1996**	**Curriculum and Instruction—Science Education**
Post Graduate			
Louisiana Tech University	**+30**	**2007**	**Certification in Adult Education**
University of Kansas		**Spring 2008**	**Instructional Coaching Institute, Train the Trainer, Dr. Jim Knight**

PROFESSIONAL EXPERIENCE

Louisiana Tech University 8/2001-Present

IDEA Place/ Science and Technology Education Center Louisiana Tech University (08/02- present)

Professional Development Coordinator and STEM Education Specialist 2008-2012
Instructor for graduate extension courses in elementary science 2008-present
Adjunct Faculty. 2003-present
Presenter, Site Coordinator, CO-PI for Louisiana Systemic Initiate Programs
RIPPLE—Inquiry based Physics and literacy Co-PI 2011
Site Coordinator 2008-2010
Beacon Literacy—How to engage students in literacy 2009
Beacon Math—Integrating math and literacy 2009
Experiment Gallery Project—General science and literacy 2002-2003
Math/Science Partnership Grants 2008- 2012
Lead Presenter and Site Coordinator for Ouachita Parish Schools system
Project Achieve 2007 Developed and presented professional development science

modules for 3rd and 4th grade teachers.
Creating Science Tasks for Grades 3 through 8. 2007
Developed LEAP-Like Science Tasks
Integrating Science and Technology. 2007
Integrating technology into the science classroom
"Live in Louisiana" Ouachita Parish Second Grade Project. 2005 and 2006
Lead Presenter and Site Coordinator
Louisiana Tech Enhancing Science Teaching 2005 and 2006.
Lead Presenter and Site Coordinator
Engineering Higher Student Achievement in math and Science TIMA 489C &TISC 489, Lead Presenter and Site Coordinator 2004-2005
Standards Based Science Education Ouachita Parish Education 589 C. 2003.
Lead presenter of physical science lessons and Site Coordinator
LA GEAR UP Project Staff Developer and Presenter. 2003-2008.
Environmental Science Exploration Coordinator
K-16 Partnership for School Reform for Monroe City Schools. 2006-2010.
Site coordinator.
Educational Planning and Assessment System. 2005-2007.
University Faculty for student teachers and interns. 2004-present.
Digital Edge Program, Master Teacher, Louisiana Tech University. 2004
PK-16+ Alternative Certification Program Louisiana Tech University. 2003-2004
Engineering 289C Problem Solving for Future teachers Co Instructor. 2002 -2003
Environmental Protection Agency (Mystery Litter Zone) project. 2001-2002.
Graduate Assistant, College of Education, Louisiana Tech University. 2001-2002

Public School Teaching Experience

Ruston Junior High School, 8th Earth Science Teacher,1999-2002.
Lincoln Parish Secondary Alternative School, 1998-1999.
9th-12th grades Physical Science, Environmental Science, and Biological Sciences.
Choudrant High School, 1995-1998.
7th and 8th grade Life and Earth Sciences
Cedar Creek High School, Ruston, LA. 1992-1995.
7th and 8th grade Life and Earth Sciences
Platt Elementary School, Haughton, Louisiana, 1970-1972.
Librarian/Resource Director
Apollo Elementary School, Bossier City, Louisiana, 1969-1970.
Saline High School, Saline, Louisiana, 1-1969 to 5-1969.
West Springfield Elementary School, West Springfield, Virginia 1966-1969.

Professional organizations

National Council of Teachers of Mathematics
Louisiana Association of Teachers of Mathematics
National society for Gifted and Talented
National Council for Social studies
National Science teachers Association
Louisiana Science Teachers Association
Louisiana Association of Computer Using educators

APPENDIX E

CURRENT AND PENDING SUPPORT

2012-13 LaSIP PROFESSIONAL DEVELOPMENT PROJECTS
CURRENT AND PENDING SUPPORT

List all State and federal funding support for each IHE faculty member during the funding cycle. Duplicate this form for each IHE faculty member, and use additional sheets as necessary.

NAME OF FACULTY: Charles Patterson

Status of Support: x Current Pending Submission Planned in Near Future

Proposal Title (or Semester Teaching Support):Implementation of ACT Quality Core at GEAR UP

Source of Support: USDOE through LAGEARUP

Award Amount (or Monthly Teaching Rate): $461242.1 Period Covered: July 2011-June 2012

Location of Activity: Louisiana Tech University Ruston, LA

Person-Months or % of Effort Committed to the Project: X One Month Cal Yr AY Summer

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Status of Support: Current Pending Submission Planned in Near Future

Proposal Title(or Semester Teaching Support):

Source of Support:

Award Amount (or Monthly Teaching Rate): $ Period Covered:

Location of Activity:

Person-Months or % of Effort Committed to the Project: Cal Yr AY Summer

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Status of Support: Current Pending Submission Planned in Near Future

Proposal Title (or Semester Teaching Support):

Source of Support:

Award Amount (or Monthly Teaching Rate): Period Covered

Location of Activity:

Person-Months or % of Effort Committed to the Project: Cal Yr AY Summer

(Form 7 - 2012-13 LaSIP PD, Revised 7/2011)

APPENDIX F

MEMORANDUM OF AGREEMENT AMONG PARTNERS

2012-13 LaSIP PROFESSIONAL DEVELOPMENT PROJECTS
Memorandum Of Agreement Among Partners

Louisiana Tech University (Name of Sponsoring Institution or Institutions)	Project PAT - Promoting Algebraic Thinking (Project Title)
Dr. Carolyn Talton (Principal Investigator)	Dr. Charles Patterson Dr. Glenn Beer (Co- Principal Investigator)

This cooperative agreement reflects the overall commitment as well as the specific responsibilities and the roles of each of the partners listed below. This MOA documents the actual working partners who are responsible for contributing to the writing of the proposal, collecting and reporting data, and for the day to day success of the project.

Type of Partner	Name of Active Partner	Title	IHE or District & School	Signature
Teacher Preparation Program ***(Required)***	David Gullatt	Dean	Louisiana Tech Univ.	
Dept./School of Arts & Sciences ***(Required)***	Stan Napper	Dean	Louisiana Tech Univ.	
High-need Local Education Agency/Agencies ***(LEA – Required)***	Gwile Paul Freeman	Superintendent Catahoula Parish	Catahoula Parish Schools	
Additional Targeted Partners	William Barron	Secondary supervisor	Jackson Parish Schools	

(Form 8 - 2012-13 LaSIP PD, Revised 7/2011)

Memorandum of Agreement Among Partners (cont.)

Sponsoring Institution: Louisiana Tech University

Principal Investigator: Dr. Carolyn Talton

Type of Partner	Name	Title	IHE or District & School	Signature
Additional Partners	Wiley McClary	Asst. Superintendent	Franklin Parish	
Additional Partners	Sheldon Jones	Superintendent	Richland Parish Schools	
Additional Partners	David Nordman	Asst. Superintendent	Union Parish	
	George Cannon	Superintendent	Union Parish Schools	

(Form 8 cont. - 2012-13 LaSIP PD, Revised7/2011

Memorandum of Agreement Among Partners (cont.)

Sponsoring Institution: Louisiana Tech University

Principal Investigator: Dr. Carolyn Talton

Type of Partner	Name	Title	IHE or District & School	Signature
Additional Partners	Emily Rash	Supv, Curr & Instr	Monroe City Schools	Emily S. Rash
Additional Partners	Steve Bartlett	Superintendent	Winn Parish Schools	Steve Bartlett
Additional Partners	Gwile Freeman	Superintendent	CatahoulauParishiSchools	Gwile Paul Freeman

(Form 8 cont. - 2012-13 LaSIP PD, Revised7/2011)

APPENDIX G

COOPERATIVE PLANNING EFFORTS

2012-13 LaSIP PROFESSIONAL DEVELOPMENT PROJECTS

Cooperative Planning Efforts

Describe the process of collaboration between the high-need LEA(s), other targeted schools, and the IHE(s) in determining the needs of the LEA(s) in planning and writing this proposal. The statement should be endorsed and dated by an official from each participating institution. In addition, Letters of Support must be included in the appendices of the proposal.

	Typed Name, Title, Organization	Signature	Date
1.	William Barron, Asst Supt., Jackson	William J. Barron	2-13-12
2.	Emily Rash, C&I, Monroe City	Emily Rash	2-13-12
3.	Steve Bartlett, Supt., Winn	Steve Bartlett	2-14-12
4.	Gwile Freeman, Supt., Catahoula	Gwile Paul Freeman	2/14/12
5.	Wiley McClary, Asst. Supt., Franklin	Wiley J McClary	2/14/12
6.	Sheldon Jones, Supt., Richland	Sheldon Jones	2/14/12
7.	David Nordman, Asst. Supt., Morehouse	David Nordman	2/14/2012
8.	George Cannon, Supt., Union		2/15/2012
9.			
10.			

(Form 9 - 2012-13 LaSIP PD, Revised 7/2011)

APPENDIX H

MEASURABLE OBJECTIVES WORKSHEET

2012-13 LaSIP PROFESSIONAL DEVELOPMENT PROJECTS

Measureable Objectives Worksheet (1)

Aligned with the first LaSIP goal stated below, design at least two measureable objectives which answer each of the following five questions:

(1) **Who** is involved?
(2) **What** is the desired outcome?
(3) **How** will progress be measured?
(4) **When** will the outcome occur?
(5) What is the **level of proficiency**?

Refer to page _____ for a detailed explanation of each question. Combine the five answers to form a sentence for your measureable objective. Use the checklist provided on page ___ to ensure the objectives contain all necessary components. This page may be duplicated if additional objectives are desired.

LaSIP Goal 1: ***Increase student achievement on State high-stakes testing.***

Who is involved? Students in grades 5 – 8
What is the desired outcome? Students will receive enhanced preparation for algebra as teachers increase their knowledge of number relations and algebra and improve teaching practices. This will result in higher achievement and confidence for math.
How will progress be measured? A variety of math tasks and practices will be delivered to students providing the visual, auditory, and kinesthetic learner maximum opportunity to learn. Formative assessments will provide on-going progress.
When will the outcome occur? During academic year 2012-2013 (formative) and following spring 2013 testing (summative).
What is the level of proficiency? Students scoring at or above Basic on the spring 2013 iLEAP and LEAP tests will increase by at least 5%. Achievement on Constructed Response items will increase by 5% as well..

Goal 1, Objective 1: Student performance on the 2013 iLEAP and LEAP will increase by at least 5% in content and constructed response items

Who is involved? Students in grades 5 - 8
What is the desired outcome? Math instruction that is rigorous and has relevance to students' lives. Students will gain confidence in their ability to explain their thinking.
How will progress be measured? Students will maintain a learning log that will reflect skills, feelings, and attitudes toward math. Academic tasks will be evaluated via rubrics developed jointly between teachers and students to assure understanding of assignments.
When will the outcome occur? Students will complete open-ended, higher-order thinking tasks daily and record their reflections in their journals. This is on-going.
What is the level of proficiency? 100% of students are expected to participate

Goal 1, Objective 2: Students in grades 5-8 will receive instruction that has rigor and relevance and varied in format in order to address the range of their learning styles, interests, and abilities.

2012-13 LaSIP PROFESSIONALDEVELOPMENT PROJECTS

Measureable Objectives Worksheet (2)

Aligned with the first LaSIP goal stated below, design at least two measureable objectives which answer each of the following five questions:

(1) **Who** is involved?
(2) **What** is the desired outcome?
(3) **How** will progress be measured?
(4) **When** will the outcome occur?
(5) What is the **level of proficiency**?

Refer to page _____ for a detailed explanation of each question. Finally, combine the five answers to form a sentence for your measureable objective. Use the checklist provided on page 44 to ensure the objectives contain all necessary components. This page may be duplicated if additional objectives are desired.

LaSIP Goal 2: ***Plan effective PD based on the high-need LEA(s)/schools' data-driven needs and developed using research-based PD strategies that will take place in summer institutes, during the academic year (AY), and/or through on-line or web-based assignments and job-embedded activities.***

Who is involved? : 30 math teachers, grades 5 - 8 from Catahoula, Franklin, Monroe City, Morehouse, Richland, and Union Parish systems. 6 of the participants will be exemplary secondary algebra teachers who will assist with project activities and serve as coach/mentors in their systems. Teachers will receive instruction in number and number relations skills that are critical to algebraic thinking. The instruction will be delivered by exemplary university faculty and secondary teachers of algebra.
What is the desired outcome? Teachers will gain personal confidence in and knowledge of algebra and will acquire research-based teaching practices set by CCSS.
How will progress be measured? The EXPLORE Math Test will be given prior to and following the summer institute. It is expected that all teachers will achieve a minimum of 90% on the post-test. Implementation of exemplary practices will be measured by a checklist using a Likert scale that has been developed by *Key Math Strategists* (www.keymathstrategists.com). This observation form will be utilized as the site coordinator visits participants during the 2012-2013 academic year. Teachers will use this instrument themselves as they complete peer-visitations supported by the project and their systems as in-kind.
When will the outcome occur? During academic year 2012-2013 and thereafter as teachers acquire greater confidence in the content and instruction of pre-algebra math.
What is the level of proficiency? 100% of teacher participants will implement newer strategies, conduct peer-observations, engage in web-based activities required byproject staff, and share instruction via interactive SmartBoard technology for which they were trained in the summer institute by a teacher who uses this medium regularly. 100% of teachers will share technology uses at the academic year follow-up sessions. All of the teachers will obtain an EXPLORE post-test score at or above 90%.

Goal 2, Objective 1: Teachers of mathematics grades 5 – 8, will increase their knowledge of and confidence in the teaching of algebra skills that will better prepare their students for success in algebra**.**

Who is involved? 30 math teachers, grades 5 – 8, in 6 systems in Louisiana, including 6 secondary algebra teachers.
What is the desired outcome? Math instruction that is rigorous and has relevance to students' lives. Students will gain confidence in their ability to explain their thinking.
How will progress be measured? Students will maintain a learning log that will reflect skills, feelings, and attitudes toward math. Academic tasks will be evaluated via rubrics developed jointly between teachers and students to assure understanding of assignments.
When will the outcome occur? Students will complete open-ended, higher-order thinking tasks daily and record their reflections in their journals. This is on-going.
What is the level of proficiency? 100% of students are expected to participate

Goal 2, Objective 2: Teachers of mathematics grades 5 – 8 and algebra coaches will engage in technology exchanges via a project web site, shared e-mail correspondence with peer partners established during the summer institute, video conferences, job-embedded assignments, and shared lessons via the interactive SmartBoard, and Moodle assignments required by project staff.

2012-13 LaSIP PROFESSIONAL DEVELOPMENT PROJECTS

Measureable Objectives Worksheet (3)

Aligned with the first LaSIP goal stated below, design at least two measureable objectives which answer each of the following five questions:

(1) **Who** is involved?
(2) **What** is the desired outcome?
(3) **How** will progress be measured?
(4) **When** will the outcome occur?
(5) What is the **level of proficiency**?

Refer to page _____ for a detailed explanation of each question. Finally, combine the five answers to form a sentence for your measureable objective. Use the checklist on provided on page 44 to ensure the objectives contain all necessary components. This page may be duplicated if additional objectives are desired.

LaSIP Goal 3: Increase leadership capacity and pedagogical skills for target schools through school/district buy-in, school-based implementation, and mentoring during the AY.

Who is involved? 6 systems in north Louisiana – Catahoula, Franklin, Monroe City, Morehouse, Richland, and Union Parish systems; math teachers grades 5 – 8; 6 secondary algebra teachers to provide assistance during summer institute coursework presentations and support for elementary and middle grades teachers in their systems during subsequent academic years following the completion of this project.
What is the desired outcome? A core of system-level mentors who will assist elementary and middle grades teachers as they embrace the Common Core State Standards in Mathematics, support teachers as they put into practice the *Standards for Practice* and teach for rigor and relevance all of which will lead to students being better prepared for a course in algebra and assure readiness for college or the world of work. These coach/mentors will provide leadership capacity and assure institutionalization of project activities and objectives. Also, a proposal will be submitted to the fall conference of LATM (Louisiana Association of Teachers of Mathematics) for selected teachers to share project activities relating to newer skills and practices they will have acquired during this professional development project.
How will progress be measured? The site coordinator and coaches will maintain an electronic dialogue and complete progress charts regarding implementation of research-based strategies acquired in the summer institute. Moodle activities will also monitor progress and provide classroom support. A Likert scale has been devised to capture snapshots of classrooms and the degree to which *Standards for Practice* are being implemented. These data will be collected and included with reports of progress to LaSIP governance. Sign-in sheets will be maintained by coaches to verify after school meetings that will complete the 114 hours of professional development (84 summer + 22.5 on 3 follow-up Saturdays, and 7.5 after school in local systems = 114).
When will the outcome occur? Leadership capacity will be available immediately as coach/mentors begin the 2012-2012 academic year. It is expected that coaches and selected teachers will provide inservice for their peers regarding the implementation of the Common Core State Standards for Mathematics.
What is the level of proficiency? 100% will provide assistance during upcoming academic years and in local inservice programs.

Goal 3, Objective 1: A cadre of 6 content coaches/mentors will be identified to assist with summer institute coursework delivery and to provide support and encouragement to elementary and middle grades teachers as they embrace newer content and practices resulting from the revised GLEs and the *Common Core State Standards for Mathematics* and accompanying *Standards for Practice*.

Who is involved? 6 systems in north Louisiana – Catahoula, Franklin, Monroe City, Morehouse, Richland, and Union
What is the desired outcome? Wide spread implementation of rigor and relevance in newer math content and practices outlined in the **Common Core State Standards for Mathematic**s; improved teacher competency resulting in increased student achievement.
How will progress be measured? Sign-in sheets from meetings, Observation checklists using a Likert scale to determine implementation of *Standards of Practice*, and site coordinator observation data using the LOT provided by LaSIP
When will the outcome occur? Summer 2012 and academic year 2012-2013.
What is the level of proficiency? 100% of the systems will be empowered to implement the newer curriculum that is designed to better prepare students for school achievement and post-secondary pursuits.

Goal 3, Objective 2: Participating school systems have expressed strong support for this project as evidenced by letters of support for cash contributions to offset teacher travel, supervisory attendance at summer institute and academic year follow-up sessions, school site availability for project activities, use of computer equipment, copiers, and library resources and payment of the $55 registration for their teachers.

APPENDIX I

STIPEND OPTION

2012-13 LaSIP PROFESSIONAL DEVELOPMENT PROJECTS
APPENDIX J: Stipend Options

You must choose either Option A or B for use in your project, and document your choice in your proposal. Should your proposal be funded, you must provide this information to your participants within a Participant Agreement or Project Syllabus. For either option, you must insert the number of days and hours for your project and the hourly stipend rate, and provide a list of your project deliverables. Projects must provide a total stipend hourly rate at a minimum of $20 per hour and a maximum of $30 per hour. LaSIP encourages the use of Option B.

Option A

Attendance is expected for all ____ days (total of ____ hours) of the project. Participants will receive a maximum fee of $**25** per hour for attendance participation at the summer institute and academic year workshops. Payment will be made only on approval of and documentation from the principal investigator, *(Name of authorized person),* according to the LaSIP Attendance Policy. Participant will be paid only for the actual hours he/she participates in the professional development program. If the Participant has unexcused absences for more than 15% of the scheduled program hours, Participant may be dropped from the program at the discretion of the principal investigator and will not be eligible to receive instructional materials from the project. Any instructional materials already received must be returned to the principal investigator. LaSIP Attendance Policy regarding unexcused absences will be enforced.

Option B

Attendance is expected for all **15** days (total of **114** hours) of the project. Participant will receive a $**20** per hour for attendance participation at the summer institute. Upon completion of the required activities/deliverables (designed by PI) and days of attendance during the AY, participant will receive the remaining $**5** for each full hour attended during the summer project. This will in effect raise the stipend rate to $**25** per hour attended and will only apply if participant meets required obligations. Stipends for the AY workshops will be $**25** per hour for attendance. Payment will be made only on approval of and documentation from the principal investigator, *(Name of authorized person),* according to the LaSIP Attendance Policy. Each participant must complete the assigned deliverables during the AY. If the participant has unexcused absences for more than 15% of the scheduled program hours, the participant may be dropped from the program at the discretion of the principal investigator and will not be eligible to receive either instructional materials from the project or the additional $**5** per hour for attendance participation at the summer institute. In this event, any instructional materials already received must be returned to the principal investigator. LaSIP Attendance Policy regarding unexcused absences will be enforced.