

## Secrets for Making a Successful Enrichment Program

Carlos G. Spaht, II

Mathematics Department  
Louisiana State University in Shreveport

### Abstract

LaPREP (Louisiana Preparatory Program), an enrichment program in mathematics, engineering and science for high-ability middle and early high school students held on the campus of LSU in Shreveport, will soon begin its 15<sup>th</sup> summer session. LaPREP has received honors both locally and nationally. The Shreveport City Council has passed a resolution applauding it “for making a positive impact on the lives of young people and for contributing to the future prosperity of the community and the nation.” The Mathematical Association of America has praised and awarded LaPREP for its contribution to mathematics in Louisiana. The National Science Foundation and the Jacqueline Kennedy Onassis Foundation have also commended and awarded it.

The program has been very successful, as seen in the evaluations contributed by the participants, their parents, and by local and state officials who have visited LaPREP. The statistical data also indicates success; no current or former participant has dropped out of high school and approximately 80% of exiting participants have reported that LaPREP has increased their desire to study math and science. Survey and tracking records show that all of the first 188 graduates of LaPREP who have become eligible have enrolled in college. (A few graduates cannot be tracked because their families have moved.) Moreover, more than 80% of those responding to a survey stated that they were majoring in engineering, math or science.

The purpose of this paper is to share key elements that have made LaPREP successful, many of which are generic and would benefit any type of enrichment or intervention program.

### LaPREP Program

LaPREP (Louisiana Preparatory Program) is a two-summer enrichment program which identifies, encourages, and instructs competent middle and early high school students and prepares them to complete a college degree program, in engineering, math, or science<sup>1,2</sup>. It is not a remedial program; rather, it seeks to engage and challenge students at a time when they are particularly vulnerable to nonacademic distractions. LaPREP, held on the LSU-Shreveport campus for seven weeks each summer over two consecutive summers, emphasizes abstract reasoning, problem solving and technical writing skills, mainly through mathematics enrichment courses and seminars. Class assignments, laboratory projects and scheduled exams are integral parts of LaPREP. The faculty is drawn from LSU-Shreveport and the local school system.

LaPREP targets bright students who may be financially disadvantaged and those who are first generation college bound. In the eleven years of LaPREP, approximately 80% of its more than 500 participants have been minority students and have come from virtually every middle school in the Shreveport-Bossier area.

Each summer 30 first-year participants join with approximately 25 returning second year participants for a summer of intellectually stimulating work and fun on the LSU campus. Students successfully completing the first summer session with an academic average of 70% or better are eligible for the second summer session.

The topics studied over two summer sessions include:

- Engineering
- Logic
- Algebraic Structures
- Probability and Statistics
- Problem Solving
- Technical Writing
- ACT Preparation
- Medical Career Preparation
- Financial Independence for Life (Finance Math)
- Anger Management and Coping Skills

Other features include: field trips to local industries, visiting lecturers and minority speakers, college and career awareness, swimming, basketball, ping pong, pool and other recreation.

Since a significant number of LaPREP students come from low-income families, LaPREP charges no tuition or fees. LaPREP provides free transportation to and from the program site via bus passes for the citywide bus system, free lunches in the University Center, books and other materials needed for classes, and cost-free field trips.

Last year LaPREP was funded by the Joe W. & Dorothy Dorsett Brown Foundation, Community Foundation of Shreveport-Bossier, Governor's Safe and Drug Free Schools and Community Program, One Foundation, AEP-SWEPCO, George A. Khoury Foundation, individual contributors and in-kind support from LSU-Shreveport.

## **Program Schedule and Structure**

The 2006 summer program lasts for seven weeks beginning June 5 and ending July 21. Hours are from 8:30 AM to 3:00 PM, Monday through Friday at LSU-Shreveport. Since LaPREP is a two-year program, the first-year participants who complete the program with an average of 70% or better are eligible to return as second-year participants. Each year LaPREP also recruits a new class of 30 first-year participants. (The courses are sequential; each summer's curriculum expands the student's knowledge of mathematics, science, and English, and reinforces work in

research and study skills, problem solving, and college and career awareness). A typical schedule for the first and second-year participants, Monday through Thursday and some Fridays, is depicted in Figure 1 below.

Figure 1  
First-Year Participant Schedule

	June	July
8:00 - 8:30	Staff Meeting	Staff Meeting
8:30 - 9:25	Engineering	Logic
9:30 - 10:25	Problem Solving	Problem Solving
10:30 - 11:25	Technical Writing	Technical Writing
11:30 - 12:25	Lunch	Lunch
12:30 - 1:25	Logic	Anger Management
1:30 - 2:25	Research and Study	Research and Study
2:30 - 3:00	Speaker or Recreation	Speaker or Recreation

Second-Year Participant Schedule

	June	July
8:00 - 8:30	Staff Meeting	Staff Meeting
8:30 - 9:25	Discrete Math	Problem Solving
9:30 - 10:25	ACT Prep [Finance Math (June 19 -June 30)]	Technical Writing
10:30 - 11:25	Algebraic Structures [Finance Math (June 19–June 30)]	Algebraic Structures
11:30 - 12:25	Lunch	Lunch
12:30 - 1:25	Anger Management	ACT Prep
1:30 - 2:25	Research and Study	Research and Study
2:30 - 3:00	Speaker or Recreation	Speaker and Recreation

The Friday agendas vary due to field trips and other activities. Student pick up is from 3:00 - 3:30 and a staff meeting follows from 3:30 - 4:00.

## LaPREP Accomplishments

LaPREP will begin its fifteenth annual summer session on the campus of LSUS in June of 2006. Evaluations contributed by the participants of the program, their parents, and by local and state officials who have visited the program have shown the program to be highly successful. Participant interest in attending college and majoring in math or science has greatly increased. No former LaPREP participant has dropped out of high school and all who have been eligible have enrolled in college. In addition, eighty-four percent of exiting participants have indicated that LaPREP has increased their desire to study math and science.

All of the first 188 LaPREP graduates who have become eligible have enrolled in college with approximately 76% of them attending colleges in the state of Louisiana. More than 80% of them responding to a survey indicated they were majoring in engineering, math, or science (10% in engineering), and 100% of them indicated that LaPREP had benefited them in their math/science studies.

LaPREP has received honors both locally and nationally. Dr. Carlos Spaht, LaPREP founder and director, has received prestigious awards resulting from his work with LaPREP including: The Jefferson Award for outstanding contribution to public service; the Jacqueline Kennedy Onassis Award, the highest public service award offered nationally; and the White House Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring. At the state and regional level, Dr. Spaht has been awarded the Carnegie Foundation's Louisiana Professor of the Year award, the LA/MS Mathematical Association of America's award for Distinguished Teaching of Mathematics and the Governor's Award of Excellence, all due in part to his work with LaPREP.

LaPREP has been recognized by the National Science Foundation and listed it in its directory of enrichment programs. It has also been awarded and praised for its contribution to mathematics in Louisiana by the Mathematical Association of America. In addition, the Shreveport City Council has passed a resolution applauding LaPREP "for making a positive impact on the lives of young people and for contributing to the future prosperity of the community and the nation."

### **Key Elements That Have Made LaPREP Successful**

Some of the strategies used to address challenges and to develop and implement the program are outlined below:

(1) Advisory Committee. In the early planning stage of the program, a committee composed of influential business, political and educational leaders was formed to provide input and to solicit support for the program. The committee also served as an avenue to inform and distribute advertising information to the community and to obtain guest speakers and field trips for the program.

(2) VIP Support. High profile individuals such as U. S. Senators Mary Landrieu and John Breaux, U. S. Congressman Jim McCrery, State Superintendent of Education, Cecil Picard, and other state education leaders were contacted and solicited for support. Their response in support of the program was overwhelming. Several of them visited the program or served as guest speakers, including Senator Mary Landrieu. Superintendents of the local school districts have visited and addressed LaPREP, commending the program and encouraging the participants. Local and national business leaders not on the advisory committee were also contacted and solicited for support. The support of these highly visible people has brought favorable recognition and credibility to the program.

(3) Relationships. Relationships have been built and nurtured in the following areas:

(a) University Relationships. In the earliest stages of planning, meetings were held with the chancellor and other important administrators and faculty members of the university. Many, including the chancellor, were asked to participate in the program in many capacities and did so. University faculty members have been important members of the LaPREP faculty, giving strength and quality to course instruction. Classrooms, lecture halls, recreational facilities and staff offices have been provided by the university as well. The university's in-kind support has been invaluable to the program. Communication has been the key ingredient in building strong university support for the program.

(b) Community Relationships. Presentations to schools, local churches, and meetings of civic, business and professional organizations such as Rotary, Kiwanis and Lions Clubs have been made in a successful effort to "sell" the program to the community. These visits have yielded financial support, speakers and field trips.

(c) Parent Relationships. Parents have been encouraged to visit the program and to attend the Annual Awards Ceremony. They have turned out in large numbers to support their children, the program and to hear the keynote speaker. Many families have had two or more of their children graduate from LaPREP. Parents have contributed to LaPREP with financial donations, donations of time and expertise and they have written letters of support for the work of the program. These letters have been used as beneficial advertising tools included in each Annual Report sent to donors and supporters of LaPREP.

(4) Media Coverage. Local television stations have taped segments of the Awards Ceremonies for local newscasts. Yearly feature articles in the local newspaper have provided highly useable advertising for recruiting applicants, raising local awareness, and soliciting funds.

(5) Recruitment. Aggressive advertising has been primarily through the public school system by way of a large mail out of brochures and application materials to all math teachers and their principals for the targeted age group. Teachers have been asked to distribute application materials to qualified candidates and to encourage their participation. Newspaper advertisements in the local paper have been effective. Also, downloadable applications from the LaPREP website are available to all people.

(6) Awards Ceremony. The purpose of the ceremony is to recognize and reward student achievement. As one instructor stated, "The Awards Ceremony brings everything together." Important dignitaries have served as featured speakers. Local dignitaries and citizens of note and nationally known educators have spoken at the Annual Awards Ceremony. Civic and business leaders and donors have always been invited to attend and to be recognized by the program director during the ceremony. A few participants have been asked to speak to the audience and to describe what the program has meant to them. Families and friends of the participants and supporters of the program usually fill the auditorium, as local television stations and newspapers cover the event.

(7) Evaluation. It is essential that the program be evaluated by those both inside and outside the program. Granting organizations as well as state and local leaders have visited and evaluated LaPREP. Student achievement is evaluated with exams and projects. Students are required to maintain an academic average of 70% to remain in the program. In addition, students complete attitudinal evaluations at the beginning and conclusion of the program.

(8) Cost. Because many of the student participants came from economically depressed neighborhoods, the program has not charged any tuition or fees. Transportation to and from the program site has been paid for by the program via bus passes for the citywide bus system. Field trips and lunches have also been paid for by the program and provided to the students free of charge. Students have been responsible for bringing only pencils, paper and a notebook.

(9) Sponsor Recognition. Sponsors have always been thanked and recognized as often as possible. They are mentioned at speaking engagements, to newspaper reporters and at each awards ceremony. Each sponsor and strong supporter has received a copy of the annual performance report at the conclusion of the program, and donors also receive the LaPREP T-shirt uniquely redesigned each year. The T-shirt lists the financial contributors on the back.

(10) Thank You Letters. Personal letters of thanks for favors has been a priority for the program. When someone has performed a special favor for LaPREP, such as donate money, provide a field trip or speak to the group of participants, he/she has been thanked in a personalized thank you letter immediately. Personal letters of thanks are essential and should be sent as quickly as possible. Impersonal, mass-produced letters should be avoided. Only through the involvement of members of the community can a program like LaPREP exist.

## Conclusion

In addition to having a well-designed and well-structured program with excellent instructors and staff, much more is required to have a successful and long lasting program. Above we have listed many of the features that have helped to make LaPREP successful. Note that the items listed are generic and can be applied to almost any type of intervention or enrichment program.

## References

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CARLOS G. SPAHT, II

Dr. Spaht serves as Professor of Mathematics at Louisiana State University in Shreveport. For several years he has raised funds for and directed LaPREP, a nationally acclaimed intervention program in engineering, math and science for high-ability middle and early high school students. His research interests include intervention programs, finance math and Abstract Algebra.