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ABSTRACT

This document profiles the Lansing Area Manufacturing Partnership (LAMP), which is a model school-to-career initiative featuring an innovative integrated, employer-driven curriculum that was designed, developed, and implemented through the joint efforts of the Ingham Intermediate School District in Lansing, Michigan, the United Auto Workers (UAW), and the General Motors (GM) Corporation. The program guide, which is written in a question-and-answer format, answers the major questions that communities are likely to have as they seek to launch similar initiatives. The first two sections explain why career development is important and provides an overview of LAMP's components and a discussion of why LAMP is successful. The next presents the rationales for the following components and strategies of LAMP: partnership; multiple and diverse roles and responsibilities for workplace personnel; housing LAMP within the UAW-GM Training Center in Lansing, Michigan; work-based learning; project-based learning; use of varied assessment tools to assess students' academic progress and development of employment competencies; team teaching; a selective application process; enrollment of a diverse mix of students; provision of a student orientation session; and parental involvement. LAMP's commitment to continuous improvement and reasons other communities should implement LAMP are explained. Concluding the document is a list of nine National Institute for Work and Learning evaluative reports on LAMP. (MN)

LAMP Wise/ LAMP Whys

Anatomy of a School-to-Career Success Story

Prepared for
The UAW-GM Center for Human Resources

June 2002

AED
National Institute for Work and Learning

UAW GM Ingham Intermediate School District

LAMP Whys? LAMP Wise!

A Practical Guide to the Lansing Area Manufacturing Partnership

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THE NATIONAL CONTEXT: WHY IS CAREER DEVELOPMENT IMPORTANT?

Many students graduate from high school ill-prepared for the world of work. Employers have long asserted that high school graduates often lack both an understanding of how education is related to career outcomes and the basic employability skills needed to be productive workers. The skills employers most often cite as critical - teamwork, problem solving, and communication - are not always taught directly in schools. When teachers try to convey these skills to students, they tend to do so in an academic fashion rather than in an applied fashion. After all, schools tend to see their function as preparing students for continuing education rather than for their long-term career goals.

It is not surprising that the majority of today's graduating seniors enroll in post-secondary education of some sort. However, only half of students entering college complete their degree. Some of the reasons for this high attrition include inadequate preparation for college-level work, inadequate career guidance, and misconceptions about the best forms of training for employment. Some students state they go on to college simply because "that's what's expected."

Clearly, traditional strategies for secondary education are inadequately serving both students and employers. A revitalized focus on workforce development not only benefits employers who have a stronger labor market to draw from, but also benefits students who are empowered to make better educational and career decisions, and thereby make smoother transitions into the workforce.

It is out of this desire to improve the career development of students and meet the changing demands of the modern workplace that the school-to-career movement was born. School-to-career strategies attempt to restructure the traditional learning process in ways that blur the lines between classroom and workplace. The walls of the classroom are expanding to include new learning environments.

Teachers convey knowledge in new and meaningful ways. Students are given opportunities to apply their lessons in a practical and authentic manner. They learn in teams. They interact with mentors and other adults. Their progress is assessed using alternatives to traditional tests and quizzes. The curriculum is integrated across subject matter and its connection to the real world is clear.

Students who learn in an effective school-to-career environment are motivated to learn. They become re-engaged in the educational enterprise. They are able to answer for themselves the age-old question of "Why do I need to know this?" by discovering the connection between academic knowledge and workplace know-how. They have an advantage in the job search process since they have a clearer understanding of career options and a better understanding of what employers seek. With a deeper appreciation for life-long learning, they make more informed decisions concerning enrollment in post-secondary education and training, which increases their likelihood of educational achievement and long-term success.

LANSING AREA MANUFACTURING PARTNERSHIP: A PROMISING AND EFFECTIVE MODEL

Launched in 1997, the Lansing Area Manufacturing Partnership (LAMP) is establishing itself as a model school-to-career (STC) initiative. Its innovative employer-driven curriculum, its emphasis on project-based learning, its team-teaching structure, and the opportunity for staff and students to establish close, ongoing interactions with employees, distinguish LAMP among other career prep programs. In September of 2000, LAMP received the PEPNet Award from the US Department of Labor and the National Youth Employment Coalition for programmatic effectiveness. The following year, LAMP earned state-wide recognition with the Governor's Excellence in Practice Award.

Notably, LAMP has taken on one of the thorniest issues facing the school-to-career community: that is, building genuine, active, collaborative relationships between the public educational sector and the private employment sector. LAMP's partnership structure, along with newly created and emerging roles, provides dramatic examples of how such relationships can be forged.

Three key partners, representing education, organized labor, and the automotive manufacturing industry designed, developed, and launched the Lansing Area Manufacturing Partnership:

The **Ingham Intermediate School District (IISD).** The educational partner provides instructional staff, access to students from numerous schools, and pedagogical and curricular expertise. Through its Career Services and Technical Education Department, the IISD provided the materials and personnel necessary to create, refine, and implement an integrated curriculum, student materials, and teacher manuals. Administrators in this district sought the opportunity to provide new learning experiences for students while exploring new educational strategies that can be integrated throughout the school system.

The **United Auto Workers (UAW).** Organized labor provides mentors, subject matter experts (SMEs), and project advisors who interact with students in a work-based learning context. They bring a historical perspective of workforce development, a longstanding tradition of continuing education and training, and a grounded understanding of workplace culture. Committed to preparing youth for the world of work, the UAW ratified a resolution to support school-to-career efforts at its 1995 Constitutional Convention.

The **General Motors Corporation (GM).** The corporate partner provides access to the workplace, which serves as a contextual learning environment. GM personnel create the necessary climate and conditions that encourage employees to participate in the initiative. Like the UAW, GM provides workplace personnel who serve as mentors, SMEs, and project advisors for students. Committed to improving public education for all and developing a strong workforce for the future, GM sought to help support and create a model school-to-career initiative that could be replicated nationwide.

After five years of operation and refinement, LAMP stands as a lighthouse ready to guide the way for future communities seeking to launch similar initiatives. Navigating the waters of innovation and partnership isn't always easy. Tradition, trepidation, and reluctance prevent many from venturing far from the shores of the status quo. This document answers the major questions potential partners will ask as they chart their own course toward educational improvement.

WHAT DOES LAMP REALLY LOOK LIKE?

Students attend LAMP for 2½ hours every school day during their senior year. Currently, morning and afternoon sessions are held, comprised of 30 students each. An application process is used by a review team of educators and UAW-GM staff to select students based on academic and personal criteria. Students from multiple school districts representing 25 different high schools are participating. The LAMP classroom enrolls a diverse mix of students with respect to ethnicity, gender, socioeconomic background, and academic orientation.

The LAMP classroom is housed within the UAW-GM Training Center in Lansing, Michigan. The classroom employs modular desks and chairs, which can be re-arranged for individual, team, or full group work. A network of computer-based technology rings the room. Students have easy access to different manufacturing facilities and numerous workplace personnel.

An integrated curriculum, collaboratively developed by educators and representatives from the UAW and GM, is comprised of six units of study that integrate academic standards with employability skills within a manufacturing context. The curriculum is delivered through a combination of classroom instruction, work-based learning, hands-on experiences, team projects, and interaction with UAW-GM personnel. Employing the quality principles of Dr. W. Edwards Deming, LAMP models business and industry expectations with respect to producing quality work. This focus on quality and continuous improvement directs LAMP's practices and policies, toward its mission of expecting "quality work on time" as the cornerstone for learning.

A trio of certified instructors delivers the curriculum in team fashion. Drawn from the local school districts, they have academic backgrounds in math, science, communication, and business. Students are divided equally among the instructors into "core" sub-groups to ensure individualized attention.

Student progress is assessed along academic dimensions as well as employment competencies such as teamwork, problem solving, and communication skills. Students demonstrate knowledge through traditional methods including tests and written assignments, but are also graded on team presentations, projects, portfolios, and performance on a worksite situation. Work is jointly evaluated by the students and teachers based on the standards created at the beginning of each unit. If the student and teacher both agree that the project is Quality, the student receives a grade of A. If they do not believe that the project has met the predetermined standards, the student receives a grade of "Not Yet Quality" and continues to work until it meets the quality standards (or grade of A).

The course of study culminates in a "Capstone Experience" in which teams of students research authentic workplace problems using the skills and know-how developed throughout the year. They present their findings to an audience of educators, parents, and workplace personnel using multi-media in a simulated professional workplace presentation. A mixed panel of evaluators assess student performance. At least one student has been invited to implement his Capstone Project during a summer internship at GM.

LAMP is managed by an Operations Supervisor and governed by a Policy Board comprised of the three partners. This partnership model ensures that the resources as well as the perspectives of business, education, and organized labor are integrated in a coherent and effective fashion.

IS LAMP SUCCESSFUL?

The award-winning LAMP initiative received a thorough evaluation conducted by the Academy of Educational Development (AED), an independent, external third party, and continues to undergo close scrutiny through a longitudinal evaluation of graduates. As a result, numerous evaluative reports have been produced regarding program implementation and impact. (Refer to Page 21.)

LAMP graduates have demonstrated gains in personal growth, career development, and manufacturing competency. Many have reported that participation prepared them well for post-secondary education. All report that this participation has influenced their career and educational plans. A very high percentage indicate that communication with their parents about future plans was significantly enhanced, leading to better, more thoughtful decision-making.

In all three areas, (personal growth, enhanced employability skills, and better preparation for careers in manufacturing), the reviewers observed specific gains during the interim phase of the study.

- Students took initiative and became more responsible for their actions.
- Students gained respect for others and improved their ability to interact within diverse groups.
- Students improved their teamwork and communication skills substantially.
- Students increased in self-confidence.
- Students gained a better understanding of workplace culture and how to contribute.
- Students gained insight into their career interests and aptitudes for the manufacturing industry.

Subsequent data from the LAMP Longitudinal Study, which tracks graduates' progress in post-secondary education and the workforce, further supports the positive results noted in the interim report. A few findings from the Longitudinal Study (see Transitioning to College and Career) include the following:

- LAMP students are enrolled in post-secondary programs at higher rates than the comparison group: 100% of the Class of 1998 and 94% of the Class of 1999 have participated in post-secondary training.
- A higher proportion of LAMP students are working *while* also enrolled in post-secondary training.
- LAMP students report that they are better prepared for post-secondary education and the workplace.
- LAMP students take more tangible steps toward achieving their career goals than their non-LAMP peers.

About one out of four LAMP graduates went on to secure employment at GM, proving that this cycle of training has met UAW-GM goals of contributing to the training of the workforce. Additionally, IISD goals that include enabling students to become productive employees and to facilitate their transition into gainful employment have also been achieved for these LAMP students.

While the main goal of LAMP is to prepare students for their futures, there have been positive effects on all parties involved. Workplace personnel repeatedly commented that interaction with students led to improved morale and renewed interest in their work and industry. Partners reported advances in understanding and communication between the educational and industry sectors. School administrators reported that participation leveraged broader educational reforms. Parents reported increased communication with their children and improved decision-making around issues of post-secondary education and career plans. Participation in the LAMP program has proven to be beneficial for students and partners alike.

THE COMPONENT PARTS OF LAMP: WHAT ARE THEY AND WHY ARE THEY THERE?

LAMP staff and students are the first to say that LAMP is more than the mere sum of its parts. They state that these components work together as a dynamic integrated system to create an exciting and effective learning environment for students. Yet, in order to understand how this unique learning environment is created, we need to understand its component parts.

This document examines the key components of LAMP, which include organizational elements, curricular strategies, and logistical issues. These pages describe why each component is included, how LAMP operationalizes them in practice, and provides evidence of their success.

WHY PARTNERSHIP?

> *"Where LAMP will be critical is helping school districts to develop strong business/education partnerships. We can use LAMP as a model."*
> School Administrator

Partnerships can achieve outcomes that organizations operating independently can not. When trying to enhance students' employability skills, schools need the input and guidance of the business community. Likewise, as business and labor seek to enhance workforce development of young people, they require the expertise of educators.

LAMP is organized as a partnership. Its success stems from the commitment and contributions of its partners representing three main organizations: the United Auto Workers, General Motors Corporation, and the Ingham Intermediate School District. Each of these partners has contributed to the development of a rigorous, engaging, and integrated course of study. Careful attention to partnership development has shown how these seemingly disparate entities can find common ground and how intensive collaboration can produce powerful educational change.

Partnership is not easy. It has been said that, "Partnership is an unnatural act between non-consenting adults." In fact, effective partnerships take hard work to develop and maintain. However, the results can be powerful.

The LAMP partnership is embodied in a Policy Board comprised of individuals representing the key partnering organizations. The responsibilities of the Policy Board are to provide leadership and solutions to obstacles; generate consensus building through ongoing discussions and deliberations; make decisions concerning direction, policy, student selection, and resource allocation using consensus; initiate and facilitate communication among partnering groups; and ensure the success of the initiative by obtaining access to resources, maintaining positive relationships with the community, and building relationships with supportive third parties.

In order to accomplish these objectives, it is considered essential that representatives have delegated authority to act and speak on behalf of their respective organizations/stakeholder groups. The Policy Board enables the local manufacturing partnership to be self-governing and responsive to local conditions.

An important benefit of partnership is the increased resources that are brought to bear. In the case of LAMP, each partner is in a position to leverage resources that contribute to the initiative's success. Some are financial and help cover the cost of staffing or equipment. Others are in-kind resources in the form of classroom space or work-based learning facilities. And still others are personal, in the form of human resources who help develop curriculum or mentor students.

Partnerships can be powerful tools in restructuring education. For many in the school system, LAMP has confirmed the advantages of developing a partnership with external organizations as a catalyst for internal change. While focused on manufacturing specifically, observers comment on how the lessons of the LAMP partnership model can be applied in other settings and with other industries.

WHY PARTNERSHIP?

RATIONALE	APPLICATION	EVIDENCE OF SUCCESS
The sum of knowledge and resources contributed by all partners enriches the program and its effectiveness.	The LAMP Policy Board taps the educational experience of the school district, the practical knowledge of employability skills of UAW and GM, and personnel and financial resources from all.	*"We've never experienced anything like this at this level. The synergy the partnership generates is powerful. It leads to the observation that the whole is greater than its parts."* School Administrator
Students benefit from the skills and resources of all partners for a well-rounded experience.	Broad participation generates a high level of enthusiasm and excitement within both work and school settings. Perception among staff is positive.	*"Every partner brings passion and lots of energy around the subject matter and this has kept us going despite trouble or disagreements."* LAMP Stakeholder
Collaboration enriches the unique perspectives of the three partners.	Inter-organizational interaction creates opportunities for heightened awareness and understanding of the manufacturing industry.	Mentors report that LAMP helps educators understand the changing needs of the manufacturing industry, with an average response of 8.2 on a scale of 10. Conversely, *"many (industry employees) confessed that they were out of touch with what was going on in their high schools and LAMP helped them reconnect."* Manufacturing Educational Change
Improved communication should enable educators and industry representatives to more clearly understand corresponding realities and needs.	Educators and industry staff develop an integrated curriculum that incorporates academic requirements and work-based learning opportunities.	Students benefit from progressive educational reform crafted by all partners' contributions. *"It wouldn't happen... without the wonderful team who works so hard on putting our curriculum together."* LAMP Operations Supervisor

WHY ARE THERE MULTIPLE AND DIVERSE ROLES AND RESPONSIBILITIES FOR WORKPLACE PERSONNEL?

One of the major tenets of school-to-career programming is the importance of creating opportunities for young people to develop meaningful relationships with adults who can help them plan their careers and transition to adulthood. At the same time, educators trying to create authentic learning environments need to collaborate with those who have access to and an understanding of the world of work. Without the involvement of workplace personnel, career prep initiatives run the risk of being perceived as "just another educational program."

To create a deep, rich and meaningful educational experience, workplace personnel in Lansing have contributed to curriculum development, instruction, and student assessment. In addition, employees serve as mentors and project advisors. Interaction with a variety of line workers, union members, professionals, and managers affords the LAMP students multiple perspectives on the manufacturing industry and workplace culture.

In contrast to many school-to-career initiatives where industry plays a symbolic role, the employer partners in LAMP have made a deep, genuine, and active commitment to the program. Workplace staff contribute to all aspects of this project. The amount of resources dedicated, the number of staff involved, and the level of personal commitment demonstrated have been consistently high. (See Manufacturing Educational Change.)

Workplace personnel welcomed the opportunity to contribute to the education of today's students and tomorrow's workforce. They find the experience to be personally rewarding and enriching. Those with school-age children reported applying lessons learned to their own family situations.

WHY MULTIPLE ROLES FOR WORKFORCE PERSONNEL?

RATIONALE	APPLICATION	EVIDENCE OF SUCCESS
Students benefit from exposure to diverse perspectives.	Industry staff contributed to an integrated curriculum that incorporates academic requirements and the skills essential to employment success.	When mentors were asked to what extent LAMP "allowed you to contribute to the quality of education in your community," they rated it an 8.5 out of 10.
Resources are leveraged from all partners.	A Policy Board, comprised of representatives from each of the key partners, identifies and secures resources.	The UAW-GM contributed significant resources to build and equip a dedicated state-of-the-art classroom on-site.
Employee experiences with the program will enhance and improve the workplace.	Employees work directly with students on authentic projects.	27% of employees reported their morale improved "tremendously," and 84% of mentors reported their knowledge of manufacturing expanded greatly.

WHY DO BUSINESS AND LABOR PARTICIPATE?

Savvy employers recognize that participation in local educational reform is an investment in sound organizational health. Beyond making contributions to public education, employers can reap tangible benefits that contribute to their bottom line. A recent review of national studies (K. Hughes et al, School-to-Work: Making a Difference in Education, IEE, New York: Columbia University, 2001.) found that employers participating in STC initiatives report lower recruitment costs, increased satisfaction with entry-level employees, reduced turnover, increased morale, and increased productivity.

Participation enhances the work life of employees involved in the LAMP initiative, from improved morale and expanded networks with co-workers to influencing the way they approach their work. Employees involved in LAMP express increasing energy levels and pride in their accomplishments. Personal enrichment results from the opportunity to work directly with young people. Numerous employees report renewed interest in pursuing further education or training themselves. (See Beyond the Success of the Students.)

From an organizational perspective, LAMP helps the UAW and GM develop a well-qualified workforce with a good understanding of the industry. Moreover, as a result of the authentic project-based exercises integrated into the LAMP curriculum, students and project advisors explore new approaches and solutions to real workplace problems. On multiple occasions, student teams have made proposals with the potential to improve production quality, reduce waste, and cut costs.

WHY DO BUSINESS AND LABOR PARTICIPATE?

RATIONALE	APPLICATION	EVIDENCE OF SUCCESS
Students contribute fresh new perspectives and ideas to their learning environment.	The Capstone Experience requires LAMP students to apply their knowledge to genuine UAW-GM situations.	A LAMP 2000 student was hired as a summer intern at GM to facilitate implementation of his group's Capstone Project on conducting "Quality Audit 9002."
Student interactions rekindle employee interests in the industry and enhance productivity.	Workplace personnel have opportunities for regular contact with LAMP students as mentors, advisors, and workplace instructors.	*"Every time I met with my LAMP student, the rest of my week went great. I get energy from a young person..." "I learned from their presentations... It's helped me to communicate better and hopefully be a better supervisor."* LAMP Mentors
Collaboration promotes information-sharing and helps build community relationships.	UAW-GM personnel serve as trainers to effectively integrate practical experience into the curriculum jointly developed by educators and GM personnel.	Workplace trainers improved the delivery and content of their materials. *"We are looking at a spin-off of LAMP-like training for new hires for the new plant."* Policy Board Member
STC programs like LAMP offer practical employment experiences and realistic expectations.	LAMP students become familiar with the physical environment and the corporate culture, and know what to expect when on-site.	LAMP students experience significant growth in their knowledge of workplace culture and manufacturing know-how. All students report that they are better prepared for careers in manufacturing.

WHY IS LAMP LOCATED ON-SITE?

The LAMP classroom is housed within a working GM Plant in Lansing, Michigan. Students have easy access to different manufacturing facilities and numerous workplace personnel. As a result, students gain access to resources not available in more traditional classroom settings. The location of this classroom provides an authentic learning context, one in which the relationship between academic concepts and the real-world application is made obvious.

The level of adult involvement in the LAMP program contrasts sharply with traditional classroom settings. Whereas the student-teacher ratio in most classrooms results in a ratio of students outnumbering teachers by roughly 25-1; adults on-site outnumber students in the LAMP program. This reversal of the traditional student-teacher ratio facilitates a powerful educational opportunity: students learn with a clear vision of the cause-and-effect of their actions, and a concrete purpose in mind. Students learn and work among adults committed to achieving certain goals as part of their employment expectations, with all the seriousness associated with this responsibility. Consequently, this setting and the increased ratio of adults to students raises the expectations for student behavior and performance.

LAMP students are consistently exposed to a real business environment. Unlike traditional high school students, they regularly practice new skills through formal and informal interactions with adults in the workplace. In keeping with the demands of the workplace, students are expected to behave in a mature, responsible manner. As a result, LAMP students grow personally and professionally.

WHY ON-SITE?

RATIONALE	APPLICATION	EVIDENCE OF SUCCESS
Student learning experiences are enhanced through exposure to a business environment. They gain access to resources not available in traditional classroom settings.	A dedicated classroom space within a GM facility offers access to an authentic manufacturing environment.	78% of the Class of 1999 reported that LAMP had greatly improved their ability to "act appropriately in a work situation."
Students practice skills through formal and informal interactions with adults in the workplace.	Students come into contact with numerous GM employees on a day-to-day basis.	A majority of students reported in follow-up surveys that LAMP had a significant impact on their ability to work well with adults.
Classroom placement at the worksite creates authenticity.	Teachers seek out support and answers to students' industry-specific questions from nearby UAW-GM staff.	*"LAMP would be just another educational program in a high school without industry's involvement. It has a uniqueness because it's here in the plant."* Instructor

WHY DOES LAMP USE WORK-BASED LEARNING?

Work-based learning (WBL) refers to a variety of activities, ranging from shorter introductory experiences such as job shadowing or exposure to career speakers to longer, more intensive ones such as internships, mentoring, or apprenticeships. These activities emphasize the workplace as a true learning environment. WBL can also entail importing scenarios from the work world into the classroom. There are several purposes for WBL, including: acquiring general workplace competencies, such as those detailed in the SCANS reports; providing career exploration and planning; acquiring knowledge and skills in particular industries; and building motivation and academic competencies related to classroom instruction.

WBL differs from work experiences gained through regular jobs because it is intentionally structured to promote learning by linking the applied practice of work with the concepts gained in school. Likewise, students are afforded the opportunity to reflect on what is learned in the workplace. Research has found that WBL can enhance students' motivation and academic achievement. Students also demonstrate increases in their personal and social competence.

WHY WORK-BASED LEARNING?

RATIONALE	APPLICATION	EVIDENCE OF SUCCESS
WBL links academic knowledge to practice.	An integrated curriculum connects academic concepts to workplace applications strengthening under-standing of both.	*"We were just all impressed. The students were very knowledgeable about lean and competitive manufacturing. They were ready to work and ready to learn."* Worksite Personnel
WBL should lead to increases in student motivation and participation.	Active involvement in dynamic learning experiences creates an engaging non-traditional learning environment.	99.1% attendance: often LAMP students even attended when their home school was closed. *"LAMP makes you look at your home school work in new and different ways. It opens your eyes."* LAMP Student
Students practice employability skills through actual contact with the workplace and adult role models.	LAMP students have an adult mentor and regular exposure to the workplace with hands-on exercises.	Students report significant gains in their ability to demonstrate the following manufacturing and employability skills: - Work on a team - Meet high-quality standards - Act appropriately at work - Work well with adults - Follow rules and norms - Be on time

WHY DOES LAMP USE AN INTEGRATED CURRICULUM?

When asked what sets LAMP apart from other approaches to educational reform, school staff point to the integrated curriculum and innovative instructional strategies. Educators cite the structural components of the initiative as most influential, for example, the curriculum's project-based nature, its emphasis on experiential and contextual learning, and its focus on developing problem solving skills. These emerging strategies blur the lines between academic and vocational education and are exactly what most administrators would like to adopt more broadly within their school systems.

The integrated nature of the LAMP curriculum originated from early collaborative efforts. While drawing on the expertise of curriculum development specialists from the IISD, personnel from the UAW and GM contributed to the development of the curriculum. Employer partners supply "the context for the content." Likewise, the manufacturing environment provides students with an applied learning context and opportunities to explore different careers.

When asked which lessons from LAMP they would take with them upon returning to a more traditional classroom setting, members of the instructional staff reported a heightened understanding of and appreciation for contextual learning methodologies. "I would focus on showing students how what they are learning is applied," one instructor stated emphatically.

As interest in generating integrated curriculum across all grades from Kindergarten to post-secondary study continues to grow, administrators will look to LAMP as a model. The curriculum is significant for three main reasons: the process of joint development with industry used to create it; the unique manufacturing content that it conveys; and the innovative teaching and learning strategies that are woven into the materials themselves. Curriculum developers proudly cite high attendance, good grades, virtually no attrition, and strong parental involvement as evidence of their success.

WHY INTEGRATED CURRICULUM?

RATIONALE	APPLICATION	EVIDENCE OF SUCCESS
The lines between academic and vocational education are blurred providing students with practical experience.	The LAMP curriculum is developed with input from educators and workplace personnel for a unique blend of work-based learning.	*"To see those students talk so fluently about how and where their math skills were used, the English skills, and communications skills. They articulated the benefit of an integrated curriculum."* District Administrator
Student motivation increases when learning is meaningful.	The real-life manufacturing context provides a genuine educational foundation.	The LAMP program resulted in strong attendance records, good grades, and a 99% completion rate.
The integrated curriculum connects competencies and concepts.	LAMP assignments and team exercises require cumulative learning and cross application of educational methodologies and practical experience.	*"I've became a zealot in helping teachers get more in touch with contextual teaching and integrating work and learning. They are teaching more competencies than they even realize!"* LAMP Operations Supervisor

WHY DOES LAMP USE PROJECT-BASED LEARNING?

Educators have a strong interest in helping young people become effective problem solvers. However, few schools give explicit attention to this goal, in spite of the fact that it regularly appears in their mission statements and curriculum guides. In traditional classrooms, problems frequently appear as case studies at the end of the unit and function more as assessment opportunities rather than a means of helping students refine their problem solving abilities.

Conventional compartmentalized classrooms cause students to absorb subject matter in isolation. In order to prepare for the information economy, students need to understand the relationships between core academic areas and see the "big picture." Therefore, LAMP employs a project-based learning approach, which enables students to understand the interdependencies of each part of the system. This helps them to make powerful learning connections and better prepares them for life outside of the classroom by sharpening students' ability to use information to solve problems.

The LAMP curriculum is based upon knowledge of expert problem solving. Effective problem solvers are data-driven and process-focused. They know how to find new information and extend their knowledge bases even when facing stumbling blocks. Secondly, productive problem solvers are experienced at identifying hypotheses, asking insightful questions, conducting successful information searches, thinking critically and finding effective solutions, even when confronted with conflicting information. Project-based learning teaches students to hone their problem solving skills for application in academic and external situations.

WHY PROJECT-BASED LEARNING?

RATIONALE	APPLICATION	EVIDENCE OF SUCCESS
Project-based learning increases student responsibility and self-direction in their own learning processes.	Teachers serve as coaches, guides; workplace personnel serve as advisors.	In follow-up surveys, a majority of students reported that participation led to their increased ability to take initiative and responsibility.
With project-based learning, students take a more active role in their learning process.	Students use the inquiry method, conduct research, and propose solutions.	Students responded favorably to the teaching styles used to get and keep them engaged in the learning process.
Students learn how to apply knowledge and demonstrate skills gained.	Realistic industry projects and Capstone Experiences inspire learning.	One student was hired as a summer intern to facilitate implementation of his group's Capstone Project.

WHY DOES LAMP USE VARIED ASSESSMENT TOOLS?

There is a growing recognition that the measurement of student achievement should go much deeper than traditional assessment techniques. Traditional assessments primarily measure memorization and recall and do not always test comprehension. They certainly do not give students opportunities to apply what they have learned or use their knowledge in practical and creative ways. When used effectively, non-traditional assessment tools can more clearly illustrate the students' learning progress.

Teachers in the arts and vocational trades have long used practical measures such as portfolios, direct observation, and performances to measure student progress. Recently there has been an impetus at the state and national levels to expand the repertoire of assessment strategies for all students.

The LAMP Program utilizes two types of assessment tools, formative and summative. Formative assessments are the incremental measurements that ensure student understanding of the materials and consist of journal entries, questions following class activities, and traditional, unannounced pen and paper testing. Summative assessments are the final assessments given once all students appear to have mastered the material, and include worksite situations, individual projects, and portfolios developed through the use of proficiency matrices containing unit themes. Students and teachers evaluate the summative assessments following the Quality/Not Yet Quality standards system to determine progress.

Employers often assert that recent high school graduates lack the skills essential to success in the workplace, including communication, teamwork, and presentation skills. The LAMP educational experience provides students with employability skills and documents them in a formalized way.

WHY INCLUDE VARIED ASSESSMENTS?

RATIONALE	APPLICATION	EVIDENCE OF SUCCESS
Alternative assessments like the Capstone Experience offer students the opportunity to demonstrate non-traditional employability skills, like teamwork and group problem solving.	The Capstone Experience requires students to apply the skills and knowledge gained throughout the school year toward the practical solution of an authentic workplace problem.	Student teams make a formal presentation displaying their results to a panel of administrators and business representatives who grade their performance. Assessments indicate gains in communication skills, substantive knowledge, problem solving, and teamwork skills.
In addition to developing invaluable new skills, completing these varied assessments enhances students' personal growth by building self-esteem.	Students acquire, practice, and demonstrate these skills throughout the LAMP program year to strengthen confidence and self-esteem.	*"We have an advantage over other young people when interviewing for jobs. Our communication and interviewing skills are blowing employers away."* LAMP Student
Varied assessments offer additional information regarding student accomplishments.	LAMP students exit the program having demonstrated their abilities through both traditional and alternative assessment tools.	Employers report benefits since they are able to make hiring decisions based on documented skills that are meaningful to them.

WHY DOES LAMP EMPLOY A TEAM-TEACHING APPROACH?

Team-teaching allows the instructional staff to accomplish things that teachers working individually cannot. Teachers delivering curriculum in a team fashion build on each others' strengths and compensate for each others' weaknesses. For example, a teacher with strong planning skills could be effectively paired with a teacher with strong presentation skills for maximum results.

Team-teaching allows teachers to share responsibility or divide duties. For example, as one delivers curriculum in front of the whole group, another can circulate and lend individual assistance. During work-based learning experiences, teachers can divide the class into smaller groups to maintain better control in workplace learning settings where teachers need to pay close attention to non-traditional tasks and learning opportunities.

While team-teaching can enhance classroom management, the LAMP teaching team has moved beyond viewing management simply as a means for eliciting control and instead see it as part of the overall learning climate. Effective team-teaching builds on the interrelationship of management and instruction. For example, a team-teaching approach encourages teachers to link projects together by creating commonality and continuity. Themes are carried across lessons and into all aspects of the instruction.

As teachers collaborate in their classes, they are giving students a prime example of the application and value of teamwork. Students experience firsthand how this can work and learn by observing this vital employability skill in action.

WHY TEAM-TEACHING?

RATIONALE	APPLICATION	EVIDENCE OF SUCCESS
Teachers need to model the teamwork process to students. They can produce a better delivery by relying on one another's strengths.	Instructors work as a team, taking a unified approach to coaching, facilitating, and delivering curricular materials to the class.	Students report increased appreciation for teamwork and demonstrated increases in teamwork skills. Virtually all students rated the program's impact on their ability to work on a team as their number one employability gain.
Teachers "cover more territory," providing each student group with oversight, prompting students when necessary.	For each unit, one teacher takes the lead, providing feedback on what did and did not work in the classroom.	*"The teachers are motivated. They push us. They want one hundred percent out of everybody."* LAMP Student
Teachers can provide different perspectives on information.	Teachers continually work on becoming more "in sync" and improving delivery.	Students rated the quality of instruction highly. Two-thirds indicated that the LAMP instructors were among the best teachers they had in high school.

WHY IS THERE A SELECTIVE APPLICATION PROCESS?

Each year, the number of students interested in participating in LAMP far exceeds the number of slots available. The purpose of the selection process is to identify and enroll those students who would most benefit from and contribute to this educational experience.

The selection process itself and the correspondingly large number of applicants has enhanced the credibility of the program. Students from a large cross section of academic backgrounds apply and enroll. High grades are not the deciding factor in acceptance, but rather a commitment to this unique learning program and often an expressed interest in the field of manufacturing. Student interest and motivation are assessed through an interview process. The prestige of acceptance inspires students to their best effort.

It is important to recognize that LAMP goes beyond helping selected students better prepare for their post-secondary careers in college and work. LAMP is contributing to broader educational reform. Public school administrators and decision-makers have identified four aspects of LAMP that cause them to revisit their current focus and approach to education reform, namely: the partnership model; a model for education to address workforce development; increased parental involvement; and the innovative curriculum and instruction. The influence of LAMP on the participating school districts can already be seen beyond the students officially enrolled. Others touched by the program include administrators and staff at the participating schools, non-LAMP students who are classmates of LAMP students, and importantly, the parents of LAMP students.

WHY A SELECTIVE APPLICATION PROCESS?

RATIONALE	APPLICATION	EVIDENCE OF SUCCESS
This process identifies those who will benefit most and who have the highest level of commitment to program completion.	The many hurdles required for selection separate out those students with "stick-to-it-iveness."	*"You have to have a certain mindset to come into LAMP and succeed. This is not the program for a person who needs a lot of hand holding."* LAMP Student
An increased sense of specialness and opportunity should stem from the selection process.	The numerous steps of the application and selection process generate commitment to the program and confidence in oneself.	*"LAMP provides lots of challenges. You had to work. There are no slackers here."* LAMP Student
Parents and families become more engaged in helping foster their child's growth.	Parents must attend information sessions with their child to obtain an application.	Parents represent a strong source of support for recruitment. Eight out of ten (82%) recommended LAMP to another parent or student. Of the remaining 18%, all indicated that given the opportunity, they, too, would recommend the program.

WHY ENROLL A DIVERSE MIX OF STUDENTS?

Diversity in educational settings is important because the skills for employment and work in modern manufacturing require the ability to work with people from diverse backgrounds. Both the 21st Century workplace and the LAMP classroom require people to collaborate in a team environment and demonstrate employability skills such as communication, problem solving, and teamwork. The heterogeneous classroom serves to break down natural barriers created by location, culture, ethnicity, and socioeconomic background. Students are provided opportunities to build on each other's strengths, compensate for each other's weaknesses, and achieve common goals.

LAMP brings together young people from different backgrounds: Asian, Black, Hispanic, White, rich, poor, academically talented, academically challenged, from urban, suburban, and rural environments. According to classroom instructors, one of the biggest impacts of the program was on the students' ability to collaborate and get along with others. Classroom instructors, district administrators, and curriculum developers agreed that these interactions helped the young people grow as individuals. For instance, students from the more rural areas came from small schools with homogeneous student bodies. Through LAMP, students experienced working with people from diverse backgrounds.

WHY ENROLL A DIVERSE MIX OF STUDENTS?

RATIONALE	APPLICATION	EVIDENCE OF SUCCESS
Diverse participation demonstrates that STC can work for **all** students.	Recruitment strategies and selection criteria allow a cross-section of students to enroll.	All students successfully complete the program; all obtained grades of A or B.
Diversity reflects the workplace and society.	UAW and GM are committed to increasing the representation of women and minorities.	For example, the LAMP Class of 1999 was comprised of 41% women and 31% students of color.
Differences challenge students to collaborate and develop team-building skills.	Students become successful team members through experience in group settings.	Students learned how to rely on one another's strengths to overcome individual weaknesses in working through problems. "*On a team, everyone has their key roles.*" LAMP Student

WHY PROVIDE A STUDENT ORIENTATION SESSION?

School-to-career initiatives like LAMP represent a learning environment that is very different from the traditional classroom with which most students are familiar. Working in teams, presenting in public, conducting research, and interacting with employees are just a few of the experiences that contrast with standard classroom settings. Additionally, the way students are assessed contrasts with traditional assessment techniques

Some students harbor misconceptions about the nature and structure of the program. Therefore, incoming students are required to attend an orientation program to help them form more realistic expectations from the outset. During the week-long session, students come to understand what they can expect, how they can best benefit from participation, and how they will be graded. Importantly, the students themselves participate in developing norms for classroom behavior, thereby becoming personally invested in the process.

At orientation, students receive copies of their student manual and a preview of the curriculum. They are introduced to the instructional staff and representatives of the UAW and GM who explain the differences in expected behavior between the school and workplace. They also cover safety issues in preparation for the work-based learning components.

Students from diverse backgrounds and different schools have a chance to meet one another and become acquainted. Group activities and problem solving exercises help the diverse student body come to understand, accept, and respect one another. The orientation week also serves to jump-start the team-building process.

WHY STUDENT ORIENTATION?

RATIONALE	APPLICATION	EVIDENCE OF SUCCESS
Orientation both informs students and ensures they know what they are getting into.	Information sessions clarify expectations.	Students were ready to participate and overwhelmingly completed the program.
The orientation begins to build student buy-in and commitment.	Students generate norms and rules for themselves in orientation exercises.	*"Most everyone's here because they want to work, so it's a positive environment."* LAMP Student
Orientation is essential to initiating the team-building process.	Creative and dynamic group activities begin to unify the group and set the tone for the work-based learning process.	*"One of the greatest things for me this year was to see students from sixteen different schools become a team."* LAMP Instructor

WHY IS PARENTAL INVOLVEMENT SO IMPORTANT?

While parents are often active in the educational lives of their children in the early grades, their involvement tends to taper off during middle school and is virtually absent in high school. Re-engaging parents in the educational enterprise of their children is an issue educators wrestle with across the country. One of the most impressive impacts of the LAMP initiative is its effect on increasing parental involvement. By all accounts, parents of LAMP students appear to be more engaged and involved in their children's education than parents of typical high school students.

One administrator reported that LAMP "creates better links with parents" by providing a more familiar common ground on which to interact with educators and their own children. Too often, parents are intimidated by the educational process, which may seem arcane and removed from their daily experience. LAMP, firmly grounded in the world of work, provides a point of reference that is meaningful to parents, educators, and students alike.

Parental engagement in LAMP begins with the stipulation that a parent must accompany a student to the information sessions in order to receive an application. During the school year, student-led parent/teacher nights are held to facilitate communication about individual and program progress.

Additionally, parents are invited to key events throughout the year in an attempt to promote further career-related discourse. Parents commented that this experience served to re-ignite their involvement in the education and career development of their child, and enhanced communication in general.

WHY PARENTAL INVOLVEMENT?

RATIONALE	APPLICATION	EVIDENCE OF SUCCESS
Parental involvement helps students make more informed educational choices.	LAMP requirements include information sessions jointly attended by students and their parents.	94% of parents considered LAMP to have been helpful in their child's educational and training choices.
Increased parental involvement in the learning process helps support students.	Student-directed parent/student conference nights promotes students' leadership role and parental interaction.	100% of LAMP students had a parent or guardian attend the fall conferences in 2001.
Family decision-making is enhanced and a support system is reinforced when parents are involved in their child's education.	In contrast to traditional academic experiences, work-based learning experiences provide common ground for career-related discussions between parents and students.	87% of parents report that LAMP was very helpful to families in making decisions about finding and obtaining a job. Similarly, 88% reported that communication with their child increased "quite a bit" or more.

WHY IS LAMP COMMITTED TO A CONTINUOUS IMPROVEMENT PROCESS?

LAMP program personnel are constantly striving to improve the program. Students, worksite personnel, and parents are frequently asked for feedback about the LAMP system, following the quality approach developed by Deming. Ever mindful of programmatic goals and mission, LAMP administrators and instructors frequently review both quantitative and anecdotal data to gauge programmatic success. Follow-up contact with LAMP graduates has resulted in considerable enhancements of both curricular and non-curricular aspects of the program. The following additional improvements are planned:

Connections to the Home School

While the LAMP classroom builds on knowledge gained in the classroom as well as through work-based learning experiences, the connection between the LAMP classroom and the students' home schools has yet to be fully developed. Here are a few strategies under development that are designed to tighten the linkages between LAMP and the home schools:

- Create direct and intentional linkages between LAMP curriculum and traditional academic subject matter
- Provide broader career awareness for all students via LAMP-developed materials
- Provide deeper understanding of manufacturing career options to assist counselors with students' career development and planning
- Package curricular modules and/or stand-alone materials that can be picked up by home school teachers as discrete units and/or integrated in existing curricula
- Develop enhanced varied assessment strategies that document employability skills

Connections to and Alignment with Middle Grades

LAMP is currently configured as a course of study for high school seniors. Educators and employers are in agreement that career development activities can be even more effective if they are implemented early in a student's education. LAMP personnel, in cooperation with local educators, are exploring ways to align senior-level LAMP coursework with preceding grade levels to:

- Provide career awareness for students via LAMP literature, guest speakers, and career mentors
- Enhance career guidance for teachers and counselors through LAMP outreach
- Clearly establish LAMP as part of larger career development continuum
- Provide tours of LAMP classroom, training areas, and GM facilities to middle grade students and teachers

Professional Development Activities

True expansion of school-to-career strategies requires a highly motivated and well-trained cadre of education professionals. LAMP personnel have begun organizing and offering professional development experiences to education staff in the surrounding area. Here are a few other activities that LAMP personnel have been developing to increase professional development:

- Build a relationship with the teacher training programs at Michigan State University and Olivet College
- Offer education majors student teaching experience in the LAMP classroom
- Provide tours of LAMP classroom and GM facilities to administrators and teachers
- Create a Summer Academy for in-service training and externships

WHY YOUR COMMUNITY SHOULD IMPLEMENT LAMP

The Lansing Area Manufacturing Partnership is establishing itself as a model school-to-career initiative. Its innovative employer-driven curriculum, its emphasis on project-based learning, its team- teaching structure, and the opportunity for staff and students to establish close, ongoing interactions with employees, distinguish LAMP among other career prep programs.

Most importantly, students are experiencing positive educational and developmental gains. Given the outcomes LAMP has been able to generate, the potential for LAMP to serve as a catalyst for continuing educational change appears quite high.

LAMP results in positive outcomes for all stakeholders, as the following quotes from students, their parents, teachers, workplace personnel, and school administrators clearly indicate.

Students:
- "I learned how to be an adult."
- "LAMP definitely kept me motivated this year - there's always something to think about."

Teachers:
- "In LAMP everyone works together to find solutions. We get students' input and help them think about the process of gaining knowledge and being self-directed learners."
- LAMP staff describe the classroom as "a meeting place of multiple methodologies," an opportunity to "live what we teach."

Worksite Personnel:
- "One person can make a big difference to someone that age. If we don't take care of kids, who will?"
- "Children are the future...anything that I can do to help them become successful will be a pleasure and a joy."
- "At first I thought I wouldn't have time for this, now I wish I had more time."

Administrators:
- "We are enhancing public education."
- "We have a very different picture of the workplace, a different perspective on what it takes to work in a workplace with a union. Our understanding has grown significantly."

Parents:
- "When I arrived at my son's conference and realized he was in charge of showing me what he was learning, I was instantly impressed. I felt a sense of pride and accomplishment reflect off him as he introduced me to the program he loves."
- "I felt the most valuable part was being able to communicate and relate to my (child) in an adult type manner."

LAMP provides a proven model for business, labor, and education to collaboratively develop and implement educational change. Given the achievements of LAMP that have been documented to date, the LAMP model should receive serious consideration by school districts across the nation, and will prove especially appealing to those who have embraced the principles of the school-to-career movement. The future success of our students depends on how we educate them today.

NIWL'S EVALUATIVE REPORTS ON LAMP

The following reports were developed by AED's National Institute for Work and Learning as part of the ongoing LAMP evaluation. Originally prepared for the United Auto Workers-General Motors Center for Human Resources, the majority are now available on-line at: www.aed.org/ctrniwl/index.html, in 'New Publications and Studies,' under 'School-to-Work.'

Beyond the Success of the Students: An Analysis of Benefits that Accrue to STC Partners.
K. MacAllum and I. Charner. AED, Washington, DC., 2000.

LAMP WISE / LAMP WHYS: A Practical Guide to LAMP.
K. MacAllum, D. McDonald, and A. Bell Johnson. AED, Washington, DC., 2002.

The Lansing Area Manufacturing Partnership: A School-to-Success Story.
A. Bell Johnson, D. McDonald, and K. MacAllum. AED, Washington, DC., 2002.

Manufacturing Educational Change: Executive Summary.
K. MacAllum, S. Hubbard Taylor, and A. Bell Johnson. AED, Washington, DC., 1999.

Manufacturing Educational Change: Impact Evaluation of LAMP.
K. MacAllum, S. Hubbard Taylor, and A. Bell Johnson. AED, Washington, DC., 1999.

Simultaneous Development: Interim Evaluation of the LAMP Pilot Program.
A. Bell, S. Hubbard Taylor, and K. MacAllum. AED, Washington, DC., 1998.

Transitioning to College and Career: Interim Findings from the LAMP Longitudinal Study.
K. MacAllum, D. Worgs, R. Bozick, and D. McDonald. AED, Washington, DC., 2001.

What Happens After They Graduate? Results from a Longitudinal Study of STC Graduates.
K. MacAllum and R. Bozick. AED, Washington, DC., 2001.

Words to the Wise: Advice to Students, Teachers, and Administrators from Recent HS Graduates.
A special report prepared for the Lansing Area Tri-County School System. K. MacAllum, J. Fritts, and A. Tomlanovich. AED, Washington, DC., 2001.

The **Academy for Educational Development (AED)** is an independent nonprofit organization committed to solving critical social problems in the United States and throughout the world. Founded in 1961, AED's mission encompasses global leadership in major areas of human development—education, the environment, health, youth development, and the intersections between these and other programs. AED's international and culturally diverse staff works collaboratively with clients, partners, and communities to connect people and create change. AED staff supports individuals, communities, and institutions with multidisciplinary approaches and state-of-the-art tools in planning, policy analysis, program design, management, training, learning technologies, communication, behavior change, research, and evaluation.

The **National Institute for Work and Learning (NIWL)**, founded in 1971 and an Institute of the Academy since 1988, promotes active collaboration among the institutions of work, learning, and community. NIWL gathers promising and effective practices from local partnerships and practitioners, conducts policy studies and program evaluations of publicly and privately funded initiatives, and provides technical assistance in the areas of system building, work-based learning, school-based learning, and connecting activities. NIWL's approach is to bring the work, education, and community sectors together around shared objectives to improve education-work relationships in the interest of individuals and society as a whole.

Work for this report, and the research on which it is based, was funded by the **UAW-GM Center for Human Resources (CHR)**. Since 1985, CHR has served as the national headquarters for UAW-GM Joint Activities. The programs and activities administered by the CHR are provided to meet the education, training, and development needs of UAW-represented GM workers across the United States. Central to all of CHR's activities is the belief that people are UAW-GM's greatest resource.

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