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ABSTRACT

Wisconsin's Youth Apprenticeship Program in printing (YAP) features the following elements: competency-based curriculum and assessment systems; 2-year, part-time paid training and work experiences at one or more printing companies; work-based mentoring; technical college instruction in printing technology and some academic courses; integrated academic and vocational instruction; and collaborative school and industry oversight. The YAP was subjected to a 2-year evaluation of its short- and long-term effects. The evaluation compared the experiences of the following groups at five YAP sites: all graduating YAP seniors; all printing co-op seniors; all seniors who had been or were currently enrolled in at least one printing-related course; and students in one subject class who were not enrolled in a college preparation or vocational program. The following were among the data collection activities conducted: interviews with samples of students, graduates, employers, principals, and program coordinators; reviews of student records; and site visits. Compared with their peers, YAP graduates had maintained lower rates of absenteeism while in school and were more likely to show a strong interest in the printing industry and long-term career plans and more likely to have concrete long-term educational plans. The YAP also provided multiple benefits for participating schools and employers. (Forty-nine tables/figures are included. Four supplementary tables are appended.) (MN)

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Evaluation 1993–1995

By Dr. Margaret Terry Orr
Institute on Education and the Economy
Teachers College, Columbia University

For Jobs for the Future
under subcontract from the Wisconsin Departments
of Administration and Public Instruction

Jobs for the Future

Funded by the U.S. Department of Education Cooperative Demonstration Program (School to Work)

Founded in 1983, Jobs for the Future is a national, non-profit organization that conducts research, proposes policy innovation, designs systems, and provides technical assistance. Our goal is to enhance economic security and access to opportunity for all citizens by strengthening the transitions and linkages between work and learning.

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Many people contributed to the data collection, and their efforts are greatly appreciated. The program coordinators at each site—Marilyn Orlopp at West Bend; Phil Hansen at Milwaukee; Diane Kraus at CESA #2; and Christine Re and Holly Janzen at CESA #7—assisted in data collection by fielding surveys, compiling student records and other information and answering interview questions. Several people in Fox Valley—Virgil Noordyk, Jane Garton, Barb Jones, and Lori Weyers among others—provided this assistance as well. The staff at West Bend and Fox Valley provided further assistance by sponsoring several site visits and fielding a second year of surveys. In all requests, they were helpful and made extensive efforts to collect the data in a timely and complete manner. The principals and employers in these sites gave generously of their time through lengthy telephone interviews. Finally, the students were most helpful through their survey responses, and through focus group interviews and follow-up interviews in West Bend and Fox Valley, and focus groups in Milwaukee. Everyone's thoughtfulness and candid responses contributed greatly to the richness and depth of the evaluation.

The evaluation was conducted by Dr. Margaret Terry Orr, an associate professor of Teachers College and a senior researcher in its Institute on Education and the Economy. Dr. Orr designed and fielded all surveys, interview guides and other data collection instruments. She trained and supervised the telephone interviewers and conducted several site visits. Robin Willner, an independent educational consultant, conducted one site visit, during which she observed program activities, and interviewed staff, employers, and students. Dr. Orr conducted the primary data analysis and wrote the interim and final reports. Kristy Nguyen and Donna Merritt interviewed the graduates; Debra Sullivan, Kim Alkins, and Megan Werely interviewed the principals and employers. Kristy Nguyen and Debra Sullivan analyzed the student and graduate surveys, while Kim Alkins analyzed the employer interviews. Nancy Kunz and Robert Thaler analyzed the student competencies and school performance information. Michelle Cannon and Dawn Greenidge produced the final report, and Nicole Marshall proofed final drafts of the report.

PREFACE

The state of Wisconsin has a long tradition of being an innovator in areas of social policy, dating back to the Progressive Era. In recent years, Wisconsin has again taken a leadership role. One controversial area of innovation has been welfare reform. Another, perhaps less controversial but no less complex, is the preparation of young people for productive employment and careers.

This study examines the development and outcomes of one program that is part of Wisconsin's effort to reform the way young people make the transition from school to career—its intensive youth apprenticeship program. Specifically, the study is one of the first careful evaluations of the impacts of the Youth Apprenticeship Program in Printing, a five-site effort to help prepare a group of high school students for careers in the printing industry through a combination of work-based and school-based learning that follows a curriculum approved by industry leaders in the state.

This assessment of this intensive model of linking school and work should be of interest to practitioners and policymakers alike. Although the program has served a relatively small number of students, the insights gleaned from this study are broadly applicable. Overall, participating employers, students, and teachers were quite positive in their assessment of the program. Other major findings shed light on the motivating power of work-based learning; the effectiveness of this model in helping young people make a smooth transition to quality employment in the industry and to have more realistic employment and education plans; and the dynamics of local partnerships between schools, employers, and other community interests.

I want to highlight three findings in particular. The first relates to the significant level of employer involvement in this program. Printing industry employers made considerable investments of time, expertise, and dollars, not simply out of a general sense of responsibility to the community, but because they felt they received direct business benefits from their participation.

A second, related finding has to do with the apparent tradeoff between program scale and the intensity of employer involvement. The commitment required of employers participating in Wisconsin's Youth Apprenticeship Program in Printing appears to limit the ability of the program to expand in a given community, unless expansion is into different industries.

A third notable finding is about the participating students and their futures. While the students in this program were chosen because they were unlikely to attend college, and while the emphasis in the program was on employment directly after high school in the printing industry, a significant number of students have chosen to combine work and postsecondary schooling. And while a larger percentage of the comparison group went directly into postsecondary educational programs, it appears that the youth apprenticeship graduates were more likely than their peers to have credible long-term educational plans to complete four-year college.

The following pages summarize the results of the full report, which was prepared by Dr. Margaret Terry Orr of Teachers College for Jobs for the Future. (Limited copies of the full report are available from JFF at a cost of $10.00.)

This study is part of Jobs for the Future's school-to-career research program, which includes *Promising Practices: A Study of Ten School-to-Career Programs*; two evaluation studies of Boston's Project ProTech; and ongoing research on our five-city Benchmark Communities Initiative. Jobs for the Future will continue to study promising and innovative models for improving the school-to-career transition—and to disseminate our learning from them. As always, we encourage you to make use of this report and the information it contains.

Hilary C. Pennington
President

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FINDINGS IN BRIEF

A two-year evaluation of Wisconsin's Youth Apprenticeship Program in printing (YAP) shows promising results for initial cohorts' participation and successful transition into gainful employment and further education in printing. These results are based on an in-depth study of YAP students who graduated from five programs and of comparison students in less intensive printing preparation or general studies. YAP began in 1992 through joint development by various state and local government, education, labor, and printing industry efforts. It is a two-year program that combines classroom-based instruction in printing technology with part-time paid employment throughout the school year. At least one semester of college credit is earned through the program, based on agreements with local technical colleges.

Highlights of the findings, based upon surveys of seniors, six-month follow-up interviews of graduates, interviews of all employers, principals, and program coordinators, and documents on student performance, are summarized below.

Model Design

The program model consists of the following:

- competency-based curriculum and assessment systems;
- two-year, part-time paid training and work experience at one or more printing companies;
- work-based mentoring;
- technical college instruction in printing technology and some academic courses;
- integrated academic and vocational instruction; and
- collaborative school and industry oversight.

These core components capture most of the content and structure recommended by Hamilton (1990) and Jobs for the Future (1991). These proved to be easily replicated as implemented in the five sites and adaptable to local resources and conditions without threatening program fidelity. The competency-based curriculum is key to structuring and integrating work-based and school-based learning. It is reinforced further by collaborative oversight—including monthly mentor meetings, periodic teacher and mentor assessments of student progress, and periodic implementation team meetings. Four factors strongly influenced how the model was adapted locally:

- whether local printing companies could provide all the competency-based training;
- whether the program was sponsored by an individual high school or consortium;
- quality and use of mentor training and coordination; and
- use of an education and employment committee for oversight.

Target Population

The YAP students who graduated in 1995 were 73% male and 97% white. Ninety-four percent of the students had a working father and 94% had a working mother. Just over half (52%) had a mother who had only completed high school. As sophomores, they had average school performance with average to slightly below-average grades, few absences, and almost no disciplinary referrals.

The program was initially designed for non-college-bound students and is perceived by principals as being a specialized option for that group. In operation, it serves many students who had

college-going plans prior to enrolling and is structured, through the college credit accumulation, to facilitate college attendance.

Integrating and Contextualizing Instruction

The competency-based YAP curriculum organizes the school-based and work-based printing instruction. This leads to synchronized training and opportunities for students to apply academic and printing knowledge and skills in both settings. The students' work-based learning experiences are most integrated in their printing courses and less so in other academic courses. Students reported that they applied various academic skills and concepts in their work-based experiences.

The contextualized and integrated instruction appears to have been worthwhile educationally because YAP students were likely to rate their printing courses as more challenging and interesting, and to have better attendance in them than in their other academic courses.

Student Performance and Outcomes

The YAP was very effective in preparing and helping youth apprentices to transition well into quality employment in printing. The YAP students did well on various short-term and long-term employment and educational outcomes, particularly in comparison to other students who did not participate in a work experience program.

Employment outcomes. YAP graduates made a very smooth and sustained transition to quality employment in the printing industry following graduation.

- Ninety-four percent were working and all had jobs in the printing industry six to eight months following graduation, in contrast to their peers (60% of co-op graduates and 13% of printing-classes-only graduates).
- Seventy-five percent were still working for their youth apprenticeship employer six to eight months after graduation (in contrast to 20% of the co-op graduates).
- YAP graduates had better jobs than their peer graduates, based on hourly earnings, job skills required, and full-time employment status.
- YAP graduates were more likely than their peers to have a strong interest in the industry and long-term, concrete career plans.

Postsecondary educational outcomes. A sizable portion of YAP graduates continued in a technical college degree program, but at a lower participation rate than their peers. Most YAP graduates in college were also working, and some had employer support in their college participation.

- Forty-five percent of YAP graduates were enrolled in a college program six to eight months after graduation, in contrast to 60–63% of their peers.
- Seventy-one percent of the YAP graduates in college were majoring in printing, 71% were enrolled full-time and 86% were pursuing a technical college degree.
- YAP graduates were more likely than their peers to have concrete long-term educational plans to complete at least a four-year college degree.

Other educational and social benefits.

- YAP students maintained low absenteeism rates while in high school, while their peers did not.
- YAP graduates' comments about the program's benefits reflected a strong sense of being well prepared and having a direction and focus for postsecondary educational and employment pursuits, in contrast to their peers.

- Participating employers rated YAP seniors as being equally or better prepared than other entry-level employees on selected technical and social skills.
- YAP students formed and sustained close relationships with adult role models even after graduating.

Most YAP students rated the program highly, particularly the work experience. They were less likely to be satisfied with the academic classes.

Employer Involvement

Employers make a substantive contribution to the program by:

- providing lengthy, paid work experience;
- supporting extensive staff time for training and coordination; and
- cooperating well in following the rigorous competency-based curriculum and assessment system.

But, with a few exceptions, employers can serve only a few students each, limiting opportunities to expand the program to large numbers of students.

The employers experienced a range of direct and indirect benefits from their participation:

- They gained well-trained employees: almost all graduates were hired from the first cohort and commitments were made to most of the second cohort before they even graduated.
- Their employees benefited from being trainers.
- They received community and professional recognition for their participation.

The work-based learning was cumbersome for school staff to coordinate, making it difficult to ensure program quality and address problems effectively. Mentor training and monthly mentor meetings, when used well, helped to address these challenges.

Impact on Schools

The schools experienced several benefits from participating, including:

- Expanded program options, particularly for the non-college-bound;
- Strengthened ties with local businesses and postsecondary institutions; and
- Stimulation to rethink how secondary education is structured and delivered, and to envision a broader school-to-work transition effort.

The schools had to adapt their structure and course offerings in order to accommodate the program, but this did not seem to be challenging. The per student costs, while varying widely by site, were more difficult for the schools to sustain, limiting student recruitment in some areas.

Potential for Expansion

The program, while highly valued, has limited potential for broad expansion within the sites, due to the following factors:

- limits on the number of youth apprentices each company can train;
- the lack of additional companies to be recruited (in most sites); and
- the added per student costs for training billed to each school district.

While the sites had found some cost containment strategies, there were limited options available to reduce the costs.

Conclusion

Wisconsin has developed a very successful youth apprenticeship program in printing. The program enabled its graduates to make a smooth transition into quality employment and it provided the printing industry with well-trained entry-level employees. Unfortunately, it has limited potential for expansion within the printing industry in the existing sites. Wisconsin's efforts to replicate this model in other industries provide an alternative solution.

Sustaining the program is the next challenge. Its added costs are a liability to some districts, while its benefits for employers and school districts can offset this. Its complex nature and dependence on multiple organizational relationships can be a more significant threat to program integrity, unless well supported and maintained. The success of this approach offers many insights for school-to-work transition and secondary school reform, including the feasibility of preparing students for both employment and college in a selected field, engaging substantive employer participation, and structuring and integrating work-based learning.

EXECUTIVE SUMMARY

This report is based on an evaluation of Wisconsin's Youth Apprenticeship Program (YAP) in printing, which was started as a pilot in two sites in 1992. This two-year school-to-work program was jointly designed by the Wisconsin Department of Public Instruction, the Wisconsin Department of Industry, Labor, and Human Resources, and representatives of the printing industry, labor unions, professional associations, and local school districts. It uses a competency-based curriculum and assessment system to structure classroom and worksite training in the broad foundation areas and some specialized areas of the printing industry. Students work part-time at designated worksites under the supervision of mentors throughout the two years. Through articulation agreements with local technical colleges, they earn course credit through their printing courses and often other academic classes, such as communications. Following its initial implementation period, the program was expanded gradually to 11 sites by 1995, serving 66 juniors and seniors in all.

The evaluation addressed issues of program design, operation, and impact, particularly as compared to other similar students. The primary evaluation results are quite positive, despite being based on the first cohorts in a new educational program. The most salient findings include the following:

- YAP graduates made a very smooth transition to full-time quality employment in the printing industry. Six to eight months after graduating, 94% of the YAP graduates were employed and all had jobs in the printing industry (in contrast to 60% of the co-op graduates and 13% of printing-classes-only graduates).
- 75% of YAP graduates continued working for their apprenticeship employer, in contrast to 20% of co-op graduates.
- Working YAP graduates had better quality jobs than did other graduates, as measured by hourly earnings, hours per week, and skills required.
- YAP graduates had more concrete, long-term, industry-focused career and educational plans then did their peers.
- YAP graduates were less likely than their peers to be enrolled in a postsecondary institution, but most of those in college combined school and work, often with employer support.
- The YAP graduates enthusiastically attributed their employment and academic orientation, preparedness, and success to the program.
- Employers highly valued the students' training and competency-based assessment and perceived the YAP students to be equally or better prepared then other entry-level employees on a range of technical and social skills.
- YAP was well implemented across the five sites, maintaining strong program fidelity although differently structured for local conditions and resources.
- Several employers and schools found the YAP model to be an impetus to changes and school-based commitment to school-to-work approaches.

The competency-based curriculum and assessment system and the strong commitment by local printing companies, school districts, and other collaborating entities made the program substantive and effective. Its high per student cost, limited potential for expansion in each site, and its complex delivery and management requirements made it challenging to operate. In addition, some unevenness in work-based training experiences occurred, possibly as a result of insufficient mentor training and oversight. Despite these challenges, there were very positive results, based on the experiences and outcomes of the first and second graduating cohorts. These showed the

Wisconsin YAP to be exceptional in smoothly transitioning youth to quality careers in the printing industry and to further education in the field.

Context and Evaluation Design

The youth apprenticeship model generally is viewed as a "high-end" work-based learning approach, which capitalizes on intensive and lengthy employer-provided training, complemented by a series of academic courses, all within a selected industry sector. It is currently being tested in several states. Educators, policymakers and researchers offer guidelines on how best to adapt the European youth apprenticeship model to our U.S. education and labor markets, and raise questions about likely problems and limitations in its use.

The consensus view is that, to be successful, youth apprenticeship must integrate academic and work-based learning, have a well-structured work experience that provides learning and working opportunities, offer breadth and depth in training, and lead to recognized credentials as well as contribute to a high school diploma. Finally, it should be structured around formal agreements between employers and schools, use a joint governance structure, provide staff training, and monitor student and program progress. But there are many challenges to implementing and sustaining this model, including: few incentives to develop and sustain employer participation in such an intensive, voluntary educational role; relatively high costs; and cumbersome management through multiple agreements between the schools and other partners, including businesses and postsecondary institutions.

To determine the effectiveness of its youth apprenticeship programs in the printing industry, the state of Wisconsin funded a two-year evaluation of five local programs—Cooperative Education Service Agency (CESA) #2, CESA #7, Fox Valley, Milwaukee, and West Bend. The evaluation was conducted by the Institute for Education and the Economy of Teachers College, Columbia University, in cooperation with Jobs for the Future. The priorities and concerns raised by policymakers and educators about the youth apprenticeship model, and questions about equity, quality, impact and replicability of this program, structured the evaluation.

The evaluation was further designed to document program implementation and the program's impact on participants, schools, and employers. Program implementation was analyzed according to aspects of program fidelity (adherence to the intended model), how it was modified, and how the program compares to expert recommendations regarding the youth apprenticeship model. Program impact on students was assessed according to improvements in their school-related behavior (in the short-term), their career and education plans as high school graduates, and their subsequent educational and employment experiences six to eight months following high school graduation. Their experiences were compared to three other similar groups of students who had less or no direct exposure to the printing industry: co-op students in printing; students in printing classes, but with no work experience; and general track students with no vocational program preparation. Difficulties in obtaining school record information on student performance, and the small sample sizes of the YAP and co-op students, limited the impact analysis. Nonetheless, multiple measures of the various outcomes were combined, strengthening the validity of the results and the interpretations.

The results were analyzed thematically and combined to address policy and program issues in terms of target population, model design, integrating and contextualizing instruction, student performance and outcomes, employer involvement, impact on high schools, and potential for expansion.

Target Population

The program was initially conceived for non-college-bound students. However, the program designers wanted to create a substantive program option for this group and did not want to limit other students' access to this program. In addition, they did not want to limit participants' post-high-school options. They created mechanisms to prepare students equally well for immediate entry into employment and continued pursuit of a technical college education.

Béing "non-college-bound" may be a tenuous label anyway. The students' academic characteristics and perceptions present a mixed picture. About 60% of the YAP students reported that they had planned on going to college when they enrolled. Yet they had only average academic performance (a 2.6 grade point on a 4.0 scale), but had low absenteeism and disciplinary referrals (in contrast to their peers). The program does not serve very poorly performing students or those who are educationally at risk, primarily because of the perception that employers will not "hire" them for the training and there are no support services to ensure their success. Thus, in its operations, it appears that the program is targeting average students who may not have been in a strong position to do well in college, based upon their sophomore year grades, but who were motivated and had few social and behavioral problems that could complicate their participation.

While not intended to be limited to a very small number of students, in operation the program averages only seven or eight students in each cohort per site (for the five sites studied in 1995). The program's lengthy time commitment, the competition for time otherwise used for extracurricular activities, and somewhat fixed course requirements made recruitment challenging. There was also some confusion among potential recruits over whether students would be able to pursue college eventually.

Finally, in its early stages, the program lacked some gender and racial/ethnic balance; only one-third of the students were female and few were non-white. This imbalance varied by site. Some program staff (where the problem occurred) were aware of this imbalance and had begun taking steps to address it.

Model Design

Wisconsin's YAP consists of several core components: a competency-based curriculum and assessment system; a required two-year part-time, paid training and work experience at a printing company; a work-based mentor; technical college instruction in printing technology and some academic courses; integrated academic and vocational instruction; and collaborative school and industry oversight. These core components proved to be easily replicable and adaptable to local resources and conditions in their implementation in five sites, without threatening program fidelity.

The model offers considerable flexibility in sequencing the competency areas, scheduling training and classroom learning, using multiple employers for each student's training, and adapting to youth apprenticeship by an individual school or a regional consortium of schools. As a result, the core program components, when examined in five different sites throughout Wisconsin, were found to be well implemented, although differently structured. The adaptability of the model seems to have contributed greatly to its successful implementation in a wide variety of settings, including an urban technical high school and a rural consortium of school districts. The competency-based curriculum seems to have been key to structuring and integrating both the worksite training and the printing classes training in each site. The collaborative oversight helps to integrate the programs further, emphasize quality, and address operational challenges.

Recommended features. The content and structure of the program adhere to most of the features recommended by Stephen Hamilton (1990) of Cornell University for a youth apprenticeship program: it offers substantive work-based training in broad, rather than narrow, areas of the

printing industry; the printing technology training is well defined by the competency structure and is organized to offer both progressive breadth and depth; it integrates academic and work-based learning by offering students opportunities to use their skills in both settings; students are supervised by a worksite mentor, who coordinates with designated school staff; and students are both learners and workers at the worksite, are paid and are offered many employee benefits (such as overtime work and company parties). Finally, students are assessed according to their capacity to perform each printing competency with limited supervision.

The structure and governance of the program, however, lacks some of the features stressed by Jobs for the Future (1991; 1995). In terms of structure, Wisconsin's youth apprenticeship program requires work-based training during the school year, but only recommends it be offered during the summer. Nonetheless, 80% of the YAP students actually worked for their employers during the summer between their junior and senior years. All students continue to take the necessary academic courses for their high school diploma and are required to take printing technology, communications, and computing courses.

There are other structural features that Jobs for the Future recommends which, while not included in this model, are partially addressed otherwise. There is no K–10 career development program, but that is part of the state's broader school to work transition efforts. Wisconsin's youth apprenticeship model does not include a formal postsecondary education component, but does have articulation agreements with local technical colleges, so that one or two semesters of college credit are earned through high school printing and other academic courses. Students are strongly encouraged through this credit accumulation to continue and complete their technical college degree. Finally, some staff development is offered for mentors, primarily for new ones, but no staff development is provided to participating teachers, except through their hands-on experience in helping to plan and implement the program.

Consistent with Jobs for the Future's recommendations for governance, most sites use an advisory committee or steering committee for program planning, problem-solving, and operations. The committees are comprised of representatives of employers, school districts, postsecondary institutions, and business associations (such as the chamber of commerce). The training role of printing companies is formalized through individual student contracts. Student progress is monitored through the competency-based assessment system and quarterly or semester-based assessment meetings between the mentors, program staff, the students, and their parents.

Finally, consistent with both Hamilton's and Jobs for the Future's recommendations, students who successfully completed the program earn a state-recognized skills certificate. More important, however, is that many participating employers acknowledge that they recognize and value the training YAP students receive. In summary, the content elements and some structural and governance elements of Hamilton's and Jobs for the Future's recommendations for a youth apprenticeship system are successfully used in Wisconsin's model.

Operations. While varying somewhat, program operations were essentially the same across the five sites. Students are recruited during the sophomore year in high school, often from the graphic arts and print technology classes. Students complete an application for the program, but must be interviewed and accepted by an employer in order to enroll. Usually students with an interest in graphic arts or printing who are not planning to enroll in college are targeted.

Students are trained by and (usually) work for one or two employers during their two-year program commitment. Because of local printer specialization, some students work at several companies to be trained in all the competencies. They earn slightly above minimum wage, and receive raises during the two years. Each company assigns a mentor to oversee each student's training, which is provided by one or more trainers in each production area of the company: pre-press, press, bindery/finishing, and production/support. This arrangement simulates how on-the-

job training is often done in the companies and exposes students to a number of employees who serve as role models. The printing course instructors and worksite mentors coordinate each student's training according to the competencies and divide up or collaborate on their performance ratings (depending upon the competencies and whether just one or both provided the training). In many cases, students are trained in the competencies both in their printing classes and their printing companies.

Of the four training areas, students liked working in pre-press most and in the bindery/finishing areas least. They spent about half their time in each area being trained and the other half doing "real work" (that is, working on printing jobs), although this varied by area and company. Through this training approach, students gained a "real world" perspective on how to use their skills, which they greatly valued. Some students identified problems with their training placements. The most common complaints were not having enough work to do; or finding the work to be different than expected. Some students experienced interpersonal problems with their supervisors and other employees, such as being made to feel like they did not belong. The prevalence of these problems varied by site and company. It appears that how well the mentors plan out their work and orient other employees to a student apprentice makes a tremendous difference in each student's experiences.

Local programs are offered either by individual schools or by regional consortia that rely upon a local chamber of commerce or a regional education agency to coordinate the program activities in conjunction with individual school liaisons. All but one local program is overseen by an education and employment committee, and a statewide education and employment committee oversees all youth apprenticeship programs in the state.

Several factors influence how the program model is adapted locally: whether individual printing companies could provide all the competency-based training; whether the program is offered by an individual high school or consortium; the quality and use of mentor training and coordination; and the use of an education and employment committee for oversight.

The local sites differed in the complexity of scheduling students and the degree to which the students' regular high school experience was altered, depending upon how many different entities participated in training and where training was offered. Some students had multiple company experiences, which did not seem to affect their overall training (and may have broadened their exposure). Three of the sites had to send students elsewhere for some or all of the printing instruction and other academic course work, requiring complicated scheduling arrangements, adding travel time (for two of the sites) and reducing students' participation in extracurricular activities. These arrangements made for a complicated educational experience and a cumbersome management arrangement, but did not appear to affect the quality of training provided.

The mentor training, school and employer coordination, and the use of an oversight educational and employment committee appear to have a more direct influence on the quality of training. The students concluded that instances of uneven quality in their work-based learning and poor employer organization of their training were due to inadequate mentor training and lack of oversight. Local program coordinators and oversight committees appeared to have played critical roles in monitoring the quality of training for each student.

Integrating and Contextualizing Academic and Vocational Skill Development

The Wisconsin YAP uses a competency-based curriculum structure to organize the school-based and work-based instruction. Through this structure, training is synchronized, students apply in their printing courses what they learn at the worksite and apply their printing course skills and knowledge to their worksite experiences. The students' work-based learning is integrated most in their school-based learning through their printing technology courses and, less so, their

communication courses. Students are most likely to be clustered for their printing technology courses, so the instructors, who often supervise students' worksite training, could coordinate and integrate their learning.

There seems to be less intentionality, however, in how the printing experience is used to contextualize other academic courses. Programs which serve just one high school or which centralize students in one location for all classes are more likely to foster integrated learning and draw on the students' printing experiences as a context for other academic courses. Integrating the academic and vocational skill development and using the printing industry to contextualize other academic learning does not appear to be a high priority in program implementation and operations. Aside from the printing courses, which are closely coordinated with the work-based learning, there is little emphasis on integrating and contextualizing other academic courses with the printing industry focus. This is valued but not fostered in any consistent way, except through the efforts of individual instructors and the students themselves.

Conversely, most students agree that they are able to apply their various academic course skills and concepts (such as communications, math, and computing) to their worksite experiences. Finally, most students rate their printing courses as being more challenging and having more interesting materials and information than their other academic courses. Their attendance was better in their printing courses than in other academic courses. These reactions seem to be attributable to the contextualized and integrated instruction, suggesting that the students find this approach to be more worthwhile educationally.

The competency-based curriculum and assessment process is well-used by the school staff and worksite mentors and trainers. The quarterly (and later semester-based) review and assessment of student performance according to these competencies is jointly done by the school and worksite staff. This reinforces the expectation that student progress will be measured by the competency system. Unlike traditional assessment systems, the YAP assessment structure determines the proficiency level that all students are to attain. The students must keep practicing and relearning the competencies until they demonstrate that they can perform them with moderate to little supervision. Because of their participation in this assessment process and the competency and proficiency standards used, employers in turn recognize and value highly the training and certification YAP students have.

Student Performance and Outcomes

Participating in the Wisconsin YAP benefits students in their school performance, their postsecondary plans, and their subsequent employment and educational pursuits.

Short-term educational outcomes. The program has several short-term school engagement benefits. Between 1993 and 1995 (their sophomore and senior years), YAP students maintained low absenteeism rates (in contrast to their peers), improved their grade point averages somewhat, and maintained low disciplinary referral rates. Most agreed that they found the printing classes more motivating and interesting than other classes (although 41% wanted a more academic focus) and really liked being part of a group.

Impact on postsecondary plans. The YAP gives the students a sense of direction and focus for both their upcoming employment and continued educational pursuits. This is evident from the YAP seniors' plans (in contrast to their peers) and their own reflections on how the program benefited them. Among the YAP seniors surveyed in 1995, half were planning to work and 75% planned to continue their education (with most planning on completing a two-year associate degree program). Most YAP students were planning a career in printing. In terms of long-range educational plans, YAP students seemed somewhat more uncertain about whether to pursue a four-year college degree than were their peers, but usually it was because they were weighing several

options, rather than lacking a direction. While many YAP and comparison students had planned on pursuing an advanced degree, YAP students were more likely than others to credit their program experience for influencing their postsecondary plans. As one YAP student explained "It helped me center in on something I had a vague liking for. Now I know exactly what I want to do."

Employers' assessment. Related to this sense of preparation and focus was the employers' perceptions that the YAP graduates are well prepared for a career in the printing industry. They described the YAP students as better prepared for employment than other entry-level employees in their technical skills, understanding of the whole company's operations, and in some of their foundation work skills (such as acting responsibly and working independently). They rated them as comparable on several interpersonal and other foundation work skills (such as working as a team member and using time efficiently). The employers valued the YAP apprentices and their training so much that they hired almost all of the first cohort of graduates and had already guaranteed employment to 64% of the second cohort of seniors by the end of the following school year (with decisions pending for a few others and the rest having made other plans).

Employment outcomes. The program's primary expectation is that YAP graduates will make a smooth transition from high school to quality employment or further education in the printing field. Results from a follow-up study of the first graduate cohort show great success in meeting this expectation, especially in comparison to their peers who had a briefer work experience or just academic classes in printing. Six to eight months following graduation, almost all YAP of graduates were working, in contrast to a majority of their peers, and all were working in printing (like all of the working co-op graduates, but few of the other graduates). YAP graduates seemed to have better jobs than other graduates because a greater percentage were employed full-time, had been continuously employed, had higher wages, and had jobs that required more skills.

YAP graduates reported that they had developed a strong interest in the printing industry (unlike those with only academic courses in printing) and most had long-term concrete career plans, in contrast to their peers who had more immediate, often vague career plans. Thus, the intensive exposure, work experience, and integrated learning may have strengthened and focused the YAP graduates' career plans (in contrast to their peers). The YAP graduates credited the program with pointing them in the right direction, giving them a "real world" awareness and job specific training (which additionally was respected by employers). They valued the "big picture" that they developed through the program which they perceived few other entry-level employees had, and which probably helped to focus their career planning. They were more likely than co-op graduates to identify a range of ways their program experience helped prepare them for employment and were able to apply their academic skills in their jobs.

Employment and educational outcomes of YAP and comparison graduates, six to eight months after graduation, 1994 cohort

Status	YAP	Co-op	Printing classes
Working	94%	60%	75%
Working in printing	94	60	13
Working for apprenticeship employer	75	20	N/A
Earning $7.00 or more/hour (of those working)	60	33	34
Enrolled in college	45	60	63
Enrolled in college as a printing major	32	40	25

Postsecondary educational outcomes. The YAP prepares its students well for further education as evidenced by the graduates' experiences. YAP graduates were as likely as their peer graduates to have continued their postsecondary education, although they were less likely to still be enrolled six to eight months following graduation and were less likely to be enrolled full-time. Most of the YAP graduates in college had a printing major and were earning an associate's degree. Very few YAP graduates were only in college or doing nothing, in contrast to 25–40% of their peer graduates. Instead, most YAP graduates in college were also working in the printing industry and some had employers who supported their college participation (which was the case for only one co-op graduate).

Many YAP graduates agreed that participating in the YAP gave them a career direction and a knowledge of the role that postsecondary education played in the jobs that they wanted. The college credit that they accumulated while in the program was advantageous in reducing the total degree time necessary. Most YAP graduates agreed that their academic preparation was useful for college. Finally, YAP graduates were more likely than other graduates to have concrete long-term educational plans to complete a four-year college degree program and possibly more.

Social development benefits. YAP students also described several positive social benefits. Most YAP students thought that program participation helped them to learn to interact with others and made them feel better about themselves. In addition, they formed close attachments with adult role models through the program, as evidenced by the majority of YAP graduates' continued contact with program staff and worksite employees following graduation.

Summary. Based on these impact results, it can be concluded that the Wisconsin YAP achieves its intended objective of preparing students equally well for entering directly into a quality job in the printing industry and for continuing in a technical college degree program. This is demonstrated by the YAP seniors' plans and the YAP graduates' experiences six to eight months after graduation, as well as the students' own perceptions of being well prepared for employment and college and the employers' perceptions of their preparedness in relation to other entry-level employees. The YAP seems to have given students an edge over their peers, particularly in obtaining quality employment in the printing industry and in being well prepared for employment and for college.

Employer Involvement

The printing companies' role in training students is key to the program's success. A large number of companies are needed to train even a small number of students, however. In five sites, 28 printing companies trained 37 seniors in 1995, serving an average of one or two seniors per company. Most companies had been with the sites from the beginning and a few had been recently recruited as additional student cohorts were added. A few companies had also been part of the original state planning for the youth apprenticeship model, so were deeply committed to this training model.

Employers make a substantive contribution to the program. They provide students with lengthy paid work experiences. They support extensive staff time to oversee student training, attend coordination and assessment meetings, and participate in training. The mentors themselves estimated in 1995 that they spent about four hours per week supervising apprentices, making up this time by working extended hours or formally incorporating this responsibility into their jobs.

It was difficult to obtain usable estimates on the employers' total costs to participate, since they gave widely different estimates of the cost and sources. Regardless of the amount, however, these costs do not seem to threaten the employers' long term participation. Ninety-three percent of the employers reported in 1995 that they planned to continue in the program the following year. Those

that did not plan to continue gave non-programmatic reasons for their decisions. Only one employer had difficulties with the program (because of a perceived lack of responsiveness from school staff), but was persuaded by the school principal to remain.

The well-sustained employer participation in this intensive program can be attributed to several factors. First, the program is well structured. The competency system clarifies the school and employer roles in training students. Its regular assessment processes coupled with the periodic mentor meetings facilitates communication on program operations and oversight of individual student performance. Overall, the printing industry employers collaborated well with local educators in following the rigorous competency-based training system.

Second, by the time the first cohort had graduated from high school, employers began to experience direct benefits from their training. They were hiring their own graduates as permanent employees: almost all graduates were hired by their apprentice employer. The program, therefore, was directly responding to the problems outlined by the employers as their primary reasons for participating: labor market shortages and the lack of well prepared entry-level employees. The employers valued the training and the skilled youth who graduated from this shared training program.

Thus, it seems that their role in training and their own familiarity with the youth apprentices helped them overcome a common employer tendency not to hire recent high school graduates. The existing local labor market shortages may have been a factor. It is more likely that they hired these new graduates because of their own extensive investment in the youths' training, and that they saw how well these young people could perform in a work environment.

Third, the employers valued the collective benefits and altruistic experiences gained through the program. They saw the positive effects the program was having on their employees, whose own performance improved as a result of being trainers. Some appreciated the positive aspects of cross-area training used for youth apprentices and considered changing their own incumbent worker training strategies to incorporate this. Employers also valued the contributions that they were making to individual students and the benefits of having watched them grow and mature in their responsibilities. Finally, they received indirect benefits through recognition of their efforts by their community and customers.

While employers identified a few problems, none was sufficiently significant to discourage their continued participation. Some employers had a few student behavior problems, which they handled first as they would other employee problems, talking directly to the students about their behavior. With more severe problems, they engaged school staff and parents in addressing them.

The mentor training appeared to have been uneven in quality and quantity. About half the employers wanted additional training, particularly in communicating with youth and effective teaching methods. The periodic mentor meetings and collaborative education and employment oversight committees, when used, seem to have been useful mechanisms for coordinating the school-based and work-based portions of the program, maintaining program quality, and solving problems.

Impact on High Schools

Except in one site, Wisconsin's YAP is integrated with the collaborating schools and other institutions rather than operating as a freestanding program. As a result, the schools experienced several benefits and challenges from participating in the program. The greatest benefit has been the expansion of participating schools' capacity to offer a quality program, broadening educational options for their average students. The principals, in particular, valued the diversification of educational options afforded by this program.

Offering the YAP had other indirect benefits for some principals and schools. It stimulated staff to reconsider how secondary education can be structured and delivered. As one principal explained, being part of the program forced staff to "rethink roles and boundaries of learning within and beyond the school." For some principals, YAP is a catalyst for further and expanded school-to-work transition efforts in their school and district. It strengthens ties to the business community and postsecondary institutions, and it encourages teachers to consider careers more broadly and be experiment with competency-based training and integrated curriculum.

Participating schools face a number of challenges. In all five sites, the schools either individually or collectively adapted their structure and course offerings to schedule students' work-based training and printing course instruction (sometimes done off-site). This adaptation was sometimes logistically complicated (which hindered student recruitment), but the schools were creative in solving this. Added program costs were more difficult for the schools to accommodate. The total costs varied widely by school, depending in part on how the program was structured locally and the number of students sent by the school. As a result, some schools were reluctant to recruit students to participate, particularly when the program was sponsored by a consortium of several districts.

Potential for Expansion

The program, while highly valued by students, employers, and school officials, has limited potential for expansion. Three factors limit a broader expansion: (1) how many apprentices each local company could mentor; (2) the number of local companies in each site; and (3) the added per-student costs billed to each school district. In 1995, 28 companies trained 37 seniors and approximately the same number of juniors. Only 28% of the employers reported that they could train additional students and 7% were planning to postpone their participation for a year. Thus, at best, it appears that the program could only grow to approximately 45 students per cohort in these five sites. With the exception of Milwaukee, it seems that the sites had engaged most of the major local printing companies, so few additional companies are available for program expansion.

As a result, only small numbers of students could be enrolled in each site. This restricts local options for reducing per-student costs. In 1995, none of the sites served enough YAP students to create cost-effective average-sized classes within each high school, even when they combined the juniors and seniors for the printing technology courses. In addition, operating the program requires other instructional and managerial resources that add to the per student costs. The three sites that offer the YAP through a consortium arrangement incur costs for the pooled printing technology and other academic courses.

Some sites found ways to reduce the program's expense using grant funds, soliciting private sector contributions, and charging employers a fee to manage students' wages and related insurance expenses. Some sites had their high school instructors, rather than a technical college instructor, teach the printing courses (but had articulation agreements for the courses because of the competency-based curriculum), thereby reducing one instructional expense. Nonetheless, some sites were experiencing difficulties in sustaining these costs and were experiencing cost increases as well. In particular, consortium sites had some decrease in enrollment from various schools, which they attributed in part to the schools' reluctance to cover the added per student expense. This decrease only increased the per student cost, since costs remained constant as the number of students declined.

Conclusion

The Wisconsin YAP proves to be very successful in its primary objective to help high school students make a smooth transition into gainful employment. It is directly responsive to the printing

industry by encouraging and training young people as potential employees, using quality training that employers respect. For the most part, young people who successfully complete the program don't flounder after high school. They have a clear vision and direction about their careers and educational plans and have substantive choices available. These circumstances are less clearly evident for their peers, particularly those who had only classroom instruction in printing.

The program's success is limited, however, by its small size and restricted potential for expansion in its existing communities. Its added program costs may also make it somewhat precarious in local school districts, which must continuously weigh the benefits. Its indirect benefits for employers and school districts (including improved relationships, training insights gained, and altruistic experiences), may help to offset concerns about these expenses, particularly for districts which place a high value on diverse program offerings. It is likely that the programs will be sustained locally, but at existing service levels. The only existing potential for expansion is diversification into other industries, as is being pursued by the state of Wisconsin.

The results of this evaluation highlight the program components that are critical to the model's integrity and the support of employers and school districts—the competency-based curriculum and assessment system, and mechanisms for oversight, quality control, and problem solving (including mentor training, mentor meetings, and oversight committees). Maintaining program quality and support requires that these components be kept up-to-date and reinforced. In addition, the model's dependence on a complex array of employer, school, and technical college relationships is potentially fragile. While these relationships can sometimes be uneven, they were effectively established in the five sites for the first student cohorts. Sustaining and strengthening these will be the next challenge.

The success of this approach offers many lessons for school-to-work transition and secondary school reform—(1) the feasibility of preparing students for both quality employment and postsecondary education; (2) the importance of a competency-based curriculum to structure training and assessment; (3) the school-related benefits of integrating academic and vocational skill training for students; (4) how the model can be tailored to fit rural and urban conditions; (5) the importance of learning and working at a worksite; and (6) how employers can integrate youth apprenticeship training into their business operations. The sites' problems and challenges in implementing and operating this program are worthwhile for other districts to consider in replicating this model. The importance of training key staff (including worksite mentors) and establishing regular mechanisms for quality control and problem solving are germane for other school-to-work transition efforts as well.

INTRODUCTION

The youth apprenticeship model has been widely identified as a pinnacle work-based training experience in preparing youth for gainful employment and a smooth transition from high school to career-track employment, particularly in technical fields. It is one of several program models developed primarily improve the educational preparation and postsecondary employment success of young people who are unlikely to complete a college program. Unlike other school-to-work models (such as career academies and Tech Prep), it uses extensive employer participation in training, structured around jointly developed competencies for certification in a field. While widely used in other countries, particularly Germany, youth apprenticeship is a recently promoted youth training model in the United States. The Wisconsin youth apprenticeship model, started in 1992, is one of the more substantive national efforts in the development of this approach.

Labor Market Trends and Training Issues

U.S. interest in the youth apprenticeship model is recent, emerging in the mid-1980s as a response to a variety of economic and educational problems. Our country's declining international economic competitiveness, the declining manufacturing industry and expanding service industry and our changing labor force composition (to proportionately fewer and less well-educated youth) pointed to a greater need for better prepared entry-level employees. According to Marshall and Tucker (1992), these problems are worsened by stagnant educational performance and the lack of high academic standards for non-college-bound students.

The changing labor market and inadequate educational preparation yielded several labor market barriers for youth, particularly the non-college-bound, as Stephen Hamilton, an educational expert, underscores (1990). According to Hamilton, non-college-bound high school graduates often flounder in the secondary labor market after they graduate (where they find employment in typical teenage jobs) because employers view them as too immature for "adult jobs." Between graduation and their early 20s, high school graduates are often unemployed or have short-term, low-skill and low-paid jobs with little opportunity for career advancement. This problem has worsened in recent years as low-skilled but high-paying manufacturing jobs have declined.

The decline in our country's youth population may partially resolve these labor market problems, as employers increasingly turn to recent high school graduates to fill "career-entry" positions. But, as Hamilton explains, the changing youth demographics may work against this trend. The proportion of the youth population that is minority and impoverished is increasing; these youth are more likely to be less well educated and thus are less employable without further training. Several problem behaviors are strongly associated with being disadvantaged—dropping out of school, adolescent parenthood, drug and alcohol abuse, and criminal activity—all of which hinder employment prospects and interfere with youths' preparation for employment.

Exploring employment solutions for non-college-bound youth requires understanding their primary labor markets and the role of training institutions. Non-college-bound youth with technical skill training primarily seek employment in what has been termed the sub-baccalaureate labor market, which has specific challenges in terms of preparation and access. According to Grubb et al. (1992), this labor market (which is for those with less than a baccalaureate degree but at least a high school diploma) is three-fifths of all employment and has grown steadily in the last 20 years. Grubb et al. documented that occupations in this labor market have been undergoing several organizational and technological changes—increased worker responsibilities; addition of computer applications; and the uneven pace of technological innovation. Combined, these are blurring conventional occupational divisions and increasing the need for high performance workplace skills in communication, initiative, and problem solving. They also found that this labor market has cyclical variation with intermittent employment opportunities and downturns. It is primarily a local labor market, in which employers seek employees locally and through informal means.

Generally, secondary and postsecondary educational institutions which prepare people for these labor markets are varied, with employer linkages of uneven quality and effectiveness. Well-developed co-op programs were found to be most effective in fostering close working relationships for students with employers in these sections. Grubb et al. concluded from their research that since employers in sub-baccalaureate labor markets stress the importance of academic, foundation, and technical skills as well as certain personal attributes (such as interpersonal skills and motivation), most rely on experience in hiring, rather than education and training, even for relatively low-level positions. The exceptions were employers who participate in co-op programs and fields with specified credentialing requirements (such as electronic technicians and healthcare workers). They also found that subsequent promotion for those who are hired depends primarily on performance and additional skill mastery.

These employer practices and preferences have stark implications for sub-baccalaureate degree high school and two-year college programs. Young people's access to these labor markets could likely be improved through training programs that offer broad skills training in the areas stressed most by these employers, use substantial work-based training, and have employer-recognized credentials. This research seems to suggest that youth apprenticeship programs would be uniquely applicable to training for these labor markets, as they have been used in Germany and Scandinavian countries.

The Youth Apprenticeship Model

Hamilton advocates strongly for a youth apprenticeship system as one solution for meeting the many educational and employment challenges facing the United States. His proposal has been directed primarily to non-college-bound youth, but not limited to them. To adapt the German and Scandinavian apprenticeship models to meet our local conditions, Hamilton recommends that such a system be flexible, diverse, and open to complement our existing educational system and labor market. It must prepare all types of youth, not just a specialized segment, and offer both academic and job skill credentials. Through its flexibility and openness, it must permit entry at many points and lead to different educational and employment options. In addition, it should offer general preparation for work, rather than training for a specific occupation, as is characteristic of West German youth apprenticeships. It should integrate academic and vocational skill development, to contextualize learning, motivate students, and demonstrate a connection between their training and future career. A youth apprenticeship should complement schooling and contribute to the acquisition of school

credentials, such as competency-based certification. It should use adult role models and the workplace experience to help adolescents prepare for adulthood generally.

According to Hamilton's vision of a youth apprenticeship model, the workplace should serve as an alternative learning environment. The youth apprenticeship should use the workplace and other community settings as "learning environments"; work experience and academics should be linked; youth apprentices should be both workers and learners; and youth apprentices should have adult mentors. Hamilton also stresses that specialized youth apprenticeship training should have the following: a contract; earnings; a planned progression of training and responsibility; breadth and depth in learning; and reasonable prospects for future employment.

A Youth Apprenticeship Program Should:

- be accessible to all types of youth;
- have work-based learning that stresses general rather than specialized preparation;
- link academic and work-based learning;
- give youth worker and learner roles;
- offer adult mentors;
- use a contract;
- provide earnings;
- have a planned progression of training and responsibility;
- provide breadth and depth in training;
- contribute to school credentials; and
- offer strong prospects for future employment.

Jobs for the Future, through their National Youth Apprenticeship Initiative, also developed a set of essential elements for youth apprenticeship and school-to-work programs (1991; 1995). Their list of elements goes beyond the experiential content outlined by Hamilton, by proposing the structure, governance, and responsibilities for employers, schools, and students within a youth apprenticeship program. For employers, they stress that participation be formally worked out between the employers and unions representing the workers, and that youth apprenticeship training be competency-based, make use of work experience and other learning opportunities, and provide skills training through work and training assignments. They recommend that each youth apprentice be guided by a company-based mentor and have a designated trainer. Supervisors and employees should be trained for participation in the program and youth apprenticeship progress be monitored.

According to Jobs for the Future, schools should structure their curriculum and instructional programs to prepare youth for employment and "effective citizenship." Schools should provide appropriate academic instruction to complement and be integrated with work-based learning, both in terms of content and instructional methods, using cooperative learning approaches and opportunities for students to reflect upon their work-based learning through their academic work.

Jobs for the Future also proposes selected outcomes as measures of student success in youth apprenticeship programs—graduating from high school, being able to pursue postsecondary education and be placed in a job in their training area that provides access to progress in a "high-quality, high-wage career." Like Hamilton, they recommend that successful completers be awarded certificates of proficiency and a state-recognized "credential of occupational skills achievement." They suggest that the program's effectiveness be further demonstrated by changes yielded in the participating companies (that employers reconsider and redesign the organization to be more of a "learning, high-performance organization") and in the schools (that the schools expand problem-solving and other forms of experiential learning to all students), and that other forms of collaboration evolve among the partner institutions.

The youth apprenticeship model has emerged as having several educational, social, and employment-related benefits. These include:

- upgrading the academic, foundation and technical skills of future workers, thereby yielding greater productivity and improved economic competitiveness;
- improving students' interest and motivation for staying in and completing school, by showing them the link between academic training and the workplace, integrating their skill training, and contextualizing their learning in a career area; and
- reducing students' engagement in negative social behavior by exposing them to positive adult role models at the workplace and helping them to mature through work-based learning.

The model also has the potential to restructure secondary education, by using work-based learning and by promoting more student-centered instruction and contextualized learning. Finally, it expands schools' connections to their broader communities in the design and delivery of education.

JFF's Essential Organizational Elements of a Youth Apprenticeship Model

Structure

- Career development program K–10
- Work-based learning part-time during school and during the summer
- Classroom learning in literacy, academics, and employability skills
- At least one year of postsecondary education
- Mechanisms to foster academic and work-based learning
- Staff development for teachers and work-based trainers

Governance

Use of a governance board with representation from employers, relevant professional associations, school districts, postsecondary institutions, labor, and government

Responsibilities of the board include:

- providing staff with appropriate training and support;
- signing contracts with respective partners to formalize the training agreements; and
- monitoring student and system progress.

Criticisms of the Youth Apprenticeship Approach

There is extensive disagreement over the potential of the youth apprenticeship model in yielding the above described educational, social, and structural benefits, however. Kantor (1994), for example, argues that other social and economic policies have greater potential for generating these

benefits, and that current youth apprenticeship proposals are similar to the historic traditional vocational programs, which have had few positive effects on earnings, as demonstrated by numerous evaluations. He asserts that improved training for youth will have a limited effect, except to facilitate access to informal job networks. Instead, he argues that race discrimination and the lack of a national full employment policy greatly restricts youth employment which a youth apprenticeship program cannot remedy. He is uncertain whether there will be a greater skill demand in future jobs and whether providing more highly skilled workers will add to this change. He does agree that the youth apprenticeship program model could make learning more interesting for students, thus encouraging them to stay in and complete school, but does not think that the model would affect the traditional high school structure and may narrow students' opportunities, as has occurred in vocational programs historically.

Bailey and Merritt (1993), on the other hand, investigated the German youth apprenticeship model and conclude that it is applicable to the United States, if sufficient consideration of existing U.S. educational strategies are met in student participation, educational content, location of instruction, and credentialing. They point out that at the heart of American efforts in defining youth apprenticeship is an emphasis on the integration of academic and vocational coursework, a more active educational role for employers and their companies, and a recognized credential for students who complete the program. To adapt the youth apprenticeship model to the United States, Bailey and Merritt point out that programs must:

- not limit youths' opportunity to eventually go to college;
- be accessible to all types of students, blurring the distinction between academic and vocational
- integrate academic and vocational education as a way of improving skill development and learning, through applied coursework and creative instructional strategies;
- encourage personal, social, and professional development;
- formalize instruction at both the school and workplace, with the workplace being a place where structured learning takes place, and simulating authentic work experience in the school; and
- use skills standards and certification that are recognized by educators and employers, to allow workers to move throughout the national labor market.

Despite the debates and cautions over the youth apprenticeship model, a number of experiments have now been initiated, including Wisconsin's. By the early 1990s, as Bailey and Merritt point out, there was significant federal and foundation interest in the youth apprenticeship model, and several demonstrations were funded and evaluated to test youth apprenticeship-like models in states across the country. By 1994, according to McCarthy (1994), several states had proposed legislation to create youth apprenticeship programs and support demonstration projects (including Arkansas, Maine, Maryland, Minnesota, New Jersey, Oklahoma, Oregon, South Carolina, and Wisconsin).

Employer Participation

The youth apprenticeship model is highly dependent upon substantive employer participation for long term training. Bailey (1995) investigated several types of incentives that affect employers' willingness to participate in work-based educational programs. He identified three types of motivation—philanthropic (to contribute to the improvement of the community); individual ; and collective (for benefits for their industry). According to his analysis, continued employer participation, particularly for intensive involvement, requires multiple sources of motivation in order to be sustained. Providing these sources of motivation can be challenging for program designers, especially over time or during labor market change.

For some of these same reasons, Bailey and Merritt are cautious about the youth apprenticeship model, arguing that employers may need too much cajoling to participate, reducing the likelihood that they would follow rigorous educational strategies. They suggest, however, that a formalized relationship between the schools and employers for a youth apprenticeship could resolve this problem.

Osterman and Iannozzi (1993) are similarly concerned about substantive employer participation in this model. They argue that a key challenge in creating youth apprenticeship programs is what labor market in which to invest—the youth labor market, which has no return for skill, or the adult labor market, which has an aversion for hiring youth. Yet, they view the youth apprenticeship model as an effective vehicle for school reform, because of the formalized linkages with the workplace, integration of academic and work-based learning, motivation derived from the work-based experience, and the encouragement for postsecondary education. Like Kantor, they suggest that work experience can motivate the students academically (to become more engaged in their learning, and to increase their school attendance).

Next Steps

Wisconsin's early efforts in developing and operating a youth apprenticeship program affords an opportunity to investigate many critical policy and educational questions raised in considering this model generally and its potential for broad replication and use in reforming secondary education. These questions are encompassed in six issue areas:

Target population. Who is served by the youth apprenticeship program? Is it just for non-college-bound students? Can it be designed to offer students equal access to both continuing with college or entering into employment?

Youth apprenticeship model design as proposed by Hamilton and Jobs for the Future. How are recommended design features used and with what success? What local conditions require model adaptations and with what consequences? What local factors support and threaten program fidelity and integrity? What factors limit broad-scale expansion of this model for all high school students?

Integrated academic and vocational skill development and contextualized instruction. To what degree does the model integrate academic and vocational skill development and contextualize instruction as recommended by Hamilton and Bailey and Merritt? How are these strategies operationalized through the youth apprenticeship program at both the school and worksite? What patterns emerge and what factors inhibit and promote these instructional and curricular strategies? How have these enriched student learning? What oversight mechanisms were developed and used to ensure the quality and relevance of this skill development?

Student performance. What impact does the program have on student engagement and learning in school, on their school completion and postsecondary plans, and on their subsequent careers and

educational pursuits? Does it yield benefits on a range of educational, social, and employment outcomes as Hamilton suggested? What is the role of standards and certification as recommended by Bailey and Merritt in assessing student performance in and after the program? What is the relationship between how the program is implemented and subsequent student performance and outcomes?

Employer involvement. How can employer participation be engaged and sustained? How can the quality of their training be assessed and guaranteed? What are the costs and benefits to employers and how will this affect long-term participation? How extensive of a role can employers play? What inhibits employer participation? To what degree do employer problems, as suggested by Bailey and Merritt and Osterman and Iannozzi, arise and how were they addressed?

Impact on high schools. What critical tension does the youth apprenticeship program create for participating high schools in preparing students for college and employment? How does a school's experience with youth apprenticeship approach and employer participation inform their broader curriculum and instructional strategies? How do schools integrate youth apprenticeship programs into their offerings and make it available to students? What factors inhibit and promote their use of this program model? What is the role of the youth apprenticeship model in schools' school-to-work transition reform efforts? Or is there little impact, as Kantor suggests?

The implementation and impact of Wisconsin's YAP was reviewed according to these six policy and educational issues. The results are summarized in this report and discussed in the conclusion.

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EVALUATION METHODOLOGY

The Wisconsin Department of Public Instruction was funded by the U.S. Department of Education to evaluate the effectiveness of its youth apprenticeship program model for replication and dissemination. In turn, the Wisconsin Department of Public Instruction contracted with Jobs for the Future, and their subcontractor, Teachers College, Columbia University, to evaluate the program's effectiveness in preparing youth for career track employment, using the following as claims of effectiveness:

- Program participants will obtain knowledge and skills for entry-level jobs in the printing and graphic arts industry through classroom curriculum linked to worksite learning and experience.
- Program participants will be better able to pursue further education and promising careers in the printing and graphic arts industry than will other students in alternative training experiences.
- Program participants will be more motivated than other similar students to stay in and complete high school.

A two-year, multi-method evaluation was designed and undertaken to document the program's implementation and short-term effects. The evaluation was guided by selected implementation and impact criteria, which are summarized below.

The implementation criteria, as summarized in the text box, reflect the core elements of the Youth Apprenticeship Program in Printing (YAP) model. An assumption of the evaluation was that these elements would need to be in place for the program to be effective as intended. Each site's program was examined to determine whether these elements were in place and operating as intended.

Implementation Measures

20 hours per week, two-year work experience

Employer-directed training in competencies

Academic courses which reflect the printing industry focus

Two-year printing course sequence

Earned technical college course credit

Mentor training

Collaborative school and industry oversight

Several measures were used to assess the short-term and long-term program impact. These are summarized in the following text box as they relate to the program effectiveness claims. An assumption of the model is that YAP students would demonstrate broad knowledge and skills in the printing industry; would be interested in pursuing a career (with or without further training) in printing; would be more focused in their postsecondary educational pursuits; would obtain a job more readily and with better conditions; and would have demonstrated more interest in school (as shown in their attendance, grades, and school completion rates).

Impact-related Outcomes and Measures

Knowledge and skills for the printing industry
Completed printing competencies
Self-reported academic and printing skills learned in the classroom and workplace

Comparatively better able to pursue further education and career-related employment in printing

Participation in postsecondary education in printing
Plans for further education and training in printing
Improved likelihood of pursuing postsecondary education
Self-reported identification of how the program prepared them well for postsecondary education
Having postsecondary employment in printing
Having better-than-entry-level wages
Being employed longer and more continuously
Being in a job with job-related skills required
Continued employment with youth apprenticeship employer
Self-reported identification of how well the program prepared them for postsecondary employment

Comparatively better motivated to stay in and complete high school

Attendance
Grade point average
Discipline referrals
Graduation

While the evaluation focused specifically on its impact on students, we learned through the site visits and program coordinator interviews that the program was having an impact on the participating schools and employers as well. As a result, a portion of the structured interviews of employers and principals was used to document these impacts, measuring how their participation in the program benefited their organizations. These impacts are summarized in the adjacent text box.

School Outcomes

YAP curriculum used for other students

Other structured work experience programs added

Program offerings for students diversified

School-to-work transition preparation revisited

Employer Outcomes

Expanded employee hiring pools

YAP graduates hired as permanent employees

Employee training plans revised

Improved staff morale

Improved company profile within the community

Sample Selection

The evaluation focused on five sites of the YAP which had the largest number of students and had been in operation the longest. These sites include:

- CESA #2
- CESA #7
- Fox Valley
- Milwaukee (one high school)
- West Bend

Two sites, Fox Valley and West Bend, were the original pilot sites for the program model and began operation in 1992. The rest began operation in 1993.

Within these sites, four student samples were selected for in-depth study of experiences and impacts. These included:

- all graduating YAP seniors;
- all printing co-op seniors;
- all seniors who had (or were then in) at least one printing-related course;
- and one subject class of seniors (such as English or social studies) who were not in a college preparation or vocational preparation program.

To identify students for the three comparison groups, local program coordinators consulted with school liaisons and principals. Together, they identified all students who were seniors in printing co-op positions and all seniors who were taking printing courses but were not in a work experience. Thus, our samples for these two groups and for the YAP students were to represent 100 percent of all students of those types in the five sites.

To create a comparison group of seniors who were not in a work-experience program or taking a printing course, the program coordinators and school liaisons identified one class of seniors at each site who were enrolled in a general academic class. The program coordinators were advised to select an average class of students, excluding advanced classes or special needs classes. This sample was to represent average students at the sites. To facilitate data collection of this sample, the program coordinators and school liaisons were advised to select a class of students as the sample (rather than randomly select from all potentially eligible students) and to administer the

questionnaire to the whole class. The program coordinators and school liaisons were advised to follow up with any students from all four samples who were absent the day that the surveys were administered.

For the student samples, we collected a variety of data, including a completed program-end survey, school-related performance information, completed competencies (for YAP students only), and, for the first cohort and comparison sample in West Bend and Fox Valley (co-op and printing-classes-only students), a follow-up telephone interview. Our response rates varied by the type of data collected, as shown in Table 1. With the exception of the student record information, we had very high response rates in all data collected for the students.

Table 2 shows the number of student survey responses by site for the four types of student samples. Because there were so few co-op education students identified for the evaluation, only a cursory comparison of the YAP and co-op students was made, primarily to suggest patterns in program experience.

In addition, all program coordinators, school principals and representatives from all participating printing companies were interviewed by telephone. The sample numbers, responses and response rates are summarized in Table 1. Table 3 shows the distribution of interviewed principals and employers for the five sites.

Overall, while we had fairly high response rates for all samples, the number of people included in each sample type is small, limiting the analyses and data interpretation. Nonetheless, extensive information was collected from a wide variety of sources. The diversity of information helped to offset the small sample sizes, thereby strengthening the evaluation findings.

Table 1

Number Sampled and Responded and Percentage Response Rate by Source of Data for the Wisconsin YAP Evaluation, Summer 1995

Source	Population/ Sample	Responses	Response Rate
Student survey (1995)			
YAP	40	37	93%
Co-op	4	4	100
Printing classes only	43	43	100
General classes	78	78	100
Student records (for 1995 sample)			
YAP	40	33	83%
Co-op	4	2	50
Printing classes only	43	13	33
General classes	78	31	40
Follow-up survey (West Bend and Fox Valley only, 1994 sample)			
YAP	16	16	100%
Co-op	8	5	63
Printing classes only	13	8	62
YAP competencies (1995 sample)	40	38	95%
Employer interviews (1995)	28 companies	30 employees	100
Principal interviews (1995)	16	15	94
Program Coordinator interviews (1995)	5	5	100

Table 2

Number of survey respondents by sample type and site, Spring 1995

Program Type 1995 Sample	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
YAP	37	7	6	10	8	6
Co-op	4	0	0	1	1	2
Printing classes only	43	4	11	8	15	5
General classes	78	13	18	12	17	18

Table 3
Number of principals and employers interviewed by site

Site	Principals	Employers
Total	15	30*
CESA #2	3	10
CESA #7	3	5
Fox Valley	7	3
Milwaukee	1	8
West Bend	1	4

* There are 28 companies; in two companies, two people were interviewed.

Source: telephone interviews, summer 1995

Data Collection

Several data collection methods were used to investigate how the program model was implemented and is operated and to document its impact upon the students served. These data collection methods include the following:

- *Program-end surveys of seniors* about their enrollment and participation in YAP (or other program), their future plans, their perceptions of the program's impact on and benefits for them, and their evaluation of the program. This survey was completed in class by 37 YAP seniors and 125 comparison students in late spring 1995 as administered by the printing instructor or program coordinator. A similar survey was completed by YAP seniors and comparison students in two sites in late spring 1994; those results were presented in an interim report but not included here.
- *Follow-up telephone interviews of the first YAP cohort and comparison graduates from two sites* in late winter 1995, six to eight months after they graduated from high school.

These 29 interviews were conducted by trained graduate students and often took 30–60 minutes. In the interviews, the graduates explained their postsecondary employment and educational experiences and their assessment of YAP's benefits for them.

- *Structured telephone interviews of 30 employers* in all 28 participating printing companies in the five sites in summer 1995. These interviews were conducted by trained graduate students and often took 20–30 minutes for the employers to describe how they become involved in the program, their training, use of the competencies and curriculum, mentoring students, and evaluation of the students and the program.
- *Structured telephone interviews of 15 high school principals* by trained graduate students and the project director in summer 1995. Through these 15–30 minute interviews, the principals described how the program operated in their high school, how they made adjustments (if any) to incorporate the program, problems that occurred in offering the program, and how the program benefits students, the school and their school-to-work transition efforts generally.
- *Structured telephone interviews of the five program coordinators* (one interview was conducted in person) conducted during late spring and summer 1995. Through a series of interviews and follow-up discussions, the evaluation project director interviewed the program coordinators about how the program has been organized and managed locally, and changes made and being proposed.
- *Focus group interviews of all four types of students studied in the evaluation* were conducted in Milwaukee in spring 1995 to learn more about how the program operated, their problems, the benefits of participation (for YAP students) and their perceptions of their future opportunities and career and educational plans.
- *Site visits* to the Fox Valley, Milwaukee, and West Bend sites to observe program operations, interview staff, students, and employers, and to observe the worksites and other related program activities.
- *School record information and completed competencies* compiled by the program coordinators and school liaisons for all sampled students. School record data were requested for the students' sophomore, junior, and senior years in order to compare their performance prior to, during, and at the end of the YAP, as summarized in Table 4. Despite efforts to obtain prior parental consent when necessary, there was some site-specific confusion over how to obtain the data from participating school districts before relevant school records were archived or destroyed. Thus, data were not compiled in some sites and were incomplete in others. The lack of centralized program oversight in some sites severely complicated this data collection.

With the exception of the school record information, data collection went very smoothly. The local program coordinators and school liaisons efficiently administered the surveys and returned them in a timely manner. All program coordinators, principals, and employers (including all principals but one who had recently retired) were very cooperative in the telephone interviews, even when the interviews became quite lengthy (some lasting an hour or more).

Data Analysis

In the analysis, the data were aggregated by source and topic for comparison by site and variation on the program model. Where appropriate, statistical comparisons were made to determine significant differences between the YAP students and comparison students on selected student outcomes. Often, however, the small sample sizes limited these statistical comparisons.

Qualitative data analysis techniques were used to summarize and analyze the in-depth interviews, focus groups, and site observation data. The data were organized by interview questions and

themes and patterns were identified within these. The data were coded and aggregated according to these themes and patterns to determine commonalities and differences by site and other comparisons, as were relevant.

Overall, issues raised by educational and policy experts on the role of the youth apprenticeship model in preparing youth for gainful employment and in influencing school and company-based trained guided the data analysis. These issues were grouped in seven areas, as outlined in the introduction: nature of the target population; program design; integrated academic and instruction; student performance; employer involvement; relation to the labor market; and impact on schools. In addition, implementation and impact results were separately determined, but the findings were then compared to inform interpretation of the impact findings.

Table 4

Student Characteristics and Performance Information Collected for the Evaluation

Type	Sophomore	Junior	Senior	Prior
Descriptive Information				
Date of birth				X
Gender				X
Race/ethnicity				X
Prior dropout status				X
Ever retained in grade				X
Ever classified for special education (by type of classification)				X
Academic performance				
Grade point average	X	X	X	
Credit accumulation	X	X	X	
School-related Behavior				
Number of days absent	X	X	X	
Number of disciplinary referrals	X	X	X	
Printing Youth Apprenticeship Program experience				
Year-end ratings for all competencies		X	X	

CHARACTERISTICS OF PROGRAM PARTICIPANTS

The Youth Apprenticeship Program in Printing (YAP) was initially designed for non-college-bound youth, although not restricted to them. Of those served in the five sites selected for the evaluation, most were fairly similar in terms of being white (non-Hispanic) and having working parents (as shown Table 5). Only a small fraction (although somewhat larger in West Bend) had a relative who worked in the printing industry. The majority were male; some sites (Fox Valley and Milwaukee) had a better balance among male and female students than others. Almost half of the students' mothers and about 61 percent of the fathers had only earned a high school diploma or less, while the rest of the students had one or more parents who had some college education. While the students were similar across the sites according to whether their mother earned more than a high school diploma, there was wide variation among the sites according to whether their fathers had as well. A few students had one or more siblings who had dropped out of high school and all of these were from Fox Valley.

Table 5

Percentage of YAP students according to selected demographic characteristics, by site (Spring, 1995)

Characteristics	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
White, non-Hispanic	97%	100%	100%	100%	94%	100%
Male	73	86	83	60	63	83
Mother works for pay	94	100	84	90	100	100
Father works for pay	94	100	83	100	86	100
Parent or relative works in printing	20	17	17	20	13	33
Mother's education was high school only	52	50	50	50	57	50
Father's education was high school only	61	50	83	60	75	33
Has a sibling who dropped out of high school	8	0	0	30	0	0
N =	37	7	6	10	8	6

To some degree, program staff excluded severely at-risk students from the program and included those students who were doing at least adequate academic work, as shown by their grade point averages and other measures of school performance as sophomores, the year they applied for the program. As sophomores, YAP students had average grades and low absenteeism, as shown in Table 6. They were on track in their credit accumulation and had few, if any, discipline referrals.

Table 6
Average absences, grade point average, and disciplinary referrals for three sampled groups as sophomores; by site and type

School Performance	Site				
	Total	CESA #2	Fox Valley	Milwaukee	West Bend
Absences					
YAP	4.7	6.5	—	3.0	4.7
Printing classes only	7.5	—	5.8	—	11.0
General	6.4	6.5	—	—	6.4
Grade point average*					
YAP	2.6	2.4	—	2.6	2.7
Printing classes only	2.5	—	2.7	—	1.9
General	3.1	3.4	—	—	2.9
Disciplinary referrals*					
YAP	1.0	0.0	—	0.8	1.7
Printing classes only	5.0	—	—	—	5.2
General	0.0	0.0	—	—	0.7

Source: School district student record information compiled by various school district staff, 1995.

No data were provided for CESA #7 and too few co-op students were in the sample to be statistically meaningful in analyses.

* Statistically significant at $p < .05$.

For purposes of the evaluation and identification of the program's contribution to their education and career development, YAP students were compared to three groups: co-op students, students who only took printing courses but had no related work experience (printing classes only), and students who were not in a college preparation or a vocational preparation class and were enrolled in a standard academic course (such as English) when surveyed (general classes students). To facilitate these comparisons and to identify program impact apart from group differences, these four groups were compared to determine their demographic and student performance similarities as sophomores. Co-op students were later excluded because only four were recruited for the sample, considered to be too few for statistical significance testing.

As shown in Table 7, YAP students were fairly similar to other comparison group students on a range of demographic and other personal characteristics. They were slightly more likely to have a relative who works in the industry and a father who only earned a high school diploma or less, but these differences were not statistically significant. As shown in Table 6, the YAP students were also somewhat similar to printing-classes-only and general students as sophomores, particularly in terms of attendance. They were similar to printing-classes-only students in their grade point

average and to general students on discipline referrals, but not to the other groups on these same performance measures.

Table 7

Percentage of sampled senior students according to selected demographic characteristics, by program type (Spring 1995)

Characteristics	Total	Program Type			
		YAP	Co-op	Classes	General
White, non-Hispanic	85%	95%	75%	77%	85%
Male	64	73	100	51	64
Mother works for pay	93	94	100	95	90
Father works for pay	94	94	100	97	91
Parent or relative works in printing	13	20	0	12	11
Mother's education was high school or less	56	51	N/A	64	51
Father's education was high school or less	44	61	N/A	34	40
Has a sibling who dropped out of high school	10	8	N/A	16	8

N/A = Not Available

* Statistically significant at $p < 0.5$.

CHARACTERISTICS OF THE MODEL

The Wisconsin Youth Apprenticeship Program in Printing (YAP) was started as a pilot in two communities in fall 1992, and has since expanded to numerous school districts and other professions. It was developed through a collaborative effort among business, labor, government, and educational leaders in Wisconsin, in order to offer non-college-bound students a smoother transition into gainful employment. It was formalized by state legislation and a state youth apprenticeship council was created, and was envisioned as one of the culminating high school experience options for students.

The Wisconsin youth apprenticeship model is based upon the German model for youth apprenticeship, with adaptations that reflect U.S. labor market conditions and a national disdain for limiting students' future options particularly in earning a college diploma. Students are trained for an occupational cluster, rather than a specific job. In addition, students are given early exposure to technical college teaching and simultaneously earn high school and college credit in some courses (particularly the technical courses), giving them advanced standing for pursuing a technical college degree in printing.

The Wisconsin youth apprenticeship model combines school-based and work-based learning in targeted academic and occupational skills. It uses a competency-based curriculum to structure student learning and assessment. The competencies and related curriculum were developed by state education officials and printing industry representatives, using the PrintEd curriculum developed by the Printing Industries of America. After three years of use, the competencies and related curriculum were under review, with sections designated for deletion and addition, reflecting the rapidly changing printing industry and initial limitations.

The program operates as follows. Students enroll in the program for their junior and senior years of high school. There are no specific enrollment requirements, except interest and capacity to graduate on time, having already earned sufficient credits to be in good academic standing. In addition, applicant students are only accepted after they are interviewed by employers and offered a youth apprenticeship position. Once enrolled, students attend academic classes that meet high school graduation requirements and complement their printing skills training. They also take a series of printing instruction courses that follow the competency-based curriculum. At the worksite, they are supervised by a mentor and are trained in various company areas (as specified by the competencies) by on-site employees and designated trainers. The mentor coordinates the training schedule, provides some training, supervises the student's learning experience, and facilitates the assessments. Students' performance in the competencies is rated by both the mentors and the printing instructors.

By design, this youth apprenticeship model offers a much longer and more highly structured training experience than is typical of co-operative educational programs—the other commonly available work experience program. In addition, it coordinates each student's school-based and work-based printing instruction, which is not characteristic of co-op programs. The intensive work experience and the more enriched and grounded academic preparation (particularly in the printing courses, and to a lesser extent some of the other academic courses) engage students' interest and motivation in ways often not experienced in more traditional academic or vocational programs.

The YAP is coordinated by the Wisconsin Department of Industry, Labor, and Human Relations in cooperation with the Department of Public Instruction and the Wisconsin Board of Vocational, Technical, and Adult Education. Locally, it operates in a fairly decentralized manner. In some communities, it is provided through a consortium of school districts with extensive assistance from local chambers of commerce. In other communities, it is provided as a high school program offering, and is coordinated by a school staff person.

The YAP was designed as it was implemented during its first year, starting off essentially as a "work in progress." This had pluses and minuses. Students and employers did not know all the expectations and plans were changed throughout the first year in particular. But, according to evaluation feedback, students were made to feel comfortable in offering input and comment on what worked well and what did not, helping to shape the program.

When started in 1992, the Wisconsin YAP was immediately the focus of national and international attention. Since the youth apprenticeship model was being considered by many state and federal policymakers and foundation officials, several traveled to the two pilot sites to investigate this new effort. One site was used by then-President Bush's campaign when he held a press conference at a worksite to commend the students, employers, and educators for this innovative effort. The students learned early to speak to the press and to have their work scrutinized by national and international observers. This dramatic public attention made the students feel very special, adding an unusual dimension to their program experience. As other areas implemented new youth apprenticeship programs in Wisconsin and elsewhere, the spotlight moved away from the original pilot sites, yielding a more common program experience.

Presently, the Wisconsin school districts are implementing a broader state school-to-work transition initiative in which the YAP (and other youth apprenticeship programs) are just a part. Several districts are developing regional consortiums (usually county-based) to coordinate several initiatives and school-business opportunities. They are also restructuring secondary education, and including the youth apprenticeship program as an option. One district, for example, is reworking its entire middle and high school curriculum to include exposure to technology and related occupations, broadening students' exposure to various fields.

CHARACTERISTICS OF THE FIVE SITES

In fall 1992, Fox Valley and West Bend began to implement the core components of the YAP with some slight variation, and quite different organization for service delivery. The following year, the program was expanded to five sites, including CESA #2, CESA #7, and Milwaukee, while continuing in its original two sites, as shown in Table 8. The number of sites and students enrolled grew rapidly between 1992 and 1995, to a total of 11 sites and 66 students in 1995, but averaged only six students per site. By spring 1994, the first cohort of youth apprentices had graduated from high school in the original two sites. By spring 1995, a second cohort graduated from the original two sites and the first cohort of the added sites had also graduated.

Table 8
Number of sites and students enrolled in the Wisconsin YAP, by year

Year	Sites	Students
1992	2	21
1993	5	48
1994	8	46
1995	11	66

In all, five sites had the largest programs and graduated seniors in spring 1995. These five sites were used in the evaluation and their programs are summarized below.

CESA #2. CESA #2 (one of 12 Cooperative Education Service Agencies in Wisconsin) is in Dane County and serves 16 school districts. CESA #2 operates several programs and services for these districts including a parent network, computer network, school-to-work transition program, drug abuse program, and transition program for potential dropouts. The YAP is open to all students who are on track for graduating with their class. There is no printing course prerequisite (except a keyboarding requirement), although sophomore students in graphic arts and industrial arts are often targeted for program recruitment. All types of students (including those at risk of dropping out) are made aware of the program and are eligible to apply.

To enroll, students must be placed with a business through a rigorous application and interview process which is coordinated by CESA #2 staff. Students must provide three letters of recommendation (at least two from school staff), a parental support letter, and a short written statement of interest. CESA #2 hosts a meeting for participating businesses to interview applicant students, and serves as a broker to match businesses and students according to interest and logistics.

The students' program operates in three locations—their home school district, Madison Area Technical College (MATC), and their worksite. Each school day is split between two sites. On Mondays and Wednesdays, the students are enrolled at MATC in printing classes for four hours each day (7:30 a.m. to 11:30 a.m.) Juniors work an average of 10 hours a week and seniors work an average of 15 hours a week. On Tuesdays, Thursdays, and Fridays, they are at their worksites during these hours. Every day, the students then go to their high schools for their academic classes between noon and 3:30 p.m., taking three or four academic classes each semester. This schedule was devised to allow students to continue their extra-curricular activities and keep them socially active in their high schools. Some students return to their worksites after school, for additional experience. Students are encouraged but not required to work for their employers during the summer following their junior year for additional experience.

No separate academic classes are required for the CESA #2 youth apprenticeship program in printing. Since no more than one or two students from any one high school are in the program, the

students are not clustered for their academic classes at their high school and there is no integration of the academic and vocational training in their course work.

Students are clustered for their printing coursework and all related instruction such as career planning and job search skills when they attend MATC. MATC developed a special printing lab for just the youth apprenticeship students, separate from its printing lab for its regular associate's degree students. Because the college provides extensive industry training and has a Tech Prep program in printing, it needed a second lab for the YAP students. Local printing companies contributed equipment for the lab and planned to contribute some supplies for the 1995–96 school year. Nonetheless, this arrangement proved to be very costly for MATC. As a result, CESA #2 planned to rent the lab space from MATC for the 1995–96 school year, but hire and supervise its own printing instructors (rather than use the college faculty). YAP students would still be eligible to earn technical college credit for their printing courses.

YAP students provide their own transportation to and from MATC, the worksite, and the high school. When they are enrolling, students are matched to conveniently located printing companies to reduce this travel time and inconvenience. Program staff found that most students use their own car or car pool. At least one student uses public transportation and occasionally the printing company helps a student by providing transportation.

Within each company, there is a coordinator for all student apprentices. A student may have five to six mentors who do the actual training. These business coordinators met monthly initially, until a YAP steering committee got underway. Since then, there has been no forum for the mentors to meet and no additional mentor training has been provided. Instead, the technical college instructors coordinate with the coordinators and mentors on each student's competency training to ensure that all skills are covered.

According to the program coordinator, CESA #2 is in the process of encouraging the local school coordinators to take on more responsibility in supervising students at the worksite, school, and community college. For example, one student was found to have poor math skills and needed remediation; greater supervision was needed to flag this and other problems early and find solutions. Presently, employers call the school coordinators or the program coordinator at CESA #2 if they have difficulty with a student.

There are no special activities organized for the YAP students to extend or enrich their learning experience besides their work experience, with one exception. A special graduation ceremony was organized for the 1995 graduates. It was well attended and students received signed plaques from the governor. The program has also received considerable public attention, with frequent visitors and media coverage. According to the program coordinator, this attention helped to make the students feel special and they bonded well as a group.

The participating school districts and CESA #2 received no additional state or other funding to operate the YAP. The school districts share in the program costs on a per pupil basis. This has been calculated by dividing the total instructional costs for half-time students by the number of enrolled students. For the printing program, this cost was $3400 per student in 1995; this represented a higher program-related cost that other youth apprenticeship programs, according to the program coordinator.

CESA #2 has a school-to-work committee (which was formed in 1995) composed of a liaison from each of the 16 districts, a MATC representative, and business representation (including one representative from each locally offered youth apprenticeship field—bio-technology, finance, and printing). There is a separate advisory committee for each youth apprenticeship field as well. The printing advisory committee includes the school coordinators from each school, 11 business representatives (which have youth apprenticeship trainees), and CESA #2 staff. There are plans to

add parent and student representatives. According to the program coordinator, this advisory committee became too large and unwieldy, so a smaller steering committee was formed with representatives from the larger advisory committee, including three school district and three business representatives and one CESA #2 representative. The steering committee addresses the day-to-day implementation and operational issues, and refers the more challenging problems to the larger advisory committee.

The CESA #2 program coordinator, working closely with the school coordinators in each district, facilitates the YAP. The CESA #2 program coordinator prepares recruitment materials and placement process, while the districts actually recruit students as sophomores through assemblies, open house meetings for parents, and targeted solicitations in graphic arts classes. CESA #2 staff also hosts an open-house before the applications are due, inviting businesses and interested sophomore students and their parents to attend. CESA #2 staff is responsible for recruiting printing companies to participate, and enlisting the aid of school districts in this process.

In its first year, CESA #2 enrolled 12 students, but in its second year, it only enrolled six new students. According to the program coordinator, the school districts did not recruit as aggressively, in part due to the per student costs, and subsequently fewer students were interested in applying.

CESA #7. CESA #7 serves 10 school districts in the Greenbay area. Two of these school districts participate in the YAP, one of which already had a strong printing program for its traditional students.

CESA #7's YAP is organized in three parts. Students attend their own high schools in the morning where they take regular academic courses. They then travel to Southwest High School for their graphics class from 11:30 to 12:30 p.m. and then go on to their printing company to work from 1:00 to 5:00 p.m. There is presently no technical college course instruction for program participants, but students can transfer their printing courses for credit with the Fox Valley Technical College, because the teachers are using the Wisconsin Department of Industry, Labor, and Human Relations curriculum. Southwest High School purchased new equipment for the program. While, the students must drive a great distance to attend their printing class and their worksites, which are geographically dispersed, none of the students have complained, according to the program coordinator.

The program is coordinated by different agencies and their staff. The school-to-work coordinator at CESA #7 coordinates all the youth apprenticeship programs in the county as well as other school-based, work-based, and connecting activities. A part-time grants coordinator assists with the school-to-work programs by facilitating and monitoring the committees. A youth apprenticeship coordinator at the Greenbay Chamber of Commerce (and another coordinator at a rural area chamber of commerce) is the liaison between the businesses and schools. This coordinator has recruited the printing companies, handled the application and placement process for students, conducted monthly mentor meetings, facilitated mentor competency ratings and grading of students, and handled student problems. There is a 20-member steering committee for the county's school-to-work programs and services; it meets monthly and addresses the various youth apprenticeship programs.

The added program cost is primarily for the printing instructor and equipment. The high school providing the printing instruction had to purchase new equipment (such as a two-color off-set press, horizontal camera, and scan maker); a portion of this was included in the per YAP student cost (while the rest was covered by the district for its non-YAP students' use of the equipment). This cost is divided by the total number of students and billed to each sending school according to the number of students sent. This average cost has been $2,000–2,500 per student per year, fluctuating according to the overall enrollment, which seems to be declining. The

program coordinator's full-time salary is covered by a state school-to-work grant. In the program's third year, CESA #7 became a fiscal agent for the program to handle student wages and other related costs (such as insurance) for the employers in all the youth apprenticeship programs; CESA #7 added an agency fee to each employer's bill for processing costs and intends to generate some non-governmental funding for programs management through this process.

In the program's third year, the staff had difficulty recruiting students, since only three students applied and two qualified. In addition, only three additional students continued as seniors. The program coordinator visited various graphic arts classes to solicit sophomore applicants. When interviewed during the summer, she concluded that the teachers may not be referring students because they fear their participation in the youth apprenticeship program may reduce the number of students for their own courses.

Fox Valley. The Fox Valley program is a collaborative effort among the Fox Valley Technical College, the Fox Valley Chamber of Commerce, and 11 local school districts. The program began in fall 1992 with nine students from four districts and five employers from the local printing industry. They initially got a three-year grant of $150,000 from the Meenasha Corporation, which they used to purchase six computer units, and allocated to the companies according to need in training apprentices. The rest was used to pay for a half-time coordinator. In addition, they received $10,000 from the state which they used for computer workstation leases, and, in the second year, $1,500 for mentor training.

The program is centralized at the technical college where each week students attend all their printing and academic classes on two days and alternate these with three days at the worksite. The juniors and seniors have alternate schedules in which the juniors are at the worksite on Mondays, Wednesdays, and Fridays, and the seniors are at the worksite on Tuesdays, Thursdays, and Fridays. Students take academic classes in English, math, chemistry, social studies, and communication (often with a printing industry focus), as well as training-related classes in computers and printing at the technical college. At the worksite, students rotate through various designated stations to gain experience in all aspects of the printing industry. They may have one or more mentors throughout the two years, who guide them through their work experience and provide counseling and support as needed, but they are trained by staff in each area.

"Ron"

When Ron was a sophomore, a school counselor spoke to his drafting class about the youth apprenticeship program. He did not have any plans after graduation and "didn't have extremely good grades to do what I wanted." He figured that if he had not enrolled in the program, he would have gone to the local technical college in autobody or police science. He completed a form and wrote an essay on why the program would be good for him but had been concerned about giving up football and wrestling and keeping up with his friends (he did continue in wrestling, and kept up with his friends that way).

When he started YAP, he found the classes to be difficult at first. He felt he was treated like an adult at the college and at work (having feared that he would be treated like a kid—not trusted or given responsibility). When he first started at the company, the mentor and other staff showed him around a lot, and then rotated him through various areas. During the summer, he worked again for his company. By his senior year, he was working in stripping and the press room.

In his training, he found everyone in an area would pitch in to teach him and that he could ask anyone questions. He knew that he was graded on his initiative, how much he asked questions, and his reliability, as well as the skill-based competencies. He considers everyone he works with to be his mentor. By the end of his senior year, he had worked on every press in the company.

He found the academic work, particularly math, to be challenging, but "stuck it out" by working with a friend. He thought his grade point average went way up while in the program, attributing this to the small classes and self-paced approach. He really liked the college teachers, and made friends at work and with students from other high schools.

He wanted to continue working on his associate's degree when he graduated, but did not know how he would find part-time work to complement the full-time college enrollment over the next 12 months.

In most of their academic classes, the students are combined with students from other youth apprenticeship programs; the exception is graphic arts chemistry, which is structured to be industry specific. They do not attend classes at their home high school, but a few students make an effort to participate in their high school's extra-curricular activities, particularly sports.

Some instructional changes were made in the program over time. The math curriculum was individualized to accommodate broad student differences and competence, particularly since more advanced students found the remedial math portions to be too easy. In addition, some students had to increase the amount of course time in their program to cover the academic curriculum.

After graduating from high school, he felt "burned out" and did not want to continue school in the summer, preferring only to work. He had no further plans for college. He continued working full time at his printing company as an assistant press operator, earning over $7.00 an hour. His current career plans are to become a press operator.

"Brian"

Brian was one of five students from his graphic arts class who volunteered to apply for the program when it was first announced. He had toured the company, found it interesting, and had wanted to get out of high school and into the world of work. He did get "cold feet," however, when thinking about what he would miss from his high school. He liked that YAP was for non-college-bound students, since he had not planned on college and admitted that he lacked direction generally.

He liked the fact that he was getting paid while working, especially since it paid better than other jobs, such as "fast food." His friends were envious that he was "being paid to go to school" and "having a foot in the real world."

He did not find the college courses to be too challenging, because they were competency-based and self-paced. Because the math and chemistry courses had applications to the industry, he could see how the concepts related and remembered them better. He even brought in his own examples from work.

Brian really liked his worksite training, describing the staff as some of the best teachers he had had, because they took time with him and allowed him to experiment. He also thought that he was trained the way all employees teach each other, and that he did real work about 50 percent of the time, and distinguished between "live" jobs and other work. He was very proud of a program booklet he had produced in desktop publishing (and even took home a copy). During the summer, he worked as a plate maker in pre-press.

Through the program, students earn high school credit toward graduation and technical college credit in their occupational area. At the end of the two-year program they graduate from high school and receive a youth apprenticeship certificate from the Department of Industry, Labor, and Human Relations. Following graduation, students are expected to pursue further work in the printing and graphic arts industry, or complete a two- or four-year college program. They earn the equivalent of one to two semesters of technical college course credit.

Through the training, he found he liked the pre-press and press work and decided that he would complete his associate's degree (since half the degree was already covered through the program) and then transfer to the local four year college for printing management. He was offered a job at his printing company as well.

He came from a large high school and tried to stay in touch by doing varsity wrestling and attending school events and dances. He kept his close friends, but lost others, as he got close to the people in the program and at work.

After high school graduation, Brian continued at the technical college and planned to then enroll at a four-year college in printing management after graduating in the spring. He also continued as a plate maker working with his youth apprenticeship employer, 30 hours a week, earning $6.50 an hour. Being in the program strengthened his interest in printing and focused him on management.

A local consortium of school district and technical college officials, local business representatives and Chamber of Commerce representatives have overseen the program's operations. The youth apprenticeship coordinator at the Fox Valley Chamber of Commerce has been responsible for printing company participation, including the mentor training, participant application and placement process, the steering committee, the parent meetings, and related state regulation paperwork and documentation. The technical college has supervised the students in their academic and printing classes and the printing instructors have coordinated with the worksite mentors on the students' competency training, performance, and problems. The coordinator, mentors, and teachers meet monthly for problem solving. Each participating high school has had a school liaison to oversee their students' participation, and provide counseling and support as needed. At the end of the third year, the program was reorganized somewhat, with the appointment of a youth apprenticeship coordinator (for all the youth apprenticeship programs) at the Fox Valley Technical College, who helped to centralize program management.

By the program's fourth year, the number of student applications had declined and some available positions were unfilled. The youth apprenticeship program coordinator attributed this lack of applications to the fact that the students are taken out of their regular high schools for their last two years, that the program is not very well known, little marketing had occurred during the winter months, and that the per student cost (approximately $4,400 per student) is expensive for the districts because there is no reduced costs at the high schools when their students are taking classes at Fox Valley Technical College.

Program marketing has been dependent upon the school district liaisons who promote multiple school-to-work opportunities and a variety of youth apprenticeship programs. Some liaisons, especially in large districts, have too many responsibilities to focus enough on the YAP. To address the recruitment problem, the marketing committee organized a focus group of principals, sophomore teachers, and superintendents to tour a printing company, review the program and its training, and to have a lengthy discussion of ways to improve program marketing. For the 1995–1996 school year, Fox Valley has 10 students continuing as seniors and seven new juniors.

Milwaukee. The Milwaukee program is in a magnet technical high school, to which students apply through a lottery process. Once there, they must then become eligible for the YAP by their sophomore year, by meeting the following criteria—having a 2.0 grade point average, good attendance and discipline records; and being recommended by a printing instructor. Students are

recruited during their freshman and sophomore years, when they are shown a video about the program. In the spring of their sophomore year, the program coordinator talks with the students, seeks recommendations from the printing instructor, and holds an orientation meeting for parents and students to explain the program further and answer questions. In the spring 1995, 38 sophomores made an application to the program, but only 18 qualified and only seven were selected because of limited program slots. That year, the program enrolled seven juniors and seven seniors, half of whom were female.

The students' work experience included afternoons during the school year and the summer between their junior and senior years. Juniors work about 10 hours a week during the school year, on three days. They have their academic classes in English, chemistry, history, photography, and printing in the morning until 1:00 p.m., and then go to their worksite from approximately 1:30 p.m. to 5:00 p.m. Two afternoons a week, the junior YAP students have a computer lab with the program coordinator and receive further instructions in printing-related software. Seniors work four afternoons a week for approximately 15 hours. They usually complete their coursework in English, math, economics, industrial psychology, and printing by noon (or 1:00 p.m. if they need additional academic courses). On Friday afternoons, the seniors take courses in pre-press and multi-color off-press at the Milwaukee Graphic Arts Institute. During the summer, the students continue to work at least 180 hours at their printing company.

When YAP students successfully complete the two-year program (including their competencies) they can apply to a technical college with a printing program. When accepted, they are able to apply 12 credits in printing, and can take proficiency exams in advanced math and psychology to earn three additional credits each. This college credit exists through an articulation agreement between the district's central office and the Milwaukee Area Technical College.

The students started at $5.25 per hour (with one exception: one girl started at $7.00 per hour). Transportation has been a major problem for student participation because many of the big printing companies are located beyond the public bus lines, and many students do not have access to a car for transportation. According to the program coordinator, one company did provide their student with taxi service to and from the site and one company provided taxi service for the return trip.

When the program first began, the program coordinator developed the worksite opportunities by engaging the assistance of the President of the Printing Industry of Wisconsin (a professional association for printers) and of the printers' union. Together, they would visit company officials to promote the program and solicit participation. There has been no education and employment steering committee for the youth apprenticeship program in printing to facilitate employer participation, although the district does have an umbrella education and employment council.

Participating employers were provided mentor training. In the first year, this included an initial training session and bi-monthly meetings thereafter. In the second year, MATC staff provided a few days of training over three to four months for new mentors, but there were no regular mentor meetings to facilitate program operations or problem solving. Instead, the program coordinator visited each worksite at least quarterly (and more frequently the first year) for student ratings with the mentor, student, and parents (according to the mentors, at least one parent always attended their son or daughter's quarterly evaluations).

Milwaukee Technical High School was among the second group of Milwaukee high schools selected for youth apprenticeship programs. The district provided a small amount of start-up funds, primarily for staff development and the program coordinator. The principal actively pursued participating in the program model, viewing it as a means of rejuvenating the school's work preparation approach, and making the staff more entrepreneurial.

West Bend. The West Bend YAP operates within West Bend High School, recruiting students from East and West Bend high schools. It was started by an active education and employment advisory council, principal, and program coordinator. The program coordinator facilitated all aspects of the program and has fostered the linkages to the participating printing companies. Implementation and operationalization of the program has been overseen by an implementation team, comprised of school, business and student representatives.

The program began in fall 1992, having recruited 12 students during the prior summer who were interested and had taken printing courses. Since then, students have been recruited in the fall of their sophomore year (all youth apprenticeship programs are explained to students during their English classes), so they can enroll in the printing survey course in their spring semester to be better prepared. The program was structured to have students take their printing and other academic courses during the mornings and travel to their worksite for the afternoons. All students arranged their own transportation and most were placed at only one printing company for the two years. The college-level courses were taught at the high school by a technical college instructor.

By the third year, scheduling problems had developed and program staff found that they could not keep the students together as a cohort for all classes. The students are grouped for some academic course work, however. The printing course is a two-period morning course enrolling both juniors and seniors (the curriculum is rotated each year so the two cohorts can be combined) for the fall semester only. The two-period, semester-long printing course has been team taught by the printing instructor and the technical college instructor who is a retired printer. In the spring semester, students are scheduled for a weekly 20-minute session with the high school printing instructor. A specifically written communications course was added, but not all students could be enrolled for it, due to competing course schedules. This course is team taught by English and business teachers, is computer-based, and is not limited to YAP students. Students earn community college credit for the printing courses and the high school courses on oral and interpersonal skills and written communication, because these courses have been articulated with a local community college, based upon a prior agreement. These college credits can be transferred to any other Wisconsin community college.

Five companies mentor students in the program, but each does not provide all the required training. The program staff had some difficulty in developing worksite training in all the competencies because of how local print businesses specialize; for example, few companies perform desktop/imaging publishing. Thus, some students were placed at more than one company. In addition, to reduce the training burden on each company that engages more than one student, the students are not kept together but are dispersed to different production areas, thereby not learning the same competencies at the same time. As a result, the work-based learning and classroom training do not always coincide for each student.

To coordinate instruction on the competencies, the mentors and printing instructors meet at the beginning of the year to decide what is covered at the worksite and in the classroom and how to sequence the instruction. Now that the YAP students take a printing survey course while they are sophomores, the program staff think that they are better prepared for the work-based learning. Whenever possible, the mentors and printing instructors tried to integrate the classroom projects and worksite experiences. To further the worksite supervision, one printing company sponsors a monthly luncheon of mentors, students, teachers, and parents to review competencies and address problems. The mentors and instructors also meet individually and as a group as needed.

Pacing the students in their competency training was an issue, as some students excelled in their competency training and would complete their competencies more rapidly than others. The program staff and mentors found that they needed to spread the competency training over the two-year period so students would have more time with each, rather than race through the checklist. Some companies paced the competency training so students would have time at the end of their

senior year to specialize in a particular area of interest. The program staff also found that students placed in small companies progressed more quickly through the competencies than did students in larger companies, and that it helped to shift mentor responsibilities from salaried employees to hourly employees, since the latter were more likely to be available.

Program staff have tried to provide students with some additional exposure to the print industry. For example, the printing instructor took sophomore students (in the survey course in printing) on a tour of local industries as a way to help focus students about the possible career opportunities.

Program staff are planning to shift program recruitment to the eighth-grade level, in order to engage student interest earlier and help them to plan their course work around the program, particularly to complete their academic courses and printing survey course during their freshman and sophomore years. West Bend program staff do not foresee expanding the number of placement slots for their students, beyond the current 12 slots, unless the major printing companies in the area expand their participation. In the meantime, the school district (and its board of education) is concerned about the small number of enrolled students and maintaining a cost-effective program. They currently support the program, but, according to the program coordinator, may not if the number of enrolled students drops.

According to the program coordinator, parents' primary concern is whether the program's preparation is sufficient for their students' enrollment and attendance at a four-year university. School staff are trying to develop an articulation with a state university (with a printing major) to accept technical college transfer credit in printing, rather than wait until a student completes an associate's degree.

Summary

The five program sites all implemented the core components of the youth apprenticeship model—the two-year work-based training, complementary school-based printing instruction, student assessment based upon the competencies, earned college credit, and mentoring. The sites varied in how they scheduled the school-based, work-based, and postsecondary instruction, and how they managed the program and collaborated with their employers. All programs operated at small scale, which entailed added school district costs, with limited potential for expansion.

PROGRAM EXPERIENCE

While the five sites varied somewhat in how they operationalized their program, all students had a common experience of being recruited and matched with employers in their sophomore years, and then alternating academic and printing courses with intensive competency-based training and work at a printing company throughout their junior and senior years. The students' comparative experiences and their assessment of these in the program based upon interviews, observations and their survey feedback are described below. These findings illustrate that the youth apprenticeship model is flexible and adaptable enough to be implemented in different ways in various settings, without jeopardizing program integrity. It also illustrates how integrated curriculum and contextualized instruction were operationalized.

Recruitment and Enrollment

Program staff across the sites used a standard, somewhat elaborate, recruitment and application process. The intention was to target students with a demonstrated interest in the printing field and to simulate a job application process. This process may have served to engage only the most motivated students, but it also seemed to have helped to clarify to students and parents what the program offered and expected from participants. There was no indication in the recruitment and application process that the program was just for the non-college-bound, and its college credit accumulation component should have demonstrated to interested students that it was intended to foster both college and employment opportunities. Students' reasons for enrolling seemed to reflect the dual emphasis as well, although preparing for college appeared to have been a priority for only a subset of participants.

To apply for the YAP, sophomore students complete an application form and provide letters of recommendation to program staff. The staff in turn check applicant students' transcripts to determine their readiness to graduate on time and the feasibility for them to retake previously failed courses prior to enrolling in the program, if necessary. Program acceptance, however, is contingent upon employer placement. Each student is interviewed by one or more employers who looks at their academic performance, strengths and weaknesses, and career commitment. Students who are not accepted by an employer cannot enroll in the program. Each site's program coordinator (either school-based or affiliated with a local chamber of commerce) manages the application and employer match processes.

Most sites have begun to encourage the sophomore applicants to take an overview printing course prior to enrolling. In addition, school staff would target sophomore printing classes when recruiting students, and would recruit students with a demonstrated interest in graphic arts and printing. As a result, most YAP students (81 percent), as reported in a senior survey, had taken at least one printing-related course prior to enrolling in the program and 46 percent had taken two or more courses. These courses included print technology, graphic arts and print design.

According to senior survey results, YAP students enrolled in the program primarily at the recommendation of school personnel which may reflect the recruitment efforts. A few students (16 percent) enrolled because they had heard about the program from friends and relatives and a few (5 percent) enrolled because other friends had joined the program. Guidance counselors were often key in the recruitment and enrollment process, by being the first professional to promote the program among sophomores.

The most common reason YAP students gave for joining the program was related to its design—most students (76 percent) wanted to learn about the printing industry (as shown in Table 9). A second, but equally important, student reason for enrolling in the program was employment-related—to earn money while in high school (76 percent) and to obtain help in getting a job after graduation (65 percent). YAP students were almost as likely to report that they had joined the

program because of its educational challenge—to do something more interesting educationally (68 percent) and to do something different in high school (62 percent). Less than half joined for college-related reasons—46 percent joined to start earning college credit, and 30 percent thought it would help them get into college. Some students (41 percent) enrolled because their parents thought it was a good idea and only 11 percent reported that they had been assigned.

The prevalence of these reasons differed somewhat by site. YAP students from CESA #2 were generally in greater agreement on a variety of reasons, while students from Milwaukee were twice or more as likely than other YAP students to enroll because their parents thought it was a good idea. West Bend students were somewhat more interested than other students to enroll because of the opportunity to do something different. CESA #2 students were most interested of all students in how the program would help them accumulate college credit and get into college.

Once enrolled in the program, YAP students were assigned to core printing courses and other required academic courses according to the schedule established for their intensive concurrent work experience, though their junior and senior years.

Work Experience

A core element of the YAP model design is well-structured work-based learning. During the two-year program, YAP students worked part-time at their printing company where they were trained in various competency-prescribed areas. Their training was in four areas that represented the core functional areas of the industry: pre-press; press; bindery/finishing; and production/support. Not all companies could provide training in all YAP competency areas, so some students were trained in two more companies during the two years. According to the surveyed students, the majority (62 percent) worked only at one company during the two years; some (24 percent) worked at two companies and the rest worked at three or more.

Table 9

Percentage of YAP students according to their reasons for enrolling, by site

Reason for enrolling	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
To earn money	76%	86%	67%	80%	88%	50%
To learn about the printing industry	76	100	67	70	75	67
I thought it would help me to get a job after graduation	65	86	67	60	63	50
To try something different educationally	68	86	67	60	50	84
To do something different for high school	62	86	50	70	38	67
To start gaining college credit	46	86	50	40	25	33
My parents thought it was a good idea	41	43	17	30	88	17
I thought it would be more challenging than regular school work	35	57	0	40	38	33
I thought it would help me get into college	30	43	33	30	13	33
The program was recommended by other students	16	29	17	10	13	17
To stay in school	14	14	17	10	13	17
I was assigned to this program	11	14	17	10	13	0
N =	37	7	6	10	8	6

The worksite training was scheduled differently in the five communities. Most typically, the students worked at their companies for a few hours a day, five days a week. In three sites, the students worked in the afternoons, and in one site (CESA #2), the students worked three mornings each week. In Fox Valley, the students worked three full days, alternating with two days of academic classes. In three sites, students worked a total of 20–25 hours per week. In CESA #2 and Milwaukee, students worked 10–15 hours a week. Milwaukee students also had to work for 180 hours during the summer following their junior year to get the minimum 1,100 hours required for the program.

To ensure quality training and provide each student with a positive adult role model, the program's design stipulated that the students' worksite training be overseen by a worksite mentor. In practice, according to students and staff, one person at each company was formally responsible for the students and their progress, but each company developed a unique system for providing employee-directed training for the students. Just one-third of the students reported that they had only one mentor throughout the two years. The majority of students reported that they had multiple mentors, some because they worked at different companies and some because they had

different mentors at each production area or had several workers at each production area provide their training.

When describing their typical day at a printing company, a focus group of Milwaukee YAP students described a common process. They usually knew what they were to do and would go to their designated area. Sometimes, they knew what jobs were waiting for them to continue, and some would take direction from their mentors or trainers. They talked about looking at the list of "hot jobs" to identify priorities for work. One Milwaukee YAP junior explained that when he got to work, he would wait for the trainer to get him started on stripping or making plates. The trainer would get him going and then come by to check his work. A female Milwaukee YAP junior explained that in every department of her company, she was trained to do what everyone was doing, spending a week on different tasks, first being trained and then doing the work.

Each company would use a different rotation for training. Some YAP students, for example, spent a month or more in each department, using a training sequence that followed how a job is developed—beginning with pre-press and then the press room. At least one student started even earlier in a job's development, spending three months first in customer service to see the origin of jobs. Other students were started in other departments, depending upon the work schedule and assignments for other apprentices.

The surveyed students rated how much they liked the four training areas, as shown in Table 10. The most highly rated area was pre-press, which 70 percent of the students liked a great deal. The least liked area was bindery/finishing, which 41 percent rated as not liking at all.

Table 10

Percentage distribution of YAP students by how much they liked selected worksite training areas

Worksite Training Area	Affinity			
	A great deal	Somewhat	Not at all	Did not work in this area
Pre-press	70%	27%	3%	0%
Press	49	38	8	5
Bindery/Finishing	14	46	41	0
Production/Support	24	59	11	5

N = 37

When they began, most YAP students were paid minimum wage and received raises to $4.50 per hour for their senior year; Milwaukee's students, however, started at $5.25 per hour. Since the students were paid while at their worksites, there was a presumption that they were performing real work, not simply being trained. In addition, performing real work contextualized the training further, exposing the students to work within actual time and quality expectations. However, being able to perform real work differed by company and area within the companies, as shown in Table 11, although on average it appears that they performed real work about half the time. By the students accounts, they were most likely to do real work in the bindery/finishing and least likely to do real work in production/support services. Sixty-two percent of the students reported doing real work for at least 50 percent of the time in the bindery/finishing area, while about half the students reported doing real work for at least 50 percent of the time they were in pre-press and press. In

contrast, very few (30 percent) of the students reported doing real work at least half the time they were in production and support services. Instead, almost half (46 percent) reporting doing real work for only 10 percent or less of their time there.

Table 11

Percentage distribution of YAP students according to their time spent performing real work in each area of the company

Worksite Training Area	Percentage of Time				
	0–10%	11–25%	26–50%	51–75%	76–100%
Pre-press	19%	14%	16%	27%	30%
Press	19	16	16	27	22
Bindery/Finishing	16	5	16	24	38
Production/Support services	46	16	8	22	8

N = 37

The students' estimates of their time balance between work and learning on-site were similar to those provided by the employers. Less than half the interviewed employers could estimate the portion of time the students were only observing at the worksite, rather than working. But of these who could, 58 percent reported that students were only observing one-third or less of the time, while the rest said it was half or more of the time.

The work-based experience gave students hands-on training in the core facets of the printing industry, through which they learned new skills or reinforced those learned in their printing courses. Critically, they gained a "real world" perspective about how to use their printing skills in "live jobs." There were valuable differences in how they were taught their skills at the worksite and at school. In a focus group interview in Milwaukee, the YAP students contrasted their learning at work and at school, explaining that the school-based learning often took longer, was more technical and would strive for perfection in each job. In contrast, they learned at the worksite to do jobs in a rush, "to work with what you have" and to "cut corners." They even became instructional facilitators. Occasionally, they found themselves showing the trainers what they had learned at school and showing other students in school how they learned to do the jobs at the worksite.

Being trained in a real work environment has many advantages, particularly being trained on up-to-date equipment, learning how work is actually performed according to employers' expectations, and having adult mentors. But, it can have many limitations because a company's educational role is secondary to its business purpose, and the work demands could adversely affect student learning. To determine whether and to what extent YAP students experienced problems during their work experience at their printing company, they were asked specifically about a range of possible problems in a senior survey. With few exceptions, many students did not report that they had any problems, and many problems mentioned were experienced by just a few students, as shown in Table 12.

The most frequently mentioned problems pertained to the nature of the work, reflecting perhaps the fluctuation in work orders and flow over time. Almost half the YAP students complained that they did not have enough work to do (which may reflect area differences in the mix of observing and

working). A quarter of the students complained that they had too much work to do (it is likely that the same students could experience both problems during the two-year work experience). Thirty percent of the youth also reported that they found the work to be different than what they had expected, while 16 percent reported that the work was erratic, stressful, and 19 percent that is was not challenging enough. Only a few youth had difficulty with the work hours and a few reported that they had absenteeism and tardiness difficulties.

About one-third of the youth seemed to have had interpersonal problems within their companies. Many of these centered around being treated differently and not having received sufficient respect from other employees, due to their age, gender, or temporary status. Twenty-seven percent of the students reported that they had problems getting along with other employees and 24 percent had problems getting along with a supervisor or mentor. Overall, 30 percent did not feel included or a part of their company. While these percentages are a minority of the YAP students, these may reflect a need for more student training in interpersonal skills and more communication with worksite supervisors, mentors, and trainers about how to work with adolescents.

Table 12

Percentage of YAP students according to the types of problems they experienced at the worksite

Problems	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
Work-load problems						
Not having enough work to do	43%	29%	33%	50%	38%	67%
Erratic or stressful work	16	0	33	10	25	17
Having too much work to do	24	0	33	20	50	17
Not finding the work challenging enough	19	29	0	40	0	17
Finding the work to be different than expected	30	29	17	50	25	17
Irregular or long hours	5	0	0	10	13	0
Interpersonal problems						
Being treated differently because of my age, gender, or race/ethnicity	35	29	17	40	50	50
Being treated differently because of temporary status	32	29	67	20	38	17
Not feeling included or part of the company	30	14	33	30	25	50
Not getting along with other employees	27	0	33	50	25	17
Insufficient respect or support from other employees	27	0	50	30	25	33
Not getting along with my supervisor/mentor	24	29	0	50	25	0
Problem with own job-related skills						
Having difficulty getting to work on time, or at all	14	29	0	10	13	17
Not feeling qualified to do the work	11	14	17	20	0	0

There were site differences in whether YAP students experienced any of these problems. Very few students from CESA #2 and West Bend identified any of these issues or problems (except that almost all students from West Bend complained that they did not have enough work to do and half felt that they were treated differently and not included). In contrast, half the Milwaukee students complained that they had too much work to do and 38 percent that they felt they were treated differently because of their age, gender or race/ethnicity and temporary status. The Fox Valley students were most likely of all students to identify a variety of problems, with most complaining that they did not have enough work to do, that the work was different than expected, and that they had problems getting along with their supervisor and other employees.

The students' experiences with mentors and their training overall were discussed further by a YAP student focus group in Milwaukee. They agreed that the other employees at their companies varied in their openness and helpfulness. They did not find that this varied by area of the company or student's gender, but did vary among companies and other employees. According to these students, younger employees and employees who were graduates of their high school were more helpful and open than were others. Their training experiences also varied in how well the mentors planned out their competency training and prepared trainers to work with them. In a best case, one student explained that her mentor reviewed the competencies, identified what could be taught through the company (and what could not), and made a schedule for the two-year training. In contrast, another student explained that her mentor "did not care" and "did not follow the plan." As a result, she was later assigned a new mentor (probably as a result of the program coordinator's intervention). The rest of the students described more mixed experiences in how well they were oriented to each new area, and seemed envious of the one female student's well-guided training.

In the senior survey, the YAP students wrote about their most critical worksite problems. Most of these centered on the training role of the mentors and other employees. The YAP students perceived that there was not enough training provided to them, there was not enough work for them, they were treated as temporary employees rather than as trainees, and their requirements (competencies) were not getting covered. As some YAP students commented:

> "The employees should know [that] the reason we're at the company is to learn and treat us so!"
>
> "Making mentor understand that this is my education. I am not cheap labor. I don't go to school for printing to be a janitor."
>
> "Nothing to do, open days, getting bored."

Just two students identified the low hourly wage as their most critical problem. While these written comments were consistent with survey findings, their focus on the lack of mentor training as the cause of their problems is noteworthy, and may reflect a felt need for greater communication overall, and a desire to gain more from the training opportunities at their worksites.

It appears that the worksite training was well-structured by the various sites, and that the training specifications were sufficiently flexible to be adaptable to local companies. On the whole, it seems that students had a balanced experience in learning and applying their training in real jobs. However, there seemed to have been a few abuses (such as using students as temporary workers rather than trainees) and communication problems between some students and trainers. In addition, it also appeared that it was more challenging to provide real work opportunities in some areas. These problems may require additional planning and problem-solving across worksites to develop solutions and to maximize student learning at the worksite.

Contextualized and Integrated Academic Learning

The printing industry work experience provided a substantive context for the printing technology courses. Through the evaluation, we explored whether this work experience was used to contextualize other academic learning and whether academic skill development was reinforced at the worksite, thereby integrating student learning.

Students took their core academic courses (except in printing) at their regular high schools, with the exception of the Fox Valley students, who attended academic classes at Fox Valley Technical College. The program did not prescribe any core academic courses aside from printing courses, except in communication arts and computer keyboarding (which was sometimes taught as part of

their printing coursework). Students' academic coursework was determined by state and local graduation requirements and individual interest (including courses for college preparation). In addition, a series of printing technology courses (such as electronic publishing, image assembly, off-set press and graphic design) was required of participants by the respective sites. Usually these courses were taught by a high school printing instructor or technical college instructor; in CESA #2 and Fox Valley, these were only taught by technical college instructors. The printing instructors usually coordinated the printing coursework and worksite training with the mentors to ensure that all competencies were covered and to have a similar training sequence.

Integrating vocational skill development into academic coursework occurred substantially through the printing courses in all sites and to varying degrees in other academic courses, depending upon other course requirements and whether enough students could be grouped for other applied academic courses. The Fox Valley site was most able to integrate a printing focus in their academic courses because their YAP students were scheduled together for all their courses at the technical college. Whenever possible, their instructors used the students' common work experience to enhance the content of their academic courses, particularly in the communication arts and chemistry courses. Other sites were less able to do this, because YAP students were not purposely grouped for other academic courses. Thus, only the printing courses integrated their work experience, and, to some degree the communication arts course as well, because it was often required of them and students could use their work experience for topic exercises.

The YAP seniors were surveyed about the degree to which they thought that their academic classes (excluding the printing ones) emphasized the printing industry and their work experience. As expected, they reported that this emphasis varied by subject area: their communications class was the most likely and their social studies class least likely to have at least some emphasis on the printing industry, as shown in Table 13. Forty-four percent of the YAP students reported that their communications class had a great deal of emphasis on the printing industry and their work experience. For about two-thirds of the students, their math, writing and chemistry classes at least somewhat emphasized the printing industry, while only 24 percent of the students reported that their social studies class at least somewhat emphasized the printing industry.

Table 13

Percentage distribution of YAP students' rating of the degree to which their academic classes emphasize the printing industry and their work experience

Academic Classes	Degree of Emphasis		
	A great deal	Somewhat	Not at all
Communications	44%	28%	28%
Writing	19	47	33
Math	28	44	28
Chemistry	17	53	31
Social Studies	6	18	77

N = 37

These student perceptions are difficult to interpret, given that only Fox Valley students are block scheduled for all their academic classes. To a lesser degree, the Milwaukee and West Bend sites, as single high schools, were able to emphasize the print industry experiences in academic course content, since the students were grouped for fewer courses. The students from these three sites were more likely than others to report that their communications courses emphasized printing a great deal. It may be that the students themselves were making the connections or were encouraged by their teachers to make the connections between their academic course work and their work-based training.

The printing courses, like the work-based training, were structured by the competency-based curriculum, and could reinforce and complement the work-based training, providing a more contextualized learning experience overall. Given this design, it was expected that students might perceive the printing courses to be more challenging than other academic courses.

To assess the effects of contextualized instruction, the students were asked through the survey to contrast their printing courses with their other courses. The results were quite positive, suggesting that contextualizing instruction had been beneficial. As shown in Table 14, almost two-thirds of the YAP seniors reported that their printing course work was more challenging than the course work in their other high school classes. Over half reported that the materials and information covered in their printing courses was more interesting than their other high school classes. These results varied somewhat by site, however, with most of the Fox Valley (where all the classes are at the technical college and thus may all have been more equivalent and more likely to use contextualized learning), and many of the West Bend students were not as positive as students in the other three sites as shown in Table 15. Finally, 57 percent of the YAP seniors reported that their attendance was better in their printing classes than in their other high school classes, and these results were fairly similar across sites.

Table 14

Percentage distribution of YAP students according to how they rate their printing classes in comparison to other high school classes on several characteristics

Characteristics	Rate				
	Much more	More	Same	Less	Much less
Challenging course work	19%	43%	19%	8%	11%
Interesting materials or information	24	32	30	5	8
Their attendance	27	30	35	5	3

N = 37

Table 15

Percentage of YAP students according to how they rate aspects of the program in comparison to other high school classes

Program aspects	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
More challenging course work	62%	71%	67%	30%	100%	50%
More interesting material	57	86	83	30	25	83
Better attendance in YAP classes	58	57	50	60	50	67
N =	37	7	6	10	8	6

We also examined how students' academic skills were used and reinforced in the worksites, relying primarily on student feedback. Most YAP seniors reported that they were able to apply at the worksite the skills and concepts learned in some of their academic classes, particularly communications (95 percent), keyboarding (86 percent), computing (84 percent), and math (78 percent), as shown in Table 16. Half reported that they applied their writing skills, but only 27 percent reported that they could apply their chemistry skills. These experiences varied somewhat by site. Most students from any of the five sites applied at least three of the academic skills and concepts listed, but the skill mix varied. In addition, all West Bend students and almost all Fox Valley students used their writing skills, almost half the CESA #2 students applied their chemistry course skills, and most students (except Fox Valley's) reported that they used their math skills.

Table 16

Percentage of YAP students according to the academic class skills and concepts used at their worksites

Academic Skills and Concepts	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
Communication	95%	100%	67%	100%	100%	100%
Keyboarding	87	86	83	90	75	100
Computing	84	71	83	80	88	100
Math	78	100	100	50	75	83
Writing	49	43	50	30	38	100
Chemistry	27	43	33	20	25	17

N = 37

Whether by design or by student effort, the students were experiencing a reinforcement of their printing technology skills through their school-based and work-based training, and an opportunity to apply (and thus reinforce) at least their academic communication, computing and math skills at

the worksite. In addition, they, if not their instructors, were using the printing industry as a context for their other academic coursework, providing a positive grounding for their learning. The benefits were reflected at least in their printing courses which they found to be more interesting and challenging than other courses, and in which they reported better attendance.

COMPETENCY-BASED TRAINING

The core feature of the Youth Apprenticeship Program in Printing (YAP) is its competency-based curriculum and work-based learning. There are 137 competencies in the basic program model (and additional competencies for related training areas), which structure the curriculum and school-based and work-based learning and facilitate integrated training in printing. These are grouped into four core competency areas to be covered during the four semesters— introduction to the printing industry, electronic imaging/publishing, image assembly, and image transfer-offset. The sites selected among three other competency areas—image transfer-screen; image transfer-flexography and image transfer-rotogravine—to include in their program, based upon local print industry specialization.

The extensive two-year work-based training provides students with broad and deep hands-on training in "real time" printing production, tools, equipment and personnel. There is flexibility in the use of the competencies and curriculum in arranging the school-based and work-based learning. Each site determines with their employers which competencies and curriculum will be covered at the worksite and in the printing classes, and the sequence to be followed. If the instruction is to be provided at both locations, they try to coordinate it to reinforce dual training. Finally, employers and printing instructors rated students' performance on their core competencies throughout the two-year program, with the expectation that students would at least be able to perform the competencies with some supervision.

There are several measures of how students' competency training was provided, reflecting the integrated learning, the flexibility and adaptability of the competency system to local sites and resources, and student feedback on what they learned well through this integrated training process. All YAP students learned about broad areas of printing through this shared training process, differing somewhat in where they learned various skills and competencies best and how much each was reinforced at school and at the worksite. According to the students, their school and worksite both cover most competencies and skills, as shown in Table 17 (based on a sampling of the skills and topics covered in the 137 competencies). As shown, at least two-thirds of the YAP seniors reported that they learned these skills and topics in both their printing classes and their worksite with the exception of two competencies (most learned production support services primarily at work and the principles of typography primarily at school).

Since the YAP was designed to provide the students with multiple ways of learning primary printing industry skills and concepts (through their printing classes and their worksite experience), we wanted to ascertain whether the students perceived that they learned these skills and concepts in both settings, and whether they learned better in one setting. We also wanted to determine the degree to which their new skills were reinforced through use at the worksite. First, of 13 key printing skills and concepts, almost all students reported that they had covered and learned well 11 of them, as shown in Table 18. Second, there were some skills and concepts that they learned best at the worksite. About two-thirds of the students reported that they learned printing and finishing a printed product better at the worksite. Some reported that they had not covered or learned production support services or color theory concepts, and those who had learned them best at the worksite. About two-thirds reported that they learned how to produce keyline paste-ups, how to assemble images manually, and the principles of technology better in their printing classes. The students were somewhat equally divided in their opinion about where they learned best the other skills and concepts, with about half citing their printing classes and about half citing the worksite. Being trained at both the worksite and in school appears to have been advantageous for the students, providing two opportunities for learning in most cases. It appears that some skills are learned best in one or the other setting, but this difference was not overwhelming or consistent, reflecting perhaps learning differences among students and instructional differences across companies and printing classes.

Table 17

Percentage of YAP students according to the skills and concepts learned in printing classes and worksite and used at the worksite

Skills and concepts	Learning Site			
	Learned in printing classes	Learned at the worksite	Used at the worksite	Did not learn
Knowledge of the printing industry	89%	73%	54%	3%
Color theory concepts	76	62	43	8
Principles of typography	73	41	30	11
Developing art and copy	84	68	49	0
Producing keyline paste-ups	84	54	53	3
Generating reproduction films	84	89	81	0
Assembling images manually	86	76	65	0
Basic electronic imaging operations	86	73	57	0
Creating image carrier	70	65	43	11
Printing	92	84	70	0
Finishing a printed product	87	84	70	0
Safety procedures and regulations	86	68	62	0
Production support services	22	73	43	19

N = 37

Table 18

Percentage of YAP students according to which skills and concepts they learned best in printing classes and worksite

Skills and concepts	Learned best:		Did not learn well	Not covered yet
	in printing classes	at the worksite		
Knowledge of the printing industry	59%	41%	0%	0%
Color theory concepts	24	50	21	6
Principles of typography	66	20	6	9
Developing art and copy	40	46	9	6
Producing keyline paste-ups	63	29	3	6
Generating reproduction films	40	57	3	0
Assembling images manually	63	34	3	0
Basic electronic imaging operations	46	43	9	3
Creating of image carrier	40	46	6	9
Printing	30	64	0	6
Finishing a printed product	21	74	3	3
Safety procedures and regulations	57	40	3	0
Production support services	9	54	17	20

The YAP students varied widely, however, on whether they were able to use their new printing skills and concepts at the worksite, as shown in Table 19 The majority of the students reported that they used five of the 13 printing-related skills and concepts on the job; these were related primarily to press production:

- generating reproduction films (81 percent);
- printing (70 percent);
- finishing a printed product (70 percent);
- assembling images manually (65 percent); and
- safety procedures and regulations (62 percent).

Less than half the students reported having an opportunity to use five other printing concepts and skills, many of which were related to pre-press and production support services including:

- developing art and copy (49 percent);
- color theory concepts (43 percent);
- creating an image carrier (43 percent);
- production support services (43 percent); and
- principles of typography (30 percent).

Not using some skills and concepts (particularly production support services and color theory concepts) at the worksite was consistent with the students' reports that they did not learn these concepts as well as others.

The YAP students' reports on their usage of these printing skills and competencies at the worksite varied dramatically by site, as shown in Table 19. In CESA #7, the majority of students reported using all 13 of these at their worksites. In contrast, half or more of the students in Milwaukee and West Bend reported that they used just three and six, respectively, of the 13 skills and competencies at their worksites. Students' use of the printing skills and competencies also differed within sites as well as among the sites. Students from Milwaukee and West Bend were more likely to differ greatly among themselves, while at CESA #2 and CESA #7, the students were far more similar in reporting their worksite experiences in using these skills and competencies. Thus, while almost all students reported learning all the printing skills and competencies, there appears to be wide differences among employers and settings in whether students had a real opportunity to actually use them in doing work.

How Employers' Conducted Training

The competency-based curriculum appeared to have functioned very well in structuring the students' work-based training. Most employers, based on their own accounts, seemed to have taken the training very seriously and had followed the competencies and related curriculum. The flexibility and adaptability of the competency structure seemed to have worked well for most employers, to determine when to train the students in each area and how to coordinate with the printing instructors.

To pace the competency training over the two-year period, some employers (as they explained when interviewed) divided the competencies equally among the semesters (designating specific semesters for each major competency area). Other employers varied the length of time allotted for training on specific competencies, allowing more time for some areas than others over the two years. As one employer explained:

> We broke [the competency system] down into different units based on the areas they would be working in. Each area has a lead trainer, then seven or eight different people did the hands-on training in each area. Each trainer had a copy of the competencies that were in their area of expertise. (CESA #2 employer, telephone interview)

Several employers described how they tried to coordinate their training with the classroom training to be sure that everything was covered and reinforced. As one Fox Valley employer described: "We try to follow what is being taught in the classroom so that [the students] are getting the theory and the applied side of each area."

Most employers reported that the student training was based on the required competencies (which they described as generic), but adapted them for their own use, and supplemented with additional instruction. About half the employers tailored the competency list and curriculum to the company and used the competency list as an outline and a checklist. Some employers covered additional material and topics, such as delivering good customer service, using the Web press, and (less so) printing equipment and supplies. A few employers also took their students on field trips to broaden their industry exposure.

Table 19

Percentage of YAP students according to the types of printing class skills and concepts used at their worksite, by site

Printing Class Skills and Concepts	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
Knowledge of the printing industry	54%	71%	67%	50%	50%	33%
Color theory concepts	43	29	67	50	25	50
Principles of typography	30	29	67	20	13	38
Developing art and copy	49	71	67	40	38	33
Producing keyline paste-ups	53	43	50	20	50	17
Generating reproduction films	81	100	83	70	100	50
Assembling images manually	65	86	83	70	50	33
Basic electronic imaging operations	57	71	83	50	38	50
Creating an image carrier	43	57	83	50	13	17
Printing	70	86	83	70	63	50
Finish a printed product	70	86	83	60	75	50
Safety procedures and regulations	62	57	83	60	50	67
Production support services	43	71	50	40	25	33
N =	37	7	6	10	8	6

Overall, many interviewed employers reported that they found the curriculum and competencies to be fairly easy to use in training the students, although some did not. Some employers found that selected areas were not easy to adapt for training, and would just use the competencies as a loose guide, or would add their own list of competencies (such as for the Web press). Some liked the large binder of material while others found it confusing and intimidating, particularly at first. Employers at the newer sites were more likely to describe problems in using the curriculum, while employers in the two pilot sites, many of whom were the basis for the competencies and curriculum, had the least difficulty in its use. Whenever they had difficulties with the competencies, most employers reported that they consulted with the school-based (or college-based) printing instructors. Several employers explained that they eventually learned that there was flexibility in using the curriculum (making it easier for them to adapt), particularly as they became more comfortable with its use.

While some employers complained about problems with the competencies and their use in training, almost half recommended that these be updated and adapted to fit the changing printing industry. They recommended adding training on the Web press, collating, and printing, putting less emphasis on off-setting. In addition, some companies no longer used some of the technology covered in the curriculum (although a few employers acknowledged that the schools may be the

ones using the outdated equipment). Several employers mentioned that there was considerable duplication across the competencies and recommended that the overlap be eliminated. Finally, a few employers recommended that the curriculum be shorter and less complicated. As one employer explained:

> The competencies are very outdated. The industry has gone electronic and we're heavily computerized. I understand they are updating the competencies to be more electronically focused. (Employer CESA #2, telephone interview)

One employer did mention when interviewed that he had been part of the curriculum update that summer and explained that the curriculum committee had added more electronic pre-press and less conventional pre-press, and added safety sections to all competency areas (rather than just one).

Employability and Foundation Skills Training

Developing the students' general employability and foundation skills (such as attitude, work habits, and interpersonal skills) became an important part of the program for employers. In fact, each competency sequence included continuous rating of a series of employability and foundation skills, to emphasize the importance of maintaining good performance on these at all times. Almost all employers stressed the equal importance of developing employability skills and printing skills, particularly in being able to work hard and fast, and get along well with others. One CESA #7 employer listed the essential employee skills: "Attitude, teamwork, flexibility, accountability, quality." A West Bend employer also stressed that they were evaluating "how much [the apprentices] are giving back to the company, their attitudes, and their work ethics (very important)."

Several interviewed employers identified the following employability and foundation skills (by rank order) that they used to rate their students:

- quality and effectiveness in their work
- having a positive and enthusiastic attitude
- interacting well with other employees and being willing to be a team player
- dependability (particularly in attendance and punctuality)

Finally, one employer addressed the problems of discipline and attendance and their role in reinforcing positive student values for good attendance in both school and the workplace.

Competency Ratings

The employers' assessments of the YAP students' performance throughout their on-site training and work are reflected in the competency ratings. The YAP students were rated by their teachers and mentor/trainers on 137 core competencies. The core competencies cover an overview of the printing industry; electronic imaging/publishing; image transfer; and image assembly. The students were rated on a three-point scale. The lowest rating means that the student was exposed to the concept, but had no hands on experience. The second rating means that the student has limited skill but requires instruction and close supervision in performing the task or skill. The third rating means that the student is moderately skilled and can complete the job or task with limited supervision. The state of Wisconsin expects that all students successfully perform these competencies at least at "level 2," so encourages training be reinforced to at least that level. Thus student training is geared to help students learn to perform at a specific competency level, unlike their other academic coursework which has no performance standard expectation.

Charts 1 through 4 summarize the average subscale ratings for the four core areas by site. The five sites varied somewhat in their students' average subscale scores. Students from Fox Valley were consistently rated highly in the four areas (almost (a "level 3"), while students from CESA #2 often had the lowest ratings, just above a "level 2." Students from the other three sites varied in between, with no consistent pattern existing across the four competency areas.

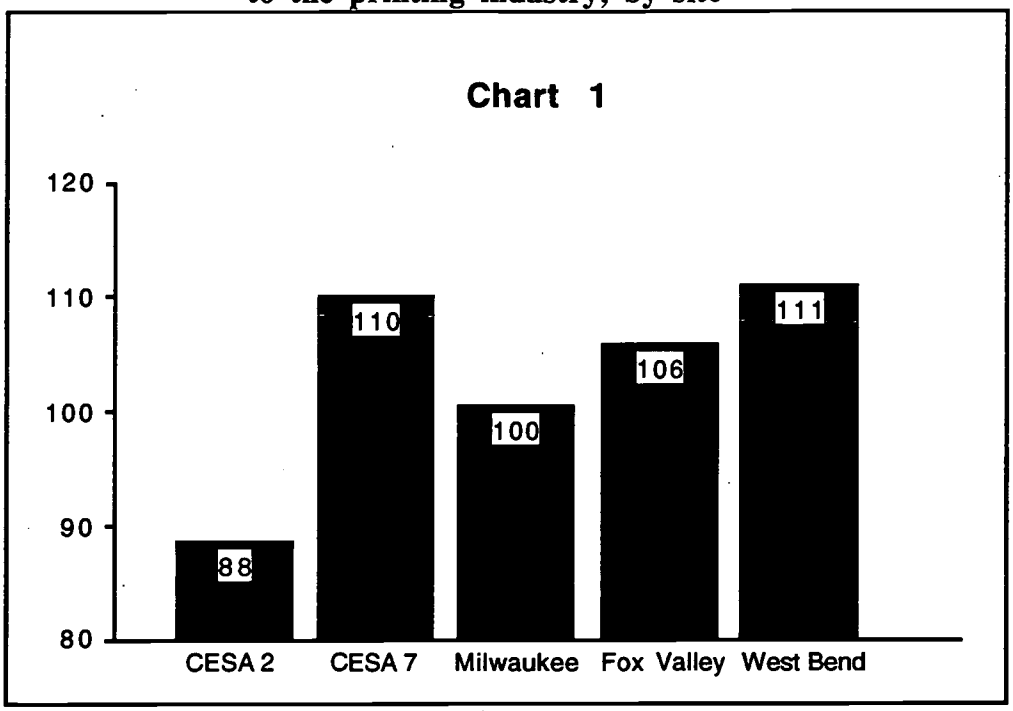
Chart 5 shows the overall scores, totaled for the four areas for the students by site. Students from Fox Valley had the highest, almost perfect score (which averaged to 2.9 on a three-point scale). Students from CESA #7, Milwaukee, and West Bend had fairly high averages of 2.6 (on a three-point scale), while students from CESA #2 had a more mid-range average score of 2.3 (on a three-point scale), but the lowest among the five sites.

It is unlikely that the site differences in competencies ratings actually reflect strong differences in student performance. Academic achievement and other school performance information presented in later sections showed that CESA #2 students were similar to the other sites' students. In addition, according to their interviews, employers across the five sites were equally pleased (and sometimes delighted) with their students' performance and growth through the training program.

To determine why YAP students from CESA #2 had consistently lower ratings, their program coordinator was asked to explain how the local employers' used the ratings. According to her, local employers had a strict interpretation of the rating scale and perceived the top rating as applying to persons who could perform the tasks without supervision (rather than "with limited supervision" as the rating was defined). This perception was verified in part by the employer interviews. CESA #2 employers were more likely than other employers to complain about the ratings, to have a stricter interpretation of the highest rating, and to report having difficulty in using the ratings. Several employers (in CESA #2 particularly, but elsewhere as well) reported that they used the competencies as a checklist when a competency could be performed, which may be why the YAP students were more likely to have mid-level ratings overall.

From this analysis and comparison with other data, we concluded that the average rating subscores reveal more about employer differences in interpreting the ratings, and possibly a need for further discussion about the use of standards and ratings in assessing student performance, than about student performance.

CHART 1
Average competency ratings subscore in an introduction to the printing industry, by site

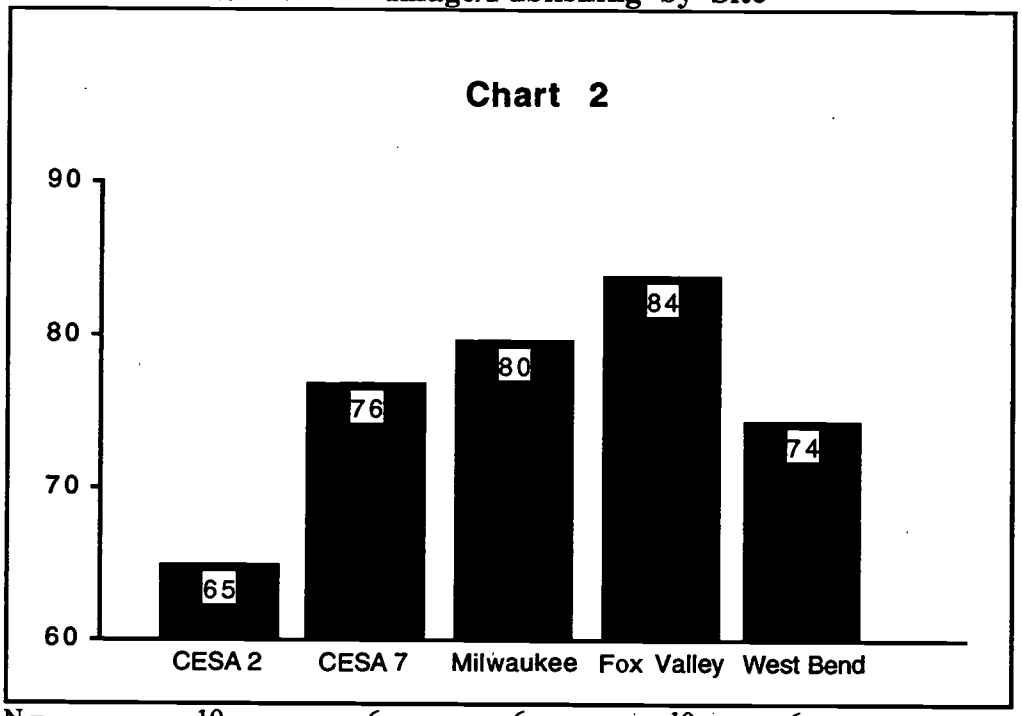


N =	10	6	6	10	6
Average Rating	2.3	2.8	2.6	2.8	2.8

Source: School District YAP ratings, 1995

Note: The subscore computed was based upon 39 items, each of which were rated on a scale of 1 to three, (1 = exposed to the concept, but no hands on experience; 3 = moderately skilled, can complete job with limited supervision). The total subscore scale ranges from 0 to 117. The subscale covers a general overview to the industry, equipment and procedures, and career success traits.

CHART 2
Average Competency Ratings Subscale Scores in Electronic Image/Publishing by Site

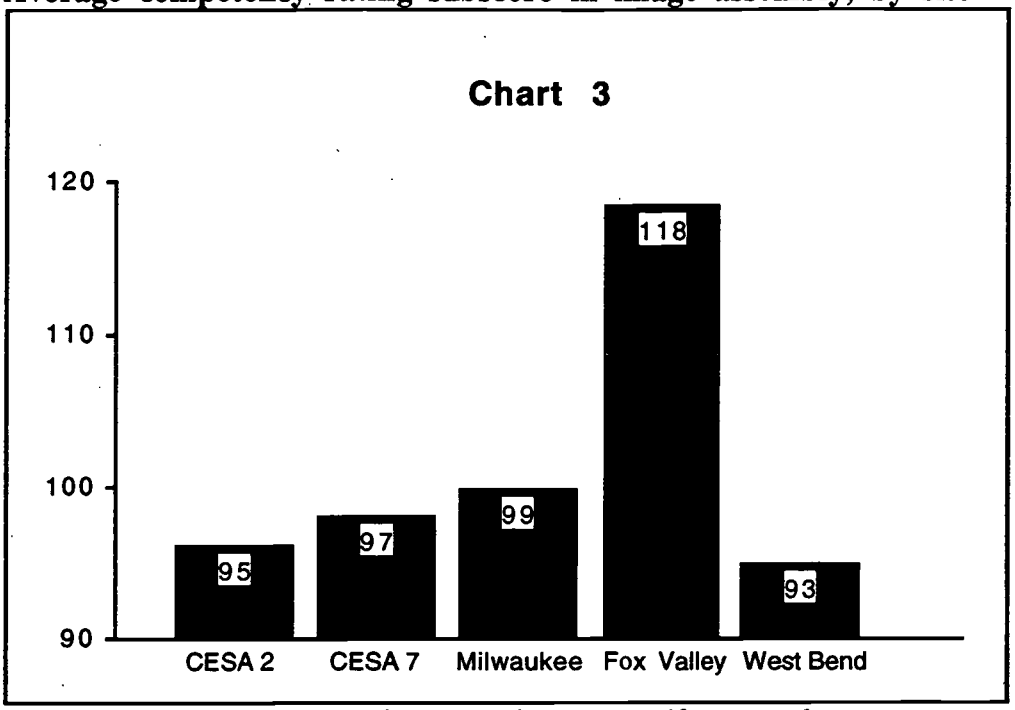


N =	10	6	6	10	6
Average Rating	2.2	2.6	2.8	2.9	2.6

Source: School District YAP ratings, 1995

Note: The subscore computed was based upon 29 items, each of which were rated on a scale of 1 to three, (1 = exposed to the concept, but no hands on experience; 3 = moderately skilled, can complete job with limited supervision). The total subscore scale ranges from 0 to 87. The subscale covers general electronic publishing, basic design, electronic page layout, draw graphics, print graphics, and career success traits.

CHART 3
Average competency rating subscore in image assembly, by site

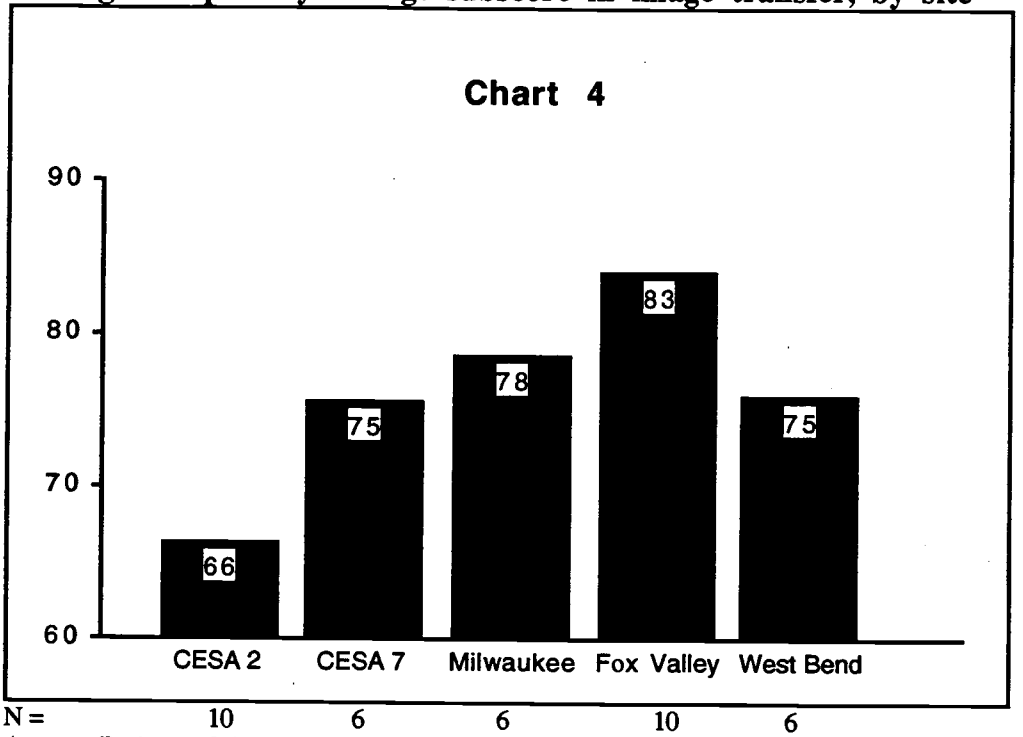


N =	10	6	6	10	6
Average Rating	2.4	2.4	2.5	3.0	2.3

Source: School District YAP ratings, 1995

Note: The subscore computed was based upon 40 items, each of which were rated on a scale of 1 to 3, (1 = exposed to the concept, but no hands on experience; 3 = moderately skilled, can complete job with limited supervision). The total subscore scale ranges from 0 to 120. The subscale covered an introduction to graphic arts, photography, camera/lime, camera/halftime, image assembly, contacting, proofing, and career success traits.

CHART 4
Average competency ratings subscore in image transfer, by site

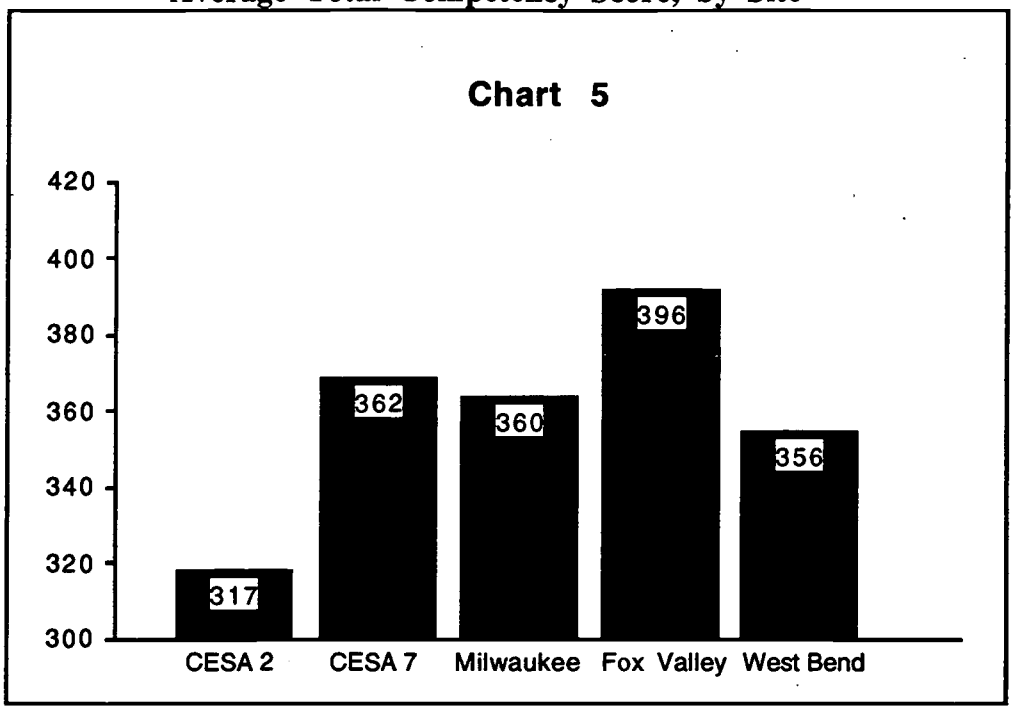


N =	10	6	6	10	6
Average Rating	2.3	2.6	2.7	2.9	2.6

Source: School District YAP ratings, 1995

Note: The subscore computed was based upon 29 items, each of which were rated on a scale of 1 to 3, (1 = exposed to the concept, but no hands on experience; 3 = moderately skilled, can complete job with limited supervision). The total subscore scale ranges from 0 to 87. The subscale covers duplicator and press operations, proofing, plate-making procedures, and career success traits.

CHART 5
Average Total Competency Score, by Site



N =	10	6	6	10	6
Average Rating	2.3	2.6	2.6	2.9	2.6

Source: School District YAP ratings, 1995

Note: The subscore computed was based upon 137 items, each of which were rated on a scale of 1 to 3, (1 = exposed to the concept, but no hands on experience; 3 = moderately skilled, can complete job with limited supervision). The total subscore scale ranges from 0 to 411.

Employers' Experiences Using the Competency Ratings

To learn more about how the employers used the rating part of the competency system, they were asked when interviewed to describe their process and difficulties. The employers gave different explanations of how they rated students according to the competencies, stressing that several people can be involved in the rating process. Sometimes just the mentors or trainers do the ratings; other times, combinations of people including the mentor, trainer(s), managers, printing instructors, the student and his or her parents were consulted during each student's performance rating. Few employers would rate a student without consulting other employees in the company. In one West Bend company, the employer formalizes the performance evaluations through monthly luncheon assessments with the student, mentor, and trainers. Together they would go over work performance and high school grades, which have to be at least good as well.

To be rated, some students had to complete projects or do a formal demonstration for their mentors. When interviewed, one CESA #7 employer gave an example of how he rated his students:

> For example, I give the student a job to run. I go through and check the color intensity, position, straightness and squareness. I look at the accuracy and precision of the job. I make my judgment based on all of that.

A few employers explained, however, that they evaluated more than the demonstrated job performance. As one Milwaukee employer outlined, he "look[s] at that student's performance, how she takes instruction, and how she does the task." A Fox Valley employer reported that he assessed the number of mistakes and whether the students "know the end results and can they answer any questions about the process."

The employers explained, when interviewed, that they had difficulty using the competency rating criteria. A few employers commented on the complexity and ambiguity of how students are rated and graded through the program. These employers found the rating system to be vague for some skill areas and were concerned about differences in interpretation across employers and sites. As one employer explained:

> The grading part is the real struggle. "3, 2, 1" is vague, and in certain areas the grade isn't subjective enough. We are working on that on the state level. What one person considers a "1" is different than what someone else may consider a "1" (West Bend employer, telephone interview).

As a result of these difficulties, the employers varied on the basis that they used to rate performance, how they scored students, whose input was considered, and when they would rate them. Several said that they used the competencies as a checklist, checking off what each student learned, either as she or he went along (daily or weekly) or at the end of the semester or training period. A few would let students keep practicing their competencies to improve their rating scores.

At least two employers misinterpreted the rating system, defining the third level ("3") as being able to work unsupervised. At least two other employers also thought that mediocre work (that would warrant a "C" rating) would be unacceptable in their work environment, so that only "A" level work was acceptable. As one CESA #7 employer explained: "It's either perfect or it's garbage."

Several employers, therefore, recommended changes in the grading system. A few suggested that there should be better coordination across sites and among employers in the interpretation and use of the ratings. A few employers were concerned about how the rating scale translated into a letter grade and how their standards for evaluation differed from their perception of schools' standards.

Employer Problems in Student Training

Despite some problems with the competency rating system, most employers found training to be a positive experience and did not encounter problems in training their YAP student apprentices. They stated, "We've been very fortunate," and "Can't think of a single problem." One employer gave a glowing account of his student apprentice: "I only hope that all future employees have his ambition and are as dependable as he was. I think he missed one day in the two years he was here" (CESA #2 employer, telephone interview).

A few employers explained that they did encounter problems, primarily related to the students' immaturity, appearance, smoking, absenteeism, and lateness. Occasionally, students were not fast enough or did not follow through sufficiently on their jobs. Some employers, particularly those in the newer sites, did not think there was always a good match between the students and the program (which may reflect the sites' lack of experience in recruiting and matching students with employers). A few had students who were not academically or emotionally ready for youth apprenticeship training (and some of these were let go, usually early in the program). In one site, an employer complained that the strong community orientation to college preparation meant that only high-risk youth were recruited for the program, yet this type of student was usually unprepared for the rigorous training requirements.

Most of the problems mentioned by the employers occurred either at the beginning or end of the program and were easily handled. Rarely was a student rejected once the program began. Most often, the problems that did occur were handled internally by the mentors or trainers as they would address other employee problems—talking to the student directly, or, if the problem was their speed, requiring them to work overtime to complete the work. A few employers encountered problems that required contacting the parents and the high school and more extensive follow-up, and would do so. Occasionally, an employer had to look at ways to adapt the program for the students and to clarify expectations to address problems that occurred.

EDUCATIONAL AND EMPLOYMENT IMPACT

Introduction

The Youth Apprenticeship Program in Printing (YAP) was designed to improve students' preparation for employment by being better able to obtain a quality job after high school graduation and being able to pursue further education, training, and skill development, particularly in the printing industry. Several educational and employment outcomes were expected from this intensive industry-focused work-based training program. The first was that YAP participants would become more engaged in their learning and more interested in completing school, because of the contextualized and integrated learning approach of the program and its "real world" experiences. Thus, YAP participants were expected to have better attendance and grades and fewer disciplinary referrals than their peers who were not in the program.

Second, program participation was expected to focus YAP students' future employment and educational plans; give them a sense of direction and necessary steps to achieve their goals; and prepare them for postsecondary education and direct employment, particularly within the printing industry. Related to this was that the employers would perceive that the YAP graduates were well prepared for a career in the printing industry.

Third, YAP participants were expected to become employed in quality jobs, as measured by the job-related skills required and hourly wages of their employment; to have a smoother transition from high school to employment; and to be able to pursue further technical college training. Finally, the program was designed to interest youth in pursuing a career (and not just a job) in the printing industry, as evidenced by their long-term educational and employment plans in the industry.

The educational and employment plans and outcomes of YAP participants from the five sites (and intensively for two sites) were documented and compared to their peers who were in co-op education in printing; only in printing classes; and in neither. Evaluation evidence to demonstrate the YAP students' performance on these various outcome measures was drawn from multiple sources: school records, senior survey responses about their plans, and follow-up survey of graduates' responses on their plans and experiences. The small sample sizes limited the analysis, while the multiple data sources strengthen the validity of the results and help to demonstrate what impact program participation had on the YAP students.

The comparison of the four groups on these various outcomes helped to demonstrate the benefits of the intense industry-focused training and the work-based learning for the YAP students. It also revealed some benefits of the competency-based training over less structured and shorter co-op training and non-work-based instruction through just printing classes. It also shows that this intensive work-based training programs cannot be distinguished as being exclusively for the non-college bound. The broad industry exposure to related careers and the dual college-based training and work-based learning blurs the distinction and appears to prepare youth well for access to both related postsecondary education and immediate entry into career-track positions in the printing industry.

Student Performance

In the short-term, the contextualized learning and integrated academic and vocational skill instruction used in the YAP model was intended to improve student interest in and motivation for school and academic achievement. To determine whether this occurred, three types of school-related performance were assessed for the 1995 cohort of YAP students and their peers: attendance, grade point average, and disciplinary referrals. School completion rates were not used in this comparison because all sampled students completed high school at the same rate. YAP

students were compared to students who only took printing classes or who were in non-career-bound or non-college-track programs (such as a general track) on these three outcomes. Insufficient data were available on the co-op students, so they could not be included in this analysis. The students were compared by group according to their performance as sophomores, as seniors, and in terms of the changes that occurred over the two years.

Attendance. Table 20 shows the number of days sampled students were absent as sophomores, the year prior to when they could have enrolled in the YAP. On average, the YAP students were slightly less likely to have been absent than were the other students, but these differences were not statistically significant. Thus, these three groups of students had been similar in terms of their attendance, prior to the students' enrolling in YAP.

By their senior year, YAP students experienced relatively little change in the number of days they were absent. In contrast, the other two groups of students were absent twice as much as they had been as sophomores. When these absences were compared statistically among the three groups, the YAP students were found to have statistically significant fewer days absent than did the other two groups of students.

Grade point average. Table 21 shows the grade point averages for YAP students and the other two groups of students when they were sophomores and seniors. As sophomores, the YAP students and printing-classes-only students had mediocre grade point averages (2.6 and 2.5, respectively, on a 4.0 scale) and were slightly below the general classes students' average of 3.1. The grade point averages for these three groups as sophomores were statistically significantly different.

By the end of their senior year, YAP students and (less so) printing-classes-only students had improved their grade point averages somewhat, while the general classes students maintained theirs. As a result, the grade point averages for the three groups became even more similar although they still differed statistically. An analysis of the differences in grade point average changes between their sophomore and senior years for the three groups demonstrated that the improvements for the YAP and printing-classes-only students were statistically significant.

Table 20

Number of days absent as sophomores and as seniors and the percent change by program type and site

Program Type	Total	Site				
		CESA #2	Fox Valley	Milwaukee	West Bend	N
Sophomore						
YAP	4.7	6.5	—	3.0	4.7	19
Printing classes only	7.5	—	5.8	—	11.0	15
General classes	6.4	6.5	—	—	6.4	31
Senior*						
YAP	4.8	8.2	3.5	4.5	3.8	29
Printing classes only	12.8	—	8.9	—	18.3	12
General classes	12.6	14.2	—	—	11.3	31
Percent Change						
YAP	.31	.02	—	.37	.70	18
Printing classes only	.87*	—	.92	—	.81	12
General classes	2.0*	1.7	—	—	2.2	29

Source: School District Information, compiled by various school district staff, 1994

Note: — = No data were collected for this group in this site.
* = Statistically significant at $p < .05$.

The comparisons for the percentage change is based upon the students for whom both sophomore and senior years data were available. Fox Valley YAP students had only senior year data available.

Disciplinary referrals. Table 22 shows the number of disciplinary referrals made for YAP students and the two comparison groups, when they were sophomores and seniors. The YAP students (primarily as a result of how they were selected for the program) had very few disciplinary referrals as sophomores and both continued and improved upon this low disciplinary referral rate as seniors. General classes students also had low disciplinary referral rates as sophomores and again as seniors, but without any improvement. Printing-classes-only students had a few

disciplinary referrals as sophomores and improved only somewhat as seniors. The YAP students having had few referrals as sophomores and even fewer as seniors, were statistically significantly different from the other two groups as sophomores but not as seniors (primarily because the printing-classes-only students improved somewhat over this time period).

Table 21

Grade point averages for students as sophomores and seniors and the percent change, by site

Program Type	Total	Site				N
		CESA #2	Fox Valley	Milwaukee	West Bend	
Sophomore*						
YAP	2.6	2.4	—	2.6	2.7	27
Printing classes only	2.5	—	2.7	—	1.9	16
General classes	3.1	3.4	—	—	2.9	31
Senior*						
YAP	3.0	2.5	—	2.9	3.1	18
Printing classes only	2.7	—	3.0	—	2.2	15
General classes	3.1	3.3	—	—	3.0	31
Percent Change						
YAP	.16*	.14	—	.11	.14	17
Printing classes only	.17*	—	.37	—	.16	12
General classes	.00	-.01	—	—	.02	31

Source: School district student record information compiled by various school district staff, 1995.

Note: — = No data were collected for this group in this site.
* = Statistically significant at $p < .05$.

Summary. The results of these comparisons for YAP and other students on their school-related performance are somewhat positive. First, the three groups of students were fairly similar as sophomores in their school performance, based on their attendance, grade point averages, and disciplinary referrals. Thus, the differences that developed between the YAP students and the other two groups when they were seniors may be attributable to the YAP. The YAP students seem to have benefited from their participation in the program as demonstrated by their improved attendance, grade point average, and low disciplinary referral rates between their sophomore and senior years. However, incomplete data from the two comparison groups and the small number of students in each group restricted this statistical comparison and thus the reliability of these conclusions. Only strong differences, such as the sustained low absenteeism rate for the YAP students throughout high school in contrast to the dramatic increase in absenteeism for the two comparison groups' students were statistically significant and could be attributed to the effects of program participation.

Table 22

Number of disciplinary referrals as sophomores and as seniors and the percent change by program site

Program Type	Total	Site				N
		CESA #2	Fox Valley	Milwaukee	West Bend	
Sophomore						
YAP	1.0	0.0	—	.83	1.7	19
Printing classes only	5.0	—	—	—	5.2	5
General classes	0.0	0.0	—	—	.72	31
Senior						
YAP	0.0	.33	0.0	.17	.33	29
Printing classes only	4.0	—	—	—	4.0	5
General classes	1.0	.15	—	—	1.2	31
Percent Change						
YAP	.92	—	—	-.1	-.75	6
Printing classes only	.07	—	—	—	-.07	4
General classes	.52	—	—	—	.53	6

Source: School district student record information compiled by various school district staff, 1995.

Note: — = No data were collected for this group in this site.
* = Statistically significant at $p < .05$.

The comparisons for the percentage change is based upon the students for whom both sophomore and senior years data were available. Fox Valley YAP students had only senior year data available.

Postsecondary Educational and Employment Plans of Seniors

To assess the YAP's effect on students' short-term and long-term postsecondary employment and educational plans, the 1995 senior cohorts of YAP, co-op, printing-classes-only and general classes students were compared. For the fall after graduation, half the seniors reported that they planned to have a job, as shown in Table 23, with YAP students and printing classes only students being slightly more likely than the others to have these plans. About half the YAP and co-op students planned to be enrolled in a two-year college and another quarter planned to be in a four-year college by the fall. The reverse proportions existed among the other two groups. Finally, a few students planned to be in the military or other type of training program by the fall.

Among the YAP students, there were only slight differences by site in the immediate plans to be working, but greater differences by site in their immediate college plans. Few students from CESA #7 planned to be in either a two- or four-year college, and half the CESA #2 students planned to be in a two-year college, while half the Milwaukee students planned to be in a four-year college. Almost all of the YAP students who were planning to attend a two-year college identified Milwaukee Area Technical College or Fox Valley Technical College as their intended school, where they had already accumulated college credit.

Most YAP students and co-op students (85 percent and 75 percent, respectively) reported that they were planning to pursue a career in printing within the next six months following graduation. In contrast, just 42 percent of the students in printing classes only had these plans. Most students, regardless of their program experience, were equally divided in their interest in the pre-press and press areas, with the rest showing scattered interest in the other areas of the industry.

The YAP and other seniors were less certain about the longer-term educational plans, than they were about their short-term plans. As shown in Table 24, most students, across the four sample groups, were planning to pursue further education and training beyond high school within the next five years, but some differences existed among the groups. All co-op students, 88 percent of the general students, 77 percent of the printing-classes-only students and 71 percent of the YAP students planned to attend a vocational program or two-year or four-year college.

Of the four groups, YAP students were more likely to be uncertain of how far in their schooling they planned to go (20 percent in contrast to 0 percent to 9 percent among the other three groups were uncertain). In interviews, some YAP students revealed that they were wavering between going directly to work or to college, and whether to pursue only a two-year or four-year college degree. This may explain why such a high percentage were uncertain about their future educational plans.

Table 23

Percentage of senior students by their work and education plans for the fall after high school graduation, by site

Plans	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
Get a job	57%	57%	67%	60%	50%	50%
Continue education:						
two-year college	46	57	17	70	38	33
four-year college	22	0	17	10	50	33
other educational program	5	0	33	0	0	0
Join the military	6	14	0	0	13	0

Table 24

Percentage of senior students by their work and education plans for the fall after high school graduation, by program type

Plans	Total	Program Type			
		YAP	Co-op	Printing classes	General
Get a job	47%	57%	50%	58%	36%
Continue education:					
two-year college	28	46	50	21	23
four-year college	39	22	25	47	44
other educational program	10	5	0	11	12
Join the military	7	6	0	5	9

Table 25

Percentage Distribution of Senior Students According to their educational plans for the next five years, by Type

Future Educational Plans	Total	Survey Type			
		YAP	Co-op	Classes	General
High school graduation only	7%	6%	0%	17%	3%
Vocational, trade or business school	13	17	0	7	14
Two-year college	24	29	75	17	23
Four-year college	28	26	25	31	29
Master's degree or higher	17	3	0	22	22
Don't know	11	20	0	7	9
N =	162	37	4	43	78

Some educational plan differences existed among the five YAP sites. In particular, Milwaukee YAP students were most likely to be uncertain of their future educational plans and West Bend students were primarily intending to attend a four-year college.

The work experience seemed to have influenced postsecondary educational plans, particularly for YAP students. According to the surveyed seniors with a work experience, 60 percent of the YAP and 75 percent of the co-op students had planned to attend college prior to enrolling in either program; upon graduation, this interest increased to 71 percent for YAP students and all the co-op students. In addition, 80 percent of the YAP and half the co-op students claimed that their program experiences influenced their postsecondary educational plans. According to the YAP students:

It helped me center in on something I had a vague liking for. Now I know exactly what I want to do.

It showed me how far I can go with a two-year college degree.

Before joining the program, I had only planned on going to the Tech, but now I am thinking about a four-year college.

It made me realize that I would be better off going to a four-year college instead of work.

Serigraph will send me to school.

Employers' Assessment

One purpose of the program was to develop better-prepared entry-level employees. To determine the degree to which this objective was accomplished, the employers were asked to compare the YAP graduates with typical entry-level employees (which represent the standard of whom employers hired, not the pool of applicants) on various technical and employability skills, as shown in Table 26.

The majority of employers rated the YAP graduates as better than entry-level employees on half the selected skills. These included technical skills (computing and technical information and skills generally) and having an understanding of the whole company's operations. This also included several employability and foundation skills such as acting responsibly at work, being able to work independently, solving job problems, learning quickly, and coming ready to work. Most rated the YAP students as equally well prepared on other interpersonal and foundation skills, such as working as a team member, showing individual initiative, using their time efficiently, and being able to deal with something out of the ordinary. Very few rated the YAP graduates as *not* being as comparable as other entry-level employees on any skill. The exception was that less than half the employers rated YAP students on how well they dealt with customers, and of the remainder, one-third of the employers thought that YAP students did not do as well as other entry-level employees. This is consistent with the YAP students' reports that they did not learn this skill very well and had limited opportunities to use it in the workplace.

The skills which most employers agreed that the YAP graduates were better than other entry-level employees were primarily technical:

- using advanced computer skills (79 percent);
- understanding the operations of the whole company (70 percent); and
- using technical information and skills (54 percent).

The majority of employers also rated the YAP graduates as better than other entry-level employees on several employability and foundation skills:

- acting responsibly and professionally (62 percent);
- coming to work on time and ready to work (62 percent);
- solving problems at work (60 percent);
- working independently and without direct supervision (56 percent); and
- learning information quickly and using it well (54 percent).

Table 26

Percentage distribution of employers rating how YAP students compare to entry-level employees on selected technical and employability skills

Technical and Employability Skills	N	Better	About the same	Not as Well
Using advanced computer skills	19	79%	5%	16%
Understanding the operations of the whole company	24	70	25	4
Using technical information and skills	26	54	46	0
Using materials and equipment efficiently	26	39	58	4
Having basic academic skills/reading, writing, math	26	35	62	4
Dealing with customers or clients	12	33	33	33
Coming to work ready to work/on time	26	62	35	4
Acting responsibly and professionally at work	26	62	39	0
Solving problems on the job	25	60	24	16
Working without direct supervision, independently	25	56	36	8
Learning information quickly and using it well	26	54	46	0
Showing individual initiative	26	50	39	12
Planning their work/using time efficiently	25	48	48	4
Working as a member of a team	26	46	54	0
Making good decisions on their own	25	36	52	12
Dealing with something out of the ordinary	25	32	64	4

The employers also demonstrated their commitment to the YAP students and their satisfaction with their performance in two critical ways: the first was to hire the youth during the summer between their junior and senior years; the second was to employ the students after high school graduation. The majority of the employers did both.

Between their junior and senior years, 80 percent of the YAP students continued to work for their printing company (including 100 percent from CESA #2 and CESA #7, 80–90 percent from Fox Valley and Milwaukee, but only 33 percent from West Bend). Most worked in just one area, primarily press and bindery. A few worked in pre-press and in client-related services such as shipping and receiving, customer service and "the front office." A few worked in several areas and continued their training.

By the end of their senior year, 64 percent of the YAP seniors reported that they had a guaranteed job for the upcoming summer following graduation with their printing company. An additional 11 percent did not want to work because they were planning to continue in a postsecondary education

program, while the rest had other plans, such as working for another printer, or had not heard yet. Most who identified their upcoming job responsibilities explained that they were going to be in the press area. The rest were primarily split between pre-press and bindery/finishing.

Postsecondary Employment Experience

The primary purpose of the YAP has been to prepare youth for employment in the printing industry. Therefore, it was important to determine the degree to which program graduates were employed in the printing industry following graduation, and the quality of their jobs as a start in a career. An assumption of the program's design was that the intensive two-year training and work experience would enable program graduates to obtain better quality jobs than students in other less intense training and work experience programs or just in classroom-based training. Follow-up interviews with program graduates and sampled graduates from co-op in printing and from those who only had printing classes (from just Fox Valley and West Bend) provided comparative evidence on this outcome.

When interviewed six to eight months following graduation, almost all the YAP graduates and the majority of the other two types of graduates were working (as shown in Table 27); those who were not working were not looking for work. Of those working, all of the YAP and co-op graduates (but only 17 percent of the others) were employed in the printing industry, a difference that was statistically significant. Thus, since graduation, almost all the YAP graduates (94 percent), but only 60 percent of the co-op graduates and 13 percent of the printing-classes-only graduates worked in the printing industry. Those who were not working did not want a job.

The YAP graduates seemed to have better jobs than the other graduates because a greater percentage were employed full-time, had been more continuously employed, had higher wages, and had jobs that required more skills. The majority of working YAP graduates had full-time jobs (67 percent were working more than 30 hours a week). In contrast, only 50 percent of the printing-classes-only graduates and 33 percent of the co-op graduates were working full-time. The working YAP graduates reported that they have been working continuously since graduation, in contrast to 60 percent of the co-op graduates and 50 percent of the printing-classes-only graduates. The current jobs of the YAP graduates working in printing included being an assistant press operator, file film manager, plate maker, primary helper in image assembly making, screen press operator, and feeder person. About half the YAP and co-op graduates, but less than 20 percent of the printing-classes-only graduates, were working in jobs that required some skill. Finally, working YAP graduates were more likely to be earning more per hour than were the other two types of graduates: 60 percent were earning $7.00 per hour or more, in contrast to 33 percent of the other two groups.

Table 27

Percentage of sampled graduates according to their employment status and job characteristics, by program type

Employment Status	Program Type		
	YAP	Co-op	Classes only
Current Employment Status			
Working	94%	60%	75%
Working in printing	94	60	13
Not working, not looking for job	6	40	25
Portion of time employed since graduation (of all)			
Only a little	0	20	38
Some of the time	0	0	13
Most of the time	0	20	0
All of the time	100*	60	50
Continued working at work experience job after graduation	81	20	N/A
Continued working for apprenticeship employer six to eight months after graduation	75	20	N/A
Would like a career in the printing industry	75	80	38
N =	16	5	8
Of those currently working:			
Hours worked per week:			
Less than 15 hours	0	0	17
15 to 30 hours	33	67	33
31 to 41 hours	27	0	0
More than 40 hours	40	33	50
Hourly earnings:			
$4.25 to $4.99	7	0	17
$5.00 to $6.99	33	67	50
$7.00 to $9.99	60	33	17
$10.00 to $12.99	0	0	17
$13.00 or more	0	0	0
N =	15	3	6

* One missing.

The YAP experience provided its students with a concrete linkage to the industry by helping them to develop a solid relationship with an employer, which proved to be quite fruitful for both them and their employers. Almost all the YAP graduates worked for the same employers of their youth apprenticeship position following graduation, and most were still with these same employers when interviewed six to eight months following graduation. In contrast, just 20 percent of the co-op graduates continued to work for the employer of their co-op experience once they graduated from high school.

Through the YAP experience, students developed a strong interest in the printing industry. Feedback from the YAP graduates demonstrated that the program was very successful in this objective, particularly in contrast with other graduates who had only classroom-based learning in printing. By the time of the follow-up survey, most YAP and some co-op graduates still had a strong interest in pursuing a career in the printing industry, while only 38 percent of the printing-classes-only graduates did.

When asked what they enjoyed about working in the printing industry, many YAP graduates commented on the work and their skills used: art, technology and computers, learning how all parts of a print job go together, being part of the process, and the challenge to do things right and "get them out the door." Others identified other work-related qualities such as the nice people, the pay, flexible schedule, and being treated like an adult.

Most YAP graduates' interest in printing seemed to be far reaching. Many YAP graduates described their current career plans in long-range terms, primarily in printing management including:

- gaining more experience and then start-up a printing place of my own;
- becoming a supervisor or manager in pre-press;
- continuing to work at current company and advance into management;
- becoming a pressman in 5–10 years; and
- majoring in desktop publishing and management at a four-year college and continuing to work with current or new printing employer.

In contrast, co-op graduates and printing-classes-only graduates had more immediate, and often more vague career plans such as "to stay in printing" or no plans—"Don't know yet; finish school and then see." Thus, it appears that the more intensive exposure and work experience in a printing company may have strengthened and focused the YAP graduates' career plans, in contrast to other graduates with more limited work experience or only classroom-based instruction.

Program Benefits for Subsequent Employment

To determine how their program experiences influenced their career pursuits, the YAP and co-op graduates were asked to characterize their experiences and subsequent benefits. The YAP graduates agreed that participating in the program improved their career plans by giving them a career focus and an awareness of the "real world." Several described the program as pointing them in the right direction. Several were now interested in management in printing, which they attributed to their program experience. It appeared from their comments that many had a general interest in printing or a related interest in art and graphic arts prior to enrolling. Through the program, however, they developed a more concrete career focus and direction.

All the YAP graduates and 67 percent of the co-op graduates reported that their program experience was useful in their employment, and identified a number of ways in which it was immediately

beneficial. The most common response for both groups was that it focused them on printing-type jobs and provided a work history. But YAP graduates were more likely than co-op graduates to report that the program benefited them by giving them job-specific training that prepared them for entry-level employment in printing and that was respected by employers in the industry (see Table 28).

In an open-ended question, the graduates explained further how their program prepared them for employment. As one YAP graduate explained, "Our experience gives you an overview. Others who don't go through the program wouldn't get the big picture, but you go through everything." None of the co-op graduates stressed this benefit; only one explained that the program helped them to develop some skills which employers would recognize.

The YAP graduates were somewhat more likely than the co-op graduates to rate their program as preparing them *very well* for employment (50 percent and 25 percent, respectively). Most graduates in both groups, however, rated their programs as preparing them at least somewhat well for employment. In describing specific ways in which participating in the program benefited their employment, the YAP graduates stressed that the training and work experience gave them a head start and an ability to advance faster than others. As one graduate explained, it gave him a "step ahead of anyone off the street." They also found that they were trained faster when hired for a specific job after graduation and had a good knowledge of a company and its people prior to being employed (since many became employed by their training company).

The YAP and co-op graduates rated how well specific program components (rather than the program as a whole) had prepared them for their current job. Almost all the YAP and co-op graduates rated their printing classes and work experiences as having prepared them at least somewhat well for their current jobs. The majority of graduates in both groups also rated their academic classes similarly. YAP and co-op graduates differed, however, on their computing classes, with the majority of YAP graduates rating these highly in contrast to just 33 percent of the co-op graduates.

Table 28

Percentage of YAP and co-op graduates according to benefits and evaluation of their program for their subsequent employment

Benefits and Evaluation	Type	
	YAP	Co-op
Ways program benefited:		
Provided a work history	100%	60%
Trained for entry into beginning jobs in printing	93	60
Provided training that is respected by employers in the industry	93	60
Focused on printing-type jobs	93	80
Provided employer contact	87	60
No benefits, not employed	6	20
How well program prepared them for employment:		
Very well	50	25
Somewhat well	44	50
Mixed	6	25
Skills learned in program using in current employment:		
Academic skills	53	33
Printing skills	100	67
Employability skills	80	100
Computing skills	60	33
Rated program components as very well or somewhat well in current job:		
Academic classes	73	67
Computing classes	60	33
Printing classes	93	100
Work experience in printing	93	100
N =	16	5

The graduates also identified how they were using various skills learned in the program in their employment. Most YAP and co-op graduates reported that they were using the printing and employability skills that they had learned. YAP graduates, however, were almost twice as likely as the co-op graduates to report that they were using the academic and computing skills developed through their program in their employment.

Postsecondary Education Experience

While the YAP was not designed specifically as a college preparation program, it was structured to give students early exposure to college and simultaneous credit accumulation to facilitate and shorten subsequent college enrollment. As a secondary objective, the YAP strongly encouraged students to pursue at least a technical college degree, and prepared them to pursue a range of career options within the printing field, including those which required further education. Thus, the YAP was designed to facilitate graduates' entry both directly into work and into further education.

Several of the YAP courses were technical college courses or equivalents and were articulated with a local college. As a result, students graduated from the program having earned at least one semester of a two-year associate's degree in printing (the Fox Valley YAP students earn up to a year because all their courses are at the technical college). YAP students were therefore more prepared to continue in a college program than they may have otherwise because they had already accumulated some credit. The technical college credit earned while in high school could eventually be transferred to a four-year college, once a student had earned an associate's degree. As a result, many YAP students planned to and subsequently enrolled in higher education after graduation.

Postsecondary education participation. To determine the program's impact on postsecondary education participation, YAP graduates and other comparison graduates were asked about the program's influence on their continued education. Within eight months following graduation, about two-thirds of the graduates studied had enrolled in a postsecondary education program, a training program, or the military, with most in a two-year or four-year college. The results were similar for all three graduate samples (as shown in Table 29). Of those who ever enrolled, most (although less so for YAP graduates) were still enrolled when interviewed six to eight months following graduation. This included all the co-op and printing-classes-only graduates (there was no comparison group of general students for this interview) and 70 percent of the YAP graduates who had ever enrolled in a postsecondary program. In addition most of the graduates from all these groups who were currently in school had been enrolled most (if not all) of the time since high school graduation.

Table 29

Postsecondary educational experience of 1994 sampled graduates, by type

Postsecondary Education Experience	Program Type		
	YAP	Co-op	Printing Classes Only
Ever Enrolled	63%	60%	63%
n =	16	5	8
Of those ever enrolled:			
Currently enrolled	70%	100%	100%
n =	10	3	5
Of those currently enrolled:			
Enrolled full-time	71%	100%	80%
Major:			
Printing	71	67	40
Other	29	33	60
Portion of the time enrolled since high school graduation:			
Part of the time	0	0	20
Most of the time	57	33	20
All of the time	43	67	60
Type of degree earning:			
Associate's degree	86	67	40
Bachelor's degree	14	0	60
Don't know/Not sure	0	33	0
N =	7	3	5

Of those who were currently enrolled in college, most were enrolled full-time and most of the YAP and co-op graduates were majoring in printing (71 percent and 67 percent, respectively), but only 40 percent of the printing-classes-only graduates were. The three groups of graduates varied somewhat in their degree goal, however: most of the YAP graduates (86 percent) were working toward their associate's degree, in contrast to 67 percent of the co-op graduates and only 40 percent of the printing-classes-only graduates. The rest were working on their bachelor's degree or did not know what degree they intended to earn. Most graduates enrolled in associate's degree programs were attending Fox Valley Technical College, Milwaukee Area Technical College, or Monroe Park Technical College. Those pursuing a four-year degree were studying at one of the various University of Wisconsin campuses.

The three groups of students differed somewhat in their combined postsecondary education and employment status as shown in Table 30. Almost 40 percent of all three groups were combining both attending college and working. Of the three groups, YAP graduates were least likely to be only enrolled in college. Slightly more than half of the YAP graduates were only working, while proportionately fewer of the other two groups were only working. Of the three groups, only one co-op graduate was neither working nor in college.

All the YAP graduates in college, except one, were also still working for their youth apprenticeship employer, when interviewed six to eight months after graduation. Of the few YAP graduates who

were not working for the same employer, only one was in college and the other two were working elsewhere. Only one co-op graduate was combining college and employment, and was working for his co-op employer.

Table 30

Percentage distribution of graduates by their employment and educational status six to eight months after graduation, by program type

Post-graduation Status	Program Type		
	YAP	Co-op	Printing Classes Only
Working only	56%	20%	38%
Attending school only	7	20	25
Both working and attending school	38	40	38
Doing neither	0	20	0

Some graduates, particularly YAP students, had employer-directed postsecondary training either on-the-job or in conjunction with a formal postsecondary educational institution. Many YAP graduates continued to received on-the-job training. Of the YAP graduates, 39 percent reported that they received additional on-the-job training, 23 percent received educational stipends for technical college course work (paying for tuition and travel, if a "B" or "C" grade average was maintained), and 15 percent received more general job-related training. A few of the printing-classes-only students also reported that their employers provided tuition-reimbursement for technical school, sent them to school for specialized training, or provided on the job training.

How program participation benefited subsequent postsecondary education. According to the YAP graduates, participating in the youth apprenticeship program influenced their postsecondary plans most by its focus and direction. As several graduates explained, it "help(ed) narrow down what I wanted to do" and "helped give me a direction of where I wanted to go." A few admitted that they learned what they did *not* want to do as well as what they wanted to do, and the role of postsecondary education in preparing for jobs that they wanted. As one student explained, "[I] can see the jobs that you could get if you went on and the jobs you would have to take if you didn't go on in school."

A few graduates identified a range of other influences from the program that benefited their postsecondary education, including a general exposure to careers and clarity of what they entailed; maturity and communication skill development; and financial stability. Graduates were more likely to point to the advantage of prior college credit accumulation as a postsecondary education benefit of participating in the program, and the benefit of reducing the amount of time they will have to attend college to earn their two-year or four-year college degree. Others pointed to the benefits of becoming familiar with college and the expectations. At least one student enjoyed being mixed in with other college students (which was an arrangement that existed only at the Fox Valley site) and a few stated that they realized that they needed more than a high school education and could benefit from a college education. In contrast, the co-op graduates were vague about how their program experience influenced their postsecondary plans, pointing primarily to the career exposure (and a general sense of the education required to achieve success in the workforce) that it gave them.

Both YAP and co-op program graduates identified selected ways in which their programs benefited them in preparing for postsecondary education and training, and often agreed about what was most

beneficial (as shown in Table 31). Most important to them was that the programs provided solid academic skills (such as in English, communications, and math) which the majority reported that they used in college. Second, the program was beneficial because it gave them a focus to pursue a printing major and third, it helped to familiarize them with college-level coursework.

Despite their agreement on all of these benefits, YAP graduates were far more likely than co-op graduates to report that their respective work experience program prepared them *very well* for college (57 percent and 0 percent, respectively). In addition, all YAP graduates and 67 percent of the co-op graduates rated their program experience as preparing them at least somewhat well for college, as shown in Table 31. In addition, almost all YAP graduates rated all selected program components as preparing them somewhat to very well for college, particularly their academic classes. Co-op graduates were less likely to rate their academic and computing classes as highly.

Long-range educational plans. In the long term, most graduates in all three groups planned to complete a postsecondary education or training program, as shown in Table 32. The YAP graduates, however, were more likely to have subsequent long-term educational plans (completing just a four-year college or a master's degree as well) than did the other two types of graduates. In addition, three YAP graduates planned to transfer to a four-year college program in printing (primarily in graphic arts, printing management and graphics communication) the following year. In considering future vocational training that they might need, some YAP graduates identified management and supervision, while others thought that they would need more employer-specific training.

Table 31

Percentage of graduates in college according to how their program participated in college benefited them for postsecondary education and skills used, by type

Benefits	Program Type	
	YAP	Co-op
Ways participation in program benefited them:		
Provided solid academic skills	86%	67%
Helped familiarize with college-level coursework	71	67
Focused on the coursework to pursue a printing major	86	67
Other	0	0
No benefits, although in college	14	0
Skills using in college:		
Communication	86	100
Computational/Math	71	100
Computing	71	67
Keyboarding	71	67
Printing	71	67
How well program prepared them for college:		
Very well	57	0
Somewhat well	42	67
Mixed	0	33
Somewhat poorly	0	0
Very poorly	0	0
Rated as very or somewhat well in college preparation:		
Academic classes	100	67
Computing classes	89	33
Printing classes	78	100
Work experience in printing	89	100
N =	7	3

Table 32

Percentage distribution of graduates, by type, according to their long range educational plans

Future Educational Plans	Program Type		
	YAP	Co-op	Classes only
Gone as far in education as plan to go	13%	20%	0%
Complete a training program	6	20	38
Complete a college education	44	20	38
Complete a master's degree program	13	0	13
Complete a professional degree or doctorate	0	0	0
Other	6	20	0
Don't know/undecided	19	20	13
N =	16	5	8

Source: Follow up survey of 1994 graduates

A comparison of the long-range educational plans of the graduates (six to eight months after graduation) and of the seniors who were about to graduate (as shown in Table 24) shows some similarities and differences. Similar percentages of YAP graduates and seniors were uncertain about their long-term educational plans and YAP graduates were slightly more likely to report that they would not go beyond their high school education. But a greater percentage of YAP graduates than YAP seniors were planning to complete college and possibly a professional degree. Among these who were in co-op, the graduates were less likely than the seniors to plan to complete college. Finally, the printing classes only graduates were more likely than the seniors to plan on further education, although similar percentages were planning to earn a college degree or more.

EMPLOYER EXPERIENCE

Introduction

The key to the Youth Apprenticeship Program in Printing (YAP) is substantive employer participation in all phases—program design, curriculum development, training, and hiring graduates. The printing companies' most extensive contribution was the mentor training provided and wages paid throughout each student's two-year experience. Engaging, managing and sustaining employer participation can be challenging, as Bailey and Merritt point out, and related problems can restrict the growth potential of intensive work-based learning programs, like YAP. In addition, there is some concern on a policy level, as raised by Osterman and Iannozzi, that employer bias against youth may be too difficult to overcome. Based on these concerns and issues, this evaluation explored employers' reasons for participation, how they managed the training and own participation, and their assessments of the quality of graduates as potential entry-level employees. Integrating this program into their companies' operations had other potential benefits, so how their participation positively benefited them and their company was also examined.

Background

There were 28 printing companies participating in the YAP in the five sites. These companies varied dramatically in size, specialization and diversity, reflecting the printing industry as a whole. Their sizes ranged from employing six to 1,000 people, with half who had fewer than 100 employees. Some had broad printing capacity, while others specialized in publications, high-quality products, and web printing. Most were well-established businesses which have been in operation for over 20 years (including 25 percent which have been in existence for over 80 years). Only three companies were unionized (which may reflect in part the difficulty of engaging unionized companies in the program because of how employee responsibilities and benefits are carefully defined).

The interviewed mentors/employers of these 28 companies varied in their length of participation in the program and the origin of the program in their area. Most of the employers from Fox Valley and West Bend had participated for three-four years, since the YAP's inception. At the other three newer sites, employers had participated for one-two years. A few employers were new to the program, reflecting on-going recruitment and promotion with some companies and staff turnover in other companies. Finally, a few companies had more specialized experience with the program because they had helped to establish the youth apprenticeship model in Wisconsin, through their role on a statewide advisory committee in designing the model and the competency-based curriculum.

According to the interviewed employers,[1] employment opportunities in the printing industry were very good in their areas. Many described the field as "wide open" for people of varying abilities, and reported that printing is the third largest industry in the state. The majority of employers reported that it was difficult to find qualified people to hire and that there was a need to get young people interested in the field. Wisconsin has a low unemployment rate generally and some employers, particularly ones from smaller companies, were having difficulty finding workers to fill available job openings (depending upon the types of positions being filled). As one employer explained:

> There's a need to get young people interested in graphic arts. The local tech college graduates usually go to big printers. This seemed like a good way for us to get

[1] 30 employers were interviewed from the 28 companies.

> someone in and train them so that maybe they could become a future employee for us (CESA #2 employer, telephone interview).

Most employers identified electronic imaging and publishing (including electronic pre-press and digital technology) as the growth area for the industry.

Some companies had a prior history of training students and being involved in public education generally. About 60 percent had prior experience in training students, through summer internship programs (32 percent) or co-op education (32 percent). Many companies provide various other educational enrichment and support services for their local public schools, such as:

- participation in career fairs or Career Days (39 percent);
- worksite tours (32 percent);
- curriculum advisement and planning (18 percent);
- program or activity sponsorship (such as Junior Achievement, adopt-a-school or buying school advertisements 18 percent);
- job shadowing (11 percent); and
- doing print jobs for schools and other programs (11 percent).

Employer Recruitment

Thirty employers were interviewed from the 28 companies (two employees were interviewed from two companies) about their role as mentors and worksite coordinators for mentors and youth apprentices in their companies. These employers varied in their position in the company and in their roles in making decisions about participating in the YAP. Some involved their companies in the program after they (or their company) were asked to volunteer or heard about the program at a meeting. Others became involved because their boss had made a commitment to the program. A few employers participated because of an existing relationship with a local high school for other programs, such as co-op education. A few employers had been part of the initial planning for the YAP, so were already invested in trying it. Others were recruited when approached by the schools, the chambers of commerce, and, in one case, a student and her parent. Several chambers of commerce actively recruited employers through letters, professional association meeting presentations, and phone calls.

The employers gave a variety of reasons for agreeing to be mentors and participate in the program generally. These clustered around issues related to preparing better entry-level employees for the field, trying out a promising educational endeavor, supporting education, and being responsive to the community. Very few gave us reasons benefits for their company specifically. Several employers explained their reasons for participating by identifying benefits for their company and the industry in training entry-level employees: the opportunity to train good entry-level employees (37 percent); the need for more on-the-job training (17 percent); and need to get more young people into the industry (10 percent).

> . . .it's a win-win situation. The printing industry hasn't done a good job of marketing itself, especially in light of all the recent technological advances in the field. Most people think of it as blue-collar, dirty, and labor intensive. So we have a hard time recruiting. Also, I believe that many kids need more hands-on learning to absorb information (CESA #2 employer, telephone interview).

Several employers were personally interested in playing an educating role and strongly believed in the youth apprenticeship model for training entry-level employees. As one employer stated: "it made sense." Several employers described the difficulty of finding entry-level employees with prior experience and were therefore interested in this program as a means of developing qualified

people. Other employers talked about the need for good attitudes and work skills which schools could provide and having hired less-well-qualified people in the past with whom they got stuck.

Some employers identified the educational benefits as the reason for their participation: it contributed to the education of youth (17 percent) and "I'm pro-education" (10 percent). Some joined for more general reasons: it sounded like a good program (30 percent), provided further promotion of the industry (10 percent), and it was something new and different (10 percent). A few employers also viewed this as a way to "give back" to the community. One employer went further to explain that he had been interested in the opportunity to improve his company's own training methods, by learning from the school and technical college. He had found already that his student trainers have become better trainers.

One Milwaukee employer explained further why his company got involved. The company found that they were not getting qualified people for their openings and experienced high turnover for entry-level employees. They also found that they would have to hire people away from other companies, and would not hire youth out of high school. As the employer elaborated, printing companies used to be more "closed trade" and "informal networks generated enough people," but not any more. They also found that it would take two to three years to get high school graduates trained to their way of doing things, and technology had begun to change rapidly. Therefore, the company concluded that the industry needed to participate in high school training.

Mentor Training

Mentor training was organized by each site to train employer coordinators and mentors. Frequently, a local technical college was responsible for periodic mentor training, which entailed start-up training for mentors in new sites and follow-up training for new mentors and existing mentors. The mentor training usually consisted of a full-day session prior to the school year and a mid-year follow-up session. Mentor training was further reinforced in some sites through monthly mentor meetings and frequent communication between the printing instructors and the mentors.

Fox Valley provides an example of the mentor training process. The youth apprenticeship coordinator of the Fox Valley Chamber of Commerce conducts a full-day mentor training session for new mentors and an additional half-day training for new and existing mentors. All mentors are first oriented by a descriptive overview of the program. The full-day mentor training program is conducted by the coordinator, counselors and technical college teaching staff. The topics covered are adolescent development and behavior; history and philosophy of the program; expectations for training and supervising the students as employees; the mentorship role in effective communication; self-esteem development and positive feedback. In addition, the training is used to review the curriculum and the grading policy.

"Harley," a Mentor

Harley is the pressroom superintendent at a large printing company. He has been in the industry for 21 years, and been a trainer-coach in many companies for several years. Still, he found the mentor training for YAP to be very useful, primarily because it covered adolescent development issues.

His company started with two apprentices and added others in the second year. He is responsible for the apprentices' work and training in the press room, gives out the work assignments, and coordinates the trainers. He also attends the mentor meetings and coordinates with the school staff.

According to Harley, the apprentices are constantly supervised while working, as would be other entry-level employees. He explained that most of the printing company staff is young (under 30) and have had lots of opportunities in the company, which has grown very fast in the past few years. As a result, they are eager to share. He also works to avoid using the apprentices as cheap labor.

He has not had difficulty in using the competency rating forms and found that the printing instructors and the worksite trainers were consistent in their evaluation of the apprentices.

Mentor training proved to be somewhat logistically complicated. First, the technical college and local chamber of commerce staff often trained the mentors, yet these staff were not part of on-going YAP training and operations as were printing instructors and program coordinators. As a result, these trainers of mentors were less aware of the problems, challenges, and implementation irregularities that existed or were developing. Second, the companies varied significantly in how they mentored and trained students. Some companies assigned specific mentor-trainers to guide the students through their two-year competency training. Others had the mentors serve as coordinators for the students' training which in turn was provided by different staff in each printing production area. Frequently, the hands-on trainers (which sometimes would be all the employees in an area) were not referred for mentor training. Therefore, the mentors within and across the sites differed in their training needs and it was unclear how the mentor training provided was then shared with the hands-on trainers in each company. Understanding that these differences in mentoring responsibilities exist is useful in interpreting the interviewed employers' reactions to the mentor training.

When asked about how they were trained as mentors, the interviewed employers gave a range of responses. Most (77 percent) reported that they attended an orientation session (referring to the

ones organized by the program coordinators or the local technical colleges). Of those who attended orientation sessions, most found them to be helpful; but several employers did not. (At least one employer gave this assessment rating because he was an experienced trainer.) Of the topics covered, about half the employers who attended these sessions found the unit on how to work with adolescents to be very useful in helping them to understand the youths' maturity. As one employer described the mentor training:

> It was a good recap of what point high school students are at in terms of maturity level. [I] learned what to expect from them and how to deal with high school students (West Bend employer, telephone interview).

There were some exceptions by site in employers' reaction to the mentor training and orientation. In one new site, most of the employers thought that "no one knew what was going on" and that they had to learn how to use the curriculum as they went along, attributing these problems to the newness of the program.

Since the sites varied in whether they offered subsequent mentor training and periodic mentor meetings for problem solving (and that the employers differed in their roles as mentors), only some employers reported that they had additional training. About one-quarter of the interviewed employers reported that they received additional training from the schools and another quarter reported that there was a lot of on-going communication among the companies, schools, and local committees about the program and student training. A few employers had several mentors in their company who helped to train other mentors, so additional training was occurring. About half the employers reported that they would like to have additional training. The most frequently requested training topics were methods for communicating with and effective teaching methods for youth.

Mentoring

For most employers, mentoring was an added job responsibility, with variable time demands depending upon the mix of other employees who provided training and the number of apprentices being trained. The mentoring process became more than just training for both the mentors and the students. The mentors, as described below, derived considerable satisfaction from their role and from watching someone grow and learn.

Being a mentor. The interviewed employers varied in whether they were mentors or coordinated mentors. Combined, many (60 percent) estimated that they devoted one-four hours per week to their mentor role, while the rest devoted more. For about one-third, being a mentor was acknowledged as being part of their job, while the rest worked it into their regular work load. Only 10 percent received additional compensation for their mentor responsibilities and one company paid its mentors overtime if they had to stay late to finish a job because they had been working with a student earlier.

When interviewed in summer 1995, most employers reported that they would continue to serve as mentors, primarily because they enjoyed the program and found it to be worthwhile (50 percent), that it provided valuable skills training for potential employees (31 percent), and that it was a beneficial program for youth (19 percent). A few employers reported that they might not or would not be mentors again, in part because of limitations in the company's capacity to take on additional apprentices (having hired their recent graduate), the time commitment, and the lack of students available.

The employers identified many personal rewards which they derived from their participation in the program. Most of these rewards centered on the joy of helping the students gain skills, mature as individuals, and develop into good employees. They also centered on the pleasure of being a role model, passing along their knowledge and experience, and making a difference in the students'

education. A few employers also noted the benefit of being able to network with other employers and the community.

Number of students trained. The companies varied somewhat in the number of students they trained, as shown in Table 33. The most common configuration, however, was for the company to train one student (either a junior or a senior) or two students (one junior and one senior). Fifty-three percent of the employers trained only one student, either a junior or a senior. Fifteen percent trained two and a few trained three or more students (including at least one junior and one senior). The exception was one company in West Bend which trained 12 students each year.

Table 33

Number of companies and students trained by site

Site	Number of companies	Number of juniors	Number of seniors
CESA #2	9	2	10
CESA #7	5	1	6
Fox Valley	8	10	10
Milwaukee	4	2	4
West Bend	2	8	7

Only a few companies (28 percent) reported that they could increase the number of students trained each year. The rest gave several reasons why they were limited in the number of students they could train:

- Their company was too small to handle more employees (39 percent)
- They thought that having more students would slow up the company's productivity (29 percent)
- They found that working with students was time-consuming (25 percent)
- They lacked enough available equipment to train more students at the same time (14 percent).

In addition, a few companies were having difficulty sustaining their existing level of participation. Two companies in one site said that they were going to suspend participation for one year, one because of the loss in production time and the other, because they were getting new equipment and needed the time to devote to it without having to train a student as well. None were discontinuing because they were dissatisfied with the program.

Added student support. The various companies provided students with a few benefits beyond the training—additional hours of work, employee perks, and, occasionally, transportation to and from the worksite. All the companies offered their student apprentices additional hours of work for pay:

- summer employment (68 percent);
- weekend hours of employment during the school year (57 percent);
- extended workday hours (as they would other employees) (46 percent);
- employment during school vacations (43 percent); and
- employment during school holidays (32 percent).

Almost one-third of the employers provided students with employee perks, such as discounts, passes, and inclusion in staff parties and dinners (as they did other employees). As one CESA #7 employer explained:

> [The students] are involved in things like the company picnic and Christmas party. If we give out movie passes to the staff for a record sales month, they get those too and on their birthday they get a $25.00 gift certificate like the other employees.

Future Employability

Based upon their feedback, it appears that employers were impressed with the training they, other employers and the schools were providing students and how prepared the students became for subsequent employment. All the employers rated the YAP students' future employability (particularly in the print industry) as excellent or very good. According to a CESA #2 employer:

> In general, for any prospective employer, [students'] participation in the program shows that they put in the time commitment, [got a] solid introduction base, and learned a little about a lot of press. They are miles ahead of those coming off the street or straight out of high school.

Some employers gave specific reasons for this:

- YAP graduates are a step ahead of the average high school graduate.
- YAP graduates have the experience that many employers are looking for in an entry-level employee.
- There is a labor shortage in the printing industry which the graduates can help resolve.

Several participating employers also commented that employers generally recognize and value this training. As one Milwaukee employer explained, "many employers are familiar with the program and are more likely to hire one of its graduates." Some employers thought the YAP graduates could start to work right away, particularly at entry-level jobs, because of how well they had been trained. Others thought that the YAP graduates just needed more experience, having learned the basics, and some thought that they needed better interpersonal skills, particularly in being part of a team. A few employers, primarily from one site, thought that the YAP graduates needed more training in a selected area to be employable, although this depended somewhat on the graduates' area of interest. As one CESA #2 employer explained:

> They could walk into a small print shop or do proofing or something in a larger shop right away. For electronic pre-press, they would need more schooling. Press room needs five years of apprenticeship under a journeyman.

The employers demonstrated further how valuable they found the training by explaining that they would hire the graduates themselves and would be somewhat more likely to start the YAP graduates at a higher starting salary than they would for typical entry-level employees, as shown in Table 34. Seventy percent of the employers would start the YAP graduates at $7.00–10.00 per hour, while only 43 percent of the employers would start typical entry-level employees at this rate. All employers reported that they would hire YAP graduates if a position were available (although a few employers did qualify their answer saying it would depend upon the student's qualifications). Those employers who gave an unqualified answer explained that they would hire a YAP graduate because:

- the graduate had thorough training and work experience (91 percent);
- they would know what the student's training and job performance had been (39 percent); and

- they would know that the graduates were interested in the industry and would have a good understanding of the business (35 percent).

Table 34

Percentage distribution of employers according to their typical starting hourly wages recommended for YAP graduates and for other entry-level employees

Hourly wage	YAP graduates	Typical entry-level employees
$5.00–6.99	23%	53%
$7.00–8.99	53	43
$9.00–9.99	17	0
Depends on union scale	10	7
Don't know	13	3

N = 30
Source: Employer telephone interviews, summer 1995

Interagency Relations in Program Management

The YAP's success (and the learning experiences of each student) has been highly dependent upon close working relationships at each site among several entities—employers, school liaisons, a program coordinator, technical college instructors, and other participating agencies. These relationships were configured differently across the sites, varying in part on the population density. Some sites (Milwaukee and West Bend) have a centralized program in just one large high school, which limited the need for a number of organizations and staff to be directly responsible for various facets of the students' experiences. The other three sites were fairly decentralized in more geographically dispersed areas, involving multiple high schools in each site. These sites lacked an overall coordinator or director who was responsible for all program facets. Instead, different entities were responsible for student recruitment (usually the schools), employer participation (usually the Chamber of Commerce) and printing instructor training (usually a separate education agency). Most sites used an operations or implementation committee with education and employer representation which met regularly to address on-going problems, issues, and concerns and to provide general oversight.

Program management and responsibilities were split among several individuals in supporting students' work-based training. In each site, one person (usually a high school-based program coordinator or a chamber of commerce-sponsored program coordinator) recruited companies and facilitated the student interview and placement process. Printing instructors usually coordinated with individual mentors at each company on the competency training, student performance and evaluation, and student problems. In some cases, company mentors relied upon school liaisons to address individual student problems, such as absenteeism and performance. In Milwaukee and West Bend, the program coordinator and school liaison were the same person.

The employers were interviewed about the quality of their relationships with the various entities that coordinated the program and supported their student training. Because the roles and agency participation differed substantially among the five sites, it was difficult to interpret the employers' responses, particularly in discussing their relationship with the school liaisons. For example, half the employers rated their relationship with the school liaisons as very good, emphasizing that they

were in constant communication, that the liaison (or school) was very interested in the program and was accessible to the employer. Most of the other employers rated this relationship as average, explaining that they were only in contact at mentor meetings or when problems arose. Yet some sites were organized in a way that limited the school liaison's responsibilities, so this more limited contact would be expected.

In two decentralized sites, employers gave mixed reviews about their relationship with the school liaison. In one site, none of the employers rated their relationship with the school liaisons as very good, primarily because they had little contact (given the decentralized nature of that site's organization for the program). One employer, in another decentralized site, found the school liaison to be very inattentive to his concerns and would have quit working with the high school as a result, if it had not been for the principal's intervention.

The employers seemed to have developed a closer relationship with the printing instructors, although the frequency and nature of interaction varied greatly among the sites depending upon the existence of a program coordinator. The exception was in one site where the school liaison, not the printing instructor, had the primary employer contact. In one site, the employers explained that the printing instructors met with them once a semester to review student assessments. In the other three sites, the employers described weekly or monthly meetings with the printing instructors (as well as intermittent telephone contact) through monthly mentor meetings, steering committee meetings, and other functions. Most of the employers with some interaction described their relationship as good or excellent. A few employers noted that they had been students of the instructors themselves, so already had a good working relationship.

The sites often had several committees that oversaw and helped to coordinate the YAP. Usually, there was a broadly focused education and employment committee for the area and a Youth Apprenticeship Program steering committee (which may have coordinated several youth apprenticeship programs). Most sites usually had monthly mentor meetings as well. Because of the multiple committee configuration (and differences in how each site termed their various committees) it was difficult to solicit employer feedback on these committees and their participation. Most employers explained that they were active members of an advisory or steering committee for the program and rated this experience as good (the rest explained that they did not attend meetings). Almost half the employers explained that part of the committee's work was to do program planning and evaluation. These committees, when operating, seemed to be good vehicles for clarifying training expectations, solving problems, and integrating the work-based and school-based components.

Benefits of Participation

As Bailey outlines, employers become involved in intensive training programs for altruistic, individual, and collective industry benefits. Sustaining their participation requires that they derive some individual benefit as well as collective benefit which they value. This appeared to be the case in the YAP.

The employers described how their participation in the YAP was beneficial for their company. Their responses stressed the workforce development aspects of the program and potential for indirect or unintended return on providing an educational service. Half the employers explained that their company benefited by developing better-trained, future entry-level employees. In addition, at least one employer described the program as an excellent marketing and recruitment tool for potential employees.

About one-quarter of the employers also reported that it benefited the company by improving their relationship with and helping the community. Several employers reported that the program had been good for company morale, helping to bring people together and getting people excited about

their industry. Similarly, a few employers reported that it fine-tuned and refocused the skills of the employees who were trainers and mentors, challenging their trainers and strengthening their employees' knowledge.

In some instances, the YAP had an effect on the companies' own training programs. Some adult employees at participating companies became interested in the cross-training offered to the students, and as a result, the employers began to re-examine how they may have pigeon-holed some employees and how they might offer them other training opportunities. Some employers were also looking at how the YAP model could be used as a model for training their other employees.

There were also altruistic benefits which reinforced employer commitment. When interviewed, several employers cited unexpected successes that they derived from their company's participation in the program. These included the growth and development in the students they were training, the pleasure derived from grooming students for the industry, the feeling of accomplishment, and the positive effects on the mentoring employees. Several employers seemed almost surprised at how quickly students learned and developed an interest in and dedication to the industry. As several employers explained:

> (I was) surprised how productive the student was with a short amount of training (CESA #2 employer).
>
> The first student matured into the regular workforce so quickly for a 16-year-old and was accepted in the adult environment so quickly—that was unexpected (CESA #2 employer).
>
> One student was so good on the Web press that he was actually showing other employees how to do it. So we had him write up a procedure for what he was doing. And he was only a junior (CESA #2 employer).

Several employers explained that they had not expected many students to develop a commitment to the industry and were very surprised by the high percentage of students who remained with their company after graduating or were pursuing further training in the field. As one West Bend employer explained:

> We originally thought that if 50 percent stayed on, that would be outstanding. We have about 75–80 percent of the students staying on either as full-time employees or as part-time employees while they are at the tech college getting more training.

A few employers admitted that they had been unsure of how to select students for the program and were uncertain that less academically accomplished students would work well. They found that such students improved academically through the program. As a Fox Valley employer explained about one student: "[She] wasn't considered a good student because she didn't fit into the traditional program at school, [but she] just blossomed here." Another employer was surprised to find that his successful student had not done well academically prior to the program:

> I talked with the principal...and said that I suspected that [he] would probably have been very successful even if he hadn't been in this program because he was very focused and had a lot of drive. I learned that wasn't necessarily true. In fact the principal said that before [he] was in the program, he didn't really seem to have much direction but that as he got more enthusiastic about the program, his school work and drive improved (CESA #2 employer, telephone interview).

In one CESA #7 company, the employer focused on the student's academic program by posting the student's school grades and other accomplishments. The employer noted about the student that "his GPA went up considerably while he worked at our company."

In terms of employee development, a few employers described how their employee mentors "blossomed" and "came out of their shells." In one company, less outgoing employees were picked as mentor-trainers and proved to be good mentors who became energized and excited about "passing on their trade and getting young people involved in their industry" (CESA #2 employer, telephone interview). A Fox Valley employer described how the employees and even customers appreciated what they were doing as part of the educational process. Finally, a Milwaukee employer noted that their management team learned more about employee development through the experience, and that "people change interests and develop skills and should be moved around more often."

The interviewed employers also identified some unintended consequences of their participation, both positive and not. A few employers noted that they had not expected the broad media attention that this program would engender (13 percent) and the pride that their employees would take in training students (7 percent). A few found that the program entailed greater time commitment (20 percent) and a few companies received complaints from employees that they had not been given similar training opportunities (7 percent).

Summary

The five sites, by their second or third year in the YAP seemed to have developed a very dedicated group of 28 employers, who were strongly committed to the intensive training approach. The existing labor market shortage and poor quality of entry-level applicants that the employers described appeared to have made the need for direct employer involvement in training high school youth critical. Employers' recruitment problems seemed to have offset their own costs and time commitment to participate and train YAP students. The program also seems to have become even more valuable as employers began to experience a direct return on their training investment—most recent and upcoming high school graduates were (or would be) working for them, while others were (or would be) or pursuing further training in the field with the intent to continue in printing.

The employers seemed to have had some difficulty initially in integrating the competency-based training and assessment system into their work, and some found working with adolescents to be challenging. The mentor training, mentor meetings, and frequent contact with other program staff, when implemented seems to have been very beneficial in addressing these problems. The mentors seem to have found ways to share the training responsibilities for each student apprentice with other employees, minimizing the individual burden and creating a more natural work-based learning experience. Several employees seemed to have gone to great lengths to treat the students as they would other employees, by offering them overtime and some employee perks.

Most interviewed employers talked about their student apprentices with great pride over their growth and development as workers and as young adults over the two-year training period. They also seemed to greatly value the "product" of their training—describing the youth apprentices as very employable and having training that was broadly recognized by other employers. This very personalized training seemed to be consistent with and extended the industry's on-the-job training approach generally. The industry-cluster (rather than job-specific) approach to the youth apprenticeship training was insightful for some employers, and by their own reports, caused them to rethink the limitations of their existing narrowly focused on-the-job training and the benefits of cross-industry training. Finally, the employers were gaining direct benefits from their participation by being able to hire these trained youth as permanent employees and indirect benefits by improving their staff's morale and own knowledge of the industry through their trainer roles.

SCHOOL INVOLVEMENT

The Youth Apprenticeship Program in Printing (YAP) entailed structural changes in the participating high schools, ranging from adapting schedules for each YAP student to collaborating with employers, technical colleges, and, in some cases, other high schools. Indirectly, the program is changing the structure and delivery of secondary education in the schools, both by necessity and by example. The schools have four primary responsibilities in the YAP: recruiting students, funding additional school-based instruction and related program costs; managing student participation in cooperation with employers and other educational entities; and representing the program with parents, school staff and the school board. How they adapted their structure to incorporate these responsibilities and the role of the program in the schools' broader school-to-work transition efforts was investigated through the evaluation.

Sixteen high schools participated actively in the YAP in the five sites in school year 1994–95. Two sites had one high school each and the other three sites served selected high schools from consortia of high schools. The principals from 15 of the participating high schools in the five sites were interviewed in Summer 1995 about their school's participation in the YAP and the benefits they perceived.[2]

Some schools had extensive prior business relationships and work experience programs while others did not. Thus, the school principals varied widely in their knowledge of and experience with the youth apprenticeship program and local businesses. In four sites, the schools were part of local school consortia or school and business consortia. Some local educational officials participated in state level planning; one superintendent even went with state officials to study Germany's dual educational system. Two sites were in the initial pilot, so their schools were part of the early planning on the youth apprenticeship model and had begun offering the program one year earlier than those in the other sites.

Recruiting Challenges

From the beginning, the schools in the five sites had to develop strategies to promote the new YAP to students and determine appropriate student targets; some schools experienced problems with these activities. While a few principals had no difficulty recruiting students, others acknowledged that there were several challenges to promoting the program and recruiting students. Some challenges were related to the program's design—the two-year commitment, time away from school, travel time, and the reduced opportunities to participate in extracurricular and other social activities at the high school. Some challenges were because the program was new. Other challenges for the school staff stemmed from difficulties in determining to whom to market the program and which staff members would do the marketing.

Several principals acknowledged that the program's value had to be promoted to both parents and students in order to successfully recruit students. Several principals commented on the stress their students' parents placed on college preparation generally, implying that this made program promotion difficult. Based on the interviews, it seemed that some principals promoted the program as an alternative to college and therefore were challenged by the need to convince parents and students of the value of this alternative. There was also some perceived ambiguity about whether student preparation through this program would still make students eligible for college and employment, which made the principals wary about how to promote it. As one principal explained:

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[2] One principal had retired and was not available for an interview, despite repeated calls.

> There is a feeling that you are not getting a full education if you don't go through four years of regular school. The universities and businesses need to be more public about their willingness to admit and hire students who have gone through non-traditional high school programs (Fox Valley principal, telephone interview).

A few principals commented that they had not found the best mechanism to recruit students, trying first to use an assistant principal and then guidance counselors as program promoters and recruiters. Just one principal explained that the program's high cost adversely affected their recruitment efforts (because it was costing the district an additional $1,500 per student for their participation without state funding assistance), implying that this limited how extensively the school marketed the program to students.

Several principals acknowledged that they had not done enough to market the program, and some thought that their guidance departments were not promoting the program well enough either. As one interviewed principal explained, "We don't do a very good job advertising the program to the students. The guidance department needs to do a better job selling it to the students" (CESA #7 principal, telephone interview). Again, several tied the marketing problem to student and parent concerns about how participating in this program may affect (or preclude) attending a four-year college.

Program promotion problems aside, most principals acknowledged that there were also recruiting problems, attributable to the program model, its design, and local implementation. There was some student (and parent) reluctance to enroll in the program because of its nontraditional nature, its newness, and its not being an identifiable college preparation program. For several principals, there was confusion about whether participating in this program would preclude college enrollment. In one school, as one principal explained, students and parents were concerned about how the students could maintain their academic progress and graduate on time.

In Fox Valley, the unique way in which the program was structured (by being centralized at the technical college) complicated student recruitment. Many students had been reluctant to make a two-year commitment to this arrangement, take college courses (rather than high school courses), and be away from their home high school social activities. As one principal from this site explained, "The non-traditional aspect is a problem because the perception is that they will miss out on social aspects of high school. The environment at the college is very different" (Fox Valley principal, telephone interview).

To address these various problems, program collaborators in at least two sites formed marketing subcommittees to make recommendations. A few schools had already developed other means to market the program: organizing business tours for parents so they see how the industry has modernized; having graduates make student presentations to answer questions and promote the program; distributing more information to students and teachers; and increasing local publicity through graduate recognition and newsletters to sophomores.

In other sites, the principals were discussing these problems at their administrative level, looking at how to handle marketing differently and how to redesign the program to address student concerns, particularly to accommodate students' extracurricular interests in the program's schedule. Finally two sites were redesigning the program, by recruiting students as eighth or ninth graders, advising them on their high school academic coursework and requiring a survey printing course prior to enrolling in the two-year training program. Thus, they were promoting the program at the middle-school level and preparing a larger pool of students to be more specifically ready to apply to the program.

In addition to general recruitment problems, the principals were asked about whether they had specific difficulty recruiting young women. Their experiences were quite mixed. Some principals

were from schools that had only begun to have students participate and had only one or two students enrolled, so gender difficulties in recruiting were not apparent. Some principals were in schools which had fairly good male and female student program representation. Just a few principals reported that most or all their YAP students were young men and that recruiting young women was challenging.

Since only a few schools had found recruiting young women to be a problem, only a few principals were trying to address this. Their most successful strategy thus far had been to give parents and female students tours of the printing companies to see what the work entailed. As one principal explained, "Once parents and students tour the printing companies and see how automated it is and that it's not a dirty job with a lot of heavy lifting, they see it as a viable option in traditional male industries" (Fox Valley principal, telephone interview). Another school, a technical high school, addressed non-traditional employment generally for a variety of high school programs and encouraged young women to take classes and exposed them to role models and encouraging talks.

Funding

Each site funded their local YAP primarily through local school district resources. The costs, however, varied substantially by how the program was organized and delivered. Several sites were able to keep costs at a minimum by using one high school's existing academic courses and printing courses, maintaining cost-effective class sizes, and enrolling very small numbers of students from their schools. Some sites hired a technical college printing instructor to teach printing courses to the YAP students, either at the high school or another location. These sites incurred an additional expense for this printing instructor and related instructional materials as needed. Finally, some sites needed additional equipment for the printing instruction and all needed coordinators.

Below is a summary, illustrated in Tables 35 and 36, of the site program costs incurred and how the sites have been managing these.

In CESA #2, the primary program costs were the salaries of the technical college instructors and related expenses. The additional per student costs for participating in the program was based on the total additional expenses, divided equally among the number of students enrolled. Each school was then billed per participant. Therefore, larger student enrollments helped to create some economies of scale for the whole program. The per-student cost in 1994 was $2,100, while the additional per-student cost in 1995 was $1,500 when total enrollment rose from 12 to 18. To reduce these costs further (especially since subsequent student enrollments were lower), CESA #2 planned to rent a classroom space from the college but hire its own printing instructors, while maintaining credit articulation for the printing courses.

In CESA #7, the primary program costs were for the salaries of the printing instructor and the school-to-work coordinator and training equipment used in one high school (where all YAP students came for their printing coursework). The costs for the printing instructor and equipment to train YAP students were combined and divided on a per-student basis among the participating high schools. This represented an annual per-student cost of $2,000–$2,500, varying annually according to the number of students enrolled. The expense of the coordinator was not charged to the schools, since her position was covered through a state school-to-work grant. CESA #7 recently began to be a fiscal agent for the employers, to handle student wages and insurance; the employers are being charged an added processing fee, which is being used in small part to support the coordinator. Declining student enrollment in the program is worrisome for program staff, since it drives up the per-student costs, further threatening local district support and participation.

Table 35

Average annual added YAP student costs incurred and source of expense by site, spring 1995

Site	Added expenses	Average annual student cost (1995)
CESA #2	Technical college instructors and related expenses at the college	$1,500
CESA #7	High school printing instructor, new equipment	$2,000–2,500
Fox Valley	All academic and printing courses at the technical college	$4,400
Milwaukee	Staff development, part-time coordinator	N/A
West Bend	Technical college instructor at the high school	$375

Table 36

Contributed YAP and management resources, from other sources, Spring 1995

Site	Resources	Source of support
CESA #2	Coordinator School liaison	State school-to-work grant School district funds
CESA #7	Coordinator of business participation	State school-to-work grant
Fox Valley	Coordinator of business participation Computer equipment and coordinator time	Chamber of commerce Menasha Corporate Foundation
Milwaukee	School liaison Printing equipment	School district Local companies
West Bend	Program coordinator	State grant funds School district funds

In Fox Valley, all YAP students' academic and printing courses are provided through the local technical college. All instruction and related expenses at the technical college were billed to the participating districts, at an average of $4,400 per student. While the districts continued to receive their regular state and local education funding for each student they sent, their students' enrollment off-site at the technical college did not substantially reduce their other expenses, so no net savings was realized. In addition to these costs, some program management functions were provided by the local chamber of commerce, through $150,000 three-year Menasha Corporate Foundation grant (for a half-time coordinator, computer equipment and marketing) and a small ($5,000) state school-to-work grant. Additional federal school-to-work grant funds permitted them to expand to a full-time coordinator in year three. According to chamber of commerce staff, its area's youth apprenticeship program may be at a turning point due to its high shared cost. While district officials want to reduce costs, they do not support alternative models, and cannot afford to locate the program in one high school because of the printing training equipment costs. Yet the existing per student costs are a disincentive for local districts to recruit youth (especially those districts with new superintendents who may not value the model as much). Reduced recruitment and enrollments only drive up the unit cost more for each district.

In Milwaukee, the added program costs for YAP included smaller class sizes for printing courses, 20 percent time for a program coordinator, professional development (substitute teacher coverage

and related professional development expenses), and supplies and materials. These costs were minimized somewhat by combining junior and senior YAP students, co-op students and other students in the printing courses. Even with doing this, however, the average class size for these courses was 1:15–20 students, below the school-wide average of 1:26 students. Milwaukee limited potential program costs further by having their regular teachers be certified to teach college credit courses (so they did not have to hire a college instructor) and by aggressively soliciting equipment contributions from printing companies.

In West Bend, the program operated in one local high school where students attend all academic and printing courses, including ones taught by a technical college instructor. The instructor's cost was the primary added district expense for the program, averaging $375 per student for 12 students (for $4,500 a year). The other primary program expense, the program coordinator's time, was covered by a state school-to-work grant and district funds for strategic planning. West Bend considered reducing program costs by increasing the number of non-YAP students in the printing courses and did include a few of these students in the fourth program year. The high school adopted the printing competencies curriculum for their graphic arts program; the junior- and senior-level graphic arts courses were then based on the YAP printing curriculum. The district was also considering other approaches, such as a magnet program design or a tuition exchange program among districts, in order to recruit more students into their printing program, obtaining more optimum class sizes and shared expenses.

As shown in Table 35, the average annual added per student cost varied dramatically across the five sites. Even the sites with low added costs were concerned about sustained district support of this added expense. Sites which operate their program through a consortium of districts were concerned about how to sustain and expand district participation so the per student cost could be reduced. Table 36 shows that there are several additional costs, primarily for program coordination and new equipment which were being covered through other sources, primarily the state school-to-work grant, school district funds, and business contributions. These were not billed to the districts, but support critical program elements.

Finally, some districts were able to use public and private resources, such as Carl Perkins Vocational and Technical Education funds, to cover some or all of these student costs, and obtained printing and paper company corporate contributions (financial and in-kind). Most districts had not found the additional cost to be burdensome, in part because such small numbers of students participate in the program. At least one principal, however, voiced her concern that she did not know how long she will be able to continue the program given the added costs.

Management

Depending upon how the YAP was structured locally, some principals had more direct management involvement than others; overall, these management responsibilities were limited. Their role, instead, has been primarily to facilitate the students' experience in and success through this collaborative educational program.

The principals had a limited role in supervising the YAP and its participants. Instead, they relied primarily on the local program coordinator and school liaisons to handle YAP's day-to-day operations. A few principals were on YAP-related advisory or steering committees and thus provided general input into the program's design and content, and to help with problem solving. In Milwaukee, the principal took a more active role in the program in order to balance its needs against other program priorities, manage budget issues (particularly for the coordinators and staff development), and actively communicate about the program within the district to maintain support. She also monitored students' progress and intervened when problems arose.

The principals acknowledged that they also have a limited role in evaluating the program. Most of their efforts have been in helping with program start up and operations. One principal had begun to explore benchmarks to assess its program's progress and performance, but admitted that these efforts were preliminary.

A key role for the principals has been to manage other school staff's and interested people's role in, understanding of and support for the YAP. While overall the principals described other key people as being supportive of the program, some concerns existed. These issues and the principals' actions in promoting the program with guidance counselors, teachers, parents, and the school board reflect in part how the program fits into the large school operations and the challenges created. These are summarized below.

Guidance Counselors. The guidance counselors have been directly or indirectly responsible for assisting in student recruitment, monitoring their academic program, and helping to solve problems, particularly with attendance, discipline, and achievement problems. Except for program recruitment, these responsibilities are part of their work with all students in each high school. Thus, while the guidance counselors do not have a central role in the program, they do help to facilitate student participation. When interviewed, the principals generally perceived the guidance counselors as being very supportive of the YAP. They observed, however, that the counselors have large caseloads and other responsibilities, so have limited time for the program. They described the counselors' role as publicizing the program, recruiting students, and helping with interpersonal problems that may arise.

The principals did not perceive the guidance counselors themselves to be resistant to the program model, but a few principals did think that the counselors had some difficulty with it because of general parental pressure to prepare their children for college (instead of considering this as an alternative) and their own initial poor understanding of the program for future career and educational preparation. In one school, the principal reported that the guidance staff were also concerned about students being able to meet graduation requirements and gain a quality education, and about the program's capacity to meet OSHA requirements and avoid liability issues.

Teachers. Other teachers in each high school had little involvement in the program, but contributed to overall school support or hindrance for it. The principals had mixed experiences with teachers, as reflected in their perception of the teachers' support of the YAP. The principals ranged from perceiving the teachers to be supportive, ambivalent, and uninformed to being unsupportive. According to the principals, the primary reason teachers were not supportive stemmed from a concern about how the program would impact their own (or other) staff positions. As a few principals explained, some teachers (particularly in co-op) had been concerned that this type of program would take students away from their classes, and possibly reduce the number of teachers in the school. As one principal stated further:

> First we marketed the program to the staff. This is where there was difficulty. Teachers were afraid that student participation in the apprenticeship programs would take them out of the classroom and decrease the need for so many teachers. Once I explained the value of the program [attitudes] improved (Fox Valley principal, telephone interview).

While some principals thought that these perceptions had improved, other principals acknowledged that, even after two to three years, there was still work to be done in promoting the program and its benefits to the teachers. In one exception, however, a high school principal explained that she has been striving to develop "a culture of one vision and one team" among her staff. She presented this program as an integrated part of the total high school offerings and communicated openly with her staff about budgetary needs, opportunities, and constraints for all programs, thereby gaining staff support for this program as well as other programmatic developments, particularly school-to-work transition generally.

Parents. Students cannot participate in the program without their parents' consent. Thus, parent support has been important in recruitment and sustained student participation. When interviewed, the principals identified some parental concerns in developing and sustaining the program, particularly over how program participation affected their children's college opportunities. They also reported that parents were concerned over the YAP students' lack of social interaction with their peers at their home school, lack of continued opportunities to participate in extra-curricular activities, inadequate transportation, and their ability to meet their course requirements. Parents also expressed a concern that business needs not interfere with the students' educational needs, and not limit the program just to high-risk youth.

To address these concerns, the principals reported that they and other staff tried to inform parents about the program, and reassured them that their children would earn a high school diploma and college credit, and would get them more directly involved. Their most effective strategy to engage parental support has been to have parents observe their children at the worksites. In addition, the counselors and other program staff in at least one site tried to adapt the work and academic schedule so that students could continue in extra-curricular activities, in response to parents' concerns. At least one school held a parents' meeting to discuss common concerns and problems and review the benefits, and would hold parent meetings prior to the school year's start. In another site, monthly parent meetings were sponsored by the program coordinator for a consortium of high schools, so individual high schools did not need to host meetings.

The YAP yielded at least one positive outcome for school and family relations—increasing parental participation. One principal explained that offering YAP has helped the school to reach a group of parents whom they had not involved much before:

> [We are] now getting more parents involved who may have not been as well served in the past. [The program] made them feel better about school and the support they are getting (West Bend principal, telephone interviews).

School board. The local school boards ultimately determined whether individual schools could offer the program and would allocate funds for student participation. For the most part, the principals found that the local boards of education were very supportive of the program. According to them, their school boards' primary concern had been over money, if anything. One high school had their school board raise a number of concerns about funding, policies and procedures, transportation, safety and liability, and meeting graduation requirements. In one of the original pilot districts, the principal found that the school board has begun to be concerned about student costs, evaluation, and benchmarking. For the present time, the principal and staff addressed these concerns by keeping the board well informed through reports and responses to questions and by inviting the board to their YAP ceremonies and graduations.

Principals' Perception of Benefits

Offering the YAP yielded several benefits, according to the principals, for the students and for the schools generally. The nature of these benefits is critical for how the schools and their principals advocate for the program in the long term.

For students. The interviewed principals stressed a variety of student benefits from the youth apprenticeship program, centered primarily on its connection to employment and its intensive training for non-college-bound students. One principal's comment summarized well the views expressed by all: "[The program] will give some students direction, choices, training, advanced standing, and an 'in' with a company" (Fox Valley principal, telephone interview). Several principals listed YAP's career and employment benefits for students, including:

- developing employability skills;

- offering a career start (by getting a jump start and finding a job before graduating);
- gaining great exposure to the world of work and work ethics;
- learning a skill;
- getting hands-on learning experience; and
- having a work experience.

A few principals viewed this model as particularly beneficial for the non-college-bound students who had been under-served: "It gives an 'in' for the workforce kids. This is about half the school and we really are not addressing their needs as well as the college-bound kids" (Fox Valley principal, telephone interview).

At least one principal valued the integrated learning and viewed the alternative structure and instructional approach as beneficial for students. As she explained, the program model helped students to see high school as a focus of their career preparation and were more engaged in learning because they saw the fit between their academics and printing work.

One principal saw interpersonal benefits for student participation in the program—gaining self-respect and self-worth as well as integrating interpersonal skills. She also perceived the program as providing valuable models of success for the YAP students and for this reason had been striving to broaden the representation of minorities and women among the mentors and business representatives.

For the school as a whole. Most of the principals cited similar benefits for their school as a whole because a group of students was benefiting from the program through their career engagement, preparation, and training. Having more options (and one like this in particular) was an advantage for the school as a whole. This program offered a specialization that the principals could not otherwise provide. As two principals explained:

> The school's purpose is to provide a quality education for all students...It's a wonderful opportunity to meet the needs of a varied student body (CESA #2 principal, telephone interview).
>
> It helped to take care of non-college[-bound] students...broadening the purpose and mission of schools to serve all students by creating visible niches for all types of students (West Bend principal, telephone interview).

Some viewed this program as a way to broaden options for all students, while others viewed this as a way to best serve a segment of the students ("Some students cannot be served properly in a traditional school environment" Fox Valley principal, telephone interview).

At least one principal viewed the program as more than diversifying program options, but as serving as a catalyst for rethinking how the school staff educates students. According to her, the program forced school staff to "rethink roles and boundaries of learning within and beyond the school." In particular, she found it beneficial to "engage business in the learning process," and conversely to adopt an assessment and accountability orientation into the educational process. Finally, at least two principals identified other benefits for their schools, such as improving the school's ties and communication with business, improving confidence between schools and businesses and providing specialized training and equipment that would not otherwise be available.

It is unclear from their comments whether the principals perceived the program's value to individual students and to the school as worth the added expense. They did seem to value having

quality options for all students, like the option created by YAP, and it appeared that the program is focusing their attention more on quality education for the non-college-bound students.

Broader School-to-Work Transition Process and the Role of YAP

A secondary purpose of the YAP was to help reshape the local schools' school-to-work transition process, both by design and example. From the principal interviews, it would appear that the program has successfully met this purpose, but the results are preliminary.

The interviewed principals described their schools as being in different stages of development in creating a broader school-to-work transition system. A few of the schools had begun to rethink their school-to-work preparation generally, such as creating a career development guidance program; incorporating applied curriculum; expanding career education and counseling to emphasize school-to-work transition; requiring career plans; adding career work to the academic portfolio assessments; and eliminating basic skill courses. A few schools were at more advanced stages of systemic change for school-to-work transition. One school principal explained that her school and staff were now looking more broadly at work-based learning, expanding to other employment fields, and moving toward an integrated K–12 curriculum and developmental guidance approach. At least two high schools had developed a career pathways program for their students, combining career exploration, applied academic courses, and various work-based opportunities, including a variety of youth apprenticeship programs. At least one school was participating in a Tech Prep initiative as well.

Several principals described YAP as a catalyst for further and expanded school-to-work transition efforts in their school and district. This happened because YAP helped to strengthen their business relationships, forged a partnership with a technical college, encouraged teachers to talk about a broader range of careers (not just those that were college-related), and provided a model for competency-based training and integrated academic curriculum.

Some principals, who had many fewer YAP students, viewed the program as simply another opportunity for their students, complementing existing programs, such as co-op education, or providing a new opportunity for non-college-bound students. A few of these principals described the YAP, not as just another offering but as the pinnacle or "diamond" experience in their array of career preparation programs, because of its concentrated, paid work-based learning opportunities. As one principal explained, "It is probably the top program because it sets students up to be on the job and the businesses look at the students as future employees" (CESA #2 principal, telephone interview).

At least one school principal, from West Bend, reported that the program was an impetus for "across the board changes K–12" for career preparation and in using competencies, benchmarks, and assessments. This same principal went further to explain that the program helped to change the school's relationship with other community entities, opening them up for partnerships with employers and the technical college, and centering the school more in the community and in broader technological advances. She perceived the program as having a more general impact on the school generally, by demonstrating that educational ideas can come from all areas.

EVALUATION

Through their experience with the program, former and current participants, employers, principals, and staff, formed views on the program's strengths and weaknesses, benefits, and potential for improvement. They also provided substantive feedback on how well key program features, particularly the work-based learning, operated and benefited students. Collectively, the various views demonstrated a commitment and belief in the model, its operations, and its potential to benefit youth, schools, and even employers in a variety of ways. Their criticisms point to ways the program can be strengthened to enhance it. Their ratings, comments, and suggestions are summarized below for each component and the program as a whole.

Work Experience

The structured work-based learning component has been the most critical for the program. For the most part, the YAP students and graduates, as evidenced by their ratings and comments, thought highly of their work experience and found it to be beneficial in a variety of ways. Most YAP seniors (75 percent) rated their work experience at their printing company as either good or excellent. The rest rated it as fair, except for a few (6 percent) who rated it as poor. Similarly, most YAP graduates described their work experience as good to perfect. A few graduates complained about having had to do busy work for extended periods of time and one complained about the low hourly wage. As further evidence of their positive evaluation of the YAP, most YAP seniors (88 percent) reported that they would recommend the program to their friends or family.

Most YAP seniors thought that working at their printing company had benefited them in numerous ways, most commonly related to gaining technical and employability skills and preparing for employment, as shown in Table 37. These included:

- learning new technical skills (92 percent);
- learning more about career fields of interest (87 percent);
- learning a variety of tasks (84 percent);
- learning skills that they can use in future employment (81 percent); and
- helping them to develop problem-solving skills (81 percent).

The majority of the students also agreed that the program had school-related benefits in teaching them things on the job which were helpful in school, and helped them to develop their interpersonal and social skills. Just a few thought that the salary was good.

Table 37

Percentage of YAP students according to types of benefits from working at the printing company(ies)

Types of Benefits	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
Technical skills						
I learned new technical skills (for example, production, computing)	92%	86%	100%	80%	100%	100%
I learned to do a variety of tasks/jobs	84	71	100	80	88	83
Social skills developed						
I learned to work with others	92	100	100	80	100	83
I developed problem-solving skills	81	100	83	80	75	67
I improved my employment-related skills (for example, attendance, dress, speech)	76	100	100	60	50	83
I gained interpersonal and social skills	70	86	83	60	63	67
I met with other employees socially	57	57	83	20	38	83
School-related benefits						
Things I learned on the job were helpful in school	73	43	100	70	88	67
Future preparation benefits						
I was able to learn more about a career field that interests me	87	86	100	80	75	100
I can use skills I learned at this company for future employment	81	86	100	80	75	67
It helped me make concrete career decisions	73	57	50	80	88	83
Other benefits						
The work was challenging	68	86	50	70	63	67
The salary was good	19	14	17	20	13	33

These results varied little by site, with the exception that CESA #2 students (and West Bend students, but less so) were less likely to think that the program had school-related benefits. West Bend students were much more likely than others to like the salary. CESA #7 students were the most positive about there being a range of benefits overall.

The interviewed employers agreed with the students' assessment of the work experience. They viewed the work experience as a major program strength because it exposed students to the industry (through hands-on experiences) and developed students' employability skills. Many employers also pointed to the competency-based worksite training as a program strength. A few employers stressed the program's flexibility and broad industry focus that did not track students into one job. As one CESA #2 employer explained about the program:

> [It d]oesn't track students into a specific area of the industry. They get exposure to all areas so they don't get locked into one specific job. They can still go on to a two-year or four-year program and get more extensive training in an area of interest.

In addition, several employers stressed the advantage for students to be prepared in and for the "real working world.".

As mentioned earlier, several employers thought that the mentor training aspect of the program could be improved by addressing effective teaching methods and adolescent development. Several students also thought that the mentor training was an important mechanism for improving the work experience. In making recommendations for program improvement, a focus group of Milwaukee YAP seniors stressed mentor training and supervisory efforts. They explained that the mentoring directly influenced students' interest in and experience of work-based learning. As they explained, if the training is unorganized, the students hate to go to the job. Some Milwaukee YAP students also pointed directly to the need for the companies to pace the competency training. They found that their employers were slow to cover the competencies and then crammed them in at the end of the two years.

Academic Classes

For most YAP students, only their printing courses focused on their youth apprenticeship experience. Many had other program-specific course requirements (especially computing and communications), but it was unclear how much these courses addressed the industry or integrated the work-based learning experiences. When asked to rate their satisfaction with their academic courses, it was thus unclear whether YAP students were considering just their printing courses or other high school courses as well. Nonetheless, most (two-thirds) of the YAP students reported that they were satisfied with their educational experiences in their YAP academic classes, although this varied somewhat by site as shown in Table 38. Most students at CESA #2 and Milwaukee were satisfied with their academic classes while only 40 percent of the Fox Valley students were (and 50 percent marked that they were dissatisfied). These differences may reflect the fact that all academic classes for Fox Valley students were at the technical college, and that these students had a more restricted course offering available.

Table 38

Percentage distribution of YAP students according to how satisfied they were with their education experience in their academic classes

Rating	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
Completely satisfied	22%	29%	33%	10%	0%	50%
Satisfied	41	57	33	30	50	33
Neutral	16	0	17	10	38	17
Dissatisfied	16	14	17	30	13	0
Completely dissatisfied	5	0	0	20	0	0

N = 37

YAP seniors rated the degree to which they agreed with a variety of positive and negative program characterizations of their YAP classes and teachers, as shown in Table 39. Most students (about 78 percent) agreed that their classes had meaningful and important assignments, and that they looked forward to their classes. But most also agreed that the classes could be boring. A sizable minority (41 percent) agreed that they wanted a class with more academic focus, while only a few (16 percent) thought that the coursework was too hard. Most students agreed to several positive characterizations of the YAP teachers as well—that their teaching was good, that they were interested in students, and that they listened to what the students had to say. Many thought that the teachers taught the classes in interesting ways.

There were slight differences by site in these ratings. In particular, West Bend students were more likely to agree that they wanted more academic focus, while Milwaukee students were less likely to be looking forward to their classes were more likely not to like the teachers, and to be less complimentary of the teaching.

The YAP graduates were positive about their program's academic classes. When asked how their academic classes should be improved, several YAP graduates reported that the classes were good, while the others gave a range of suggestions. Some wanted more choice in their academic courses (but recognized that their schedule restricted this), while others questioned the applicability of some courses (such as history) and wanted smaller classes with more individualized attention. When asked about their computer/keyboarding courses, many YAP graduates described them as "on target," but a few had complaints about the teachers. Most YAP graduates described their printing courses as good, despite the limitations of the equipment. A few had complaints about the printing teachers, recommending that there be more structure and organization to the course.

Table 39

Percentage of YAP students who agree or strongly agree with selected characteristics of their classes and teachers, by site

Evaluation Criteria	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
Classes						
It can be boring	83%	100%	83%	80%	100%	50%
Topics are interesting	79	86	67	80	63	100
Assignments are meaningful and important	78	83	50	90	75	83
I usually look forward to my classes	76	86	67	80	63	83
I want a class with more academic focus	41	14	17	50	50	67
The course work is too hard	16	0	50	10	13	17
Teachers						
My teachers listen to what I have to say	92	100	100	90	75	100
The teaching is good	89	83	91	89	73	79
Teachers are interested in students	89	87	89	86	65	89
The teaching style makes classes interesting	69	63	64	66	60	86
I do not like the teachers	22	0	17	33	38	17

N = 37

Program Structure and Design

The YAP is a unique educational experience for most students, because of its design and structure. To obtain their feedback on this alternative educational program, students were asked to identify the degree to which aspects of the YAP organization and structure represented problems for them. Their most commonly experienced problem (reported by 57 percent as being at least somewhat of a problem), was not being part of their regular high school, as shown in Table 40. In addition, between 25 percent and 35 percent of the students reported that several organizational characteristics of the program were at least somewhat of a problem for them: being with one small group of students for most of their classes, the schedule, transportation, and having too much homework.

Table 40

Percentage distribution of YAP student ratings of the degree to which they experienced problems in how the program was organized and structured

Problems	A great deal	Somewhat	A little	Not at all
Not being part of my regular high school	30%	27%	14%	30%
Lack of extracurricular activities	17	17	25	42
Not enough homework	16	3	3	78
Transportation	16	14	8	62
Being with one small group of students for most or all of my classes	14	14	24	49
Lack of challenging academic courses	14	6	22	58
The schedule	11	22	14	54
Too much homework	11	19	14	56
Small class size	11	11	14	65
Taking college-level courses	3	3	27	68

N = 37

The students were compared by site in the degree to which they experienced these problems. Almost none of the CESA #7 students had any complaints, while 63 percent of the Milwaukee students had several complaints, as shown in Table 41. As would be expected, most Fox Valley students found it to be somewhat of a problem not being part of their regular high school (since they take no classes at their regular high school); but, many of the other students (who attended their high schools for half-day sessions) did as well. Although all their courses are college courses, none of the Fox Valley students found this to be a problem, although a few students from CESA #2 and West Bend (whose printing courses were at the college level) did. In fact, many students from CESA #2 and Fox Valley complained that the coursework was not academically challenging. Finally, CESA #2 and Milwaukee students were more likely than YAP students from other sites to find other program design characteristics to be a problem (particularly the schedule, the lack of extracurricular activities, and transportation), and to complain about having too much homework.

Table 41

Percentage of YAP students who found program design features to be somewhat or a great deal of a problem, by site

Type of Problem	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
Not being part of my regular high school	57%	57%	0%	90%	63%	50%
Lack of extracurricular activities	34	43	0	30	63	17
Not enough homework	19	14	0	40	13	17
Transportation	30	43	0	10	63	33
Being with one small group of students for most/all of my classes	27	29	0	50	38	0
Lack of challenging academic courses	20	29	0	50	0	0
The schedule	33	43	0	20	63	33
Too much homework	31	43	17	11	63	17
Small class size	22	29	0	30	25	17
Taking college-level courses	5	14	0	0	0	1 7

N = 37

The YAP graduates were also asked for their assessment of the program's structure and design. Some YAP graduates described it as good and fine, and did not identify ways to improve it. As one graduate explained, "Now that it's smooth, everything is fine." A few graduates thought that there were several problems in the beginning but that these had been resolved. The few made recommendations to have one person in charge who could handle students' problems; to have more concrete instructions about what is expected of the students; and to have more conferences with mentors and parents.

Comparing YAP and Co-op Program Experiences

One objective of the evaluation was to compare the learning experiences of YAP students with those of co-op students to determine the added benefits of the more intensive work experience and structured training. Unfortunately, there were only four co-op students in printing who were seniors in the five sites during school year 1994–95, and five co-op graduates from the 1993–94 school year which limited a meaningful comparison and analysis. A cursory examination of the co-op students' experiences in contrast to the 37 senior YAP students (and the 16 YAP graduates) in this evaluation is informative, but somewhat inconclusive because of the small numbers for comparison. Therefore, only a summary of this comparison is provided below; the tables are included in Appendix A as part of this illustration.

The two groups of students (YAP and co-op) were fairly similar in terms of their demographic characteristics (age, gender, race/ethnicity, and parents' education). The only major difference

between the two groups was that YAP students were more likely than co-op students to have a family member who was working in the printing industry.

Co-op students enrolled in their program for reasons similar to those given by YAP students—to prepare for employment, learn about an industry and earn money, primarily. All co-op students had at least two printing classes prior to enrolling in their co-op program (in contrast to only 47 percent of the YAP students), but did not enroll until their senior year (while YAP students enrolled in their junior year and took printing courses thereafter). While all co-op students had been familiar with the YAP, three of the four did not enroll because they did not know enough about it and the other did not enroll because, as he explained, his grades did not qualify him.

Like YAP, all co-op students had a work experience that was organized somewhat similarly to the YAP except it was shorter (just their senior year) and lacked competencies to structure the training. Most co-op students worked only with one employer, but had several on-site supervisors. The co-op students worked 20–24 hours per week for one school year. They trained in press and bindery/finishing primarily; at least half also were trained in pre-press and production and support. When surveyed at the end of their senior year, they all reported that they liked the training they had received in the various areas of the company.

When asked about learning a range of printing-related skills and competencies, the co-op students thought that they had learned most of them (as had the YAP students), and that this learning had occurred both in the classroom and the worksite. Only half (two of the four co-op students) reported that they used these skills at the worksite. Like the YAP students, the co-op students reported that they used many academic skills at the worksite, particularly math, communications, and computing.

Overall, the co-op students were more likely than YAP students to rate their work experience as excellent. In keeping with this very positive attitude about their work experience, the co-op students agreed fairly uniformly that they derived a range of benefits from their printing company work experience (including finding the salary to be good). They had almost no complaints about problems, except that half had not had enough work to do and one felt he had been treated differently due to age, gender, or race/ethnicity. In terms of improving skills, the co-op students were somewhat more likely to want to improve their academic skills (particularly their study skills) than were the YAP students.

The major difference between the YAP and co-op students was in how much their academic classes emphasized the printing industry and their work experience. For most co-op students, there was little to no emphasis on the printing industry in any of their core academic subjects, whereas most of the YAP students reported that their core academic subjects (except for social studies) emphasized the printing industry and their work experience. Thus, the YAP students seem to have had a more integrated instructional experience.

The YAP and co-op graduates were also similar in their assessments of their program experiences. About 60 percent of both YAP and co-op graduates rated their program experience as excellent. Almost all rated it as at least good and almost all would recommend their program to other students. They qualified these recommendations, however, with several stating that it is best suited to students who were interested in the field, or who lacked career direction. Several reported again that it was very beneficial for them, stressing that it was, as one graduate explained, "[the] best thing that ever happened to me." YAP and co-op graduates were similar in viewing it as a good learning experience.

YAP graduates and to a lesser extent co-op graduates have maintained contact with program staff and other participants since graduation. Most (80 percent) maintained contact with other program graduates, but YAP graduates were twice as likely as co-op graduates (81 percent and 40

percent respectively) to remain in contact with program staff since graduating. The majority of both have also been in contact with their former worksite mentors.

From the students' perspective, an intensive work experience was quite valuable, whether it was a one-year co-op experience or a two-year youth apprenticeship experience. These students' reactions underscore the value of the work experience in developing vocational skills, applying academic skills, and being in a real work environment. The two experiences may become more similar over time in these five sites because the printing teachers and employers have already begun to adapt the YAP competencies for the co-op students.

Overall Evaluation

An overall assessment of the program by students and employers was quite positive, pointing to a wide range of benefits, most important being employment preparation.

Students. Most students agreed that the YAP had prepared them well for their future, particularly for employment—making career plans, getting a job, and finding a job—as shown in Table 42. The majority also thought that the program had prepared them well academically in helping to improve their school grades and to get into college. These results differed little by site, except in perceiving that the program helped to improve their school grades.

Table 42

Percentage of YAP students who agree or strongly agree that the program prepared them for their future, by type of measure and site

Ways program prepared students	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
It will help me get a job	86%	86%	83%	88%	88%	100%
What I learn will be useful in the future	81	72	100	70	88	83
I am learning about how to find a job	81	86	50	90	88	83
It helps me make decisions about my future career plans	81	71	67	100	63	100
It will help me get into college	70	71	67	78	63	67
It helps me to improve my school grades	65	43	67	90	25	100

N = 37

Almost all students across the five sites agreed that the program had been an enjoyable experience with various social development benefits, as shown in Table 43. Most agreed that being in YAP had helped them to gain important social skills in learning how to interact with others. Most felt like they were part of a group. The majority of the students agreed that the program helped them to feel better about themselves, except in Milwaukee where less than half felt this way. Several students had some complaints as well, such as not thinking that their issues and concerns were addressed and not liking other students in the class. These complaints were greatest in Fox Valley and West Bend, and least in CESA #2.

Table 43

Percentage of YAP students who agree or strongly agree that the program had specific affective influences, by type and site

Affective influences of the program	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
I am learning how to interact with others	89%	86%	83%	90%	87%	100%
It makes me feel like part of a group	89	86	100	89	75	100
It has been an enjoyable experience	86	86	83	80	88	100
It makes me feel better about myself	66	83	67	60	38	100
My issues and concerns are not addressed	24	0	17	40	25	33
I do not like the other students in the class	29	0	33	40	25	50

N = 37

The YAP students cited several benefits from their participation in the program, as shown in Table 44. Most students identified several career-related benefits—focusing their career plans, giving them greater confidence in finding a career-track job, making them feel more comfortable in a work environment, and giving them professional contacts. The majority (65 percent) of the students concluded the program with an interest in a career in printing, citing this as a program benefit. About half the students reported that it benefited them in their preparation for college by improving their confidence about going to and being able to do the work in college. Finally, the majority of YAP students reported that the program made them feel more confident generally.

Table 44

Percentage of YAP students according to selected program benefits, by site

Benefits	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
Helped me to focus my career plans	76%	86%	83%	60%	88%	67%
Gave me greater confidence in being able to find a career-track job after graduation	78	71	50	80	89	88
Made me feel more comfortable in a work environment	78	86	67	70	88	83
Gave me professional contacts	70	100	67	70	50	67
Interested me in a career in the printing industry	65	71	50	50	63	100
Helped me to focus academically	35	29	67	40	0	50
Improved my confidence about being able to do college level work	51	57	83	40	38	50
Improved my confidence in going on to college	51	71	50	50	38	50
Made me feel more confident, generally	57	57	67	40	75	50

N = 37

These student perceptions of benefits were fairly consistent across the five sites, with a few exceptions. CESA #7 students were less likely to agree to the career focus benefits and Milwaukee students were far less likely to agree to the academic focus benefit.

The students were asked to identify skills they would like to improve based upon their work experience at a printing company, and 62 percent identified at least one skill area. The students differed widely on the skills they would like to improve, with only a few citing each of the 13 various skills listed, as shown in Table 45. The most commonly cited skills to be developed (where there was some agreement) were academic in nature—improving their study skills (30 percent) and grades (22 percent). While about one-third of the students had reported interpersonal problems with other employees, few cited this as a skill area that they needed to improve (only 8 percent wanted to improve how they get along with other employees). A few more wanted to improve how well they get along with a supervisor. Some reported that they wanted to improve their work-related skills, particularly in learning how to deal with erratic or stressful work and performing printing-related skills (19 percent and 16 percent, respectively). A few cited attitudes they would like to improve, including their self-confidence (16 percent) and their attitudes toward work (14 percent).

Table 45

Percentage of YAP students according to the skills they would like to improve, by site

Skills to improve	Total	Site				
		CESA #2	CESA #7	Fox Valley	Milwaukee	West Bend
Social Skills						
Interacting with people of different backgrounds	14%	0%	0%	30%	25%	0%
Getting along with my supervisor	14	14	0	30	13	0
Getting along with other employees	8	0	17	20	0	0
Being supervised/taking direction from a supervisor or manager	8	0	0	20	13	0
Employability Skills						
Dealing with erratic or stressful work	19	0	33	20	38	0
How to manage time (for example, getting things done in the time given)	14	0	0	30	25	0
My attitudes toward work	14	0	0	20	38	0
Getting to work on time, or at all	8	29	0	10	0	0
Being supervised/taking direction from a supervisor or manager	5	0	0	20	0	0
Employment skills (for example, attendance, dress, speech)	8	0	0	10	25	0
Academic and Technical Skills						
My study skills	30	29	0	40	38	33
My grades	22	29	0	40	13	17
Printing-related skills (e.g., production, computing)	16	0	0	20	50	0
Basic skills (e.g., reading, math, writing)	5	0	17	10	0	0
Learning advanced academic skills	3	14	0	0	0	0
Personal Attributes						
My self-confidence/self-esteem	16	0	0	40	13	17

The students varied dramatically by site in whether they would like to improve various program-related skills—social, employability, academic, and technical—as shown in Table 45. Few students from CESA #2, CESA #7 and West Bend identified skills which they would like to improve (and the few who did, focused primarily on school-related skills). In contrast, a sizable percentage (20–40 percent) of the students from Fox Valley and Milwaukee marked that they had

several skills they would like to improve. Milwaukee students were particularly interested in learning how to cope with work generally and in developing their printing-related skills and half of both groups wanted to improve their study skills.

Employers. The employers agreed that the YAP was beneficial for students in a variety of ways, stressing first and foremost that it gave them a "head start" and a way to "learn and earn." They also saw several employment-related benefits, many that were consistent with the ones raised by students, including:

- familiarizing the students with the world of work (43 percent);
- improving students' chances for better employment and earnings after high school (43 percent);
- providing students with marketable skills in printing (33 percent);
- providing a career focus (23 percent); and
- fostering greater maturity (10 percent).

According to the interviewed employers, the YAP graduates were best prepared to work in (in descending order):

- any basic entry-level job in printing;
- offset image transfer, specifically the press area and manufacturing;
- image assembly, particularly the bindery area;
- pre-press; or
- electronic imaging and publishing.

As a result, several employers also commented on how the program is good for the industry, by training more qualified, employable people.

A few employers identified weaknesses in the program, primarily related to coordination, communication, and funding. These included:

- the need to market better to get more employers involved;
- poor advertisement in the community;
- the need to improve program communication and curriculum coordination between schools and employers;
- the need to upgrade the curriculum;
- program expense;
- poor student commitment; and
- the need to clarify that the program can be for college-bound students.

Several employers made suggestions for improving the program, most stemming from these weaknesses. The most frequently made suggestions were:

- update the curriculum;
- improve program marketing;
- improve program communication and coordination; and
- find ways to decrease program costs or obtain additional funding.

The employers also made several recommendations for student recruitment; to provide more mentor training; and to expand academic staff training by having them "spend a month in the business performing the printing duties to learn what the student will be doing" (CESA #7 employer, telephone interview). These recommendations seem to stem from an interest in strengthening a program that they support to ensure its continuation and effective operations.

Summary

The participating students and employers evaluated the YAP very positively, finding it to be effective in its primary objective to prepare students for careers in the printing industry. Both students and employers agreed that the program had many benefits, particularly employment related (such as improving students' general employability, giving them a career direction, and giving them a head start in the industry). Students also stressed the educational and social development benefits of being better prepared for school and college and learning valuable social skills.

Both students (including graduates) and employers readily identified program shortcomings, pointing most frequently to the need to strengthen mentor training (thereby clarifying training expectations and strategies). Employers also stressed the need for better communication within the program and better marketing of the program to other employers to broaden participation and expand the number of students trained.

CONCLUSION

The youth apprenticeship model generally, and Wisconsin's design of this approach, represents intensive education and training leading to gainful employment in targeted industries. A substantive employer role in training, industry-based guidelines for training and instruction, and a culmination in industry-recognized skills certification are all key to the integrity of this model. The Wisconsin youth apprenticeship program model takes seriously the development of these components in its printing youth apprenticeship program, and the results of the first cohort demonstrates their success.

Target Population

The Wisconsin Youth Apprenticeship Program in Printing is targeting the types of students it was designed to serve—non-college-bound students who are not at risk of school failure. In practice, it is perceived narrowly by some key officials and is used more broadly by program staff and students. Principals, and by their reports, guidance counselors and some students and parents, tend to perceive the program as serving those who will not be going on to college. This perception makes recruiting more challenging, because some students and parents do not want to limit future career and educational options unnecessarily by participating in a program that may preclude college enrollment.

In its operations, the program integrates career preparation (particularly for entry after high school) and college preparation. In addition, many students were aware of this when they enrolled. As a result, the majority of YAP students reported that they had planned on attending college prior to enrolling. Regardless of these plans, some YAP students may have been less prepared to enroll in college because the YAP students had varied considerably in their prior academic performance (as a group they had average grades), but did demonstrate good attendance and few disciplinary referrals prior to enrolling. Some sites made an effort to accommodate college-bound students by helping them fit advanced academic courses into their schedule. Thus, in practice, the program is targeting college-bound and non-college-bound students, as well as students who may be ambivalent about or not well prepared to attend, but who want to be ready for both career entry and college enrollment after graduation.

To avoid any possible stigma, it is recommended that the Wisconsin Youth Apprenticeship Program in printing be promoted more clearly as model that integrates preparation for both direct career entry and postsecondary educational pursuit. In addition, care must be taken to ensure that both college-bound and non-college-bound students are well served by the program, and that the needs of one group not supersede the other.

It is unclear from the evaluation evidence whether the recruitment difficulties experienced in some sites are a result of the non-college-bound classification of the program, or ineffective recruitment strategies. Nonetheless, some sites had limited numbers of applicants and some schools in the consortiums had no applicants. **Therefore, it is recommended that sites with low numbers of applicants should review how each school handles recruitment, identify staff and student concerns about the program that might exist and be interfering, and create school-specific strategies to expand the number of applicants.**

Among the students served through the program, there is some imbalance by gender and race/ethnicity. This imbalance varied by site, however. **To ensure gender and racial/ethnic balance in the program, sites should periodically review their enrollment distributions and take corrective actions to improve any imbalances that might be**

occurring. In addition, since some sites have begun to take such actions, their improved outcomes should be documented and their strategies and results shared among sites.

Model Design

The Wisconsin YAP model was evaluated using three criteria: quality, fidelity and replicability. The criteria for quality were derived from the research literature, specifically Hamilton, Jobs for the Future and Bailey and Merritt and their recommendations for designing a youth apprenticeship program in the United States. The criterion for fidelity is the degree to which each site implemented all core components of Wisconsin's model while maintaining each component's integrity. The criterion for replicability is how adaptable the model is to local conditions and circumstances without threatening program fidelity.

Quality. By design, the Wisconsin youth apprenticeship program model adheres to all of Hamilton's recommendations and many of those stressed by Jobs for the Future and Bailey and Merritt for a quality youth apprenticeship program. It provides an extensive, two-year work-based learning and uses a competency-based curriculum developed jointly by the industry, education leaders, and state government to structure work-based and school-based skills training. The competencies ensure that all students are trained broadly in the major areas of the printing industry and with sufficient depth to be able to perform various printing operations with only somewhat or limited supervision, as is required by the assessment standards.

At the worksite, students are both learners and workers, spending approximately half their time performing "real" work, and are paid employees of the company, equally eligible for employee perks (such as opportunities for overtime work, parties, and other "rewards"). The students have various formal and informal work-based mentors who supervise their training as they rotate throughout the company areas in pre-press, press, bindery/finishing, and production support services. Finally, the work-based training accrues as high school and technical college course credit because it is structured and evaluated according to prescribed training competencies.

The structure and governance elements recommended by Jobs for the Future for a youth apprenticeship program were also fairly well developed in the Wisconsin model. All sites had a governance group, usually an education and employment steering committee with appropriate representation from employers, the schools, technical colleges, and professional associations, which supported implementation and provided oversight to program operations. Mentors were provided initial and intermittent training and monthly meetings for problem-solving and collaboration. Student progress was jointly assessed by the school staff and mentor trainers using the approved competencies. But, the local sites lacked formal mechanisms to monitor their own role in the program, except the monitoring developed by the steering committees and the local boards of education which approved program funding.

The quality of the academic courses requires further investigation, however. YAP students rated these less highly than other program components, with 21 percent being dissatisfied, and many wanting more of an academic focus. It is unclear from the evaluation information whether the students are referring to their printing courses or their other high school academic courses.

Fidelity. The core model component of Wisconsin's YAP were implemented as intended in all five sites (with three exceptions), although with considerable variation in how each component was structured and operated. All students had two-year employer-directed work experiences, but the hours worked weekly and their scheduling varied. All employers structured their training using the competencies and had mentors coordinate the training provided. All students were required to take a two-year sequence of printing courses for which they received technical college credit. While all sites had collaborative school and industry oversight, they varied in the degree to which this

oversight focused exclusively on the youth apprenticeship program and its specialization in printing. There were two other components which were less well implemented than intended but not to a degree that the program's integrity was compromised. First, the students' other academic courses often did not integrate the printing focus. Second, the employers and their trainers varied in how well they followed the competency-based training, interpreted the assessment ratings, and balanced the training and work roles of the youth apprentices.

How the program was adapted locally had different consequences for students, as reflected in the problems reported. The most severe problem, not being part of the regular high school (57 percent of the YAP students) as well as the secondary problem of lacking extracurricular activities (34 percent of YAP students) makes the students' experience less positive and could inhibit future potential recruits. **It is recommended that program staff consider alternative approaches to help students maintain these experiences as well as the intense YAP experience.**

Replicability. Through its implementation and operations, the Wisconsin YAP proved to be flexible and adaptable for both schools and participating employers without compromising the integrity of the training. This flexibility was reflected in how the program was structured, operated by both single schools and multiple district consortiums, and tailored to local printing company operations. The local education and employment steering committees which oversaw individual youth apprenticeship programs were critical to ensuring that program integrity was maintained through these various adaptations. The competency-based curriculum and evaluation system provided the framework for assessing program integrity. Nonetheless, managing the disparate components, especially for consortia which often lacked overall program coordinators, was very challenging.

Maintaining program quality and integrity will be critical to the YAP's continuation and future replication. Presently, the program is yielding its intended results, and this should not be jeopardized: the employers highly respect the students' training and are hiring them directly as they graduate. **Therefore, existing mechanisms for program oversight and solving problems (including mentor training, monthly mentor meetings, and education and employment oversight committees) should be strengthened and formalized for all sites. In addition, the responsibilities of coordinating all program components should be centralized, rather than handled by different individuals and organizations, as is the practice for many sites. Finally, it is recommended that quality-control systems be incorporated into how the school-based and work-based learning are coordinated for each student.** While this may increase program costs, it will ensure greater quality and uniformity in student training and experiences.

Integrated and Contextualized Instruction

Integrating academic and vocational skill training and using a career area as context for academic instruction are stressed by the broader school-to-work transition field. Due to this importance, their use in the YAP model was addressed specifically. The integration of academic and vocational knowledge and skill development was partially accomplished in Wisconsin's YAP. School-based and work-based training in printing were integrated through the competencies and teacher-mentor coordination. Students applied their academic skills (such as computing and communication arts) to their work-based experiences, thereby reinforcing these skills. In addition, students found that their printing courses integrated their work-based experiences and skill development. Only in Fox Valley, where all youth apprentices were grouped for all academic courses, and in West Bend, where they were block scheduled for a communication arts course, was there additional opportunity to integrate work-based learning into other academic course work. There seems to be insufficient emphasis, therefore, in other academic courses on integrating the students' work-based

learning or using topics from the printing industry as context for academic skill development, except by the students' own initiative.

However, the learning approach inherent in the youth apprenticeship model—integrated academic and vocational skill development, contextualized learning and "real world" application of knowledge through work experience—proved to be motivating and an effective instructional approach for many students. This was reflected in the YAP students' subsequent academic improvement and their own accounts of how the program's design particularly in the printing courses made learning more interesting and motivating.

The benefits that students found in integrating their school- and work-based learning in printing could be created in other academic courses. **Other academic teachers could be encouraged to integrate themes and topics from the printing industry into their subjects. In addition, as the sites offer additional youth apprenticeship programs, there may be sufficient numbers of students in each school to block schedule them for a common core of academic courses which are integrated with the various industries. Finally, academic courses that use the printing industry (and other industries) as context may be of interest to other students as well.** Contextualizing academic courses with themes from the printing industry and its technology need not be limited to youth apprentices.

Impact on Students

The Wisconsin YAP was very successful in meeting its intended objectives, particularly in fostering a smooth transition for students into gainful employment in a career and preparing them for a wide range of occupations within the printing industry. Most graduates continued to pursue careers in printing, working in diverse segments of the industry (primarily in pre-press and press areas); several continued their postsecondary educational training, usually in printing. The connection between training and a subsequent printing career was substantial for all participants. Almost all the graduates were employed in quality jobs with career track potential in the printing industry. More important, most graduates had made this connection through the employer who had trained them. Thus, the program's training proved to be a very significant transition process for both students and employers.

Short-term educational gains. The program seems to have been academically effective. Students began it with average or below-average grades. By the end of the two-year program, YAP students' grades and school-related behavior improved, their attendance did not worsen as did that of their peers, and most felt well prepared to attend college. Incomplete student record data, however, limits these conclusions. **Therefore it is recommended that in future evaluations, program staff engage greater school district cooperation in collecting this information in order to demonstrate academic gains, if any.**

Employer assessments. Through the program, YAP students developed concrete career plans and skills that made them attractive to employers and facilitated their subsequent employment. In turn, the employers viewed the youth apprentices as well prepared for employment, rating them as better than or equally well prepared as other entry-level employees on many technical and employability skills (such as understanding how the whole company operates and acting responsibly and professionally). All the YAP students and graduates developed an extensive knowledge of the industry, its career structure, and the training they would need to pursue their career interests in the field.

Employment outcomes. Most significantly, the program had its greatest impact on the YAP students' subsequent employment. First, the program has a very strong link to specific employers. By participating in the program, YAP students develop a good relationship with their employers,

from which they benefit through summer and additional school-year employment. By graduation, most YAP seniors were guaranteed employment with their companies. Six to eight months following graduation, almost all of the prior YAP cohort were still working with their same employer (in contrast to just 20 percent of the co-op graduates). Their training appears to have earned them better quality jobs than their peers had. Finally, almost all were working in the printing industry and wanted long-term careers in the industry.

Postsecondary outcomes. Participating in the program strengthened YAP students' postsecondary plans by focusing them on the specific training and degrees and preparing them generally. As a result, about 70 percent of the YAP seniors reported that they planned to pursue postsecondary education and almost half of the prior YAP graduates subsequently attended postsecondary education programs, primarily a two-year, technical college program in printing.

Other impact findings. The program yielded other positive outcomes. Many YAP students identified several personal and social benefits, in terms of learning to work with others, their self-esteem, development of relationships with adult role models (employers and program staff), feeling better about themselves, and having an enjoyable experience.

Impact on Employers

Indirectly, the Wisconsin YAP was intended to benefit local printing companies, by developing better-prepared entry-level employees and interesting young people in careers in the industry. Printing industry employers had complained about the difficulties in finding qualified entry-level employees, a problem exacerbated by the low state unemployment rates and their being part of a growth industry.

The design and operation of the Wisconsin YAP was very responsive to these problems and concerns. Printing industry representatives were consulted in designing the competency-based curriculum and in structuring the training. In addition, through the local employment and education oversight committees, many employers took on strong roles in quality control and problem-solving in the programs. The results of these efforts were quite positive; interviewed employers were very respectful of the training the students were receiving.

The Wisconsin printing companies are to be commended for their serious commitment and intensive investment in student training as required by the YAP model. They contributed extensive staff time to train and supervise students, collaborate on student evaluation, and participate in monthly mentor meetings and steering committee meetings. They also advise on upgrading the competencies and related curriculum and other program modifications.

Participating in YAP benefited the printing companies in several direct and indirect ways. Several companies hired well trained YAP graduates as permanent employees. This was a critical benefit given the difficulties several employers reported about finding qualified workers and filling positions. While many employers began their participation for altruistic reasons (to help educate young people), many wanted to continue with the program because they enjoyed the mentoring experience, and found the program to be a valuable way to train potential employees. It also benefited some of their other employees who had positive reactions to being trainers and role models. For a few employers, the program design stimulated them to rethink how they train employees and consider the utility of cross-training their own employees.

Two challenges emerged in the evaluation concerning employer participation. One was over the quality and amount of training provided, as outlined by the competencies. The other was over the number of youth who could be trained by individual companies. As the program continues to grow and expand, both challenges will need to be resolved.

First, some students described difficulties in the quality and amount of training they received in various areas of their companies; the amount of work they were given to do; and the way that supervisors and others treated them, compared with other employees. Students attributed these difficulties to inadequate mentor training. There were also site differences in how the assessment process was interpreted and used. **It is recommended that greater attention be directed by each site to addressing these kind of problems. The mentor training, monthly mentor meetings, and oversight committees are useful mechanisms through which employers and school representatives can individually and collectively review these problems and monitor the quality of training and methods of assessment. In addition, it might be useful for some of the training and meeting time to be used for employers to profile their effective practices in structuring, pacing, and coordinating their youth apprentice training and in handling assessment.**

The second challenge is how to increase the number of youth trained by each company. Further expansion of the program within each site is highly dependent upon each company being able to train more youth. Small and large companies are training similar numbers of youth and few (just 28 percent of the companies) reported that they could increase the number of youth apprentices they could train. Just one large company was training a substantial number (12) of youth. **It is recommended that a group of employers and educational representatives investigate how the training could be restructured for various types and sizes of companies, so that greater numbers of youth can be served.** For example, it is possible that some strategies developed by small companies (of 100 employees or less) could be used by larger companies to increase the ratio of interns to employees and that the strategies used by the company with 12 youth apprentices could be replicated by other large companies as well.

Impact on Schools

As a new educational endeavor, the implementation of the Wisconsin YAP necessitated some changes in the schools, and helped to stimulate broader changes through rethinking school-to-work transition generally. The schools, either in offering a youth apprenticeship program themselves or in being part of a consortium arrangement, successfully adapted the school schedule for participating students. In addition, they were creative in how they integrated this program offering into their existing structures in order to facilitate student recruitment, supervision, guidance, and course completion, demonstrating flexibility and adaptability. **The ways in which the schools have adapted this program model to make it available to students should be shared with other schools as they consider replicating the YAP model.**

The program is beginning to yield several benefits for the schools' broader school reform efforts for school-to-work transition, as described by several principals. For participating high schools, the YAP was a step toward diversifying their program offerings for non-college-bound students. All principals valued this addition and the opportunity for a specialized experience they could not otherwise offer. A few principals also viewed the program as a way of broadly rethinking how the school educated its students and the role of employers and higher education in the secondary educational process. **These broader school reform considerations should be pursued by the schools and districts, both individually and collectively for several reasons.** The youth apprenticeship program model is a departure in the organization and delivery of curriculum and instruction, with lessons for secondary education beyond the parameters of the program. In addition, the beneficial experiences inherent in the model may be replicable in less demanding delivery formats. These alternative formats could be investigated as a way of serving larger numbers of students.

The program was costly and labor intensive for the participating staff, however. School staff had to coordinate and supervise student training in multiple, often geographically distant, printing companies, limiting how well they could supervise each student's work experience or address

students' difficulties. Local school districts had limited resources to support the staff time that this supervision required, straining their existing staff capacity. In addition, most local school districts lacked enough student participants to create cost-effective class sizes. Only by combining their students with those from other districts could enough students be generated for printing classes, but usually at an added cost to each district. Already this situation seems to be having a negative impact on some sites, where local schools are not promoting the program well as an educational option.

Finally some sites, particularly those that were consortia, had difficulty managing all of the school-based and work-based components for the various students. These sites required coordination among several districts as well as several employers. They usually lacked an overall program coordinator, relying instead on coordinators for distinct components. The various steering committees and mentor meetings used to facilitate this integration did not appear to be sufficient to integrate these programs' components well. These are complicated problems, because the solutions entail allocating funds for additional supervisory or instructional staff to oversee more closely the students' work-based learning and to integrate the academic and work-based learning components. **It is recommended that the oversight educational and employment committees address this need and consider various staffing and resource alternatives.**

Potential for Expansion

The essential elements of a youth apprenticeship program, which were well implemented in the five sites, constrain the program's potential for growth. The Wisconsin YAP, like other youth apprenticeship programs generally, is a very expensive, labor intensive program to operate and manage. Yet, it is a very effective education and training program that could benefit significantly larger numbers of students then it does presently, Few participating employers appeared willing to serve more youth apprentices at these five sites, despite differing widely in their size and specialization. Thus, there are few options in these sites to expand the program significantly, although employers have a shortage of high-quality potential employees and program graduates were quickly hired into the industry.

There are several possible approaches to expanding the program to serve significantly more students. Presently, the state is encouraging other communities to adopt this model and is adapting the youth apprenticeship model to other industries. Within the existing sites and among the participating employers, there are additional strategies to be considered, as noted above. These include (1) comparing how small and large employers incorporate youth apprentices into their workflow to identify strategies large employers could use to serve more students; (2) profiling how one large employer is able to train 12 students per cohort; and (3) encouraging the local education and employment committees to brainstorm other alternatives. In addition, the participating school districts and their respective oversight committees can consider other, less intensive work-based learning experiences in the printing industry which would build on and extend this model for other students.

Conclusion

In a very short time, Wisconsin developed, implemented, and saw the benefits of its YAP. The dramatic success of its first graduates in becoming employed in quality jobs in the printing industry far exceeded expectations for preparing youth for the industry. This success can be credited to the commitment of state and local educators, employers, other key agency representatives, and students willing to try "something new."

The next challenge for Wisconsin is sustaining and expanding this model to serve larger numbers of students and to use its program experiences to enrich the broader school-to-work transition process for other high school students. The competency-based curriculum and assessment system and the mechanisms for quality control and oversight are key to sustaining the program. The most salient lessons for broader school reform can be derived from its integration of career and college preparation in one area; structuring and integrating academic and work-based learning; and engaging substantive employer participation. It also shows the value of work-based learning for both students and employers and the feasibility of employers playing a significant, long-term training role with individual students. Finally, it shows how the model can be adapted to a range of school settings, from rural to urban communities throughout the state.

APPENDIX

Table A-1

Percentage of YAP students and comparison co-op students according to selected demographic characteristics, by site

Characteristics	Total	Program Type			
		YAP	Co-op	Printing classes	General classes
White, non-Hispanic race/ethnicity	85%	95%	75%	77%	85%
Male	64	73	100	51	64
Mother works for pay	86	92	100	88	81
Father works for pay	81	84	75	86	77
Parent or relative works in printing	13	19	0	12	11
Mother's education was high school only	44	46	50	51	40
Father's education was high school only	34	57	50	23	28
Has sibling who dropped out of high school	10	9	0	0	9
N =	162	37	4	43	78

Table A-2

Percentage of YAP students according to their reasons for enrolling in the program

Reasons for enrolling	YAP	Co-op
Learn about the printing industry	75%	100%
Earn money	75	100
Something more interesting educationally	67	75
Would help me get job after graduation	64	100
Do something different in high school	61	50
Start gaining college credit	44	Not asked
Parents thought it was a good idea	42	25
More challenging than regular school	33	0
Thought it would help me get into college	31	0
Program recommended by other students	17	50
To stay in school	14	0
I was assigned to the program	11	25
N =	36	4

Table A-3

Percentage of YAP students according to the types of problems they experienced at the printing company(ies)

Problems	YAP	Co-op
Workload problems		
Not having enough work to do	46%	50%
Finding the work to be different than expected	30	0
Having too much work to do	27	0
Erratic or stressful work	18	0
Not finding the work challenging enough	18	0
Not feeling qualified to do the work	9	0
Interpersonal problems		
Being treated differently due to age, gender, race/ethnicity	36	25
Being treated differently because of temporary status	33	0
Insufficient respect or support from other employees	30	0
Not feeling included or part of the company	30	0
Not getting along with other employees	30	0
Not getting along with supervisor/mentor	24	0
Own job-related skills		
Having difficulty getting to work on time, or at all	12	0
Irregular or long working hours	6	0
N =	33	4

Table A-4

Percentage of students who agree or strongly agree in evaluating how their program experience prepared them for the future And evaluating their classes and teachers by type

Program Preparation for the Future	Total	Type		
		YAP	Printing classes	General classes
What I learn will be useful in the future	86%	81%	95%	83%
It help me make decisions about my future career plans	70	81	77	61
It will help me get into college	72	69	67	75
It will help me get a job	85	86	84	0
I am learning about how to find a job	55	81	70	34
It helps me to improve my school grades	65	65	65	0
Classes				
I usually look forward to my classes	70	76	81	60
It can be boring	85	83	62	99
I want a class with more academic focus	37	41	28	39
The course work is too hard	16	16	14	17
The teaching style make classes interesting	67	69	67	66
Assignment are meaningful and important	78	78	0	0
Teachers				
My teachers listen to what I have to say	85	92	79	84
I don't like the teachers	19	22	17	18
The teaching is good	83	89	88	77
Teachers are interested in students	82	89	86	76
N =	0	37	43	78

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