

December 20, 2000

FINAL REPORT
SUSAN HARWOOD TRAINING GRANT
(Hunter College and UPIU/PACE, Oct. 1997 – Sept. 2000)

On September 30, 2000 Hunter College and the Paper, Allied-Industrial, Chemical and Energy Workers International Union (PACE) completed a highly successful three-year Train-The-Trainer and Leadership Ergonomics Training Program, with support from the U.S. Department of Labor through a grant from the Susan Harwood Training Program.

Under this program, Hunter College and PACE (formerly the United Paperworkers International Union (UPIU) before its 1998 merger to form PACE) have trained over 600 union workers, union leaders and managers in recognizing, evaluating and controlling ergonomic hazards in the papermaking and paper processing industry and related industries. As indicated in Table 1, 15 2-day Train-The-Trainer Ergonomics Training sessions in 13 different states covering all major regions of the continental United States. The average attendance was a robust 27 persons per training session.

Table 1.

TRAIN-THE-TRAINER ERGONOMICS TRAINING SESSIONS
(Hunter College and UPIU/PACE, Oct. 1997 – Sept. 2000)

Grant Year	Dates	Location	Nr. Participants
Year 1 (10/97-9/98)	June 3-4, 1998	Stevens Point, WI	73
	June 15-16, 1998	Atlantic City, NJ	37
	July 15-16, 1998	Columbus, OH	22
	July 20-21, 1998	Indianapolis, IN	18
	August 10-11, 1998	Las Vegas, NV	24
	August 19-20, 1998	Little Rock, AK	26
	August 24-25, 1998	Destin, FL	20
	Sept. 14-15, 1998	Springfield, MA	31
Year 2 (10/98-9/99)	March 17-18, 1999	Atlantic City, NJ	21
	April 21-22, 1999	Mobile, AL	22
	June 2-3, 1999	Burlington, VT	21
	August 25-26, 1999	Stevens Point, WI	30
Year 3 (10/99-9/00)	March 28-29, 2000	Richmond, VA	23
	April 12-13, 2000	Nashville, TN	23
	April 26-27, 2000	Lansing, MI	31
	Nr. TTT Trgs.=15	Nr. Trg. Sites = 13	Nr. Trainees=412

In addition, starting in Grant Year 2 (1998-1999), a series of four highly popular 16-hour Leadership Ergonomics Training sessions were conducted to provide union leaders with knowledge about ergonomics hazards and their controls so that they could better understand these problems and thus help provide the necessary support and leadership to their members. Over 200 persons were trained in these four sessions, which were held in Cincinnati, Milwaukee and Nashville (avg. attendance 53 persons per session). (Table 2) Because of the popularity of these sessions, and the unique opportunity for leadership training that they provided, two of the sessions were allowed to be highly oversubscribed, at the union's request -- 73 and 88 persons in Nashville and Milwaukee, respectively. Both sessions were the last ones that grant year, and thus each was a final (or possibly final) ergonomics leadership training opportunity.

Table 2.

ERGONOMICS LEADERSHIP TRAINING SESSIONS
(Hunter College and UPIU/PACE, Oct. 1997 – Sept. 2000)

Grant Year	Dates	Location	Nr. Participants
Year 2 (10/98-9/99)	June 16-17, 1999	Cincinnati, OH	18
	Sept. 22-23, 1999	Milwaukee, WI	88
Year 3 (10/99-9/00)	May 17-18, 2000	Milwaukee, WI	37
	June 21-22, 2000	Nashville, TN	73
	Nr. Ldrshp.Trgs=4	Nr. Trg. Sites = 3	Nr. Trainees=216

TRAINING MATERIALS/CURRICULUM

An essential feature of this program was the development of an ergonomics hazard awareness curriculum and training materials, which were reviewed and approved by OSHA and distributed to every participant in the train-the-trainer classes. The three-hour awareness course was piloted during Grant Year 1 (1997-1998) both for the health and safety committee at a paper plant in Franklin, Virginia and before a group of shop stewards of locals in New York City. Revisions in the curriculum and training materials were made based on focus groups, site visits, and these pilot ergonomics hazard awareness sessions.

From then on during the program, every train-the-trainer participant received a manual to assist in conducting a three-hour ergonomics awareness course at his/her plant, which consisted of:

- An awareness course agenda
- An awareness course script
- A set of 30 overhead transparencies for use in the awareness course
- A list of additional resources on ergonomics
- Master copies of awareness course sign-in sheets and evaluation forms
- A master copy of a trainer log and self-evaluation form

In addition, each train-the-trainer participant received:

- A copy of the videotape that was developed to assist in teaching the awareness course. The videotape contains footage of a paper industry job with ergonomics hazards that was used to help trainees recognize risk factors and develop solutions. Title pages and credits were added to produce a more polished product.
- A master copy of the ergonomics handbook developed for use in the train-the-trainer course (see below) so that trainers could make copies of all or parts of it for awareness course participants.

The core training material developed by Hunter College and the union for the train-the-trainer program was a 61page Ergonomic Packet consisting of:

- A booklet, entitled “Working Without Pain: A Paperworker’s Guide to Improving Jobs,” which uses examples from the paper industry to illustrate ergonomics principles.
- Nine factsheets on issues such as preventing back injuries, evaluating and improving hand tools, convincing management to participate in ergonomics activities and protecting workers’ rights.
- A list of ergonomics-related websites and other ergonomics resources

The materials for the train-the-trainer course also included classroom exercises and other handouts to reinforce the basics of ergonomics and adult education. However, although the trainers left the course well prepared to teach the awareness course, it was recognized that many would want additional information as they planned and implemented their ergonomics training activities. The materials on additional resources, such as lists of ergonomics web sites, were developed to allow them to do so. All materials for the two-day train-the-trainer course were also reviewed and approved by OSHA.

During Grant Year 2 (1998-1999), a supplementary handout entitled *Frequently Asked Questions(FAQs)* was developed and approved by OSHA. The handout was designed to help fill in information gaps in the materials and resources distributed in earlier train-the-trainer sessions. It was then mailed out to all previous Year 1 and Year 2 train-the-trainer

participants, and incorporated into the ergonomics packets distributed to all later train-the-trainer and leadership-training participants. Further minor modifications of the ergonomics information packets were made during grant Year 3, including updating the list of website and other ergonomics resources. Also during Grant Year 3, as result of the union merger creating the new international union PACE, all of the cover pages and text of the training materials was modified to reflect this change.

Thus as a result of the ergonomics training sessions conducted under the Susan Harwood Program, over 600 copies each of “Working Without Pain,” sets of 30 training transparencies, training videotapes, FAQs and set of ergonomics factsheets were distributed nationally to members of the PACE International Union. These plus the knowledge the participants gained from the training courses represents a major long-term resource for this union and the paper industry as those involved try to identify, evaluate and control workplace ergonomics hazards.

In addition to the above materials distributed, during Grant Year 3 copies of the ergonomics informational packets were sent out to the over 700 paper local presidents within the PACE union. Each of these packets contained a copy of the Working Without Pain booklet and nine factsheets on ergonomics. These were intended as resource packets for union officers, particularly those who were not able to attend one of the training courses. The packet was designed to increase awareness among union leaders and help them to support local ergonomics activities.

TRAINING COURSE EVALUATIONS

A. TRAIN THE TRAINER COURSES

Participant Evaluation: Throughout the three-year program period, the 16-hour train-the-trainer courses were highly successful in terms of participant satisfaction.

During Grant Year 1 (1997-1998), for the eight train-the-trainer classes combined, 96% of all evaluation questionnaire respondents found the course useful or very useful. Ninety-two percent of the respondents found the course interesting or very interesting. Ninety-five percent of the respondents reported that the train-the-trainer program met their needs and introduced new materials. At three of the eight sites, 100% of respondents rated the course as good or very good in all aspects. (The most common course strengths identified were: instructors, basic information on ergonomics, chance to share ideas between plants and to practice teaching and opportunity to attend joint labor-management course. As for course weaknesses, participants wanted more time (longer course), more technical information on ergonomics, and more information and discussion on organizational impediments to change (such as how to get management support for an ergonomics program/improvements, implications of job changes such as rotation and automation) These comments were reviewed by project staff, and modifications made in so far as possible.

During Grant Year 2 (1998-1999), for the four train-the-trainer courses combined, 98% of all evaluation questionnaire respondents found the course useful or very useful. Ninety-four percent of the respondents found the course interesting or very interesting. Ninety-nine percent of the respondents reported that the train-the-trainer program met their needs, and 97% said they were introduced to new materials.

During Grant Year 3 (1999-2000), for the three train-the-trainer courses combined, 100% of all respondents (88% participation rate) found the course useful or very useful. Also all (100%) found the course interesting or very interesting. Ninety-eight and one-half percent of the respondents reported that the train-the-trainer program met their needs, and the same percentage said they were introduced to new materials.

Table 3.
SUMMARY OF PARTICIPANT COURSE EVALUATIONS
TRAIN THE TRAINER TRAINING COURSES
(Hunter College and UPIU/PACE, Oct. 1997 – Sept. 2000)

Grant Year	Pct. Useful or Very Useful	Pct. Interesting or Very Interesting	Pct. Met Needs	Pct. Intdcd to New Materials
1. 1997-1998	96%	92%	95%	95%
2. 1998-1999	98%	94%	99%	97%
3. 1999-2000	100%	100%	98.5%	98.5%
Overall Pct.:*	97.2%	94.0%	96.6%	96.1%

* Overall percentages weighted by numbers of course participants during each grant year.

The above results, and also the consistency of improvements in participant ratings over the course of the three-year program, were especially satisfying to the Hunter and PACE trainers and program staff. For a training population this large and this varied, from all parts of the continental U.S., these overall percentages are notably large.

Precourse/Postcourse Testing Results: For each train-the-trainer course, the Hunter and PACE staff evaluated how well we achieved our learning objectives for the train-the-trainer course by administering a ten-question test at the beginning and the end of each two-day session to assess changes in knowledge attributable to the course. During grant Year 1, 65 percent of the 241 participants filled out both the pre- and post-course questionnaires. This percentage increased during the course of the three-year program. By Grant Year 3, 88 percent filled out both questionnaires. The results demonstrate that this training project raised participants' awareness and understanding of ergonomics issues to a higher level.

During Grant Year 1 (1997-1998), following the trainings, the average score for all groups was 90%, an average increase of 12 percentage points from the pre-test results. The increase in knowledge was most marked for a subset of five questions for which the initial test scores were consistently lower than the others. (The average participant answered only 66% of these questions correctly in the pre-test). Post-test scores for these questions went up an average of 19 percentage points. Improvement was most significant

for the six training sessions with the lowest initial scores (less than 70% of the five questions answered correctly), with increases for this subset of trainees between 19 and 27 points.

During Grant Year 2 (1998-1999), the average score of all four of the sessions prior to the training was 80%. Following the two-day training, the average score was 94% -- an increase of 14 percentage points from the pre-test. The most significant improvement came from the question related to the use of back belts. Prior to the training, many participants believed that back belts and other personal protective equipment were effective ways to prevent overuse injuries (51%). By the end of the training, 97% of the participants understood that back belts and other such devices have not been shown to prevent overuse injuries, an improvement of 48%. Significant improvement was also seen in the question related to surgery for carpal tunnel syndrome. Forty-two percent of the participants thought that after a successful surgery for carpal tunnel syndrome, workers could safely return to their regular jobs. However, after the training 87% of the participants recognized that a hazardous job may have to be modified to ensure that workers can safely return to work following surgery.

During Grant Year 3 (1999-2000), the pre-course average score of 83 percent, rose to a post-course average score of 97 percent, an increase of 14 percentage points. These results are presented in the Table below:

Table 4.
SUMMARY OF PRECOURSE-POSTCOURSE TEST SCORES
TRAIN-THE-TRAINER COURSES
 (Hunter College and UPIU/PACE, Oct. 1997 – Sept. 2000)

Grant Year	Test Score (Pre-Course)	Test Score (Post-Course)	Percentage Point Increase
1. 1997-1998	78%	90%	+12%
2. 1998-1999	80%	94%	+14%
3. 1999-2000	83%	97%	+14%
Overall Pct.:*	79.4%	92.2%	+12.8%

* Overall percentages weighted by numbers of course participants during each grant year.

The above summary scores indicate that throughout this three-year training program participants consistently improved their test performances as result of this training, as indicated especially by the results in the average percentage-point increases in scores (right-hand column). In addition, the post-course test scores rose consistently over the three years, but it should be noted that the pre-test scores did also – perhaps a tribute to the broader educational efforts of the union, as well as the renewed interest by union members in ergonomics as a result of this training program. Thus for example the national union newspaper ran a number of articles about the program, which both educated members and promoted participation in this training effort.

B. LEADERSHIP TRAINING COURSES

Participant Evaluation: The 16-hour leadership training courses, initiated in Grant Year 2, were highly successful in terms of participant satisfaction.

During Grant Year 2 (1998-1999), the first leadership training course was offered in Cincinnati, Ohio on June 16-17, 1999 to 18 participants from seven unionized plants. The course was very well received -- all participants (100%) thought the course was useful or very useful; met their needs; introduced new materials; and was interesting or very interesting. The second leadership course, conducted on September 22-23, 1999 in Milwaukee, Wisconsin, was highly over-subscribed, with 88 participants from 32 different plants. It was also well received, but not surprisingly was not as well received as the first leadership training. Specifically 81% of the respondents thought the course was useful or very useful; 85% felt the course met their needs; 90% were introduced to new materials; and 77 % thought the course was interesting or very interesting. We attribute these less highly positive ratings to the large class size. (Prior to the class, when registration was increasing to numbers beyond our expectations, we struggled with the decision of whether to limit class size or to maximize the number of participants we would reach. The union strongly urged us to accommodate anyone interested in attending. Given the limited number of worker training opportunities, especially ones where the costs to the union and its locals are partially subsidized, we agreed to do so. However, as we expected, many found that the large class size detracted from their learning experience. Also several plants in the Milwaukee area already had sophisticated ergonomics programs in place, and hence they needed more advanced ergonomics training than was offered.)

During Grant Year 3 (1999-2000), a total of 100 persons attended the two leadership training courses, of whom 83 filled out the evaluation forms (83% participation rate). Again the last training course was over-subscribed, with 73 persons in the Nashville course. Ninety percent of the participants in both courses thought the course was useful or very useful, 89% felt the course met their needs, 98% were introduced to new materials, and 88% thought the course was interesting or very interesting. The results of the participant evaluations of the leadership training courses by grant year are presented in the Table below:

Table 5.
SUMMARY OF PARTICIPANT COURSE EVALUATIONS
LEADERSHIP TRAINING COURSES
(Hunter College and UPIU/PACE, Oct. 1997 – Sept. 2000)

Grant Year	Pct. Useful or Very Useful	Pct. Interesting or Very Interesting	Pct. Met Needs	Pct. Introduced to New Materials
2. 1998-1999	100%	100%	100%	100%
3. 1999-2000	90%	88%	89%	98%
Overall Pct.: *	94.9%	93.9%	94.4%	99.0%

* Overall percentages weighted by numbers of course participants during each grant year.

Overall these evaluation results were satisfying, and are quite comparable to the results from the train-the-trainer courses (see Table above). It should also be noted that evaluations of these trainings by representatives of the U. S. Department of Labor/OSHA were also quite positive. Thus in a letter to Program Director Dr. David Kotelchuck, dated July 7, 2000, Linda Forsyth, ARA/TECFAP in the Region II OSHA Office, reported that OSHA representative Paul Todd of the Nashville Area Office was “extremely positive” about the Nashville Leadership Training course.

Precourse/Postcourse Testing Results: As in the train-the-trainer courses, pre- and post-course tests were administered during all leadership training courses to assess whether our learning objectives had been met. However the questions were slightly different in the leadership trainings (and more appropriate for union leaders), so the results from the two types of trainings are not precisely comparable. The results for the leadership trainings demonstrate that here too the training program raised participants’ awareness and understanding of ergonomics issues to a higher level.

During Grant Year 2, the pre- and post-course results showed an average increase of 12 percentage points for the smaller Cincinnati class and of 11 percentage points in the larger Milwaukee class. Thus in terms of participant progress as measured by test scores (rather than subjective criteria), the two courses demonstrated comparable results. Again, for certain questions, the percent increase was quite impressive – 30 percent for the back belt question and 44 percent for the question on whether you need a doctor’s diagnosis to trigger the OSHA 200 Log reporting requirements. In the pre-test, 54% of the participants in the leadership trainings thought a doctors’ diagnosis was needed for an overuse injury to be recordable. After the course, 92% of the participants understood that a doctor’s diagnosis was not necessary, that other criteria may be met to trigger the OSHA recording requirements for overuse injuries.

During Grant Year 3, the Milwaukee leadership training course showed an average increase of 11 percentage points for the pre- post-course differences, and the more largely subscribed Nashville course a larger 13 percent increase. Thus for this grant year, the weighted average percentage point increase in test scores was 12.3 percent.

Overall the weighted average percentage point increase in pre-/ post-course tests for the leadership trainings was 11.8 percentage points, with 11.2 in Grant Year 2 and 12.3 in Grant Year 3. This is comparable to the 12.8 percentage point gains registered by the train-the-trainer participants in a slightly different test. The results in both cases are positive and gratifying, and help confirm the value of such ergonomics training.

FOLLOWUP TRAINING

About two months after each train-the-trainer course. each participant received a letter reminding them to send in their trainer log forms and sign-in sheets when their awareness trainings were completed. They were also reminded that Hunter College and the PACE

Health and Safety Department are available for technical and program support. About four months after each training, each participant was called by the PACE Program Coordinator to find out whether their trainings had been conducted and to report on ergonomic changes which had been made in their plant as result of activities following up on the course. A telephone script and tracking form were developed to assist the Program Coordinator in her/his efforts.

Based on these reports, we have confirmed the following numbers of persons given awareness training at the local level by participants in this program:

Table 6.
NUMBERS OF AWARENESS TRAINEES
TAUGHT BY ERGONOMICS PROGRAM PARTICIPANTS

Grant Year	Numbers Trained (Confirmed)
1. 1997 - 1998	2494
2. 1998 – 1999	1956
3. 1999 – 2000	1568
Total:	6018

The awareness trainings reported in the above Table are from 56 different plants in the paper industry throughout the U.S. We believe that many more such trainings have taken place as a result of this program, but these have occurred after the six-month follow-up telephone calling period. Those that were reported informally to union officials are included in the above Table, but we believe many more have been missed due to limited communication or lack of communication about these due to the press of other urgent union activities, for example contract negotiations, grievances, activities around possible plant closings, etc.

The above results reveal a positive multiplier effect of our train-the-trainer and leadership trainings. Thus while we have reported over 600 persons trained in our train-the-trainer and leadership training courses, these 600 persons have already taught a confirmed 6,000 persons more in their local and regional areas – a multiplier factor of 10. We consider it quite possible that this number could in fact be twice as large, and that the true multiplier may be more like 20 or 25.

Another goal of this program, in addition to encouraging and supporting the presentation of ergonomics awareness trainings at the local level, is to encourage positive change in the workplace in the paper and related industries. This too has been accomplished as a result of this program. Below are some examples of the workplace changes effected:

- The formation of joint labor –management ergonomics task forces (reported at many plants)
- Purchase of new lift tables
- Changing the heights of machines during operations
- Purchase of new equipment to assist in moving heavy rolls of paper (so-called “roll-kickers”).

During the past year the following have been reported, with the companies involved:

- At a Norton plant, after an ergonomic job analysis was conducted, a number of employee chairs were changed from rigid, non-adjustable to adjustable ones with arm rests.
- At a Weyerhaeuser plant, all course participants were solicited to give their ideas about specific ergonomic improvements which should/need to be made at the plant, and many of these are now in the process of being implemented.
- Attendees from CK Witco reported that several workspaces were redesigned to reduce strain and twisting, and plans are being made to automate parts of some jobs.
- At Glad Manufacturing, automatic palletizing has been installed to eliminate hand shrink-wrapping.
- At Champion, plant workers have asked the plant management to change the way that the company handles injuries, so that they "look at the job instead of the worker."
- At the Smurfit-Stone plant, all employees were given ergonomics training, and job rotation and mechanical lifting aids were introduced.
- At SAPPI, the company has developed a set of its own slides for ergonomics training, and plans to re-engineer several jobs.
- At Pacon Corp., an ergonomics committee has been formed, and problem areas have been identified.
- At Pekin Paperboard the company with union cooperation has given out surveys to employees, and will base action on the results.

At the same time it must be admitted that many impediments to progress in this area still exist. Some companies have not agreed to participate in ergonomics trainings or related activities due to plant closings and downsizing, resulting in some cases in the elimination of safety committees, and changes in management with new management not supporting the ergonomics training program. However in these situations the union has its own independent resources and now expertise in conducting awareness trainings.

ACHIEVING PROGRAM GOALS

The Hunter/PACE ergonomics training program has successfully accomplished its training goals during the past three years. Specifically the program has successfully offered and completed 19 train-the-trainer and ergonomics leadership-training courses over this three-year period. (Tables 1 and 2) This represents 90 percent of the 21 training courses it originally proposed to carry out – two courses (in Salt Lake City and Louisville) were cancelled due to low enrollment during 1999. This largely resulted from the 1999 merger of the UPIU and OCAW International Unions to form the PACE International Union. The merger convention and other related activities strained local budgets and limited additional activities locals could support during that year.

Most importantly, in term of participation in the ergonomics courses offered, this program achieved 94 percent of its goal of participants trained – training a total of 628

persons out of our three-year goal of 665 persons trained. (Tables 1 and 2) The results by year and type of training course are presented below:

Table 7.
ATTENDANCE AT ERGONOMICS TRAINING COURSES
 (Hunter College and UPIU/PACE, Oct. 1997 – Sept. 2000)

Grant Year	Nr. Trained	Numerical Goals	Pct. Of Goal Achieved
TTT Courses:*			
Year 1 (1997-1998)	241	280	86%
Year 2 (1998-1999)	94	140	67%
Year 3 (1999-2000)	77	105	73%
Subtotals:	(412)	(525)	(78%)
Leadership Courses:			
Year 2 (1998-1999)	106	70	151%
Year 3 (1999-2000)	110	70	157%
Subtotals:	(216)	(140)	(154%)
Totals:	628	665	94%

* TTT Courses = Train-The-Trainer courses

As noted in Table 7, we achieved only 78 percent of our attendance goals in the train-the-trainer courses, but these were compensated for, so to speak, by exceeding our goals for the leadership courses (154%).

We published all of the training materials we had proposed, plus made revisions in our packets and fact sheets to keep them up to date. Also the FAQs publication was decided on to respond to worker/trainer needs.

Finally our goal for reaching union members and managers with local and regional ergonomics awareness training was to reach 7,456 persons over the three-year program period. We achieved confirmed training of 6,018 persons, 81 percent of our awareness training goal. Since we believe that many more persons, perhaps twice as many, received such awareness training as a result of program efforts we believe our awareness training goals were more than amply achieved.