BACKGROUND

The Puget Sound Consortium for Manufacturing Excellence (PSCME) is establishing a regional consortium to develop and implement programs and services providing Puget Sound industry workers with the tools and techniques required for world-class manufacturing. The PSCME works with local educational partners (e.g., Shoreline Community College) to promote manufacturing career opportunities to students. Toward this end, the PSCME is developing recruitment and retention strategies to encourage a diverse workforce. Of particular interest is the recruitment and retention of women, an underrepresented group in manufacturing careers. The Office of Educational Assessment (OEA) was contracted by the PSCME to conduct a focus group to gather information from women currently making career decisions about their perceptions of manufacturing careers. Information obtained from the focus group will be used for recruitment and retention program development.

METHODS

On November 18, 2002, OEA Program Evaluation Division researchers conducted a focus group with participants of the Snohomish County YWCA Displaced Homemaker Multi-Service Center during a regular session of the Pathways to Work program. The Pathways to Work program helps women facing re-entry into the workforce develop job search skills, explore career and employment opportunities, build a positive self-image, and enhance life survival skills through a variety of support and counseling services. A total of nine women between the ages of 30 and 50, and some with disabilities, participated in the focus group. The focus group discussion lasted approximately one hour.

Two researchers conducted the focus group. One researcher facilitated the discussion, while the other took hand-written notes. In addition, the focus group discussion was tape-recorded. After discussing the purpose and procedure for the focus group, participants were asked to read and sign a consent form if they were willing to participate. Prior to commencing the discussion, the researchers reminded participants that the focus group information would be kept confidential, but we could not ensure that participants would not share focus group information outside the group.

The following questions were asked during the focus group: 1) What does a career mean to you?; 2) What images come to mind when you think of manufacturing?; 3) If you were to choose a career in manufacturing, which areas would interest you?; 4) What are the factors that keep you from choosing a career in manufacturing?; 5) How would you start on a path toward a career in manufacturing?, and 6) Where would you go to obtain training for a career in manufacturing? Participants were given $25.00 as compensation for their time while taking part in the focus group. This stipend reimbursed participants for any costs associated with their participation such as potential loss of earnings, childcare, and

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transportation. Refreshments (e.g., coffee, juice, muffins, fruit) were provided. Information packets containing web resources for researching manufacturing careers and contact information for college programs and career training were distributed at the conclusion of the focus group discussion.

Responses recorded in the hand-written notes were analyzed inductively and substantive categories were developed for each question. Useful quotes were transcribed from the tape-recorded focus group discussion to validate and illustrate these categories.

RESULTS

The focus group questions addressed women’s perceptions of manufacturing careers and issues surrounding pursuing a career in manufacturing industries. Results of the analysis are presented for each question.

1. What does a career mean to you?

   **Pragmatic**
   A career was viewed functionally by all participants. A career was equated with money, and it was viewed as a necessity. One woman replied, “I have to eat; therefore I work.” Not having a career or a job was a terrifying prospect for these women. A participant said, “It’s the one thing that still keeps me awake at night.” This is not a surprising theme, given that almost all of the participants were the sole providers for their families.

   **Self-fulfilling**
   Participants also expressed that having a career went beyond the basic necessities of life. They saw a career as a big part of their lives that could provide them with fulfillment, stability, and independence. Participants expressed a desire to do something meaningful, perhaps a career utilizing compassion. For example, one woman suggested that prosthetics manufacturing would be an opportunity to demonstrate kindness and care in a career.

2. What images come to mind when you think of manufacturing?

   **Environmental**
   When asked about images of manufacturing, participants replied with many environmental representations. They identified images of factories, assembly lines, conveyor belts, hard labor, raw materials, production, monotony, physical fitness, and men. For instance, “I think of production, and maybe male dominated,” and “Hard labor, but cool, but cool because I’ve never seen anything like that before.”

   **Financial**
   Participants expressed some concern about the financial viability of manufacturing careers. Most participants associated manufacturing with low wages; for example, “Minimum wage, yeah that’s what I was thinking.” However, one participant commented, “It might be a union shop though, and you might come out okay.” In addition to low pay, were images of stagnation, that it is hard to progress in a career path. One woman said, “It’s hard to move up the ladder, up the pay scale. You’re very fortunate if you can work your way up.”
**Personal**

When providing manufacturing images, often these women referred to their personal experiences (e.g., past employment, temp service work) or preferences. Some said manufacturing work was not appropriate for them, but would be suitable for others with less need for excitement. One participant related, “For me it was too monotonous…but for you [another participant], because you like to be by yourself, it’s perfect. But for me I need more stimulation.” Others commented on the possible value of manufacturing work. For example, “Even though it’s monotonous, I think like folding a parachute, I mean it’s important to do that good [sic] because someone’s going to jump out of an airplane with that. It might be considered mindless, meaningless work, but it’s important to do it right.”

Overall, participants expressed a lack of knowledge about manufacturing careers, which may have resulted in images that were traditional or stereotypical.

3. **If you were to choose a career in manufacturing, which areas would interest you?**

**Production**

If they were to choose a career in manufacturing, some participants identified a variety of production areas. Examples included Christmas toys, prosthetics, clothing, and telephones. Involvement in product packaging and advertising were mentioned as well. Interestingly, one participant commented that rather than mass production, production in limited quantities would be more appealing. She said, “What about something that was just totally unique, that they didn’t even make a whole bunch of and it was like a specialty shop.”

**Technical/Scientific**

Areas of interest also included more technical or scientific pursuits such as product testing for video games, medical supplies (e.g., artificial heart), or medical research. One woman said, “The medical field, somebody’s got to check that stuff so that’s got to be some type of research, like cause and effect.”

**Personally Interesting**

Other women said that any manufacturing career that allowed them to be involved with their personal interests would be attractive. One participant replied, “Food, because I’m a chef.” Another woman suggested, “A game tester/inspector would be a great job for all the video game addicts or computer game addicts.”

**No ideas**

Again, plagued by limited knowledge of the manufacturing industry, participants had difficulty generating a lot of areas of interest. One woman remarked, “I’ve never thought about it. I really can’t envision…It just…nothing’s coming to mind that would interest me. Maybe clothing, I don’t know.”

4. **What are the factors that keep you from choosing a career in manufacturing?**

**Negative Perceptions**

A variety of negative images, stereotypes, or perceptions were identified as barriers to choosing a career in manufacturing. Images of Rosie the Riveter (i.e., maltreatment of women workers in factories and subsequent loss of jobs upon men returning from WWII ), low pay, boredom, repetitive and inflexible work, and job insecurity were identified as impeding factors. Participants said, “I think of boring and low pay.”; “If you were able to move around and do different things rather than the same things all the time, it..."
would make it more interesting.”; “Robots are taking over those jobs now, and so that’s a security aspect of it…a lot of people are getting scared because of that."

Lack of Knowledge/Interest
Some women identified their lack of understanding about what constitutes manufacturing and what career opportunities exist in this area as a major barrier to their pursuit of a manufacturing career. A lack of training was viewed as an additional hurdle. One woman replied, “Lack of training. If they had more training it would make you feel more confident to go in there and maybe do it because of training on the job.” Other women replied that manufacturing, as they understood it, simply does not interest them.

Tangible
There were many tangible or pragmatic barriers to pursuing manufacturing careers for this group of women. Transportation problems (e.g., being unable to drive), low rates of pay, and minimal benefits were seen as obstructions. A participant explained, “...it’s a deterrent for me. Less than $10/hour, $7.80/hour is your average for manufacturing jobs I’ve seen in the Job Source. And a lot of them don’t have benefits.” Another woman concurred, “I live in Stanwood, there’s no point in me driving to Bothell for a $7.80/hour job. It’s a flusher.”

Possible Discrimination
When we asked about discrimination as a deterrent, most participants agreed that it could be an issue in avoiding manufacturing careers. These women felt they could be discriminated against because of their gender, age, and apparent physical inability. Participants made the following comments: “If they don’t like you, they’ll make it hard for you. I think it’s a throw [cut] at the women,” and “One thing I can say for myself being a small woman, I think that somebody would hire a man over me, because I can’t lift much. By visually looking at me, they’re not able to see what I can and can’t do.” Notably, some women felt that gender discrimination would not be an issue, and one participant reported, “I don’t mean to be argumentative but I don’t believe that. If you come across that, I think it’s time to go Norma Rae on everybody.” Concerns surrounding age involved being compared to younger applicants who have a more current education and technology skills, not being able to keep up physically with younger workers, and not having the stamina to maintain required job activity levels. For instance, a participant queried, “The physical ability of keeping up with the work with the age that I’m at, how long could I do it?”

5. How would you start on a path toward a career in manufacturing?

Research
Given participants’ admitted lack of knowledge, it is not surprising that conducting research was suggested as a reasonable first step toward a career in manufacturing. These women suggested research would be necessary to pinpoint their interests, investigate market demands, assess benefits and opportunities, and determine training needs and options. One woman explained her research strategy as follows: “Find out what manufacturing companies were in my area. I have epilepsy. I don’t drive. If I knew what was in the area, what they offer, what they do. I’d want to make sure that I could get job training, be able to go to school.” It was suggested that computer searches, the newspaper (e.g., Job Source), and public information sessions would be valuable research resources.
Experience
Participants also remarked that experience in manufacturing would be a logical beginning to a path toward a manufacturing career. Valuable experience could be gained from working for temp agencies. Temp agencies are businesses that provide short-term employment to individuals to fulfill a variety of employers’ temporary work needs. Participation in manufacturing training classes was also identified as another means of gaining experience. One participant said, “I think training. Like have some kind of training classes that maybe you could go in and train, and that way you’d kind of know what’s going on. Also, the temp service is really good for that, because they put you in a job and if you don’t like it, you can move to another job and they give you some kind of background before you go into the job you’re doing.”

6. Where would you go to obtain training for a manufacturing career?

On the Job
Participants reported that a good place to receive training would be on the job so they would be able to earn and learn concurrently. Job shadowing was suggested, as were internships and apprenticeships. One woman said, “I’d take a cut in pay, well I don’t mean CUT, but I mean I’d take a wee bit less money if I thought that I was going to get some valuable training out of it so at the end of it I could put that one extra thing on my resume that said I can do this now, and I’m certified or I’m licensed.”

Institutions
In addition to on-the-job-training, participants suggested vocational schools, community colleges, and universities as good places to receive training. For instance, a participant said, “Vocational schools, and community colleges probably have some types of classes that would apply towards some of these things. They have some basic classes…I mean you could go all the way to a university to be the person in charge, you know the top guy.”

Following question 6, we asked participants to further elaborate on their perceptions of training for manufacturing careers. We asked about training desirability, duration, costs, and timing. Responses concerned feasibility of training and relative gains.

Feasibility
Training opportunities were unanimously desirable. One preferred area was computer skills training. However, certain conditions were required for any training to be feasible. Training was desirable and feasible when it was for a position with opportunities for advancement, partially/fully paid, and/or when other costs associated with training (e.g., childcare, transportation, lost wages) were compensated or reimbursed. This is evidenced by the following statement: “If you have to go through a training period, have it be paid, or at least partially paid…because if I would go through a week’s training period and eat the daycare, there’s no way. It needs to be paid, or at least things like childcare taken care of by the company, something.” Another feasibility consideration is the accessibility of training. One participant with a disability suggested that online training would be a possible solution to her transportation barriers, and others indicated that if training is on-site, it should be located near major bus routes. The time of day that training is offered is an accessibility issue as well. Training schedules should be flexible; meeting the needs of both women with daytime responsibilities (e.g., employment, childcare) as well as those who have concerns about travelling late at night.
**Relative Gain**

Regarding the duration of training, longer training periods would be tolerated for careers with greater benefits such as high pay and opportunities for advancement. For example, “It depends on the long-term outlook. If it was just a go nowhere job, probably a day [of training]. If it was something that you could work your way up in, I don’t know, it depends on how far you could go. If it was a sky’s the limit type of thing, a year or two probably.” Interestingly, continuous training was identified as very desirable. Participants remarked, “Don’t you wish though, in a perfect world, that they would continue to train you on an ongoing basis,” and “We don’t want a job where it’s just going to go and die. You want to keep it fresh and alive, you know with variety and the opportunity for growth, advancement, or improvement.” These women appreciated the need to continuously develop their skills in order to stay competitive and fulfilled. Similar to responses about training duration, any training costs should be relative to potential gain. Participants said, “I would be willing [to pay] if I knew the potential,” and “I just don’t see a career where putting money down for something that you’re not going to go very far in...It would have to be, you pay me to do this.”

**CONCLUSIONS AND RECOMMENDATIONS**

The focus group participants provided a great amount of valuable information for making recommendations regarding the design of recruitment and retention strategies for women in manufacturing careers. First, lack of information about manufacturing was prevalent among these women, and what information they did have left them with many negative perceptions of this industry. **Efforts should be made to address this information gap as well as dispel negative perceptions and inaccurate stereotypes.** Women need clear definitions of what manufacturing is and is not, what work environments to expect, what opportunities exist, and how to capitalize on these possibilities. In short, the PSCME should consider marketing the manufacturing industry with women as one of its targeted audiences. The newspaper was mentioned several times as a primary source of information for this group. It thus should be considered as a valuable medium for marketing. Other possible marketing media should be considered such as community information sessions, job club presentations, exposure in programs like Pathways to Work, etc. Notably, it should be emphasized that manufacturing careers can offer meaningful, financially rewarding employment with many opportunities for advancement.

Second, it is obvious that these women are eager to embark on meaningful, challenging careers that provide them with stability, independence, flexibility, variety, and growth. The desire to enter into manufacturing careers that provide the above elements is evident, but the major obstacle is feasibility. **When designing recruitment and retention programs, planners need to consider barriers that are unique to women’s lives.** Lost wages, prohibitive training costs, lengthy training programs, inflexible schedules, inaccessibility (e.g., transportation, disabilities), and childcare issues are among the barriers that will prevent women from entering into, and completing, manufacturing training programs. Recruitment and retention programs need to demonstrate that the gains of training programs outweigh the costs, both in the short term and the long term. **Most obviously, financial support during training must exist in order for women to realistically capitalize on any career opportunities.** Given that on-the-job-training was viewed very positively, the PSCME should consider partnering educational institutions with local companies to provide women with some income while they are training at work or at an educational institution. Such mutually beneficial partnerships need to be explored.
The desire and ability to engage in manufacturing careers is evident. All that appears to be lacking is feasible opportunity. One participant expressed this best when she said:

There’s lots of women at this table that have got skills that far exceed a specific skill, but they lack in that one thing [job specific skill]. But they could be a valuable asset to wherever they walked into, if they could just get somebody who would say, ‘Come on. You know we understand that you’re just a smidgen rusty.’ I mean we all worked before our current situation we’re in now. Somebody thought at one point we were valuable enough to make a contribution to society. If we could do it then, we can do it today. It’s just it happens that there’s that younger person or that person with the Harvard education or whatever you’re competing against. But there isn’t one person at this table that doesn’t feel that they’re not up to the task, if they were just given the ability to be able to step up to the plate.

Providing women with opportunities is not sufficient, these opportunities must be feasible given the unique challenges of women’s lives. In conclusion, it is recommended that the PSCME integrate the findings and recommendations from all focus group reports to design comprehensive recruitment and retention strategies that will encourage a workforce diverse in terms of age, gender, ability, socioeconomic status, race, and ethnicity.