Evaluation of Pre-Apprenticeship and Retention Services in the Trades: Interim Report on Waves I and II

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August 2016

Executive Summary

In order to assess the effect of pre-apprenticeship programs on the career trajectories of women and minorities in the short and medium term, PSU researchers designed a longitudinal study of individuals receiving pre-apprenticeship and retention services. This evaluation focuses on four classes of pre-apprenticeship students at Oregon Tradeswomen, Inc (OTI) and Constructing Hope (CH). Wave I of the study was administered on the first day of the pre-apprenticeship classes, and Wave II was administered at the end of the pre-apprenticeship classes. A total of 94 individuals were enrolled in the four classes; a total of 77 individuals completed the programs (76 individuals completed both Wave I and Wave II surveys).

The following are the key findings from this interim report on Waves I and II:

Socio-demographic characteristics of participants: The two pre-apprenticeship programs serve disadvantaged workers. OTI students were 100% female and 17% racial/ethnic minorities. CH students were 11% female and 54% racial/ethnic minorities.

Completion rates: The completion rate for OTI students was 87%; the completion rate for CH students was 76%.

Plans for working in the trades in the future: Between Wave I and Wave II, students in both programs became slightly more optimistic about their likelihood of working in the trades in the future.

Perceived strengths in skills: Between Wave I and Wave II, students in both programs reported higher perceptions of their skill level on items related to tools and skills needed for the construction trades, knowledge about working on construction job sites, and knowledge about trades careers. In an open-ended question at Wave II, students reported on the most important things they learned in their pre-apprenticeship program; responses included tools and skills.
needed for the construction trades, “soft skills” (e.g. confidence, communication, attitude), knowledge about working on construction job sites, and knowledge about trades careers. In an open-ended question asked at Wave II, students suggested that pre-apprenticeship programs include more more hands-on training and practice with skills relevant to the trades.

*Attitudes towards working in the trades:* Between Wave I and Wave II, students in both programs reported more positive attitudes on items about working in the trades (e.g. “In the construction trades, I will have a career, not just a job.”). In open-ended questions at Wave I, students reported both financial and non-financial reasons for pursuing a career in the trades.

*Perceived challenges of working in the trades:* In an open-ended question at Wave I, students reported their perceptions of the changes of working in the construction trades; the most common responses related to harassment and discrimination, physical ability and skill level, and other issues related to the job (e.g. safety, long hours, being out of work). Between Wave I and Wave II, students in both programs became more aware of the challenges of working in the trades (e.g. being out of work, financial challenges).

Wave III will be conducted via email and telephone one year after the Wave I surveys and will include the 76 participants who completed Waves I and II of the survey. Wave III will follow up with participants to determine whether or not they pursued a career in the trades after their pre-apprenticeship program. Participants will be asked about the elements of their pre-apprentice program and retention services they view as most helpful for persisting in the trades. A final report for the study will be completed by June 2017.
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Introduction

The goal of this evaluation is to assess the effectiveness of pre-apprenticeship and retention services in increasing the entry of women and minorities into highway construction trades apprenticeships and increasing the likelihood that women and minority apprentices will complete apprenticeships in the highway construction trades and continue working in the trades as journey workers. In order to assess the effect of pre-apprenticeship programs on the career trajectories of women and minorities in the short and medium term, PSU researchers designed a longitudinal study of individuals receiving pre-apprenticeship and retention services. This report reflects the findings from the first two waves of data collected.

Table 1. Study Participants by Completion and Survey Retention

<table>
<thead>
<tr>
<th></th>
<th>Enrolled in Program</th>
<th>Completed Program</th>
<th>Completed Wave I and II Surveys</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTI January 2016</td>
<td>22</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>CH January 2016</td>
<td>22</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>OTI April 2016</td>
<td>24</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>CH April 2016</td>
<td>28</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>96</td>
<td>77</td>
<td>76</td>
</tr>
</tbody>
</table>

Note: Two participants who enrolled but did not complete the January 2016 Constructing Hope class re-enrolled in the April class and both completed (94 unique participants enrolled in the pre-apprenticeship programs during the study period—46 from OTI and 48 from CH).

This evaluation focuses on four classes of pre-apprenticeship students: January 2016 and April 2016 classes of students at Oregon Tradeswomen, Inc and Constructing Hope. Wave I of the study was administered on the first day of the pre-apprenticeship class, and Wave II was administered at the end of the pre-apprenticeship class. A total of 94 individuals were enrolled in these four classes; a total of 77 individuals completed the programs (76 individuals completed both Wave I and Wave II surveys). In this evaluation, we assess socio-demographics of participants, completion rates,
changes in plans for working in the trades in the future, changes in perceived strengths in skills, changes in attitudes towards working in the trades, and changes in perceived challenges working in the trades.

**The Pre-Apprenticeship Programs**

This evaluation focuses on two pre-apprenticeship programs in Oregon: Oregon Tradeswomen, Inc (OTI) and Constructing Hope (CH). Both programs are free to participants and are funded through grants and donations. Box 1 provides additional information about the two pre-apprenticeship programs, with text from the program’s websites.

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**Box 1: The Pre-Apprenticeship Programs**

**Oregon Tradeswomen, Inc (Information from: [http://www.tradeswomen.net/pathways-to-success](http://www.tradeswomen.net/pathways-to-success))**

With a focus on apprenticeship, Oregon Tradeswomen, Inc.’s (OTI’s) Pathways to Success program offers the Trades and Apprenticeship Career Class (TACC); a 7-week, pre-apprenticeship training class that helps women prepare for a high skill, high wage career in construction. The class is offered at no charge to participants thanks to generous funding from foundations, industry, and individual donors.

Key benefits of attending TACC Class:

- Learn basic trades math and measurement
- Receive an introduction to green building
- Explore topics such as job site safety and construction culture
- Learn to use hand and power tools
- Gain 30 hours of hands-on experience working alongside skilled female instructors on real job sites
- Go on field trips to apprenticeship training centers and active construction sites
- Improve physical fitness with strength training taught by a certified fitness trainer
- Upon graduation, OTI career counselors assist TACC graduates with their job search and application to apprenticeship training programs. OTI career counselors also provide individualized employment counseling throughout the entire course of the graduate’s trades career.

**Constructing Hope (Information from: [http://www.constructinghope.org/about](http://www.constructinghope.org/about))**

The purpose of the Constructing Hope Pre-Apprenticeship Training Program is to help participants develop an understanding of apprenticeship opportunities, which are available in the construction trades. Each participant will gain knowledge of various career opportunities within the trades, basic entry-level skills, plus familiarity with trade tools, terminology and basic principles.

Constructing Hope offers a 9 week pre-apprenticeship training program with 180 hours of classes and hands-on training. Located at 405 NE Church St., Portland, Oregon 97211, classes are taught by program instructors, as well as, retired construction workers, which we call Elder Craftsmen. Students follow a Monday through Friday training schedule from 8:00am until noon. Upon graduations, participants have assistance with permanent job placement and will have gained the following certifications: Flagging, Fork-lift and OSHA 10.

These programs are similar in their focus on preparing people for careers in the trades who might not otherwise have access to this occupation by teaching them basic skills and knowledge about
working in the construction trades. They differ in the populations served: OTI serves only women, while CH serves both men and women. Both programs have a commitment to serving disadvantaged populations, including women, racial/ethnic minorities, low income workers, and people with a legal history.

**Preliminary Findings from Waves I and II**

*Socio-Demographic Characteristics of Study Participants*

Table 2 shows socio-demographic characteristics of all study participants and characteristics of OTI and CH participants, separately. Given the specific target populations of OTI and CH, differences in participant socio-demographic characteristics are not surprising and should be considered when evaluating the outcomes of each program. While 100% of OTI participants are women, only 11% of CH participants are women. CH is, however, more racially diverse than OTI: 65% of CH participants are racial-ethnic minorities, while only 17% of OTI participants are racial-ethnic minorities. OTI and CH participants are equally likely to be married or in cohabiting relationships, yet CH participants are slightly more likely than OTI participants to be living with children. Importantly, CH participants are much more likely than OTI participants to receive public assistance (64% vs. 37%) and more likely than OTI participants to report previous involvement with the criminal justice system (77% vs. 22%).

**Table 2. Socio-Demographic Characteristics of Participants by Program**

<table>
<thead>
<tr>
<th>Socio-Demographic Characteristics</th>
<th>Total</th>
<th>OTI</th>
<th>CH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>31</td>
<td>29</td>
<td>32</td>
</tr>
<tr>
<td>% Female</td>
<td>56</td>
<td>100</td>
<td>11</td>
</tr>
<tr>
<td>% Male</td>
<td>44</td>
<td>0</td>
<td>89</td>
</tr>
<tr>
<td>% Non-Hispanic White</td>
<td>57</td>
<td>83</td>
<td>33</td>
</tr>
<tr>
<td>% Race-Ethnic Minority</td>
<td>41</td>
<td>17</td>
<td>65</td>
</tr>
<tr>
<td>% White Women</td>
<td>41</td>
<td>83</td>
<td>2</td>
</tr>
<tr>
<td>% Women of Color</td>
<td>13</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>% White Men</td>
<td>16</td>
<td>0</td>
<td>31</td>
</tr>
<tr>
<td>% Men of Color</td>
<td>26</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>% Partnered (married or cohabiting)</td>
<td>36</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>% With Children Under 18</td>
<td>24</td>
<td>22</td>
<td>26</td>
</tr>
<tr>
<td>% With Children Under 5</td>
<td>15</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>% With Public Assistance</td>
<td>51</td>
<td>37</td>
<td>64</td>
</tr>
<tr>
<td>% With Legal History/Criminal Record</td>
<td>46</td>
<td>13</td>
<td>77</td>
</tr>
<tr>
<td>N</td>
<td>94</td>
<td>46</td>
<td>48</td>
</tr>
</tbody>
</table>
Completion of Pre-Apprenticeship Program

Figure 1 shows pre-apprenticeship completion rates, overall and separately by program, for the study participants. The overall completion rate for participants was 81%. The OTI completion rate was higher (87%) than the CH completion rate (76%). However, as noted in Table 2, participants in CH, on average, show more disadvantage prior to starting the pre-apprenticeship program (i.e. more likely to receive public assistance, more likely to have a criminal record). Thus, it is not surprising CH students have additional challenges with completion.

Both CH and OTI offer students who drop out or are dismissed from the class the opportunity to re-enroll in a subsequent class session. During our study period, two participants in CH dropped out of the January class but re-enrolled and completed the program with the April class and are considered to have completed for the purposes of this study.

A total of 13 students across the two classes of CH students dropped out or were dismissed from the program (including two from the January class who later enrolled and completed the April class). The reasons for not completing (as reported by CH staff) were: Dismissed due to attendance and/or tardiness (6); Family responsibilities (2); Injury/health issues (1); Missed or failed drug test (2); Needed paid employment (2).

A total of six students across the two classes of OTI students dropped out or were dismissed from the program. The reasons for not completing (as reported by OTI staff) were: Dismissed due to attendance and/or tardiness (2); Family responsibilities (1); Injury/health issues (1); Transportation issues (1); Missed or failed drug test (1).

Plans for the Future

We assess participants’ plans for the future in construction trades at the beginning and end of the pre-apprenticeship program. In Wave I and Wave II, participants were asked, on a scale of 1-4,
how likely it is that they will 1) be enrolled in an apprenticeship within the next year, 2) complete an apprenticeship program, 3) work in a construction trade five years from now, 4) work in a construction trade ten years from now, and 5) hold a leadership position in the trades in the future. We constructed a scale representing “plans for the future” by averaging responses to these five items (alpha=.85). Figure 2 presents mean scores for the “plans for future” scale by study wave and pre-apprenticeship program. Overall, plans for working in the construction trades in the future increased slightly between the Wave I and Wave II surveys (beginning and end of pre-apprenticeship program) for both OTI and CH participants. Constructing Hope participants have slightly higher means for plans for the future than do OTI participants in both Waves I and II.

The increase in means for plans for working in the constructions trades is not uniform across the scale items, however. All scale items are presented for OTI (Figure 3) and CH (Figure 4) below.
While we see an increase across waves in the likelihood of working in construction in five years and in ten years among both OTI (Figure 3) and CH (Figure 4) participants, and the likelihood of holding a leadership position in the trades among OTI participants, we do not see an increase in perceived likelihood of enrolling in an apprenticeship or completing an apprenticeship among OTI or CH participants (although students were already very optimistic about enrolling and completing in an apprenticeship at Wave I).

![Figure 4. Wave I and II "Plans for Future"
Constructing Hope](image)

**Perceived Strengths**

We assess participants’ perceived strengths in a variety of skills important for success in the construction trades. At Wave 1 and Wave II, participants were asked to evaluate their current strengths, on a scale from one to four (very weak to very strong), in the following skill areas: 1) math; 2) construction safety; 3) use of hand tools; 4) use of power tools; 5) ability to drive construction equipment; 6) financial and budgeting skills; 7) job search and interview skills; 8) physical fitness; 9) understanding the expectations for working on job sites; 10) knowledge of the culture of construction job sites; 11) knowledge of the options for working in the trades; 12) understanding the pathways in a construction career; 13) knowledge of how to apply for an apprenticeship program; and 14) confidence in starting a career in the trades. We created a scale incorporating all 14 skill items (alpha=.86) and also examined changes in each skill item separately for OTI and CH participants. Combining OTI and CH participants, perceptions of strength in all skills increases between Wave I and Wave II, and this change is statistically significant. Overall, change in perceptions of strength in individual skill items are statistically significant for all skills except finance/budgeting and job interview skills.

For OTI and CH participants, perceptions of strengths in all skill items increased between Wave I and Wave II. For OTI participants (Figure 5), increases in perceived skill strength are largest in “knowledge of the culture of construction job sites,” “knowledge of options for working in the
trades,” “understanding the pathways into a construction career,” and “knowledge of how to apply for an apprenticeship program.” Increase in perceived strength was smallest for “financial and budgeting skills” and “job search and interview skills.”

In general, CH participants had higher perceptions of skill strength at Wave I than did OTI participants, and we see smaller increases in perceptions of skill strength among CH participants between Waves I and II (Figure 6), relative to OTI participants. The largest gains in perceived skill strength for CH participants are in “knowledge of the options for working in the trades,” “understanding the pathways into a construction career,” and “knowledge of how to apply for an apprenticeship program.” We see smallest gains in perceived skill strength among CH participants in “job search and interview skills” and “physical fitness.”
Additionally, at the end of the pre-apprenticeship program in the Wave II survey, participants were asked the open-ended question: “What do you see as the three most important things you learned from your pre-apprenticeship program?” All participants’ responses are presented in Appendix D. A selection of responses from participants is shown in Box 2. For both programs, participants’ responses largely fell into four broad categories:

- Tools/skills: How to work with hand tools, power tools, and other construction skills, including safety and math
- “Soft skills”: Including confidence, communication, having a good attitude, working in teams
- Knowledge about working on construction job sites: including “construction culture” and punctuality
- Knowledge about trades careers: including how to apply for apprenticeship programs and resources available to them.

**Box 2: Student comments about the most important things they learned in their pre-apprenticeship program**

“Learning how to apply for apprenticeship in different trades” (CH student)

“The hands on training to get a better job and to have a brighter future” (CH student)

“Basic carpentry skills, [which] made me more confident about walking into a construction site.” (OTI student)

“Be on time” (CH student)

“Empowerment of seeing women in the trades” (OTI student)

“Seeing that career support, counseling, and connections are out there. (OTI student)
Participants were also asked “What are three things you wanted to learn (or learn more about) but didn’t in your pre-apprenticeship program?” Students offered a variety of responses, all of which appear in Appendix E. Across both programs, the most common type of response was related to having more hands-on training and practice with specific skills. Other responses included: more information or skills related to specific trades, more information about construction culture, more information about green building, more information about union and open shop, and more information on budgeting and financial planning.

Attitudes Towards Working in the Trades

The Wave I and Wave II surveys also asked specific closed-ended questions about participants’ attitudes towards working in the construction trades. We create an “attitudes towards working in the trades” scale based on responses to questions asking respondents whether they agree or disagree (1-5, strongly disagree to strongly agree) with the following six items: 1) I will have opportunities for good paying jobs in the construction trades; 2) I will have opportunities for leadership positions in the construction trades; 3) I plan to make working in the trades my career; 4) I will feel pride in my work in the construction trades; 5) my work will be an important contribution to society; 6) in the construction trades I will have a career, not just a job (alpha=.74).

Figure 7 displays values for the Wave I and Wave II “attitudes towards trades” scales, by pre-apprenticeship program (OTI and CH). On average, attitudes towards working in the trades increase between Wave I and Wave II among both OTI and CH participants, and the overall average change is statistically significant. OTI participants have slightly higher mean attitudes towards working in the trades than do CH participants, although change in attitudes between Wave I and Wave II is greater among CH participants than among OTI participants.

Figure 8 shows means for the specific attitudes towards working in the trades among OTI participants. Among OTI participants, we see more positive attitudes towards working in the trades by the end of the pre-apprenticeship program except for the “my work will be an important...
contribution to society” item. By Wave II, OTI participants agree most with the statement that working in the trades will provide opportunities for good paying jobs.

Figure 8. Wave I and II "Attitudes Towards Working in the Trades," Oregon Tradeswomen, Inc.

Figure 9 shows corresponding values for the attitudes towards trade items for CH participants. There is an increase in agreement to all items by Wave II except for the “I will have opportunities for good paying jobs in the construction trades” item, yet there are still high levels of agreement with this statement at both Wave I and Wave II. Unlike OTI participants, by Wave II CH participants report highest levels of agreement with the “I plan to make working in the trades my career” item.

Figure 9. Wave I and II "Attitudes Towards Working in the Trades," Constructing Hope

In addition to these closed-ended questions, at Wave I participants were asked an open-ended question about their perceptions of working in the trades: “What do you see as the three biggest
benefits of working in the construction trades?” Participants’ responses fell into two broad categories:

- Financial: Wages, benefits, retirement, financial stability
- Non-financial: Benefits of working in the trades not directly tied to finances, including being physically active, valuing being skilled in a trade or learning specific skills

Examples of student comments are presented in Box 3, below.

<table>
<thead>
<tr>
<th>Box 3: Student comments about the benefits of working in the construction trades</th>
</tr>
</thead>
<tbody>
<tr>
<td>“A livable wage” (OTI Student)</td>
</tr>
<tr>
<td>“Being able to make a decent wage with a criminal background” (CH student)</td>
</tr>
<tr>
<td>“It’s what I love to do” (CH student)</td>
</tr>
<tr>
<td>“Diversifies the work crew. Will help empower our women and hopefully eliminate sexism” (OTI student)</td>
</tr>
<tr>
<td>“Hands on, hard work = pride and accomplishment” (OTI student)</td>
</tr>
</tbody>
</table>

Challenges Working in the Trades

While participants were optimistic about the many benefits of the trades at the start of the pre-apprenticeship program, they also were aware that they would face some challenges. At Wave I, participants were asked the following open-ended question: “What do you see as the three biggest challenges you will experience working in the construction trades?” The responses grouped into three themes:

- Hostile workplaces: Concerns about men or sexism, concerns about experiencing discrimination or harassment
- Ability: Concerns about physical ability or skill level
- Job: Other issues related to the job, including safety, long hours, travel, being out of work

OTI students (all women) were more likely to mention sexism and concerns about their physical ability. Examples of student comments are presented in Box 4, below.

<table>
<thead>
<tr>
<th>Box 4: Student comments about the challenges of working in the construction trades</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Sexism, sexual harassment innuendos, men” (OTI student)</td>
</tr>
<tr>
<td>“Becoming physically fit enough to really do heavy work” (OTI student)</td>
</tr>
<tr>
<td>“Being able to perform tasks up to job standards” (CH student)</td>
</tr>
<tr>
<td>“Long hours, working weekends” (CH student)</td>
</tr>
<tr>
<td>“Higher risk of injury on the job” (CH student)</td>
</tr>
</tbody>
</table>
Using closed-ended questions from Wave I and Wave II surveys, we create a “perceived challenges working in the trades” scale based on responses to questions asking respondents whether they agree or disagree (1-5, strongly disagree to strongly agree) with the following eight items: 1) having a job in the trades will make it difficult for me to spend enough time with my family; 2) responsibilities to my family may require that I turn down jobs or refuse to work extra hours; 3) finding transportation to and from work will be a challenge; 4) paying for gay to get to and from work will be a challenge; 5) paying for overnight travel will be a challenge; 6) paying for tools, work, clothing, or protective equipment will be a challenge; 7) attending or passing the required classes for my apprenticeship program will be a challenge; 8) I will be out of work too much when I am working in the trades (alpha=.78). We excluded questions about challenges finding and paying for childcare from the scale given they are only relevant for participants who are parents but includes these in subsequent analyses.

Figure 10 shows means for the perceived challenges scale for Wave I and Wave II for OTI and CH participants. On average, perceived challenges increased between Wave I and Wave II for both CH and OTI participants, although the change is not statistically significant. This suggests that as students learn more about the construction trades through the pre-apprenticeship programs, they have a more realistic understanding of the challenges they may experience.

Figure 11 displays means for specific perceived challenge items in Wave I and Wave II among OTI participants. Perceived challenges increased between Wave I and II for the majority of items except for “finding transportation to and from work,” “paying for overnight travel,” and “attending or passing the required classes for my apprenticeship program.” By Wave II the items most commonly reported as challenges were “having a job in the trades will make it difficult for me to spend time with my family,” “responsibilities to my family may require that I turn down jobs or refuse to work extra hours,” and “paying for tools, work clothing, or protective equipment will be
Participants at OTI seem least challenged by finding transportation, paying for gas, and passing apprenticeship classes.

Figure 12 shows corresponding means for CH participants. Perceived challenges increased between Wave I and II for all items except “finding transportation to and from work.” By Wave II the items most commonly reported as challenges by CH participants were “having a job in the trades will make it difficult for me to spend time with my family,” “paying for overnight travel,” and “paying for tools, work clothing, or protective equipment.” Participants at CH seem least concerned with finding transportation, finding and paying for childcare, and paying for gas.
Finally, we examine changes in the survey question that asks how much respondents agree they will be treated with respect on construction worksites. Figure 13 shows means of this variable for Wave I and Wave II, separately for OTI and CH participants. Overall, respondents are more likely to agree that they will be treated with respect at Wave II than they were at Wave I, although this increase is seen only among OTI participants. As noted above, at Wave 1, many OTI students reported in an open-ended question that experiencing sexism was likely to be a challenge in the trades. It seems that after learning about construction culture at OTI, students become slightly more optimistic about being treated with respect on jobs sites. On average, CH participants are more likely that OTI participants to agree they will be treated with respect on construction worksites at both Wave I and II.
Next Steps

Wave III will be conducted one year after the Wave 1 surveys (January and April 2017) and will include the 76 participants who completed Waves I and II of the survey. At Wave III, we will determine whether or not participants entered into apprenticeship programs, remain active in their apprenticeship programs, obtained work in the trades, or obtained work in another sector since completing their pre-apprenticeship program. Participants will be asked why they did (or did not) enter into or remain active in an apprenticeship program. For those who are working in the trades, the Wave III survey will reassess participants’ perceptions about their ability to persist in the trades, their perceptions of their competence in areas covered in the pre-apprenticeship programs, and their attitudes towards the benefits and challenges of working in the trades. Participants will be asked about their use of retention services offered through the pre-apprenticeship programs. Participants will be asked about the elements of their pre-apprentice program and retention services they view as most helpful for persisting in the trades. Wave III surveys will be conducted via email and via telephone by PSU graduate student research assistants in the sociology program at Portland State University, who will be trained and supervised by Dr. Kelly. A final report for the study will be completed by June 2017.
APPENDIX A: Research Design for Wave I and Wave II

PSU researchers received copies of application and intake forms from the pre-apprenticeship programs that included demographic information about the participants. Pre-apprenticeship program staff also provided information to PSU researchers about why participants did not complete the pre-apprenticeship program.

PSU researchers administered Wave I of the survey face-to-face using paper surveys at the beginning of the first day of the pre-apprenticeship classes. See Appendix B for full text of the Wave I survey. Wave I assessed participants’ perception about their ability to persist in the trades (i.e. complete the pre-apprenticeship program, enter into an apprenticeship program, complete an apprenticeship program, be working in the trades in 5 year and in 10 years), their perceptions of their current competence in areas covered in the pre-apprenticeship programs (e.g. knowledge of construction safety, use of hand tools), their attitudes towards the benefits and challenges of working in the trades, and demographic data not included on the pre-apprenticeship application or intake form. Open-ended questions included “What do you see as the three biggest benefits of working in the construction trades?” and “What do you see as the three biggest challenges you will experience working in the construction trades?”

Wave II of the survey was conducted at the end of the pre-apprenticeship program (approximately two months after the baseline survey, which varied by pre-apprenticeship program). See Appendix C for full text of the Wave II survey. PSU researchers administered Wave II of the survey face-to-face using paper surveys at the end of the last day of the pre-apprenticeship program. PSU researchers also administered Wave II of the survey via telephone to the participants who completed the pre-apprenticeship programs but were not present on the final day of the program. The Wave II telephone surveys were conducted by Dr. Kelly. The second wave of the survey reassessed participants’ perception about their ability to persist in the trades, their perceptions of their competence in areas covered in the pre-apprenticeship programs, and their attitudes towards the benefits and challenges of working in the trades. Open-ended questions included “What do you see as the three most important things you learned from your pre-apprenticeship program?” and “What are three things you wanted to learn (or learn more about) but didn’t in your pre-apprenticeship program?” Data collected from Waves I and II of the survey was analyzed by Dr. Kelly and Dr. Wilkinson.

This interim report on Waves I and II assessed changes in perceptions and attitudes that occurred as a result of completing the pre-apprenticeship program. A third wave of the survey will be administered via email and telephone to follow-up with participants one year after beginning their pre-apprenticeship program.

This research design allows for evaluation of the effectiveness of the services in promoting the participation of disadvantaged individuals in apprenticeships in the trades. This research design allows for the estimation of causal effects given the longitudinal nature of the study design. For this study, it is not feasible to have a control group. In the absence of random assignment and a control group, the best way to assess the impact of the evaluation will be through a pre-test (baseline) that occurs prior to the implementation of the services and post-tests at two points after the implementation of the program.
APPENDIX B: Wave I Survey

Thank you for your participation in the evaluation of pre-apprenticeship programs

Portland State University researchers are conducting an evaluation of pre-apprenticeship programs. The objective of the study is to learn more about people’s experiences in pre-apprenticeship programs. The study is sponsored by Oregon Tradeswomen, Inc. and Constructing Hope in collaboration with Portland State researchers.

You will be asked to complete the short survey below, which will take about 5 minutes. Your participation is voluntary. You don’t have to answer any questions you don’t want to answer and you can stop at any time. Your answers to this survey will be kept completely confidential. Only the Portland State researchers conducting the project will have access to your survey. The information you provide will be kept confidential and your responses will not be shared with pre-apprenticeship staff. In reports from this study, your name and identifying information will not be included. The risks to participating in the study are minimal (e.g. thinking about negative past or future experiences working in the construction trades). Benefits of the study include contributing to research that will potentially improve the experiences of future workers in the construction trades. You will receive a copy of the above information, along with contact information for the Portland State Human Subjects Research Review Committee and the Portland State researcher conducting this project.

We will conduct a follow up survey at the end of your program and another follow up after one year. Today we are interested in your views prior to starting your pre-apprenticeship program.

Yes, I give my consent to participate in the study:

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2. What do you see as the three biggest benefits of working in the construction trades?

1.

2.

3.

3. What do you see as the three biggest challenges you will experience working in the construction trades?

1.

2.

3.

4. Please evaluate your current strength in the following areas:

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</table>
6. Including yourself, how many adults 18 years of age or older live in your household? ____

7. Are you currently living with a spouse or partner?
   - ☐ No, I’m not living with a spouse or partner
   - ☐ Yes, I’m married and living with my spouse
   - ☐ Yes, I’m cohabiting, that is, living with my partner

Answer questions 8-9 if you are currently living with a spouse or partner

8. Does your spouse or partner work?
   - ☐ No, my spouse or partner does not work
   - ☐ Yes, part time
   - ☐ Yes, full time

9. Does your spouse or partner usually work days (like 9 to 5) or non-standard hours (like nights or weekends)?
   - ☐ Days (like 9 to 5)
   - ☐ Non-standard hours (like nights or weekends)
   - ☐ Other (please specify) ________________________________

10. Are there currently any children under 18 in your household (only include your children and children for whom you are a primary caregiver)? These include biological or adopted children, stepchildren, or children of a cohabitating partner, or other children for whom you are a primary caregiver (e.g. grandchildren or foster children). Do not include other children in your home, such as younger siblings or children of roommates, unless you are a primary caregiver.
   - ☐ Yes
   - ☐ No

Answer questions 12-15 if there are children in your household

11. How many children under 18 are living in your household? Please only include your children and children for whom you are a primary caregiver. ____

12. How many children 5 years of age or younger are living in your household? Again, please only include your children and children for whom you are a primary caregiver. ____

13. Do your children live with you full time or part time?
   - ☐ Part time
   - ☐ Full time

14. In the next year, what will be the childcare arrangement you will used the most while you are at work or in your apprenticeship classes?
   - ☐ Your spouse or partner will care for them
   - ☐ Your friend or family member will care for them without pay
   - ☐ You will take them to a paid childcare provider
   - ☐ You will have a paid childcare provider in your home
   - ☐ Your children are old enough to care for themselves
   - ☐ Other (please specify) ________________________________

The PSU researcher will collect these forms. Thank you!
APPENDIX C: Wave II Survey

Thank you for your participation in the evaluation of pre-apprenticeship programs. Portland State University researchers are conducting an evaluation of pre-apprenticeship programs. The objective of the study is to learn more about people’s experiences in pre-apprenticeship programs. The study is sponsored by Oregon Tradeswomen, Inc. and Constructing Hope in collaboration with Portland State researchers.

You will be asked to complete the short survey below, which will take about 10 minutes. Your participation is voluntary. You don’t have to answer any questions you don’t want to answer and you can stop at any time. Your answers to this survey will be kept completely confidential. Only the Portland State researchers conducting the project will have access to your survey. The information you provide will be kept confidential and your responses will not be shared with pre-apprenticeship staff. In reports from this study, your name and identifying information will not be included. The risks to participating in the study are minimal (e.g. thinking about negative past or future experiences working in the construction trades). Benefits of the study include contributing to research that will potentially improve the experiences of future workers in the construction trades. You will receive a copy of the above information, along with contact information for the Portland State Human Subjects Research Review Committee and the Portland State researcher conducting this project.

We will conduct a follow up survey at after one year. Today we are interested in your views at the end of your pre-apprenticeship program.

Yes, I give my consent to participate in the study:

_________________________________________         ______________________________
Name (print)                                               Signature

Contact information to follow up after one year:

_________________________________________         _________________________________________
Phone number                                              Email address (if any)

1. Please think about your plans for the future in the trades. How likely is it that…

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2. What do you see as the three *most important things you learned* from your pre-apprenticeship program?

1. 

2. 

3. 

3. What are three things you *wanted to learn (or learn more about) but didn’t* in your pre-apprenticeship program?

1. 

2. 

3. 

4. Please evaluate your current strength in the following areas:

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Appendix D. Open-ended responses to “What do you see as the three most important things you learned from your pre-apprenticeship program?”

OTI students’ responses to “What do you see as the three most important things you learned from your pre-apprenticeship program?”

- a diverse education about all trades, as well as union apprenticeship
- actual job descriptions, expectations, activities…
- arrive at least 30 min early
- attitude
- basic carpentry skills - made me more confident about walking into a construction site
- believing in yourself
- communication
- communication
- communication
- confidence
- confidence
- confidence
- confidence
- confidence
- confidence and how to survive in the trades
- confidence in my ability to do the work
- construction culture
- construction culture
- construction culture
- construction culture - e.g. timeline, work ethic
- construction culture, communication, etc.
- construction math
- dependability
- direction in which trade is the best fit
- empowerment
- empowerment of seeing women in the trades
- empowerment through job skills and community
- experience and basic skills needed to start
- experience with tools
- exposed to all the trades - learned what they do, so I could make the best choice for my career
- exposure to different trades/jobs
- familiarity with construction culture and work ethic
- general carpentry skills
- general overview of construction tools and concepts
- grit
- how hard it is
- how to accept criticism
- How to achieve my goals in the trades/what it takes/they will support me for my entire trades life
- how to apply
- how to build, use tools and maintain industry-appropriate work place
- how to get into an apprenticeship
- how to get my foot in the door with an apprenticeship
- how to interact on a construction site
- how to use power tools
- how to use tools
- how to walk with diff leadership styles. Some will teach you, some will leave you to figure it out on your own
- how to work on a site
- how to work with a crew
- I am capable of construction work
- I can (and other women) can do this
- I can and do now better advocate for myself/what I think is right/wrong
- I can face challenge
- I have learned about and gained confidence! Which is super important to me
- I have learned about many different trades and what they do and their programs
- I have learned how to use power tools and importance of safety and body awareness
- importance of sticking together as women in trades dominated by men
- industry standards
- knowledge and the support structures available to succeed
- learn how to frame a wall
- learn how to use certain power tools
- learned how to enter any trade I'm interested in - toured union and training centers
- learned how to measure right
- learning how to operate power tools
- math
- math skills
- math skills
- mentality - strength outside of physical ability
- need more women in the trades
- on the job training
- opportunities available
- pathways to careers
- perseverance
- proper (safe) use of tools
- punctuality
- punctuality
- resources
- resources available
- resources/networking capabilities
- safety
- safety
- safety
- safety
seeing that career support, counseling, and connections are out there AKA people are rooting for me!
self-thinking/problem-solving
skills to take with me to workplace
skills, even if elementary ones
skills-based knowledge
stay healthy
structure
take constructive criticism well
that I can do the work
that I can do the work if I get over my apprehension and doubt
that I have a fear of saws
the benefit of sisterhood
they work at a fast pace
to have tough skin
to persevere as times get hard and people are rude
tool knowledge

CH students’ responses to “What do you see as the three most important things you learned from your pre-apprenticeship program?”

about alternative programs
about safety
about the unions
always have a positive mindset
always something to learn
attitude
be on time
being on time
being on time and ready for work
blueprints
commitment
construction diagrams
dedication and follow through
discipline
discipline
doing things the right way step by step
don’t force yourself to be somewhere you don’t want to
don’t judge a book by its cover
education
exposure to the various trades and tours/guest
speakers
focus
foundation lay out
foundation layout
fundamental of construction
future plans retirement
general maturity
good attitude
good job habits
good leadership
tool safety
tool safety - knowledge/ exposure to tools
tool skills
tools
trades culture / etiquette
union trades apprenticeship not for me
using a tape measure
variety of trades. There are so many career choices I can have that I never knew existed or that I could do
what it is like to work in this industry
what opportunities are out there ( so many!)
what options are out there for me
what to expect and also which field I want to go into
what to expect on the first day
what trade I want to go into
work ethic
work hard it pays off
working with a group

hands on projects and how things are constructed and deconstructed
hands on training
hands-on experience with construction
tools/equipment/vocabulary/supplies
hard work
hard work benefits all
help other people (giving back to the community)
how construction works and math
how to be a leader
how to be successful in life
how to build a house
how to build a portfolio
how to build and frame homes
how to follow rules/be on time
how to make a portfolio
how to recognize tools
how to use power tools
I learned about construction through the education given here and constructing hope
I learned how to work as a team with my peers
I learned problem solving
information
information about apprenticeship programs
information and pay of various trades
integrity
just been happier with my life and proud of myself
knowledge of building
lay out
leadership
leadership
leadership
learned about trades
learned how to use power tools
learned self-control
learning code and equipment
learning how to apply for apprenticeship in different trades
learning how to use tools
listen to what you're being told, follow the rules because safety is first
math
math skills
networking
open minded to others opinion
option
punctuality
patience
patience working with different kinds of people
places of education
Pythagorean theorem
positive self-worth
power tool usage
preparation
presentation
punctuality
respect one another on and off the jobsite
responsibility
responsibility
roof wall floor building
roofing calculations
roofing lay out
safety
safety
safety
safety
self esteem
self-motivation
set goals
show up on time
stair building
team work
team work
teamwork, being on time
the hands on training to get a better job and to have a brighter future
try your best and always try to grow
wall building/building a house
what it takes to succeed
working as a team
Appendix E: Open-ended questions to “What are three things you wanted to learn (or learn more about) but didn’t in your pre-apprenticeship program?”

OTI students’ responses to “What are three things you wanted to learn (or learn more about) but didn’t in your pre-apprenticeship program?”

"comebacks" to use against dudes
more framing/carpentry skills
a wider variety of hands on work
more hands on
activity
more hands on experience
algebra
more hands-on experience
basic skills from other trades, not just carpentry
more hands-on learning: wanted to gain more real
building something start to finish
world construction skills
chance to drive heavy equipment
more in-depth explanation of union/nonunion debate
doing other physical trades on jobsites besides
more jobsite work experience
carpentry
down time and planning financial layoffs
more math
electrical work
more math skills
exercise
more one on one interview skills
explore linesmen trade
more onsite training
field experience
more technical studying on various trades
financial planning
natural building
framing (discussed, offered but I was not in that
more about building houses and alternative building
group)
techniques
got more than expected
more about shop/unions
green building
more about wiring stuff
green building/green collar jobs
more advanced skills from any trade
hands on training
more carpentry skills
heavy machinery operating
more construction math
how to operate and drive construction equipment
more fitness
how to want to
more hands on training
I didn't know what to expect so I had no ideas of
more hands on experience
what I wanted to learn
more hands-on experience
learn more about body mechanic (how to lift) more in
more carpentry skills
depth
more construction math
Learn more about working with guys on a site, or
more focus time on learning to read blueprints
more experience working with them
more math
Learning more what trades/jobs are like once you
more one on one interview skills
journey out
more technical studying on various trades
more about my specific trade interest, which is a
more hands on training
specialty trade (plaster or earthen plaster)
more one on one interview skills
more about open shop/unions
more one on one interview skills
more about wiring stuff
more advanced skills from any trade

natural building
more carpentry skills
more about building houses and alternative building
more construction math
techniques
more fitness
more focus time on learning to read blueprints
more about shop/unions
more about wiring stuff
more advanced skills from any trade
CH students’ responses to “What are three things you wanted to learn (or learn more about) but didn’t in your pre-apprenticeship program?”

- blue print understandability
- carpentry
- cement work
- cost
- crane
- electrical theory
- electricity
- electric
- electrical
- electrical theory
- electrical training
- electrical work
- fence building
- financial goals
- financial management income when you start
- forklifting
- green energy solar wind grey water systems
- hands on
- hands on with other trades (even if it meant going to a different facility)
- heavy equipment
- how to build a complete house
- how to run a business
- how to start up a business in the construction field
- hvac
- I feel that we need more hands on
- I wanted to learn a little more math
- I wanted to learn more math
- IBEW trip
- machine operator's studies
- mason work
- math
- more blueprints
- more building work
- more experience building stuff
- more foundation time spent on what I already learned
- more hands on
- more hands on training
- more hands on with equipment
- more hands on (site) habitat for humanity
- more hands-on
- more hours learning
- more tech skills for the trade and hands on
- more trips to live site
- no subjects specifically, just more hands on
- on site experience
- operating engineers
- pick up a little more knowledge in the HVAC apprenticeship program
- plumbers work
- plumbing
- plumbing
- reading blue prints
- real estate side of the business
- roofing
- scissor lift/forklift certification
- siding
- site visit to IBEW
- stair building and roofing
- welding
- well I would like to have been a little more on the job site training
- would have been nice to have more guest speakers speak of their trade