Chapter 11
Allegheny Women’s Biotechnology Workforce Collaborative: Investing in Disadvantaged Populations with Technology

Michelle Zuckerman-Parker
Allegheny-Singer Research Institute, USA

Christine Compliment
Allegheny-Singer Research Institute, USA

Megan Rodella
Allegheny-Singer Research Institute, USA

Garth Ehrlich
Allegheny-Singer Research Institute, USA

J. Christopher Post
Allegheny-Singer Research Institute, USA

Allysen Todd
Community College of Allegheny County, USA

James Schreiber
Duquesne University, USA

ABSTRACT

The Allegheny Women’s Biotechnology Workforce Collaborative (AWBWC) is a research based educational intervention designed to support participants with “lifelines” using blended learning as they further their education and enter the biotechnology workforce. This holistic educational approach provides didactic instruction with a focus on individualized learning using technology to foster personal skill development and mentoring from industry professionals. The AWBWC participants live at 60% below the poverty level.

Introduction

Once an industrial giant, Pittsburgh, Pennsylvania has undergone a transformation from steel city to a biomedical research hub, a region in need of a qualified science, technology, engineering, math (STEM) and healthcare workforce. In an area where blue-collar jobs were once plentiful, there are now economically depressed communities with many families, most headed by women, who seek an opportunity to regain their economic independence. Many of these women were displaced early from academics or the workplace for a variety of circumstances, such as teen-age pregnancy, economic or domestic difficulties or the learned hopelessness that comes from living in a depressed community located on the north shore of the city. The Northside is composed of a diverse group of 14 identifiable neighborhoods. Their demographics represent the greater Pittsburgh community at large, half are African American and half are Caucasian, (see Table 1). Participants of the Allegheny Women’s Biotechnology Workforce Collaborative (AWBWC) represent a cross section of the Northside community at large: 47% are African American, 53% are Caucasian, ages range from 19-50 with 41 children in total. Nearly all of the participants, 75%, receive public assistance and most, 40%, are second generation on public assistance and 53% have a family member incarcerated. The federal government identifies “socially and economically disadvantaged individuals” as those who have been subjected to racial or ethnic prejudice or cultural bias and who have limited capital and credit opportunities, 113 CFR §124.103. According to 2008 HHS Poverty Guidelines, the poverty line for a 3 person household is $17,600, but the average AWBWC 3 person household is $7,324 annually or 60% below poverty level. In spite of this economic hardship, these women are resilient and determined to get an education, begin a career and get off public assistance. Many yearn for the opportunity to make a difference for themselves but more specifically for their children.

The conditions these families live in are not conducive to learning advanced complex domains and 90% have been victimized. This comparative study is based on a new model and its impact upon achievement. The quantitative data includes participant grade point average (GPA), technology usage, and rate of attrition. The qualitative data includes emails, text messages, focus group and face-to-face interviews. Additionally, anecdotal evidence indicates the children of participants have increased self-esteem, perform better in school as measured by GPA, and desire to pursue higher education.

Table 1. Neighborhood demographics

<table>
<thead>
<tr>
<th></th>
<th>Northside</th>
<th>Pittsburgh</th>
<th>Pennsylvania</th>
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<tbody>
<tr>
<td>Population of area</td>
<td>48,0001</td>
<td>297,061*</td>
<td>9,987,9264</td>
</tr>
<tr>
<td>Poverty rate</td>
<td>22.3%6</td>
<td>22.2%4</td>
<td>12.1%4</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>5.1%3</td>
<td>7.4%4</td>
<td>6.2%4</td>
</tr>
<tr>
<td>Drop-out rate</td>
<td>37%3</td>
<td>29%3</td>
<td>1.9%5</td>
</tr>
<tr>
<td>Percent of ages 25+ w/o high school diploma</td>
<td>24%6</td>
<td>18.1%4</td>
<td>13.8%4</td>
</tr>
</tbody>
</table>

1- (Northside United, 2008)  
2- (Pittsburgh United, 2007)  
3- (RAND Education, 2006) Northside data from Oliver High School  
4- (American Community Survey, 2006)  
5- (Pennsylvania Department of Education, 2007)