



**PA eMentoring Report for 2009-10 School Year:**

**The Positive Affects of Online Career Mentoring  
on the Self-Esteem of High School Students**

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**June 1, 2010**

**This community report was sponsored by:**

**The Highmark Foundation**



## **PA eMentoring Report: The Positive Affect of Online Career Mentoring on Self-Esteem**

“A young person’s success (and self esteem) is rooted in knowing who they are, where they want to go, and how they are going to get there!”

PA Department of Education

The Centers for Disease Control, as cited on the Highmark Healthy High 5 website, suggests that the three key factors to influence a child’s self-esteem are a *sense of purpose*, a *sense of accomplishment* and a *source of support*.

The positive impacts of traditional mentoring relationships on self-esteem has long been established by researchers. The PA eMentoring project set out to take advantage of more current research that has shown a *direct positive impact of career education on self esteem for young people*. Indeed the research has linked career education (self-investigation, career exploration, college and career planning) directly to self-esteem increases; in addition, it directly links career education to more positive student attitudes about their future, a more positive attitude about what they are learning, a higher commitment to their education, and a greater likelihood to complete their education. (Garcez, Claudia (2005) Overview of research done in the field, The Effects of Career Goals on Students).

Both quantitative and qualitative data collected from PA eMentoring participants sought to further connect this strong link between mentoring, career education, and self-esteem amongst young persons.

Data obtained from the pre and post self esteem surveys from 284 program participants during the 2009-10 academic year supported that the PA eMentoring program positively increased the self esteem of student participants. The results showed statistically significant improvements in self-esteem for students who completed the PA eMentoring program, as measured by a pre and post program self-esteem survey

Additional data collected supports that students participating in PA eMentoring have a better understanding of their own interests, preferences, and aptitudes, as well as a broader awareness of how these match to the work world and a better awareness and broader, more realistic understanding of post secondary opportunities in college and careers

## **The Project Scope and Processes**

The project period for this analysis was the 2009-10 school year. Youths grades 9-12 from 38 high schools and community-based organizations participated. In all, 1055 students registered for the program as mentees. Students used the program within a specific class period at their school during regular classroom hours. After registering, mentees chose their mentor from a list of mentors that closely matched their profile interests and preferences. The typical student used the program once a week for approximately 45 minutes during a total of at least 11 class periods.

On average, each student completed one career education activity and sent a minimum of one email to their mentor each week. Activities led to the creation of a detailed individual career plan for each student that includes:

- Stated career goal
- Career cluster of interest
- Career pathway of interest
- Post secondary program options (3)
- Program major(s)
- Interest inventory results
- Career cluster plan of study
- Career pathway plan of study

Students took anywhere from 11 weeks to 20 weeks to complete the program. Mentors completed the program in tandem with their mentees but during times convenient to them. In all, there was an average of twenty personal emails per relationship in addition to the core activity results sharing.

## **Methodology: The Rosenberg Self-Esteem Measurement Tool & Results**

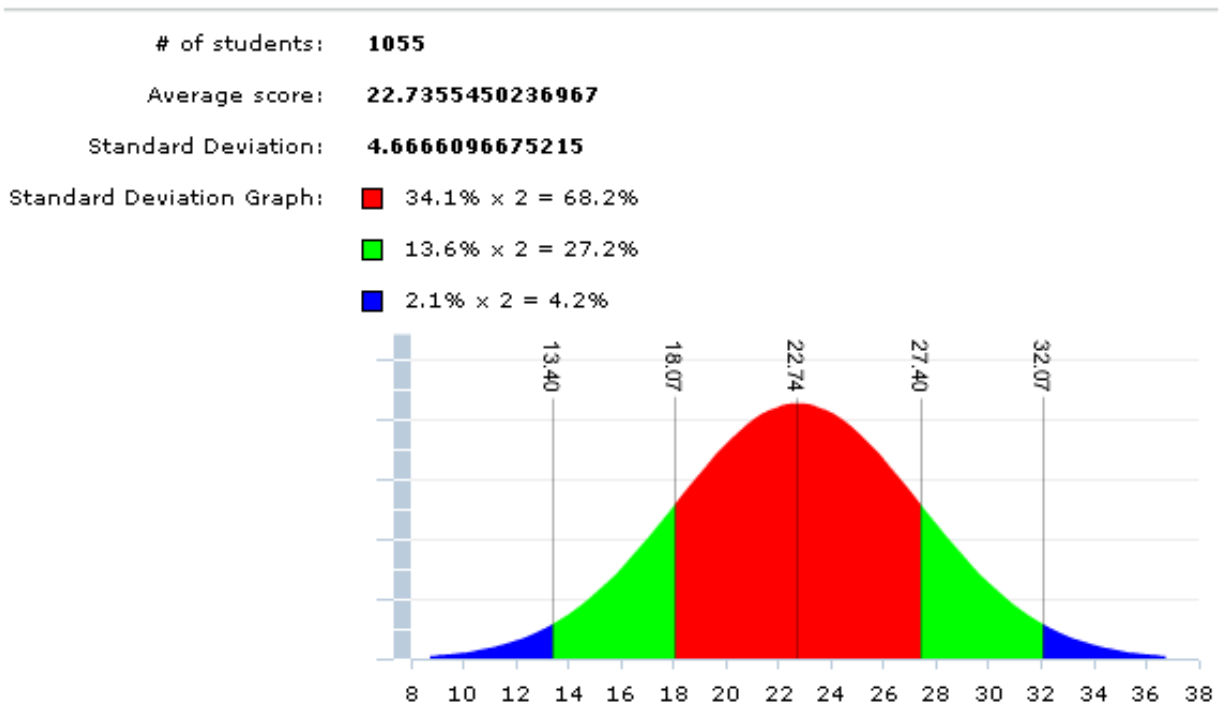
The Rosenberg self-esteem test is one of the most commonly used and best known measuring tools for self-esteem. Designed by Morris Rosenberg in 1965, the measure is a ten question survey that uses a 4 point Likert scale. The scale has been rated highly reliable, valid, and is an ideal tool for use with young people.

The Rosenberg Test was used to measure change in self-esteem due to program participation. The test was administered as both a pre and post test. Pre tests were required and post test participation was made optional. As a result, all 1055 students completed the pretest, and 284 students completed the post-test.

Pretests were integrated within the student’s online registration process as a part of the process in which they establish their mentee profile for the program. Post-tests were offered after students completed their 9<sup>th</sup> program activity, but were not required so as not to induce negative reactions for forced responses from students not having the class time to complete them.

**Quantitative data taken during the 2009-10 school year indicates a statistically significant increase in self esteem amongst program participants.**

**Rosenberg Self-Esteem all students before program**

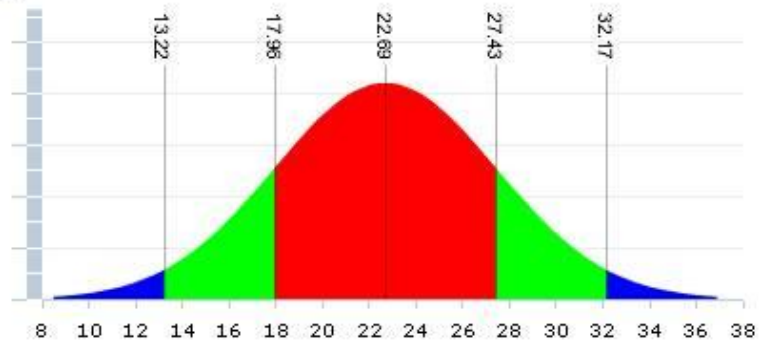


The chart above shows the average BASELINE score for mentees completing pretest was 22.74. The standard deviation at baseline was 4.67. Normal is within the range of 15-25.

Of the over 1000 mentees participating in 2009-10, 284 students completed BOTH the pre-evaluation and post-evaluation that included the Rosenberg Self-Esteem measurement instrument. The following chart summarizes the pre-test results for these students:

### Rosenberg Self-Esteem finished students before program

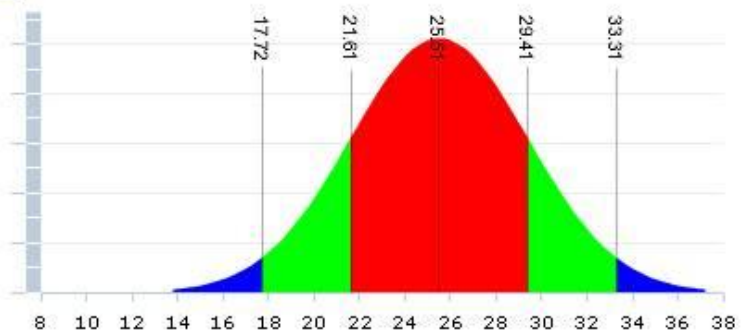
# of students: **284**  
 Average score: **22.693661971831**  
 Standard Deviation: **4.73776967087234**  
 Standard Deviation Graph: ■ 34.1% × 2 = 68.2%  
■ 13.6% × 2 = 27.2%  
■ 2.1% × 2 = 4.2%



The chart above shows the average BASELINE score for mentees completing pre and post was 22.69. The standard deviation at baseline: 4.73. Normal is within the range of 15-25. In comparison, the following chart summarizes the post-test results for these students:

### Rosenberg Self-Esteem finished students after program

# of students: **284**  
 Average score: **25.5105633802817**  
 Standard Deviation: **3.89752495072857**  
 Standard Deviation Graph: ■ 34.1% × 2 = 68.2%  
■ 13.6% × 2 = 27.2%  
■ 2.1% × 2 = 4.2%



The average score for program completers was 25.51. The standard deviation at program end was 3.90. Scores of 15 to 25 are in the “Normal” range.

The t-test table analyzing the pre and post test data is shown below:

<b>t-Test: Paired Two Sample for Means</b>		
	<i>pre_score</i>	<i>post_score</i>
Mean	22.73498233	25.54063604
Variance	22.03944566	14.61802371
Observations	283	283
Pearson Correlation	0.349597648	
Hypothesized Mean Difference	0	
df	284	
t Stat	-9.61283142	
P(T<=t) one-tail	2.0815E-19	
t Critical one-tail	1.650274967	
P(T<=t) two-tail	4.16299E-19	
t Critical two-tail	1.968411839	

The paired t-test for 284 students shows improvements in the Rosenberg Self Esteem scale were statistically significant,  $p < .0001$ . Student self esteem scores increased by an average of 2.8 points, or over 10%.

### **Additional Data Supporting Conclusions:**

Qualitative data from mentees collected from the 284 mentees (relationship completers AND survey takers) provide further indication that the self-esteem of students was increased both from program beginning as well as from the 1st to the 2nd year. These include the following:

- 78% said they feel that they have a better support system and more adults who care about them than before (source of support).
- 85% said the program helped them feel better about themselves and their abilities (sense of accomplishment).
- 93% said the program gave them a more positive attitude about their future (sense of purpose).
- 80% said the program helped them to have higher expectations for themselves (sense of accomplishment).
- 71% said the program gave them a better attitude towards school (sense of purpose).

Other mentee data providing insight into self esteem increases include:

### Sense of purpose

- 91% of students indicated that the program helped them develop a strong career interest.
- 92% of students reported that the program helped them identify a specific career that interests them.
- 17% increase in number of kids saying they are strongly or very confident that in 10 years they will have a well-paying career that they enjoy.
- 94% said the program helped them understand how academic skills impact career success.
- 92% said the program helped them understand the future career options available to them.
- 83% said the program helped them to identify high school courses necessary to pursue potential careers.
- 91% said the program helped them to understand what future training or education is needed for different careers.

### Sense of Accomplishment

- 53% said the program helped them improve their grades.
- 57% said the program helped them improve their writing skills.

Qualitative data from 350 mentors (relationship completers AND post survey takers) also provides support that student self-esteem was affected positively with significant increases from last year's program.

- 82% said they think their mentee has higher self esteem and confidence
- 87% think their mentee has a more positive view of the future as a result of their participation (sense of purpose).
- 86% said they believed their mentee now has higher expectations of themselves (sense of purpose).
- 77% said their mentee had a more positive attitude about school
- 85% said that their mentee is likely to feel the program gave them a positive adult influence in their life

Other survey results providing insight into self-esteem increases include the following:

### Sense of purpose

- 92% think that the program helped their mentee better understand careers that interest him/her
- 85% think the program helped their mentee better understand the skills necessary for success in the workplace.
- 82% think the program will help the mentee choose relevant coursework
- 85% think the program gave their mentee a better understanding of different careers from which to choose
- 85% think the program gave their mentee a better understanding of the education or training required for different professions.

### Participation in program and sense of accomplishment

- 82% rated the engagement levels of their mentee as good or excellent; only 3% as “poor.”
- 77% rated the quality of communication as good or excellent
- Quality of mentee’s writing (grammar and style): Excellent: 18%, good: 45%, average: 22%, poor: 15%
- Quality of mentee’s writing (content): Excellent: 30%, good: 47%, average 18%, poor: 5%

### **Evaluation Comments from Mentees:**

*“It helped me understand that I must get my act together, because the real world is coming all too soon!”*

*“This made me understand that I don't need to be good at everything, just the things I'm good at now and must improve those skills for my future.”*

*“The most valuable thing was talking to somebody else who almost has the same interest or works in the career field that I consider going into.”*

*“I think the most valuable thing about eMentoring is the resources it gives you. It helps students who are unsure about their careers find paths that are compatible to them. And for students who have an idea of what they want to do, it shows them what courses they need to take to pursue that career choice.”*

*“I like how we (the students) were placed with people who matched close to our goals and ideals. The most valuable thing about mentoring was my mentor, she understood how I felt about my ideas and helped me open my eyes to many new possibilities in my field.”*

## Evaluation Comments from Mentors:

*“She is an amazing young lady with a lot of potential. She definitely has a bright future ahead of her. I’m very grateful that I was able to offer some sound advice for her career goals.”*

*“Aimee was interested in the same field I am working in and I enjoyed the opportunity to provide honest advice about what a career in this field entails. I never felt like I had to hold back on the negative and I believe everyone needs to know the bad, in addition to the good. I was able to give advice I wish I had before embarking on this career and I hope that this insight will help Aimee as she prepares for this next big step in life.”*

*“I like being able to help these kids see what their future may shape up to be. Also being able to tell them things that I wish I would have known when I was in high school.”*

*“Nick gained a better idea of what education is available post- high school. He is not interested in a four year degree at this time, so conversing about other options seemed beneficial for him.”*

*“Katelynn had excellent questions regarding the role she might have and challenges she might face in the workplace. This insight was surprising and generated valuable conversation. Also, I definitely noticed that Katelynn’s efforts to write with correct grammar and punctuation improved.”*

*“I think that as we moved forward in the lessons that Damon became more engaged in the process and more communicative with me.”*

*“At the conclusion, the mentee seemed to realize there are many options and a lot to think about in deciding what careers to pursue. She was really very set on a blue collar career path - albeit a non-traditional path for a female. But now I think she realizes there are many other options that might provide a higher income earning potential and a corresponding better standard of living.”*

*“From our first conversation to the last, Stacey completely changed her outlook on her future. She came in very unsure about where to go next and left very confident and goal oriented toward her decisions.”*

*“Anthony came into the program with a clear idea of his career aspirations (to become a Registered Nurse). He utilized the eMentor program to gain more insight on his chosen career path and to understand other possibilities that are available.”*

*“The most rewarding aspect of being an eMentor for Kayra, was seeing that there are students out there today that have what it takes to follow their dreams and be successful. Being able to encourage, support, and guide these students, in my eyes, is priceless.”*

*“When she wrote and thanked me for working with her. She said, “I never really thought of myself as smart.” That amazed me because she was obviously a bright, energetic, and inquisitive young woman. I don’t think she recognized her own strengths and talents. Hopefully I affirmed her and helped her realize how great she is.”*

## **Conclusions**

Data obtained from the pre and post self esteem surveys supports that the PA eMentoring program positively increased the self esteem of student participants. The results yield a strong statistical significance positively correlating student self esteem and program completion.

Additional data collected supports that students participating in PA eMentoring have a better understanding of their own interests, preferences, and aptitudes, as well as a broader awareness of how these match to the work world and a better awareness and broader, more realistic understanding of post secondary opportunities in college and careers.

## Appendices

### Basic Information about 2009-10 PA eMentoring Program Rollout:

#### Employers/Mentors

*Number of employers participating: 304*

*Companies with most mentors: UPMC (92); American Eagle (20); Massaro Corp (20); Highmark (19); Robert Morris (18); University of Pittsburgh (13); Highmark (11); 160 with only 1 mentor participating*

*Number of mentors recruited: 782*

*Number of mentors trained: 620 – 100% online in year 2*

*Number of mentors in matching pool and matched to students: 510*

*Average number of students served per mentee: 1.6*

*Average time spent per mentor: 20 minutes per week*

#### Schools/Mentees

*Number of schools participating: 38*

*Number of enrollees enrolled by county of residence:*

*Allegheny (including PPS): 502*

*Pittsburgh Public Schools: 197*

*Washington: 158*

*Greene: 70*

*Fayette: 86*

*Westmoreland: 62*

*Beaver: 58*

*Armstrong: 57*

*Franklin: 26*

Schools participating in this 2009-10 program report by county:

<p><b>Allegheny County</b>  <b>Public Schools</b>                  AW Beattie Vo-Tech                  Pittsburgh Public Schools                      Allderdice                      Brashier                      Carrick                      Connelly                      Langley                      Oliver                      Perry Traditional                      Westinghouse                  Forbes Road CTC                  Fox Chapel                  Northgate                  Parkway West                  Quaker Valley                  South Fayette                  South Park                  West Mifflin                  Woodland Hills</p> <p><b>Alternative/CBOs</b>                  Girls Hope                  Neighborhood Academy                  PA Learners Online                  Pace School                  Urban Youth Action</p>	<p><i>Outside Allegheny County:</i>  <b>Armstrong County</b>                      Apollo-Ridge                      Lenape Vo Tech  <b>Beaver County</b>                      Ambridge  <b>Fayette County</b>                      Albert Gallatin                      Brownsville  <b>Franklin County</b>                      James Buchanan                      Lincoln IU                      Waynesboro  <b>Greene County</b>                      Greene County CTC                      West Greene  <b>Washington County</b>                      California                      Cannon MacMillan                      Chartiers Husten                      Fort Cherry                      Ringold                      Washington*  <b>Westmoreland County</b>                      Bell Vernan                      Northern Westmoreland*  <b>Other</b>                      Susquehanna</p>
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*2009-10 mentee population served:*

School	County	Classroom Title	Grade	Education Type
A.W. Beattie	Allegheny	Non Traditional	10th-12th	Career & Tech Ed
Allerdice	Allegheny	Pre-Engineering	10th-11th	Regular Education
Brashear	Allegheny		10 <sup>th</sup> -11 <sup>th</sup>	Career & Tech Ed
Carrick	Allegheny		10 <sup>th</sup> -11 <sup>th</sup>	Career & Tech Ed
Fox Chapel	Allegheny	Inclusion Class	10th-11th	Alternative Education
Girls Hope	Allegheny	Careers	9th-12th	Regular Education
Hampton	Allegheny	Enrichment	11th	Gifted Education
Langley	Allegheny	Graduation/Health Career	10th-12th	Regular/Career&Tech
Nbrhood Acad.	Allegheny	Computer	12th	Regular Education
Oliver	Allegheny	Cosmetology	10th-11th	Career & Tech Ed
PACE School	Allegheny	Career Explorations	10th	Special Education
Parkway West	Allegheny	Careers Class	10th-11th	Career & Tech Ed
Peabody	Allegheny		10 <sup>th</sup> -11 <sup>th</sup>	Career & Tech Ed
Perry Trad Ac	Allegheny	Business Tech	10th-11th	Regular Education
Quaker Valley	Allegheny	Instructional Tech	10th-11th	Regular/Special Ed
South Park	Allegheny	Career and Work	11th	Gifted Education
Bradley Center	Allegheny	Careers Class	9th-11th	Special Education
Urb Yth Action	Allegheny	After School Program	11th-12th	Regular Education
West Mifflin	Allegheny	Graduation	12th	Regular Education
Westinghouse	Allegheny	Computer	10 <sup>th</sup> -11 <sup>th</sup>	Career & Tech Ed
Apollo-Ridge	Armstrong	Business/IT & English	10th-11th	Regular Education
Lenape	Armstrong	Graduation	10th-11th	Career & Tech Ed
Ambridge	Beaver	Special Ed English	10th-11th	Special Education
Susquehanna	Dauphin	Gifted	10th-12th	Gifted Education
Albert Gallatin	Fayette	AP History	12th	Gifted Education
Brownsville	Fayette	Family/Consumer Science	11th	Regular Educaion
Greene Cty CTC	Greene	Non Traditional	10th-12th	Career & Tech Ed
West Greene	Greene	Career Development	10th-11th	Regular Education
Sharpsville	Mercer	Business	10th-11th	Regular Education
Burgettstown	Washington	Special Education	10th-11th	Special Education
California	Washington	Gifted Enrichment	10th-11th	Gifted Education
Canon McMillan	Washington	Entrepreneurship	9th-12th	Regular Education
Char-Houston	Washington	Gifted Support	10th	Gifted Education
Fort Cherry	Washington	Special Ed English	10th-11th	Special Education
Ringgold	Washington	Gifted English	11th	Gifted Education
Washington	Washington	English 12	12th	Regular Education
Belle Vernon	Westmoreland	Microsoft Word	10th-11th	Regular Education
N West. CTC	Westmoreland	Marketing	10th-11th	Career & Tech Ed

### **Notes on self-esteem results in 2008-9**

In 2008-9 Smart Futures conducted similar surveys to measure self-esteem gains; however, the sample size of students conducting both pre and post surveys was comparatively small at just 83 students. In addition, the data collection methodology was flawed in that some of the surveys were required by students and some were not.

Ultimately, a paired t-test was conducted on the self esteem scores to determine whether the results were statistically significant. The results showed they were marginally significant with  $p < .07$ .

So, even though the change was small and only marginally statistically significant, it was approaching statistical significance. With larger sample sizes, Smart Futures guessed this would likely become significant.