

**POST-CONFERENCE PROCEEDINGS
WORKSHOP SESSION SUMMARY
NIEHS NATIONAL TRAINERS' EXCHANGE
MARCH 2012**

1. Session Title and Presenter's Contact Information

"Meeting the Need for Higher Level Mathematics in an Increasingly Technical Workforce"

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in affiliation with the New York City District Council of Carpenters/UMDNJ Consortium

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2. Workshop Summary

The objective of the 90-minute presentation was to apprise the 11 workshop participants of the importance of mathematics in occupational training programs. The Facilitator, Donald Killinger, Director of BuildingWorks (the pre-apprenticeship program of the New York City District Council of Carpenters and one of the programs with which Helicon, Inc. collaborates) introduced the Presenter who, in turn, introduced the not-for-profit organization she founded in New York City in 1999, Helicon, Inc., which offers comprehensive support to students and training programs along the job readiness continuum. She identified the population (low-income) Helicon, Inc. serves. Data (from a variety of training programs in New York City) emphasizing both the importance [difficulty] of maintaining mathematics standards for entry into *and* the need to enhance mathematics instruction during occupational-training programs were presented. Examples of curricula/materials used in training programs with which Helicon, Inc. collaborates were shown. The Presenter talked at length about the Utility Industry Math Boot Camp (for the Edison Electric Institute's **Construction And Skilled Trades, CAST**, tests) that she just developed for the Center for Energy Workforce Development. Since these (and many other pre-employment tests for which Helicon, Inc. conducts Test Prep Courses) do not permit the use of calculators, the Presenter stressed the need for strong mental math skills on the part of trainees. She gave an example of a sample CAST math problem (part Graphic Arithmetic, part Mathematical Usage); and with a series of minute quizzes (times tables, perfect squares/square roots, common fractions expressed as decimals and percents), she demonstrated the level of expertise needed to solve the problem in 15 - 30 seconds. (This group exercise also served to stress what level of mathematical competency is required for workforce development professionals.) She taught the workshop participants a mental math "trick": how

to square numbers that end in the digit "5." Finally, to identify the reasons that public high school graduates (particularly those from low-income communities) have such low math proficiency, the Presenter gave a brief history of the "Math Wars" and mentioned the names and authors of several scholarly books and articles with further information about this topic. The Presenter provided the Helicon, Inc. website and said she'd be happy to make herself available to anyone who wanted to talk further about the issues covered during the presentation.

3. Methods

The Presenter used a PowerPoint Presentation with 104 slides; participants took notes and asked questions as the slides progressed. Quizzes and pencils with Helicon, Inc. contact information were distributed before the workshop began; participants took the timed quizzes (were able to see their strengths and weakness)—and then speculated about the proficiency of the average program trainee. A general discussion about coordinating high school mathematics instruction and curricula with college-level mathematics requirements took place at the end of the workshop.

4. Main Points

Key lessons

Strong mathematics competency has become increasingly integral to obtaining employment and advancing in careers, even in entry-level blue-collar jobs. Public high school systems around the country are failing their students (61% of high school graduates need remediation in reading, writing or mathematics); so occupational-training programs must be thoroughly prepared to pick up the slack.

Responses from the participants

Most participants indicated they had first-hand experience with the problem and asked knowledgeable questions and/or made cogent comments. All the participants indicated to the Presenter that they enjoyed the presentation; they enjoyed the experience of taking the timed quizzes.

5. References

N/A

6. Workshop Handouts/Resources

- Times Table Quiz #1 (Utility Industry Math Boot Camp)
- Perfect Squares and Square Roots #1 (Utility Industry Math Boot Camp)
- Common Fractions Expressed as Decimals and Percents Quiz #1 (Utility Industry Math Boot Camp)
- **www.heliconinc.org**: curricula, materials and technical support for a variety of preprogram (e.g., TABE™ Math Prep Class and Day of Remediation); in-program (Review of Ruler Fractions and Mixed Numbers [shop math], How to "Read" a Ruler, How to "Read" and Use an Architect's Scale, etc.); and post-

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March 28-29, 2012, Fort Lauderdale, FL.

program (e.g., Utility Industry Math Boot Camp, C-NET P-NAT Prep Course, etc.) are available for free or a nominal licensing fee at the Helicon, Inc. website