ACT WORKFORCE SUMMIT 2018

Evaluating the ACT NCRC as an Assessment for Manufacturing Apprenticeship Success with Related Technical Instruction

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SWORWIB
The Southwest Ohio Region
WORKFORCE INVESTMENT BOARD

Ohio Local Area #13
Serving Cincinnati and Hamilton County

Background

- “Great Recession” layoffs training partnership with Communications Workers of American Union
  - SWORWIB White Paper
  - ACT case study and research brief for Manufacturing
- 2012 GAO WIA Report to congressional committees on *Innovative Collaboratives between Workforce Boards and Employers*
  - Healthcare Innovation cited as hospitals agreed to use NCRC major three assessments and expanded for Fit and Talent Assessments

Expansion of Efforts into Apprenticeships

- America's Promise Grant in partnership with newly formed Midwest Urban Strategies Consortium
- SWORWIB focus on manufacturing using the Industrial Manufacturing Technician (IMT) program and the National Institute for Metal Working Skills (NIMS) Industrial Technology Maintenance (ITM) program
- Applied NCRC as first step with the IMT Apprenticeship under America's Promise based on earlier successes during Great Recession
- Various companies participating, some outside our local area but in Ohio and our Tri-State region (Ohio-Kentucky-Indiana)

Research Questions

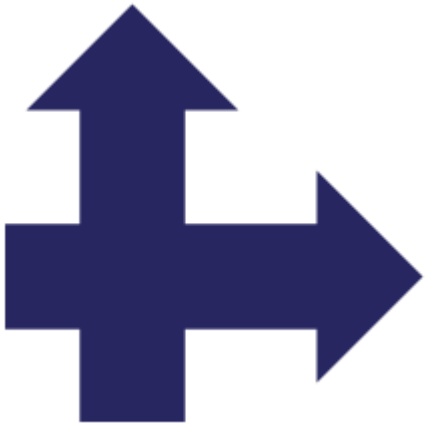
- Will new employers we haven't worked with before use the NCRC as an assessment tool?
- Do individuals with higher NCRC levels …. .
  - complete the Manufacturing Skills Standards Council – Certified Production Technical (CPT) credential with higher scores?
  - perform better on all the related technical instruction components of the IMT?

Data Collection

- ACT and SWORWIB negotiated a data sharing research agreement for ACT to collect and compare results for NCRC and MSSC-CPT.
- SWORWIB contracted with an apprenticeship navigator and obtained an agreement from company HR leaders to interview candidates about their reactions and feelings about the NCRC and MSSC.
- SWORWIB assessed whether employers used the NCRC assessments as part of the interview process.
- SWORWIB assessed the approved apprenticeship standards to confirm the NCRC was included in the official standards.

All employer representatives – (HR and line/product managers) participated in the NCRC assessments as part of the apprenticeship development process and all expressed support for the use of NCRC as an assessment both to introduce the applicants to assessment and predict finalists for the apprenticeship program completion.

Attitudinal Results



Attitudinal Results

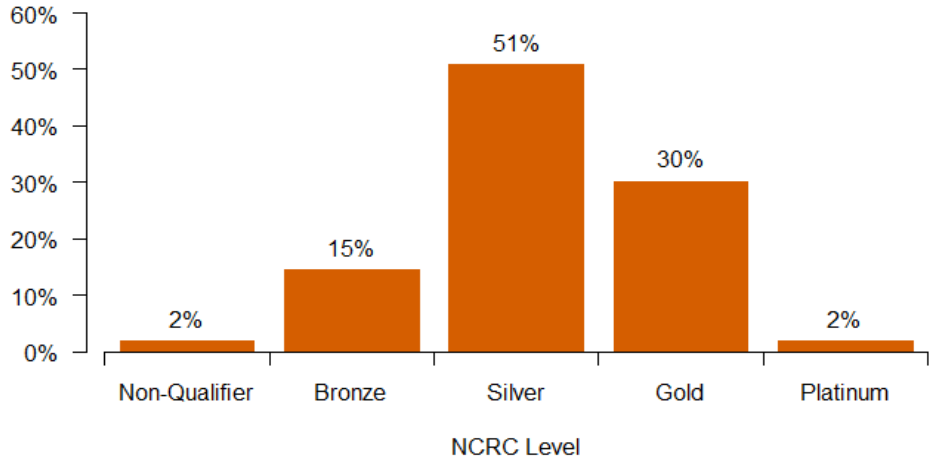
Results of the NCRC experiences and comments expressed by employers and apprentices confirmed the conclusion by employers that the NCRC be included in the Apprenticeship Standards Document and used as part of the apprenticeship selection process.

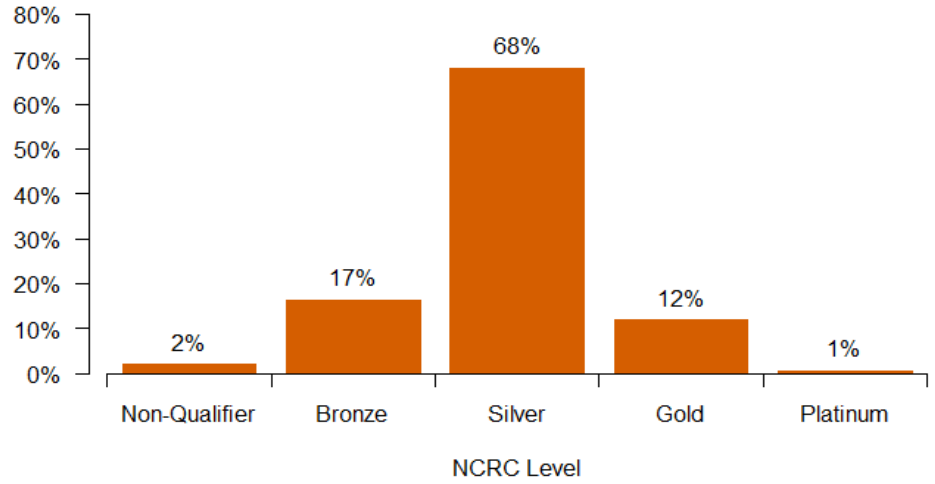
- Results of interviews of the employees demonstrated the positive influence of the NCRC by apprenticeship candidates and the HR managers.
- Moreover, unsolicited comments from employees and apprentices indicated positive opinions towards the employer, hopefulness for their selection and excitement about the potential wage progression.

WorkKeys Performance Distribution Results – Pharma Specific

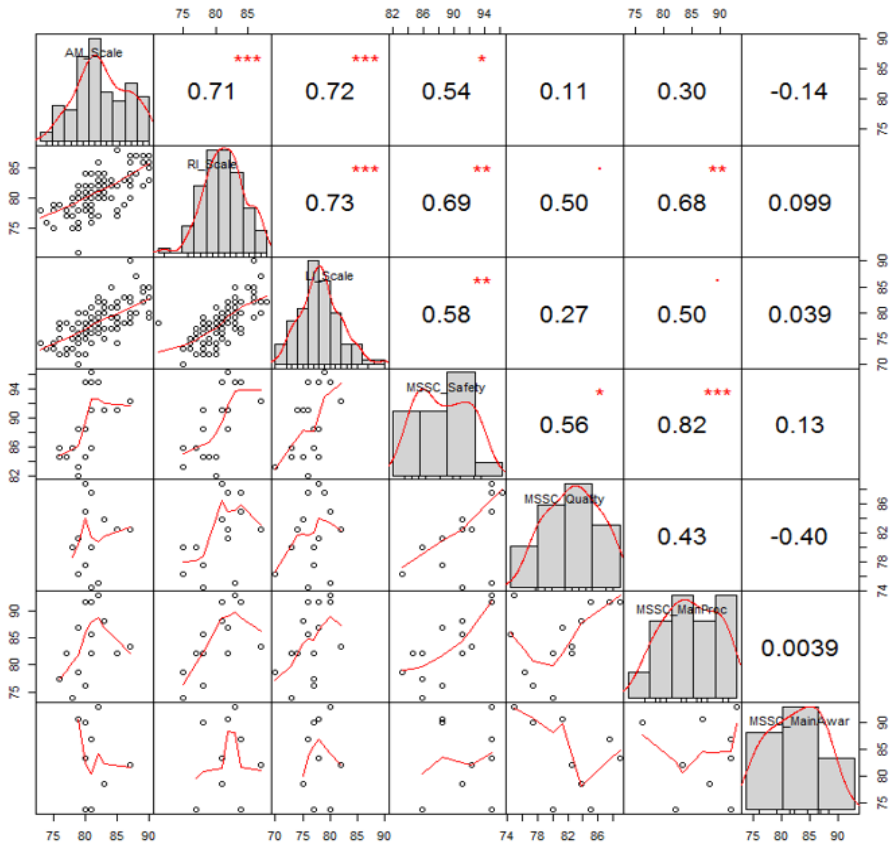
Gold NCRCs were more common and Silver NCRCs were less common in one of the two available data sets (n=102 and n=132).

Both datasets came from pharma-manufacturing and workers were drawn from a pool of talent in a dense region of higher education options.





NCRC and CPT Results



Note: ** and *** indicate statistically significant correlations. The single * dot indicates a nearly significant correlation.

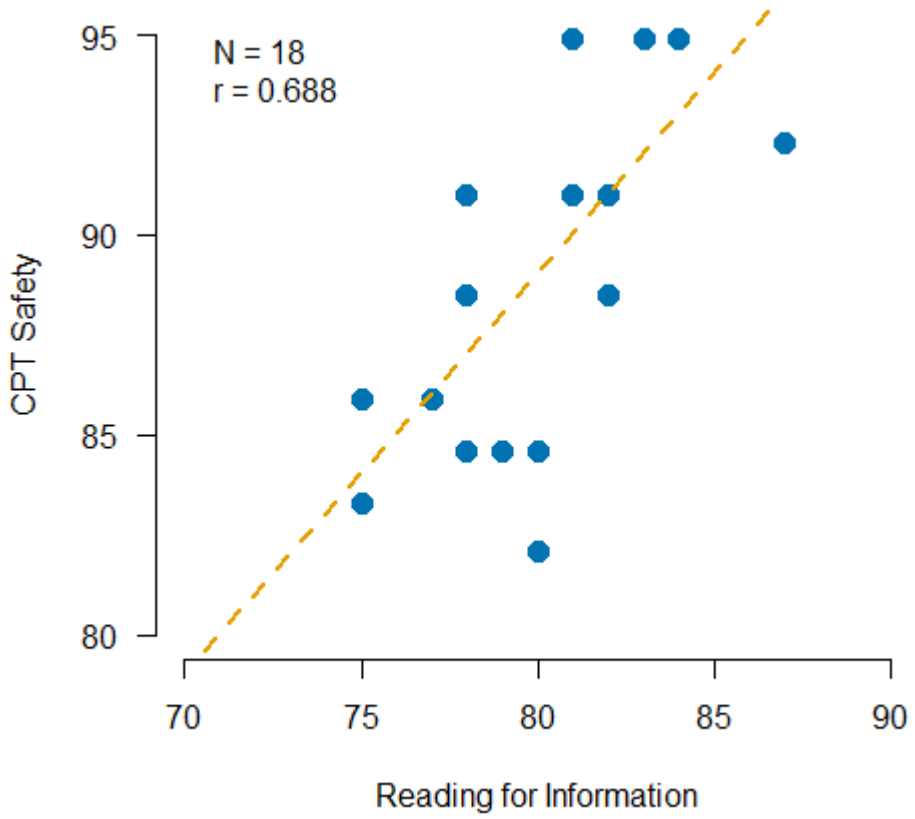
- All WorkKeys assessments correlated positively (.71 to .73).
- The correlations among MSSC exams varied wildly (-.40 to .82, some were not statistically significant).
- WorkKeys Reading for Information correlated .68 with MSSC Manufacturing Processes.
- Other WorkKeys and MSSC exams correlated positively, but the correlations were not statistically significant.
  - For example, Reading for Information correlated .50 with Quality, and Locating information correlated .50 with Manufacturing Processes.
  - Having very small sample sizes makes it difficult to detect statistically significant correlations.

WorkKeys as a Predictor of CPT Exam Performance

Reading for Information was the best predictor of scores on the MSSC Safety, Quality and Manufacturing Processes exams.

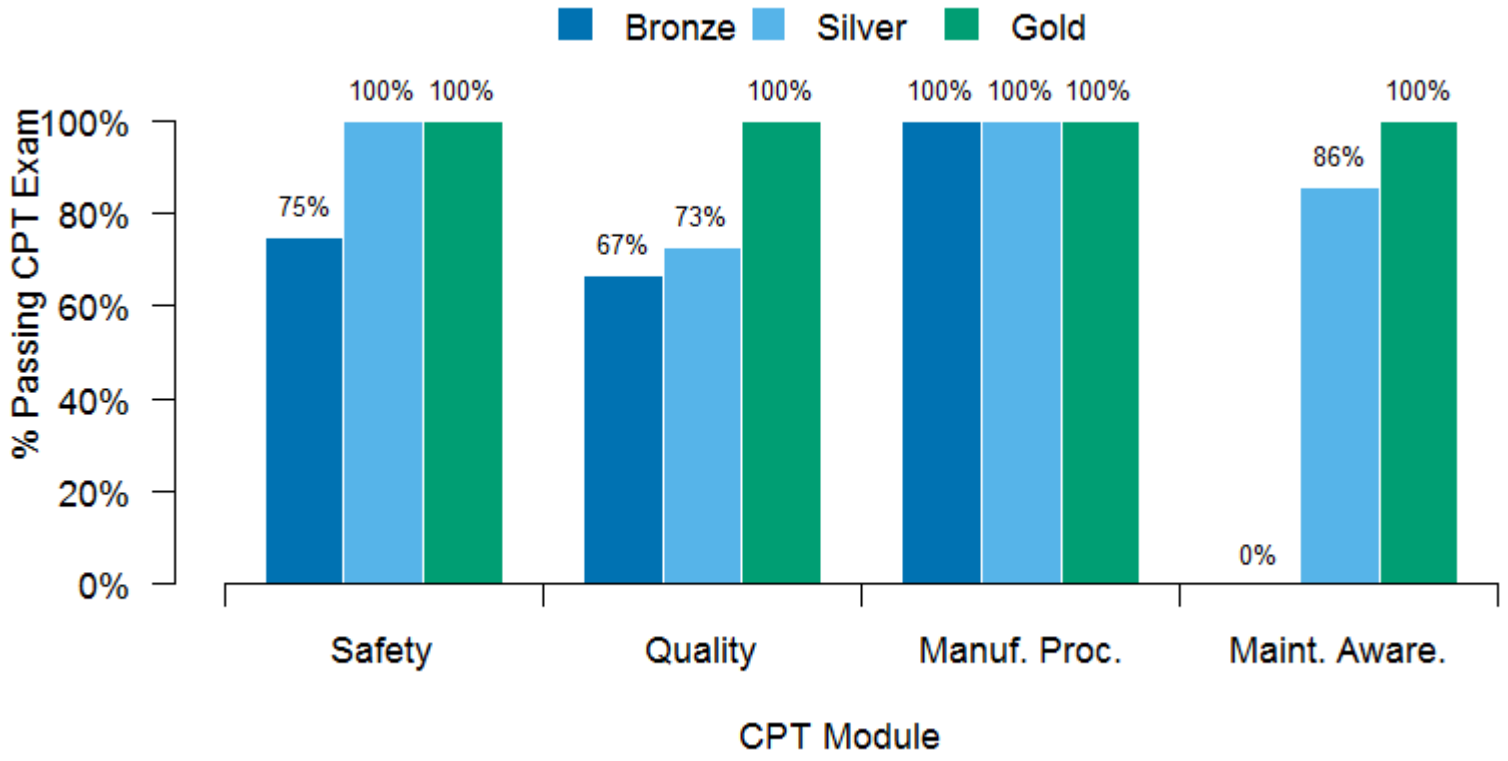
Applied Mathematics and Locating Information were most strongly related to MSSC Safety.

None of the WorkKeys assessments were significantly correlated with MSSC Maintenance Awareness, though small sample sizes made it difficult to detect significant relationships.



WorkKeys as a Predictor of CPT Exam Performance

Individuals earning higher NCRC levels were more likely to pass the CPT exams.



WorkKeys as a Predictor of CPT Attainment

CPT attainment status was known for a larger sample.

Nearly all candidates who earned Silver, Gold, or Platinum NCRC earned the CPT.

NCRC Level	N	% Passing
Non-Qualifier	0	
Bronze	20	87%
Silver	94	98%
Gold	19	100%
Platinum	1	100%

Conclusions

- Overall, results show a solid relationship between the NCRC level and MSSC-CPT performance, especially for Safety and Manufacturing Processes.
- Generally, those who earned higher NCRC levels tend to earn higher scores on individual modules of the MSSC-CPT and increase the passing percentage for the CPT.
- The introduction of an apprenticeship program in a manufacturing operation raises positive interest and reaction by workers and mitigates concerns about testing for which many workers are suspicious. The NCRC with WorkKeys for advancing improvement becomes welcomed by workers rather than a threat.

Interests and Considerations For Future Research

- Results and impact for laid off workers of the recession compared to inexperienced new workers and those going to work in a slow economy.
- Impact of ESOL on assessment and related technical instruction for apprenticeship – need for safety and quality topics in second language.
- Adding mechanical – hand/eye – and other “doing” skills to cognitive capacities assessment and testing.
- Impact of manufacturing industry-type to attracting educated and/or skilled workers (Columbus vs Non-Columbus Comparison)