Philippines ACT KeyTrain® Effectiveness Study

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In January 2014, the Provincial Government of Bataan—in coordination with both Servicio Filipino, Inc. and ACT—launched a study to examine the effectiveness of ACT KeyTrain®, an interactive online training system, for helping students improve their work readiness skill levels. The ACT WorkKeys® Reading for Information, Applied Mathematics, and Locating Information assessments were given as both a pretest and posttest measure of student foundational work readiness skills. The ACT KeyTrain curriculum was given to students in the experimental group, while participants in the control group were given other non-ACT WorkKeys skill related instruction. **This technical brief describes an analysis of student participation in the ACT KeyTrain curriculum and its impact on improving ACT WorkKeys assessment scores.[1]**

Using ACT KeyTrain to Improve Student ACT WorkKeys Skills

- 520 high school students were pre- and post-tested with ACT WorkKeys Applied Mathematics, Locating Information, and Reading for Information.

- Roughly two-thirds of total participants in the study were female (n = 348, 67%) and a third were male (n = 172, 33%).

- The majority of student participants were of Asian race/ethnicity (n = 481, 93%).

- 269 of the students took no ACT KeyTrain courses, but were involved in other instruction instead (control group); 241 took ACT KeyTrain lessons in the three subject areas (experimental group).

- The results of a regression analysis showed significant gains in the posttest mean scale scores for the groups who took the ACT KeyTrain curriculum for Applied Mathematics, Locating Information, and Reading for Information. The practical significance of the ACT KeyTrain curriculum in improving participant scale scores was large for Applied Mathematics and moderate for both Locating Information and Reading for Information.[2]

- The bar charts show how ACT KeyTrain participation improved ACT WorkKeys scores. In the control groups (without ACT KeyTrain), the distribution of scores was similar when students retook ACT WorkKeys. Some improvement can be seen in this share of students, perhaps an indication that test familiarity helped scores. The share of control group students in the lower two categories changes little for the retest. In contrast, the shares of treated students (those taking ACT KeyTrain) shifted markedly toward higher categories. For example, for Applied Mathematics only 2 percent of students taking

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ACT KeyTrain scored at levels 6 and 7 on the initial test, but 11 percent reached these scores in the retest. Similarly, the percent of students taking ACT KeyTrain that scored level 5 rose from 17 to 24 percent from the initial to final test. The percentages of ACT KeyTrain students in the two lowest levels fell sharply from 54 percent initially to 36 percent at the retest. These changes suggest that ACT KeyTrain instruction improved ACT WorkKeys scores over and above what would have been expected from test familiarity as in the control group.

Students who completed all three assessments might qualify for the ACT National Career Readiness Certificate™ (ACT NCRC®). ACT NCRC levels are determined by the lowest level score across the ACT WorkKeys Reading for Information, Applied Mathematics, and Locating Information assessments.[3]

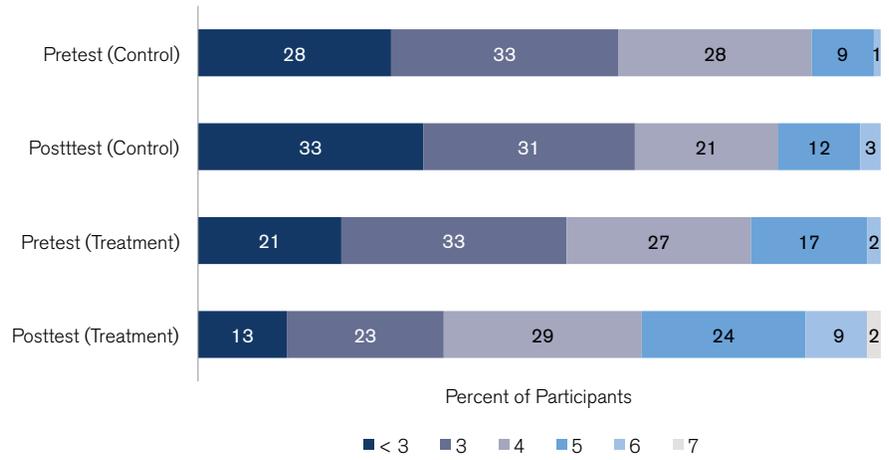Figure 1. Effect of ACT KeyTrain on Applied Mathematics levels

Legend: < 3   3   4   5   6   7

Figure 2. Effect of ACT KeyTrain on Locating Information levels

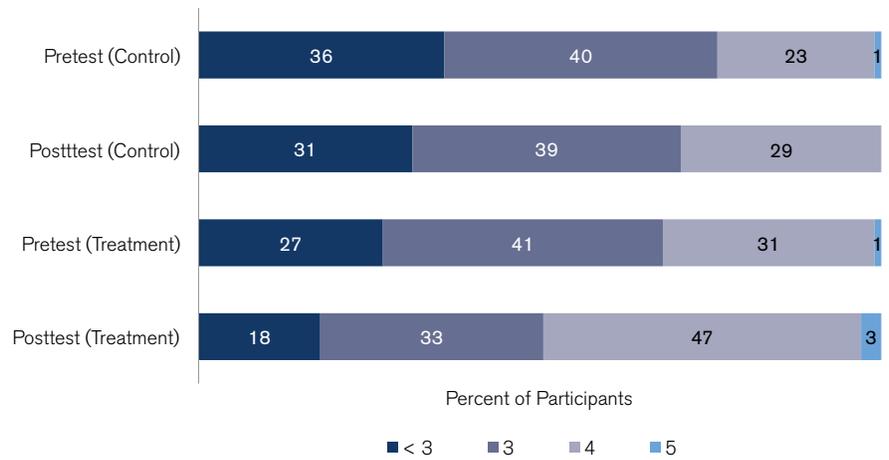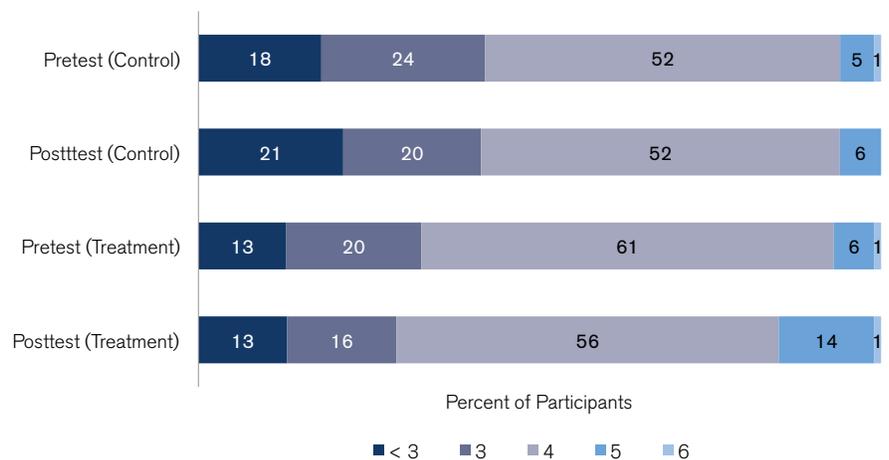Legend: < 3   3   4   5

Figure 3. Effect of ACT KeyTrain on Reading for Information levels

Legend: < 3   3   4   5   6

Note: percentages may not sum to 100% due to rounding.

This figure shows the distribution of student participants who might qualify for the ACT NCRC with results for both the pretest and posttest assessments. The majority (62%) of student participants qualified for an ACT NCRC based on their posttest ACT WorkKeys scores. ■

Figure 4. ACT NCRC qualifying levels—overall
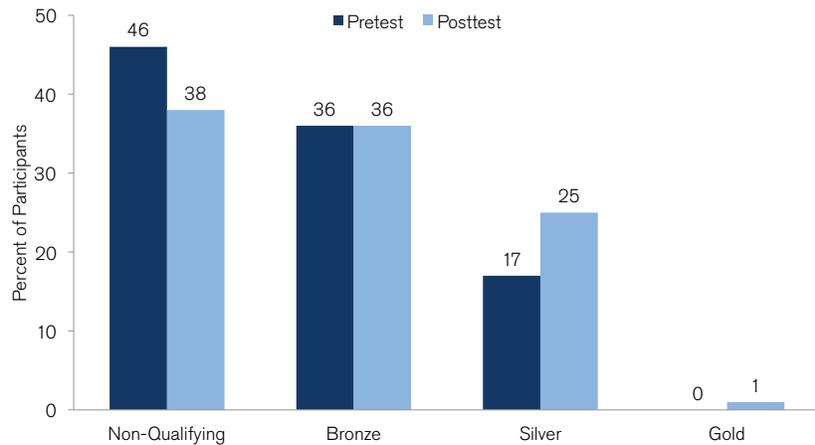
Notes

1   For more information on the ACT WorkKeys assessments, visit: www.act.org/products/workforce-act-workkeys/.

2   A regression analysis was conducted to determine if there were significant gains in the posttest mean scale scores for the groups who took the ACT KeyTrain curriculum. For all analyses, the participant's pretest scale score was used as a control in the model. Participants in the control group who took ACT KeyTrain had statistically significant gains in their mean scale scores on the Applied Mathematics posttest, $b = .14$, $t(4) = 3.51$, $p<.01$. Participants in the experimental group who took ACT KeyTrain also had statistically significant gains in their mean scale scores on the Applied Mathematics posttest, $b = .18$, $t(4) = 4.21$, $p<.01$. The model explained a statistically significant proportion of variance, $R2 = .26$, $F(4, 499)$, $p<.01$. Participants in the experimental group who took ACT KeyTrain had significant gains in their mean scale scores

on the Locating Information posttest, $b = .10$, $t(4) = 2.26$, $p<.05$. The model explained a statistically significant proportion of variance, $R2 = .09$, $F(4, 501)$, $p<.01$. Participants in the control group who took ACT KeyTrain had statistically significant gains in their mean scale scores on the Reading for Information posttest, $b = .09$, $t(4) = 1.98$, $p<.05$. The model explained a statistically significant proportion of variance, $R2 = .11$, $F(4, 502)$, $p<.01$. For all three assessments, the participant's pretest scale score was a statistically significant predictor of the scale score for the posttest.

For all three models, the beta results were analyzed to provide insight regarding the practical significance of the ACT KeyTrain curriculum in improving participant skill scores. The interpretation of these effect sizes are done with respect to previous research on empirical benchmarks that are relevant to the intervention, target population, and outcome measure being considered. Such research has found that smaller effect sizes constitute a

larger substantive change in learning gains for older student populations. In interpreting the magnitude of the effects in this study, a 0.1 beta was considered to be a moderate effect of the treatment for a four-week course of ACT KeyTrain with high school students aged 15–18 with betas of 0.05 considered to be small, and betas of 0.20 to be large. The reported beta of 0.18 for the Applied Mathematics scale score gains of the experimental group who took ACT KeyTrain is therefore a large effect. Likewise, the results show a moderate effect of the ACT KeyTrain curriculum in increasing Locating Information scale scores for the experimental group who was exposed to the intervention. Lastly, there was a moderate effect of the curriculum in improving the Reading for Information scale scores for the control group who took ACT KeyTrain.

3   For more information on the ACT National Career Readiness Certificate, visit: www.act.org/certificate/.