DISAGGREGATING GENDER FOR THE NONTRADITIONAL ACCOUNTABILITY MEASURE:
Memo Developed by Mimi Lufkin, National Alliance for Partnerships in Equity

The U.S. Department of Education's Office of Vocational and Adult Education, requires state recipients of Perkins funds to complete annually a Consolidated Annual Report (CAR). The CAR asks states to report secondary and postsecondary data for each accountability measure aggregated across career and technical education (CTE) programs and disaggregated by gender, race/ethnicity and special population status.

The disaggregation of data by gender in the CAR has not been well understood, and, in many cases, has been misinterpreted. This has led federal and state policymakers to draw incorrect conclusions about the participation and completion rates of males and females in CTE programs that prepare individuals for employment in careers that are nontraditional for one gender or the other.[1]

To illustrate, the CAR collects data on individuals' participation in CTE programs associated with nontraditional occupations (i.e., 4S1 and 4P1). The example below details how use of the CAR, in its present form, could lead to misinterpretation of data, and describes how the measure might be reconstructed, using elements in the CAR, to calculate a more accurate participation rate for males and females in nontraditional CTE programs for their gender. This same analysis can also be done for the completion measure (i.e., 4S2 and 4P2).

Table 1 Hypothetical Data Reported in State Annual Consolidated Report for Measure 4S1: Participation in Programs Leading to Nontraditional Participation

Indicator	Code	Level	Population	Number of Students in the Numerator	Number of Students in the Denominator	Actual Level of Performance
Participation	4S1	Secondary	Total	4224	14866	28.41%
Participation	4S1	Secondary	Male	1743	8322	20.94%
Participation	4S1	Secondary	Female	2481	6544	37.91%

Without full information on the components of the CAR report, one might assume that the state (or local education agency, if looking at local data) was doing a better job of getting females into nontraditional CTE programs than they were getting males into nontraditional CTE programs (37.9 percent versus 20.9 percent, respectively). A natural assumption, then, would be that the identified state should step up its efforts to increase the participation of underrepresented males in nontraditional CTE. Unfortunately, such a decision would be incorrect, because the identified data fail to account for a number of underlying issues associated with measure construction.

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[1] A nontraditional occupation is one in which males or females comprise less than 25 percent of the workforce.

Measure Construction Issues

In the CAR, the numerator of 4S1 comprises all underrepresented males enrolled in nontraditional CTE programs for males. The denominator is all males enrolled in nontraditional CTE programs for males and for females (i.e. all males enrolled in female-dominated programs, such as health care, plus those enrolled in male-dominated programs, such auto technology, which is nontraditional for females).

As such, the data in the existing CAR tell us the rate at which males are willing to risk enrolling in a nontraditional program for males (i.e. a female-dominated program). This is what we have been calling the RISK RATIO for nontraditional CTE participation. It does NOT tell us at what rate males are participating in programs nontraditional for males, but, rather, the rate at which they are participating in ANY program area considered nontraditional for males or females. Since this measure construction is sensitive to the base of students participating in programs, it provides a biased estimate of student willingness to participate in programs associated with nontraditional careers.

Fortunately, the CAR does give us the information necessary to calculate the actual participation rate of males in nontraditional programs for males, and for females in nontraditional programs for females. A more useful set of measures for participation would be:

1) Participation rate of Males in Nontraditional CTE for Males:

$$\frac{\text{\# of underrepresented males in nontraditional CTE programs for males}}{\text{\# of students (males and females) in nontraditional CTE programs for males}}$$

Using the data from the CAR, this measure would be constructed as follows:

$$\frac{\text{Numerator of 4S1 male}}{\text{Numerator of 4S1 male} + (\text{Denominator of 4S1 female} - \text{Numerator of 4S1 female})}$$

2) Participation rate of Females in Nontraditional CTE for Females:

$$\frac{\text{\# of underrepresented females in nontraditional CTE programs for females}}{\text{\# of students (males and females) in nontraditional CTE programs for females}}$$

Using the data from the CAR this is how to reconstruct the measure above:

$$\frac{\text{Numerator of 4S1 female}}{\text{Numerator of 4S1 female} + (\text{Denominator of 4S1 male} - \text{Numerator of 4S1 male})}$$

Using the formulas above and the data given in Table 1 lets look at the difference in the actual participation rates of males and females in nontraditional CTE programs for their gender as compared to their risk ratios as reported in the CAR.

Table 2 Risk Ratios and Participation Rates of males and females in NTO CTE programs

Population	Number of Students in the Numerator	Number of Students in the Denominator	Risk Ratio[2]	Participation Rate of Underrepresented gender students in nontraditional CTE programs
Total	4224	14866	28.41%	28.41%
Male	1743	8322	20.94%	30.02%
Female	2481	6544	37.91%	27.38%

What the data now shows us is that in this state (or local educational agency), males are participating in nontraditional CTE programs for males at a slightly higher rate than are females in nontraditional CTE programs for females. This suggests that males are actually more willing to risk participating in programs associated with female-dominated employment than females are in males.

Although these data alone are not enough to indicate what implementation strategy should be used, it does not support focusing efforts on increasing the participation of males.

The National Alliance for Partnerships in Equity has developed table shells that permit state administrators to input raw enrollment numbers for the secondary and postsecondary nontraditional measures into a spreadsheet that will perform all calculations necessary to disentangle these underlying issues.

Access www.edcountability.net to download examples of these table shells and instructions for their use.

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[2] These data are reported in the CAR as the Actual Level of Performance