Promising Practices to Support the Development of K–12 Manufacturing Programs: Spotlight on Connecticut River Academy's Data

Background

The Manufacturing Skills for Connecticut (MSforCT) project, funded by the U.S. Department of Commerce National Institute for Standards and Technology, aimed to establish a menu of effective educational best practices that Manufacturing Extension Partnerships (MEPs) throughout the country, and manufacturers and school systems across CT and beyond, can use to establish and advance effective career pathways. CONNSTEP, CT's MEP representative, was the lead organization partnering with ReadyCT, a statewide nonprofit focused on K–12 education and career-connected learning; CBIA, CT's largest business organization; the Connecticut Manufacturers' Collaborative, a statewide, policy-focused collective composed of the nine major manufacturing associations within CT; and WestEd, a non-partisan research, development, and service agency.

As part of the MSforCT project, WestEd executed a multistep process to identify 13 manufacturing programs with evidence of using promising practices intended to support high-quality programming. This process included developing a statewide survey; identifying all existing manufacturing programs across CT for survey administration; developing and using a rubric to rank manufacturing programs on their use of high-quality, high-impact practices; and considering site demographics and industry recommendations to choose the final 13 program sites. WestEd then conducted 13 program reviews which included interviews/focus groups with key program stakeholders and a review of student administrative data. Ultimately, the MSforCT project created numerous resources including The MFG Skills-CT website, a Promising Practices guide, and 13 program-specific reports, including Connecticut River Academy's manufacturing program.

Connecticut River Academy's Manufacturing Program Data

The current summary of Connecticut River Academy's manufacturing program data supplements the site-specific report. This document summarizes data from CT's Statewide Longitudinal Data System (SLDS): the Preschool Through 20 Workforce Information Network (P20 WIN). The data included all students enrolled in the high school during the 2019-2020 and 2020-21 academic years. Manufacturing program students are defined as students taking at least one manufacturing program course. Manufacturing students are included in the overall school population.

During the data-cleaning process, there were 19 students identified in Connecticut River Academy who, prior to the 2020-21 academic year, were listed as manufacturing cohort students, but whose status was reversed to non-manufacturing cohort members in 2020-21. The research team was unable to identify a clear reason for the status reversal. Table 1 below shows alternative demographic data that includes these 19 students in the manufacturing cohort. In the rest of the summary tables, the data is a combination of all available academic years, which means that all manufacturing cohort members are included in calculations despite the status reversal.

Table 1: Student Demographics, Academic Year 2020-2021

Student Characteristics	Manufacturing Program Students (n = 42)		Manufacturing Program Students Alternative Count (n = 61)		Overall School Population (n = 476)	
	n	%	n	%	n	%
American Indian or Alaska Native	*	*	*	*	*	*
Asian	*	*	*	*	18	4%
Black or African American	11	26%	15	25%	111	23%
Hispanic/Latino of any race	20	48%	30	49%	266	56%
Native Hawaiian or Other Pacific Islander	*	*	*	*	*	*
Two or More Races	*	*	*	*	15	3%
White	8	19%	12	20%	64	13%
Female	*	*	11	18%	249	52%
English Language Learners	*	*	*	*	38	8%
Students with Disabilities	8	19%	13	21%	76	16%
Free/Reduced Lunch Eligible	29	69%	40	66%	316	66%

Note: Cells with five or fewer students are restricted from reporting and noted with an asterisk.

In the academic year 2020-2021 the manufacturing program enrolled 42 students at Connecticut River Academy. Among these manufacturing program students, 48% were Hispanic/Latino students of any race. This was a slightly lower rate of participation compared to the overall school enrollment for the same subgroup (56%). The program also enrolled 26% Black or African American and 19% White students. While Black students' participation rate compared to their school-wide enrollment (23%) was slightly lower, white students represented a larger proportion of the manufacturing cohort compared to their overall enrollment (13%).

Table 2: Student Demographics, Academic Years 2019-2020 & 2020-2021

Student Characteristics	Manufacturing Program Students (n = 62)		Overall School Population (n = 593)	
	n	%	n	%
American Indian or Alaska Native	*	*	*	*
Asian	*	*	25	4%
Black or African American	15	24%	208	35%
Hispanic/Latino of any race	30	48%	318	54%
Native Hawaiian or Other Pacific Islander	*	*	*	*
Two or More Races	*	*	18	3%
White	12	19%	94	16%
Female	7	11%	307	52%
English Language Learners	*	*	50	8%
Students with Disabilities	13	21%	92	16%
Free/Reduced Lunch Eligible	41	66%	393	66%

Note: Cells with five or fewer students are restricted from reporting and noted with an asterisk

There were 62 students in total in the manufacturing program for the combined academic years 2019-20 and 2020-21. The cohort consisted of 48% Hispanic/Latino students of any race, 24% Black or African American members, and 19% White. Female students comprised 11% of the cohort members, 21% were students with disabilities, and 66% were eligible for free/reduced lunch. White students had a slightly higher participation rate in the program compared to their share in overall school population (16%), but the rest of the mentioned subgroups showed lower comparative participation.

Table 3: Academic Characteristics, Academic Years 2019-2020 & 2020-2021

Metric	Manufacturing Program Students (n = 94)					Overall School Population (n = 948)				
	Mean	Median	SD	High	Low	Mean	Median	SD	High	Low
Attendance	129.2	119	31.6	178	33	136.3	121	30	178	33

Note: Attendance is defined at the total number of days attended in a given school year.

Manufacturing program students across cohorts (2019-20 and 2020-21) attended school on average for 129.2 academic days (SD 31.6). This figure is lower than the overall attendance rate.

Table 4: Standardized Assessment, Academic Years 2019-2020 & 2020-2021

Metric	Manufacturing Program Students (n = 48)					Overall School Population (n = 306)				
	Mean	Median	SD	High	Low	Mean	Median	SD	High	Low
English SAT	449.8	430	99.5	700	270	455.2	440	97.1	740	250
Math SAT	435	410	95.4	680	200	427.7	410	86	690	200

Of the 48 manufacturing program students who took the SAT, the average scores were 449.8 (SD 99.5) on the English section and 435 (SD 95.4) on the math section. On average, manufacturing program students' English scores were lower than the overall school populations' average scores. The math scores, on the other hand were higher than the overall school average results.

Table 5: Secondary Graduation Rate, Academic Years 2019-2020 & 2020-2021

Metric	Manufacturing Program Students		Overall School Population	
	n=50	%	n=326	%
Graduated	48	96%	318	97%

Of students eligible for graduation in both academic years across the manufacturing cohort, 96% graduated from Connecticut River Academy. The overall school-wide graduation rate for the same years combined was 97%.

Table 6: Postsecondary Enrollment, Academic Years 2019-2020

	Manufacturing Students		Overall School Population	
	n=48	%	n=326	%
Enrolled in CT Postsecondary Program	8	17%	53	16%
Enrolled in Out of State Postsecondary Program	0	0%	13	4%
No Record of Postsecondary Enrollment	40	83%	260	80%

In total, 8 students (17%) in the manufacturing program from the academic year 2019-20 entered postsecondary educational institutions and all of them were enrolled in programs in Connecticut. For the overall school student population, 16% of the students who graduated from high school in 2019-20 academic year entered postsecondary programs in Connecticut, and another 4% in out-of-state institutions.

Table 7: Postsecondary Enrollment, By Institution Type, Academic Years 2019-2020

Institution Type	Overall School Population	
	n	%
Overall		
4-Year Institution	48	72.7%
2-Year Institution	18	27.3%
<2-Year Institution	0	0%

Note: There was not enough data to report postsecondary enrollment for manufacturing cohort students.

In the overall school population, 73% of the students in postsecondary education were in 4-year programs and 27% in 2-year colleges.