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Career and Technical Education in Vermont

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Vermont is home to 17 Career and Technical Education (CTE) centers.¹ These centers are comprehensive high school equivalents providing secondary, postsecondary, and adult technical education courses. They are overseen by the Vermont Agency of Education, as required by 16 V.S.A. § 1531, “to ensure that academic education is included in [technical] programs of study,” and “to coordinate activities and programs with workforce development efforts.”² The Agency says CTE centers help students “gain the skills, technical knowledge, academic foundation and real-world experience they need to prepare for high skill, high demand, high wage careers.”³ Access to CTE programs was expanded in 2013 under Act 77,⁴ or the Flexible Pathways Initiative, which provided grant funding to supervisory unions or school districts with CTE centers.⁵

This report responds to four questions regarding CTE in Vermont, using information and data collected by the Agency of Education:

- 1) What are the programs offered by CTE centers in Vermont?
- 2) What are the annual graduation rates from CTE centers in Vermont?
- 3) What are the post-graduation outcomes for those completing CTE programs in Vermont?
- 4) How many graduates of CTE programs in Vermont further their education at Vermont Technical College?

¹ “Career and Technical Center Directory: 2017-2018 School Year,” Vermont Agency of Education, <http://education.vermont.gov/sites/aoe/files/documents/edu-career-tech-center-directory-2017-2018.pdf>.

² “Career Technical Education,” *State of Vermont Agency of Education*, accessed May 9, 2017, <http://education.vermont.gov/student-learning/flexible-pathways/career-technical-education>.

³ “Career Technical Education.”

⁴ “Flexible Pathways,” *State of Vermont Agency of Education*, accessed May 9, 2017, <http://education.vermont.gov/student-learning/flexible-pathways>.

⁵ “Developing Work-Based Learning at the Secondary Level: Creating Authentic and Diverse Career Experiences for All Students Grant Application 2017,” Vermont Agency of Education, <http://education.vermont.gov/sites/aoe/files/documents/edu-flexible-pathways-grant-application-developing-work-based-learning-opportunities.pdf>.

CTE Programs

There are three levels of CTE programs in Vermont, all of which are subject to a set of criteria and an approval process administered by the State Board of Education and the Secretary of Education.⁶ *Pre-tech exploratory programs* introduce students in their first or second year of high school to all of the CTE options available at a regional center.⁷ *Pre-tech foundational programs* familiarize this same age group of students with more specific career clusters and are part of a three or four year CTE sequence.⁸ Finally, *technical education level programs* teach a curriculum of occupational skills, in either a half-day or full-day format.⁹

Vermont's CTE programs teach a variety of subjects; the offerings vary and are dependent upon location. The Agency of Education provides a comprehensive list of the programs available at each location in a [Career and Technical Center Directory](#). Each CTE center has a website that provides more specific details regarding program curriculum and content. Most CTE programs fall under the following categories:¹⁰

- Automotive technology
- Business administration information support/marketing
- Carpentry and construction
- Computer network management
- Cosmetology
- Criminal justice
- Culinary and baking arts
- Digital media arts/design visual communication
- Diversified agriculture
- Electrical technology
- Emergency, fire, and law enforcement services
- Health careers
- Heating, Ventilation & Air Conditioning (HVAC)
- Hotel management and hospitality
- Human services
- Natural resources and forestry
- Performing arts
- Precision machine technology and welding/metal fabrication

⁶ "Career And Technical Education Programs," *State of Vermont Agency of Education*, accessed May 9, 2017, <http://education.vermont.gov/student-learning/flexible-pathways/career-technical-education/programs#programs>.

⁷ Ibid.

⁸ Ibid.

⁹ Ibid.

¹⁰ "Career and Technical Center Directory: 2017-2018 School Year."

Graduation Rates for CTE Centers

Graduation data for CTE centers is presented in terms of both “event” rates and “cohort” rates. The event rate measures the number of CTE students in 12th grade who graduate, while the cohort rate measures the number of CTE students who graduate with the group they were in when they started ninth grade.¹¹ For the 2015-2016 academic year, the average event rate for all Vermont CTE centers was 98.79 percent and the cohort rate was 93.78 percent.¹² These rates have remained consistent for the past five years.¹³ Table 1 breaks down these rates for each of the 17 CTE centers.

Table 1: Vermont Career and Technical Education Center Graduation Rates

	2015-2016		2014-2015	
	Event Rate (%)	Cohort Rate (%)	Event Rate (%)	Cohort Rate (%)
State of Vermont	98.79	93.78	98.33	94.92
Burlington Technical Center	100.00	92.77	98.88	91.67
Central Vermont Career Center	100.00	94.92	95.65	93.75
Cold Hollow Career Center	100.00	94.87	100.00	97.96
Essex Center for Technology Education	100.00	89.92	100.00	94.41
Green Mountain Technical and Career Center	100.00	95.74	96.97	94.92
Hartford Career and Technical Center	100.00	90.91	100.00	96.43
Lyndon Institute	97.62	87.18	97.06	88.24
North Country Career Center	94.64	95.54	96.72	96.64
Northwest Technical Center	100.00	100.00	100.00	100.00
Patricia Hannaford Career Center	100.00	98.57	97.92	95.65
Randolph Technical Career Center	98.88	91.14	94.37	96.55
River Bend Career and Tech Center	97.50	94.74	100.00	91.67
River Valley Technical Center	94.34	90.20	100.00	94.92
St. Johnsbury Academy	100.00	100.00	97.37	93.94
Stafford Technical Center	100.00	91.84	97.03	96.77
Southwest VT Career Development Center	98.85	92.77	97.75	95.35
Windham Regional Career Center	98.57	95.24	98.90	92.05

(Data source: Jay Ramsey, State Director for Career Technical Education, Vermont Agency of Education)

¹¹ Jay Ramsey, e-mail message to authors, April 20, 2017.

¹² Ibid.

¹³ “State Profile – Vermont,” *Perkins Collaborative Resource Network*, accessed May 9, 2017 <http://cte.ed.gov/profiles/vermont>.

For the 2014-2015 academic year the statewide high school event rate was 92.39 percent and the cohort rate was 87.62 percent.¹⁴ For the 2015-2016 academic year the event rate was 92.83 percent and the cohort rate was 87.72 percent.¹⁵ For more information on overall high school completion rates by high school in Vermont see this [data set](#) from the Agency of Education. Note, however, that it does not disaggregate the CTE completion rates from the general high school completion rates.¹⁶

Post-Graduate Outcomes

The Agency of Education collects some data on post-secondary education and job placement for CTE graduates. Data from a three-year placement study of 2013 graduates was collected locally through the efforts of CTE teachers via phone calls, e-mails, and other methods.¹⁷ Figure 1 and Figure 2 separate the results of these surveys based on the respondents reported post-graduate outcomes related or unrelated to their CTE program. Related outcomes are determined based upon the [National Career Clusters Framework](#) and related Career Pathways.¹⁸ The figures show that most respondents reported a post-graduate outcome of either post-secondary education or employment. Additionally, “more females than males [who graduate from Vermont CTEs] are pursuing post-secondary education - whether it's related or unrelated,” and in general, “more students pursue related post-secondary education than unrelated.”¹⁹

In 2014, the Agency of Education also performed a test inquiry with the National Student Clearinghouse (NSC) to learn more about CTE center concentrators' and participants' post-secondary education enrollment. Concentrators are students in a CTE program who have completed at least half of the program and are enrolled in the second half.²⁰ Participants are students who participate in a CTE program for any period of time.²¹ It is important to note that this data “is not inclusive of students who elected not to release their personal information to the NSC,” or of “certificate, registered apprenticeship, or other post-secondary programs in which CTE students might be more likely to enroll.”²² Table 2 and Table 3 show the inquiry's findings. Of the CTE students who received high school diplomas, the postsecondary enrollment rate within 18 or more months was 42.4 percent of CTE concentrators and 47.5 percent of CTE participants. The NSC inquiry also categorizes post-secondary enrollments by institution, state, type of program, and gender.

¹⁴ “Data Dropout Completion Tables 2004 through 2016,” *State of Vermont Agency of Education*, accessed May 15, 2017, <http://education.vermont.gov/documents/data-dropout-completion-tables>.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Jay Ramsey, e-mail message to authors, April 20, 2017.

¹⁸ “Career Clusters,” *Advance CTE: State Leaders Connecting Learning to Work*, accessed May 15, 2017, <https://careertech.org/career-clusters>.

¹⁹ Ibid.

²⁰ Ibid.

²¹ Ibid.

²² Ibid.

3 Year Placement Participants

Based on an informal survey of CTE students 3 years after graduation. Response rate is 30-50%

3 Year Placement - Related



Figure 1: Related Post-Graduate Outcomes

(Data source: Jay Ramsey, State Director for Career Technical Education, Vermont Agency of Education)

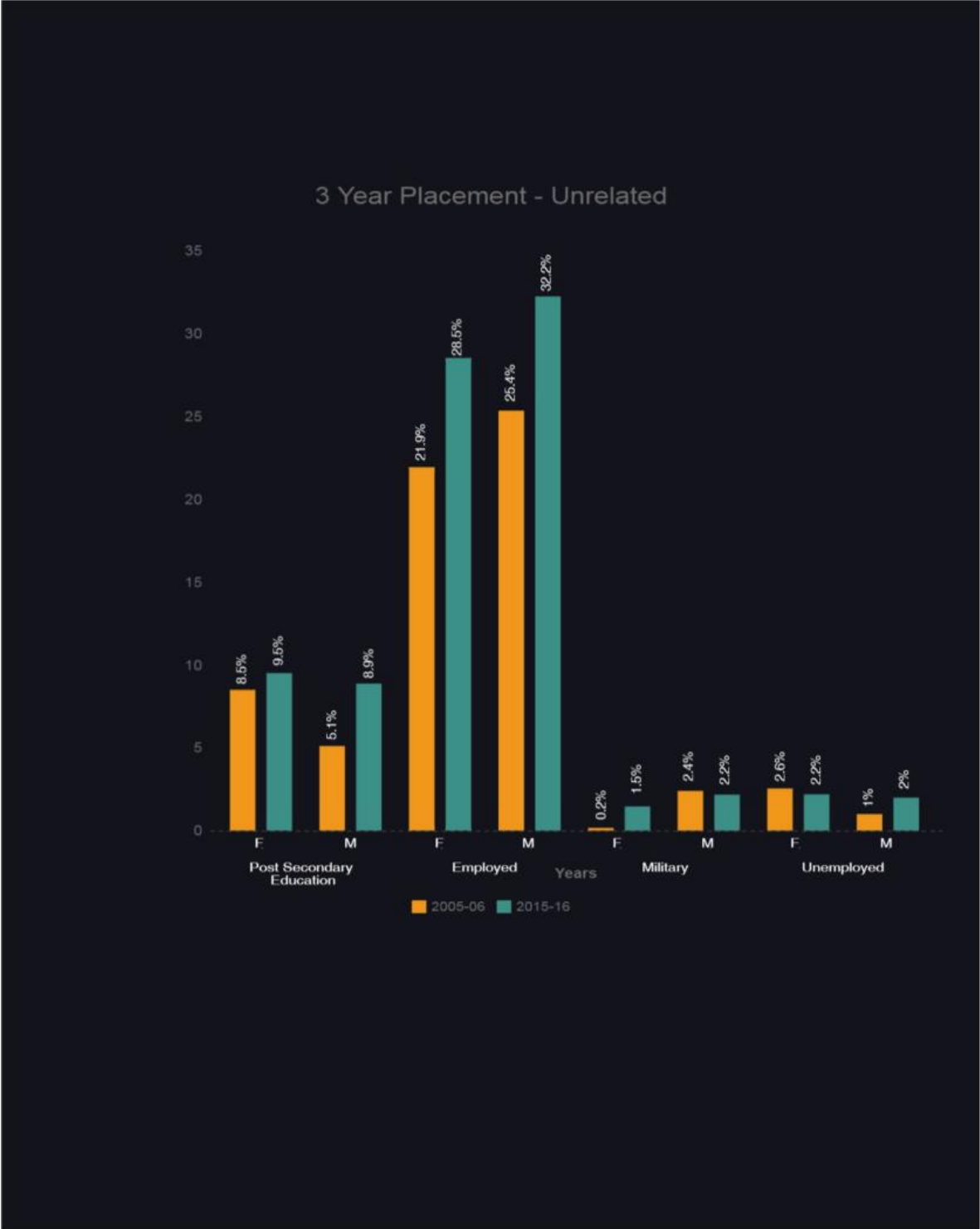


Figure 2: Unrelated Post-Graduate Outcomes

(Data source: Jay Ramsey, State Director for Career Technical Education, Vermont Agency of Education)

Table 2: CTE Concentrators' Post-Secondary Enrollments

CTE Concentrators
Statewide
High School Graduating Classes: 2009 - 2014
High School Graduates
Postsecondary Enrollments

CTE Students who received Regular HS Diploma	1,296					
Postsecondary Enrollments (# months from HS Graduation)	Within 3 Months	Within 6 Months	Within 12 Months	Within 15 Months	Within 18 Months	18+ Months
Total Postsecondary Enrollments (NSC Matched)	381	397	442	481	491	550
Postsecondary Enrollment Rate	29.4%	30.6%	34.1%	37.1%	37.9%	42.4%

% Post Secondary Enrollments	% Out of State - Postsecondary Institutions	40.7%	42.6%	41.4%	40.7%	40.7%	39.5%
	% In State - Postsecondary Insititutions	59.3%	57.4%	58.6%	59.3%	59.3%	60.5%
	% Less than 2 Year Program	-	-	-	-	-	-
	% 2 Year Program	3.1%	32.7%	36.9%	38.3%	38.5%	43.1%
	% 4 Year Program	5.2%	67.3%	63.1%	61.7%	61.5%	56.9%
	% Private - Postsecondary Institutions	25.5%	27.2%	26.2%	24.7%	25.1%	23.3%
	% Public - Postsecondary Institutions	74.5%	72.8%	73.8%	75.3%	74.9%	76.7%
	% Females	49.9%	49.4%	49.5%	48.0%	47.9%	48.5%
	% Males	50.1%	50.6%	50.5%	52.0%	52.1%	51.5%
	% Non - Free and Reduced-Price Lunch eligible students	71.9%	72.0%	72.4%	73.2%	72.9%	72.4%
	% Free and Reduced-Priced Lunch eligible students	28.1%	28.0%	27.6%	26.8%	27.1%	27.6%
	% English Language Learners Students	1.3%	1.3%	1.8%	1.9%	1.8%	1.6%
	% Students with an Individualized Educational Plan	11.0%	11.1%	11.3%	11.2%	11.2%	12.2%
	Postsecondary Institutions most frequently attended by Vermont High School grads:						
	Community College of Vermont						30.4%
	Vermont Technical College						7.1%
	Lyndon State College						6.0%
	University of Vermont						4.7%
	Castleton State College						4.4%
	Johnson State College						2.4%
	Greenfield Community College						1.8%
	University Of Northwestern Ohio - Coll O						1.5%
	Champlain College						1.5%
	Southern New Hampshire University- Ungra						1.1%
	Total						60.7%
States where Vermont High School graduates most frequently attended Postsecondary:							
VERMONT						60.5%	
NEW YORK						9.5%	
NEW HAMPSHIRE						6.5%	
MASSACHUSETTS						6.2%	
OHIO						2.2%	
MAINE						2.2%	
PENNSYLVANIA						1.6%	
FLORIDA						1.1%	
RHODE ISLAND						1.1%	
COLORADO						0.7%	
Total						91.6%	

(Data source: Jay Ramsey, State Director for Career Technical Education, Vermont Agency of Education)

Table 3: CTE Participants' Post-Secondary Enrollments

CTE Participants
Statewide
High School Graduating Classes: 2009 - 2014
High School Graduates
Postsecondary Enrollments

CTE Students who received Regular HS Diploma	13,508					
	Within 3 Months	Within 6 Months	Within 12 Months	Within 15 Months	Within 18 Months	18+ Months
Postsecondary Enrollments (# months from HS Graduation)						
Total Postsecondary Enrollments (NSC Matched)	4,801	4,992	5,416	5,807	5,878	6,417
Postsecondary Enrollment Rate	35.5%	37.0%	40.1%	43.0%	43.5%	47.5%
% Out of State - Postsecondary Institutions	42.3%	43.9%	42.4%	42.1%	42.1%	41.4%
% In State - Postsecondary Institutions	57.7%	56.1%	57.6%	57.9%	57.9%	58.6%
% Less than 2 Year Program	0.0%	0.3%	0.3%	0.2%	0.2%	0.2%
% 2 Year Program	2.0%	25.9%	29.6%	30.9%	31.0%	34.1%
% 4 Year Program	5.7%	73.8%	70.1%	68.8%	68.7%	65.6%
% Private - Postsecondary Institutions	30.6%	32.5%	31.1%	30.3%	30.6%	29.6%
% Public - Postsecondary Institutions	69.4%	67.5%	68.9%	69.7%	69.4%	70.4%
% Females	50.2%	49.7%	50.1%	49.6%	49.5%	49.4%
% Males	49.8%	50.3%	49.9%	50.4%	50.5%	50.6%
% Non - Free and Reduced-Price Lunch eligible students	74.5%	74.3%	73.4%	73.3%	73.2%	72.8%
% Free and Reduced-Priced Lunch eligible students	25.5%	25.7%	26.6%	26.7%	26.8%	27.2%
% English Language Learners Students	1.5%	1.6%	1.7%	1.7%	1.7%	1.7%
% Students with an Individualized Educational Plan	6.3%	6.4%	6.7%	6.8%	6.8%	7.3%
Postsecondary Institutions most frequently attended by Vermont High School grads:						
Community College of Vermont						25.1%
Vermont Technical College						6.5%
Lyndon State College						5.9%
University of Vermont						5.4%
Castleton State College						5.2%
Johnson State College						3.3%
Champlain College						1.9%
University Of Northwestern Ohio - Coll O						1.5%
Greenfield Community College						1.2%
Paul Smiths College of Arts and Science						1.1%
						Total 57.2%
States where Vermont High School graduates most frequently attended Postsecondary:						
VERMONT						58.6%
NEW YORK						9.1%
MASSACHUSETTS						6.9%
NEW HAMPSHIRE						6.1%
MAINE						3.2%
OHIO						2.0%
PENNSYLVANIA						1.9%
RHODE ISLAND						1.9%
FLORIDA						0.9%
VIRGINIA						0.7%
						Total 91.4%

(Data source: Jay Ramsey, State Director for Career Technical Education, Vermont Agency of Education)

How Many Graduates Attend Vermont Technical College (VTC)?

The Agency of Education does not collect data on the number of Vermont CTE graduates who further their education at VTC specifically, but the 2014 NSC test inquiry did present a list of the postsecondary institutions most frequently attended by Vermont CTE graduates in terms of both students who “participated” in CTE for any period of time and students who “concentrated” in their program.²³ From 2009-2014, 6.5 percent of CTE “participants” attended VTC within 18 months of graduation compared to 7.1 percent of “concentrators” (see Table 2 and Table 3).²⁴

Conclusion

This report presents information and data collected by the Agency of Education relevant to four specific questions on CTE in Vermont. The Agency collects this data in order to fulfill a reporting requirement for the Federal Carl D. Perkins Career and Technical Education Improvement Act of 2006 Grant.²⁵ To view additional data on indicators of performance and population categories for CTE in Vermont visit: <http://cte.ed.gov/accountability/core-indicators> and <https://perkins.ed.gov/pims/DataExplorer/>.

This report was completed on May 16, 2017, by Ashlynn Doyon and Madeline Murray-Clasen under the supervision of Professors Eileen Burgin, Alec Ewald and Jack Gierzynski and with the assistance of Research Assistant Laura Felone in response to a request from Representative Benjamin Jickling.

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Disclaimer: This report has been compiled by undergraduate students at the University of Vermont under the supervision of Professor Jack Gierzynski, Professor Alec Ewald and Professor Eileen Burgin. The material contained in the report does not reflect the official policy of the University of Vermont.

²³ Ibid.

²⁴ Ibid.

²⁵ “Career Technical Education.”