

Labor Market Analysis for Program Recommendation:
 1305.00/Child Development/Early Care and Education
 (Apprenticeship in Early Childhood)
 (Early Childhood Education Apprenticeship Program)
 Orange County Center of Excellence, November 2023



Summary

Program LMI Endorsement	Endorsed: All LMI Criteria Met <input type="checkbox"/>	Endorsed: Some LMI Criteria Met <input checked="" type="checkbox"/>	Not LMI Endorsed <input type="checkbox"/>
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Program LMI Endorsement Criteria

	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Supply Gap:	<i>Comments:</i> there is projected to be 8,748 annual job openings throughout Los Angeles and Orange counties for these early childhood education occupations, which is more than the 6,988 awards conferred by educational institutions.	
Living Wage: (Entry-Level, 25 th)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	<i>Comments:</i> all annual job openings for these early childhood education occupations have entry-level hourly wages significantly below the OC living wage of \$20.63.	
Education:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<i>Comments:</i> The typical entry-level education for these early childhood education occupations ranges from some college, no degree to an associate degree. Additionally, more than one-third of workers in the field have completed some college or an associate degree as their highest level of education.	

Emerging Occupation(s)

Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<i>Comments:</i> N/A	

The Orange County Center of Excellence for Labor Market Research (OC COE) prepared this report to determine whether there is a supply gap in the Los Angeles/Orange County regional labor market related to two middle-skill occupations:

- Preschool Teachers, Except Special Education (25-2011)
- Teaching Assistants, Except Postsecondary (25-9045)

Based on the available data there appears to be a supply gap for these early childhood education occupations and typical education requirements for these occupations align with a community college education. However, the majority of annual job openings have entry-level wages significantly below the living wage. **Therefore, due to some of the regional labor market criteria being met, the COE endorses this proposed program.**

Exhibit 1 lists the occupational demand, supply, typical entry-level education, and educational attainment for the occupations included in this report.

Exhibit 1: Labor Market Endorsement Summary

Occupation (SOC)	Demand (Annual Openings)	Supply (CC and Non-CC)	Entry-Level Hourly Earnings (25 th Percentile)	Typical Entry-Level Education	Community College Educational Attainment
Preschool Teachers, Except Special Education (25-2011)	LA: 2,106	LA: 132	OC: \$16.65	Associate degree	34%
	OC: 612	OC: 8			
	TTL: 2,718	TTL: 140			
Teaching Assistants, Except Postsecondary (25-9045)	LA: 4,578	LA: 5,277	OC: \$17.54	Some college, no degree	39%
	OC: 1,452	OC: 1,571			
	TTL: 6,030	TTL: 6,848			
Total	8,748	6,988	N/A	N/A	N/A

Demand:

- The number of jobs related to these early childhood education occupations are projected to increase 6% through 2026, equating to 8,748 annual job openings.
- Hourly entry-level wages for these early childhood education occupations range from \$16.65 to \$17.54 in Orange County; all annual job openings have entry-level wages below the living wage.
- There were 10,956 online job postings for these early childhood education occupations over the past 12 months. The highest number of postings were for preschool teachers, childcare teachers, and preschool teacher assistants.
- The typical entry-level education for these early childhood education occupations ranges from some college, no degree to an associate degree.
- Between 34% and 39% of workers in the field have completed some college or an associate degree as their highest level of educational attainment.

Supply:

- There was an average of 5,286 awards conferred by 28 community college institutions in Los Angeles and Orange Counties from 2019 to 2022.
- Non-community college institutions conferred an average of 1,702 awards from 2019 to 2021.
- Throughout California, there were 23 completions for childcare and educational services apprenticeships in 2022.
- Orange County community college students that exited child development/early care and education programs in the 2020-21 academic year had a median annual wage of \$29,680 after exiting the program and 27% attained the regional living wage.
- Throughout Orange County, 72% of early childhood education students that exited their program in 2019-20 reported that they are working in a job closely related to their field of study.

Demand

Occupational Projections:

Exhibit 2 shows the annual percent change in jobs for these early childhood education occupations from 2017 through 2027. Employment for these early childhood education occupations declined 11% from 2019 to 2020 in Orange County due to the COVID-19 pandemic, which is higher than the 7% decline across all occupations during the same period. These early childhood education occupations are projected to grow at a similar rate for all occupations through 2027.

Exhibit 2: Annual Percent Change in Jobs for Early Childhood Education Occupations, 2017-2027

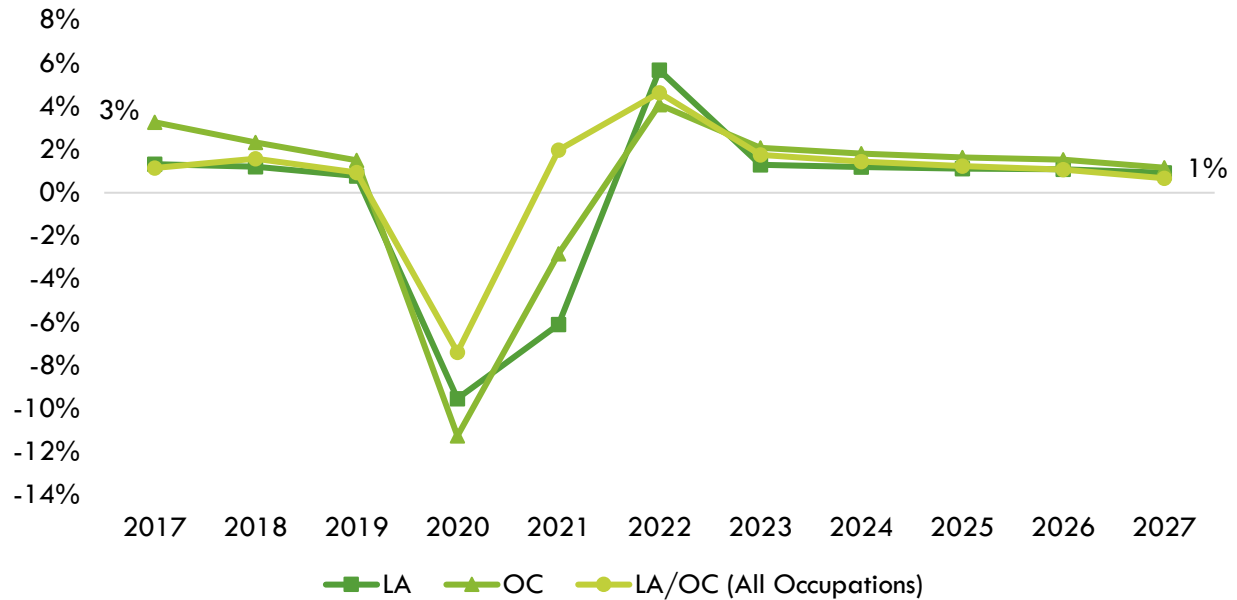


Exhibit 3 shows the five-year occupational demand projections for these early childhood education occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to increase by 6% through 2027. There is projected to be 8,748 jobs available annually.

Exhibit 3: Occupational Demand in Los Angeles and Orange Counties¹

Geography	2022 Jobs	2027 Jobs	2022-2027 Change	2022-2027 % Change	Annual Openings
Los Angeles	52,104	55,088	2,984	6%	6,685
Orange	15,231	16,526	1,295	9%	2,063
Total	67,335	71,614	4,279	6%	8,748

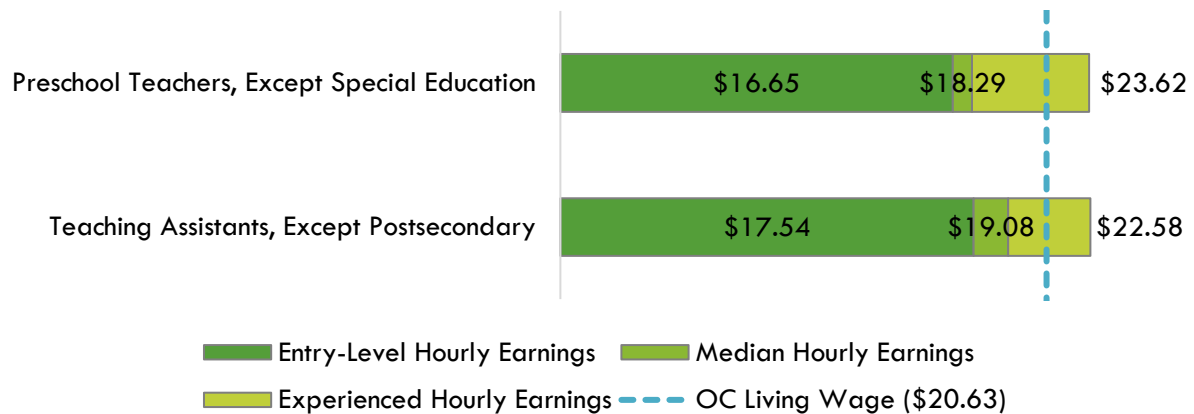
¹ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Wages:

The labor market endorsement in this report considers the entry-level hourly wages for these early childhood education occupations in Orange County as they relate to the county's living wage. Los Angeles County wages are included below to provide a complete analysis of the LA/OC region.

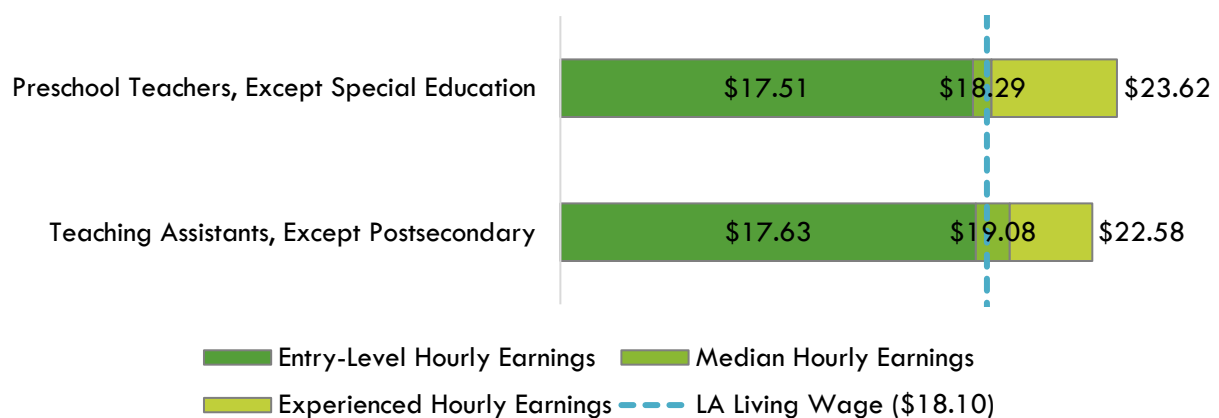
All annual openings for these early childhood education occupations have entry-level wages significantly below the living wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages range between \$16.65 and \$17.54. Orange County's average wages (\$21.02) are nearly identical to the average statewide wage of \$21.07 for these occupations. Exhibit 4 shows the wage range for each of these early childhood education occupations in Orange County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

Exhibit 4: Wages by Occupation in Orange County



All annual openings for these early childhood education occupations have entry-level wages below the living wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$17.51 and \$17.63. Los Angeles County's average wages (\$21.42) are nearly identical to the average statewide wage of \$21.07 for these occupations. Exhibit 5 shows the wage range for each of these early childhood education occupations in Los Angeles County how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

Exhibit 5: Wages by Occupation in Los Angeles County



Job Postings:

Important Online Job Postings Data Note: Online job postings data is sourced from Lightcast, a labor market analytics firm that scrapes, collects, and organizes data from online job boards such as LinkedIn, Indeed, Glassdoor, Monster, GovernmentJobs.com, and thousands more. Lightcast uses natural language processing (NLP) to determine the related company, industry, occupation, and other information for each job posting. However, NLP has limitations that include understanding contextual words of phrases; determining differences in words that can be used as nouns, verbs, and/or adjectives; and misspellings or grammatical errors.² For these reasons, job postings could be assigned to the wrong employer, industry, or occupation within Lightcast's database.

Additionally, there are several limitations when analyzing job postings. A single job posting may not represent a single job opening, as employers may be creating a pool of candidates for future openings or hiring for multiple positions with a single posting. Additionally, not all jobs are posted online, and jobs may be filled through other methods such as internal promotion, word-of-mouth advertising, physical job boards, or a variety of other channels.

There were 10,956 online job postings related to these early childhood education occupations listed in the past 12 months. Exhibit 6 shows the number of job postings by occupation. The majority (55%) of job postings were for preschool teachers, except special education.

Exhibit 6: Number of Job Postings by Occupation (n=10,956)

Occupation	Job Postings	Percentage of Job Postings
Preschool Teachers, Except Special Education	6,021	55%
Teaching Assistants, Except Postsecondary	4,935	45%
Total Postings	10,956	100%

The top employers in the region, by number of job postings, are shown in Exhibit 7.

Exhibit 7: Top Employers by Number of Job Postings (n=10,956)

Employer	Job Postings	Percentage of Job Postings
KinderCare Education	400	4%
Learning Care Group	286	3%
Stepping Stones	218	2%
Placentia Yorba Linda Unified	152	1%
Bright Horizons	149	1%
Saddleback Valley Unified School District	133	1%
Childtime Learning Centers	100	1%
Guidepost Montessori	100	1%
Heytutor	100	1%
Catalyst Family	93	1%

² K. R. Chowdhary, Fundamentals of Artificial Intelligence (Basingstoke: Springer Nature, 2020), <https://link.springer.com/book/10.1007/978-81-322-3972-7>.

The top specialized, soft, and computer skills listed by those most frequently mentioned in job postings (denoted in parentheses) are shown in Exhibit 8.

Exhibit 8: Top Skills by Number of Job Postings (n=10,956)

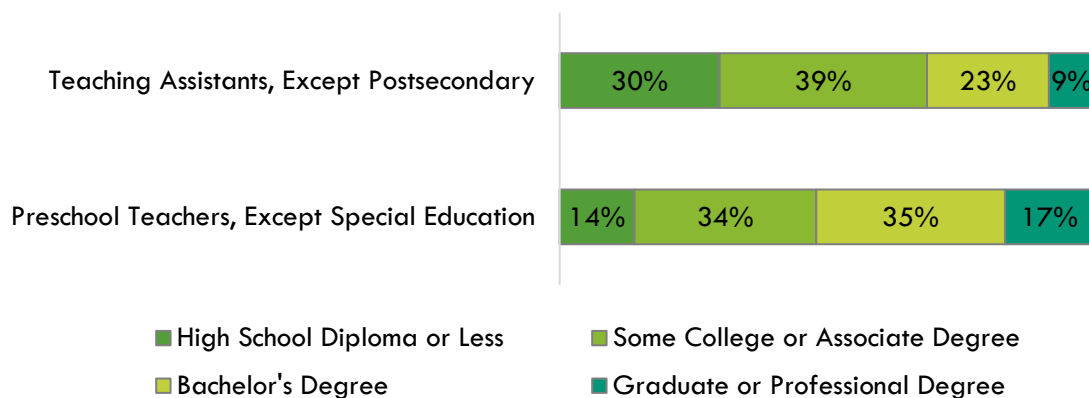
Top Specialized Skills	Top Soft Skills	Top Computer Skills
Preschool Education (3,413)	Teaching (3,335)	Microsoft Excel (272)
Child Development (2,994)	Communications (2,575)	Microsoft Office (247)
Working With Children (1,425)	English Language (1,537)	Microsoft Outlook (180)
Early Childhood Education (1,414)	Planning (1,294)	Microsoft PowerPoint (157)
Special Education (1,200)	Mathematics (972)	Microsoft Word (156)
Lesson Planning (1,123)	Writing (912)	Student Information Systems (89)
Individualized Education Programs (IEP) (586)	Clerical Works (688)	Google Workspace (54)
Toileting (574)	Multilingualism (685)	Zoom (Video Conferencing Tool) (49)
Autism Spectrum Disorders (528)	Leadership (580)	Spreadsheets (44)
Classroom Management (504)	Lifting Ability (571)	Learning Management Systems (20)

Educational Attainment:

The Bureau of Labor Statistics (BLS) lists an associate degree as the typical entry-level education for *teaching assistants, except postsecondary* and an associate degree for *preschool teachers, except special education*. The national-level educational attainment data indicates between 34% and 39% of workers in the field have completed some college or an associate degree as their highest level of education. Exhibit 9 shows the educational attainment for each occupation, sorted by highest community college educational attainment to lowest.

Of the 61% of the cumulative job postings for these early childhood education occupations that listed a minimum education requirement in Los Angeles/Orange County, 82% (5,516) requested a high school diploma or an associate degree and 18% (1,221) requested a bachelor's, master's, or doctoral degree.

Exhibit 9: National-level Educational Attainment for Occupations



Educational Supply

Community College Supply:

Exhibit 10 shows the three-year average number of awards conferred by community colleges in the related TOP codes:

- Educational Aide (Teacher Assistant) (0802.00)
- Educational Aide (Teacher Assistant), Bilingual (0802.10)
- Special Education (0809.00)
- Child Development/Early Care and Education (1305.10)
- Child and Adolescent Development (1305.00)
- Children with Special Needs (1305.20)
- Preschool Age Children (1305.40)
- The School Age Child (1305.50)
- Child Development Administration and Management (1305.80)
- Infants and Toddlers (1305.90)

The colleges with the most completions in the region are East LA, Santa Monica, LA Valley, and Santa Ana. Over the past 12 months, there were no other related program recommendation requests from regional community colleges.

Exhibit 10: Regional Community College Awards (Certificates and Degrees), 2019-2022

TOP Code	Program	College	2020-2021 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
0802.00	Educational Aide (Teacher Assistant)	LA Pierce	0	0	3	1
		Mt San Antonio	21	21	13	18
		LA Subtotal	21	21	16	19
		Coastline	2	6	0	2
		Santa Ana	11	80	60	51
		Santiago Canyon	7	20	13	14
		OC Subtotal	20	106	73	67
Supply Subtotal/Average			41	127	89	41
0802.10	Educational Aide (Teacher Assistant), Bilingual	LA Mission	1	0	1	1
		LA Subtotal	1	0	1	1
		Santa Ana	0	3	7	3
		Santiago Canyon	1	4	5	3
		OC Subtotal	1	7	12	6
Supply Subtotal/Average			2	7	13	7
0809.00	Special Education	Compton	0	2	1	1
		Long Beach	1	1	3	2
		LA Subtotal	1	3	4	3
		Santa Ana	16	31	23	23
		Santiago Canyon	2	6	7	5
		OC Subtotal	18	37	30	28
Supply Subtotal/Average			19	40	34	31

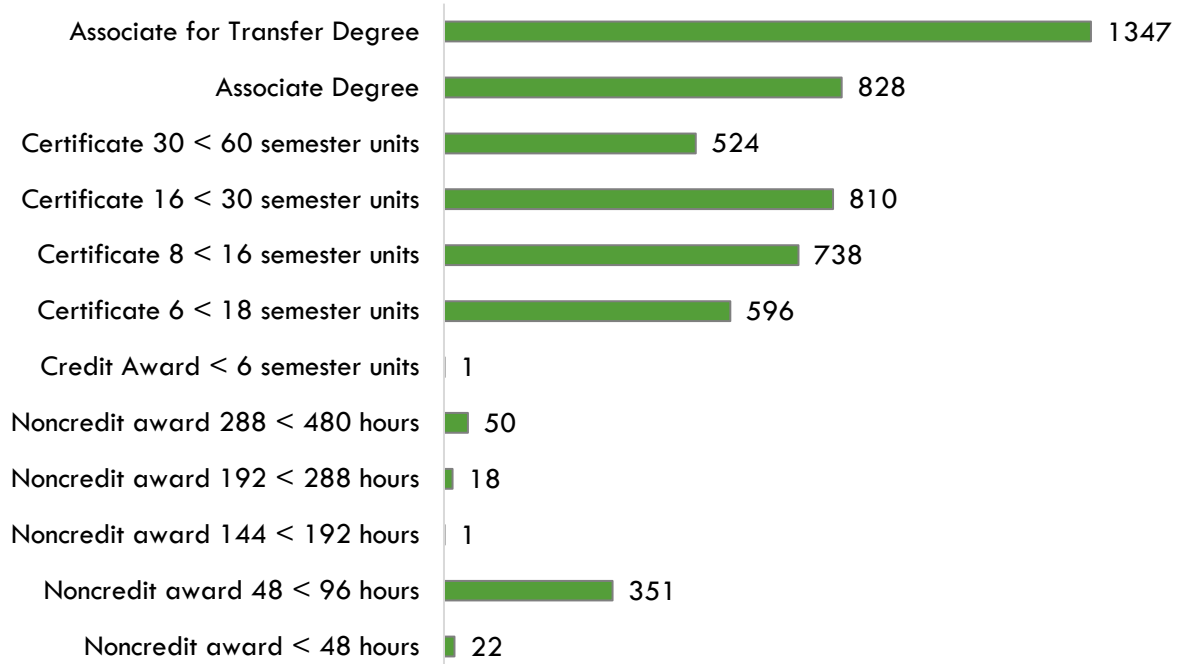
TOP Code	Program	College	2020-2021 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average		
1305.00	Child Development/ Early Care and Education	Cerritos	132	128	275	178		
		Citrus	164	193	184	180		
		Compton	36	32	42	37		
		East LA	690	568	602	620		
		El Camino	187	192	188	189		
		Glendale	34	28	26	29		
		LA City	190	200	191	193		
		LA Harbor	26	43	51	39		
		LA Mission	227	206	337	256		
		LA Pierce	107	128	85	107		
		LA Southwest	51	88	53	64		
		LA Trade	132	169	105	135		
		LA Valley	148	161	135	147		
		Long Beach	169	151	146	155		
		Mt San Antonio	106	219	261	195		
		Pasadena	114	129	94	113		
		Rio Hondo	288	296	234	271		
		Santa Monica	554	425	426	469		
		West LA	60	66	52	59		
				LA Subtotal	3,415	3,422	3,487	3,436
				Fullerton	39	53	46	46
				Irvine	99	61	130	97
				North Orange Adult	59	63	32	51
				Orange Coast	41	16	12	23
				Saddleback	181	126	151	153
				Santa Ana	62	59	57	59
				Santiago Canyon	1	1	4	2
				OC Subtotal	482	379	432	431
				Supply Subtotal/Average	3,897	3,801	3,919	3,867
		1305.10	Child and Adolescent Development	Citrus	0	0	13	4
East LA	5			0	0	2		
LA Trade	5			35	27	22		
Pasadena	0			170	118	96		
Santa Monica	4			24	29	19		
				LA Subtotal	14	229	187	143

		Coastline	1	1	2	1
		Fullerton	66	107	110	94
		Golden West	31	47	43	40
		Saddleback	14	41	59	38
		Santiago Canyon	0	12	19	10
		OC Subtotal	112	208	233	183
		Supply Subtotal/Average	126	437	420	326
1305.20	Children with Special Needs	Cerritos	1	1	0	1
		Citrus	1	0	0	0
		Compton	0	1	1	1
		East LA	51	38	43	44
		LA City	6	16	12	11
		LA Valley	55	52	39	49
		Long Beach	2	3	5	3
		Mt San Antonio	2	3	3	3
		Pasadena	0	2	0	0
		Rio Hondo	15	15	11	14
		Santa Monica	8	15	8	10
		LA Subtotal	141	146	122	136
		Orange Coast	0	13	0	4
		Santiago Canyon	0	2	0	1
		OC Subtotal	0	15	0	5
		Supply Subtotal/Average	141	161	122	141
1305.40	Preschool Age Children	LA Mission	32	16	34	27
		LA Pierce	165	161	130	152
		LA Valley	88	80	94	87
		LA Subtotal	285	257	258	266
		Fullerton	14	11	11	12
		Orange Coast	34	16	27	25
		Santa Ana	52	53	64	56
		Santiago Canyon	6	17	9	11
		OC Subtotal	106	97	111	104
		Supply Subtotal/Average	391	354	369	370
1305.50	The School Age Child	El Camino	4	12	14	10
		Glendale	0	2	2	2
		LA Mission	4	4	9	5
		LA Pierce	6	20	14	13
		LA Valley	10	13	19	14
		Long Beach	1	0	0	0

		Mt San Antonio	0	0	1	0
		LA Subtotal	25	51	59	44
		Irvine	1	0	0	0
		Santa Ana	0	0	3	1
		OC Subtotal	1	0	3	1
		Supply Subtotal/Average	26	51	62	45
1305.80	Child Development Administration and Management	Cerritos	65	55	10	43
		Glendale	0	2	0	0
		LA City	9	5	11	8
		LA Mission	3	5	6	4
		LA Valley	43	46	54	47
		Mt San Antonio	76	6	3	28
		Pasadena	0	3	4	2
		LA Subtotal	196	122	88	132
		Orange Coast	1	6	14	7
		Saddleback	2	2	0	1
		Santiago Canyon	0	0	1	0
		OC Subtotal	3	8	15	8
				Supply Subtotal/Average	199	130
1305.90	Infants and Toddlers	Cerritos	2	0	3	2
		East LA	3	13	7	8
		Glendale	1	5	6	4
		LA City	41	29	31	34
		LA Mission	8	10	14	11
		LA Pierce	45	34	29	36
		LA Valley	1	0	1	1
		Mt San Antonio	1	0	3	1
		Pasadena	1	5	7	4
		Rio Hondo	5	7	3	5
		LA Subtotal	108	103	104	106
		Irvine	0	3	4	2
		Orange Coast	6	2	4	4
		Saddleback	13	18	12	14
		Santa Ana	142	142	149	144
		Santiago Canyon	1	2	5	3
		OC Subtotal	162	167	174	167
				Supply Subtotal/Average	270	270
		Supply Subtotal/Average	5,112	5,378	5,409	5,286

Exhibit 11 shows the annual average community college awards by type from 2019-20 to 2021-22. The plurality of the awards are for associate for transfer degrees, followed by associate degrees, and certificates between 16 and less than 30 semester units.

Exhibit 11: Annual Average Community College Awards by Type, 2019-2022



Community College Student Outcomes:

Exhibit 12 shows the Strong Workforce Program (SWP) metrics for child development/early care and education programs in Rancho Santiago Community College District (RSCCD), the Orange County Region, and California. Of the 8,848 child development/early care and education students in Orange County, 35% (3,061) attended an RSCCD college.

Additionally, RSCCD child development/early care and education students had slightly higher median annual earnings (\$29,852) compared to all students throughout the state (\$27,032). Half (50%) of RSCCD students reported they were employed in their field of study, which is lower than both Orange County and the state (72%).

Exhibit 12: Child Development/Early Care and Education (1305.00) Strong Workforce Program Metrics, 2020-21³

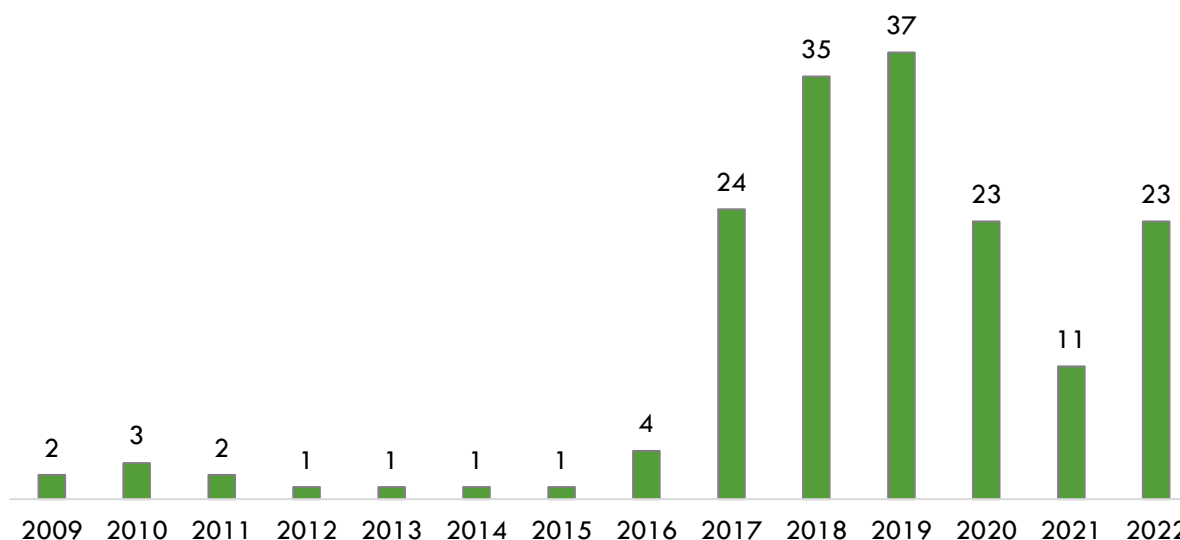
SWP Metric	RSCCD	OC Region	California
SWP Students	3,061	8,848	104,432
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	17%	19%	22%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	88%	85%	76%
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	57	278	5,943
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2019-20)	118	578	7,739
SWP Students with a Job Closely Related to Their Field of Study (2019-20)	50%	72%	72%
Median Annual Earnings for SWP Exiting Students	\$29,852 (\$14.35)	\$29,680 (\$14.27)	\$27,032 (\$13.00)
Median Change in Earnings for SWP Exiting Students	20%	21%	22%
SWP Exiting Students Who Attained the Living Wage	28%	27%	32%

³ All SWP metrics are for 2020-21 unless otherwise noted.

Childcare and Educational Services Apprenticeships in California

According to data from the California Department of Apprenticeship Standards (DAS), there were a total of 15,298 apprenticeship completions in 2022 throughout the state. Of those, less than 1% (23) were related to childcare and educational services. Exhibit 13 shows the number of childcare and educational services apprenticeship completions in California from 2009 (the first year of available data) through 2022. The large increase in childcare and educational services apprenticeship completions in 2017 is due to the first year of completions for the SEIU ECC Center-Based Apprenticeship Program. As of 2022, the Early Care & Education Pathways to Success (ECEPTS) apprenticeship program has the most childcare and educational services apprenticeship completions.⁴

Exhibit 13: Annual Childcare and Educational Services Apprenticeship Completions in California, 2009-2022



Non-Community College Supply:

For a comprehensive regional supply analysis, it is also important to consider the supply from other institutions in the region that provide training programs for these early childhood education occupations. Exhibit 14 shows the annual and three-year average number of awards conferred by these institutions in the related Classification of Instructional Programs (CIP) Codes: Special Education and Teaching, General (13.1001), Early Childhood Education and Teaching (13.1210), and Child Development (19.0706).

Due to different data collection periods, the most recent two-year period of available data is from 2019 to 2021. Between 2019 and 2021, non-community colleges in the region conferred an average of 1,702 awards annually in related training programs.

⁴https://public.tableau.com/app/profile/california.apprenticeship/viz/CompletionDashboard_16301020658110/CompletionDashboard

Exhibit 14: Regional Non-Community College Awards, 2019-2021

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2-Year Award Average
13.1001	Special Education and Teaching, General	Biola University	0	0	0
		Mount Saint Mary's University	2	0	1
Supply Subtotal/Average			2	0	1
13.1210	Early Childhood Education and Teaching	American Jewish University	0	26	14
		Bethesda University	2	1	2
		California State University-Dominguez Hills	194	226	210
		California State University-Fullerton	518	511	514
		California State University-Los Angeles	385	372	378
		California State University-Northridge	352	400	376
		Mount Saint Mary's University	3	4	4
		Pacific Oaks College	61	51	56
		University of Massachusetts Global	51	62	56
		Vanguard University of Southern California	7	7	7
Supply Subtotal/Average			1,573	1,660	1,617
19.0706	Child Development	Mount Saint Mary's University	27	18	22
		University of La Verne	40	37	38
		Whittier College	28	19	24
Supply Subtotal/Average			95	74	84
Supply Subtotal/Average			1,670	1,734	1,702

Regional Demographics

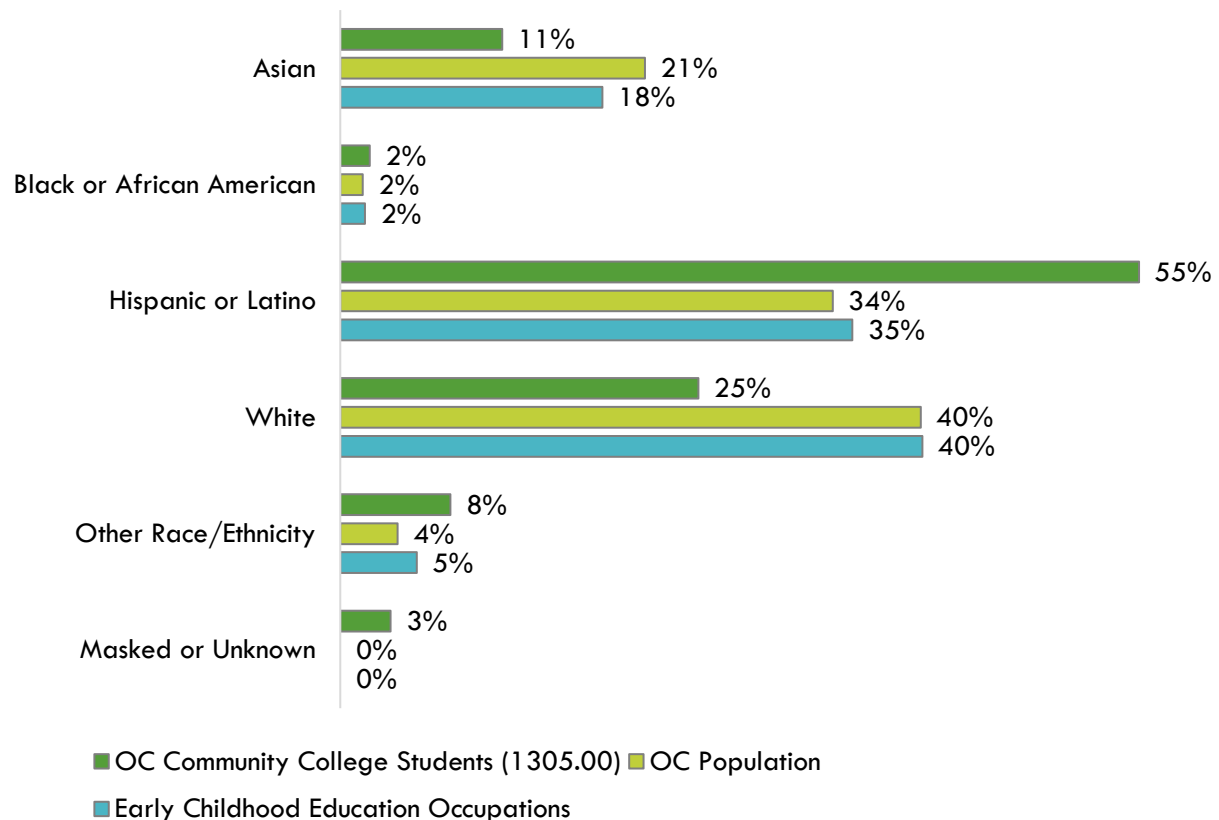
This section analyzes demographic data for Orange County community college students enrolled in child development/early care and education programs compared to the OC population, as well occupational data, for the purpose of identifying potential diversity and equity issues that can be addressed by community college programs.

Ethnicity:

Exhibit 15 shows the ethnicity of Orange County community college students enrolled in child development/early care and education programs compared to the overall Orange County population, as well as the two early childhood education occupations included in this report. Notably, 55% of child development/early care and education students are Hispanic or Latino, which is significantly higher than the population (34%), and these early childhood education occupations (35%). Conversely, 40% of workers in these early childhood education occupations are white, which is identical to the population (40%), but significantly higher than community college child development/early care and education students (25%).

Examining disaggregated data by occupation (not shown), *preschool teachers, except special education* has a higher percentage of white workers (48%) than *teaching assistants, except postsecondary* (36%). Conversely, *teaching assistants, except postsecondary* has a higher percentage of Hispanic or Latino workers (40%) than *preschool teachers, except special education* (27%).

Exhibit 15: Program and County Demographics by Ethnicity

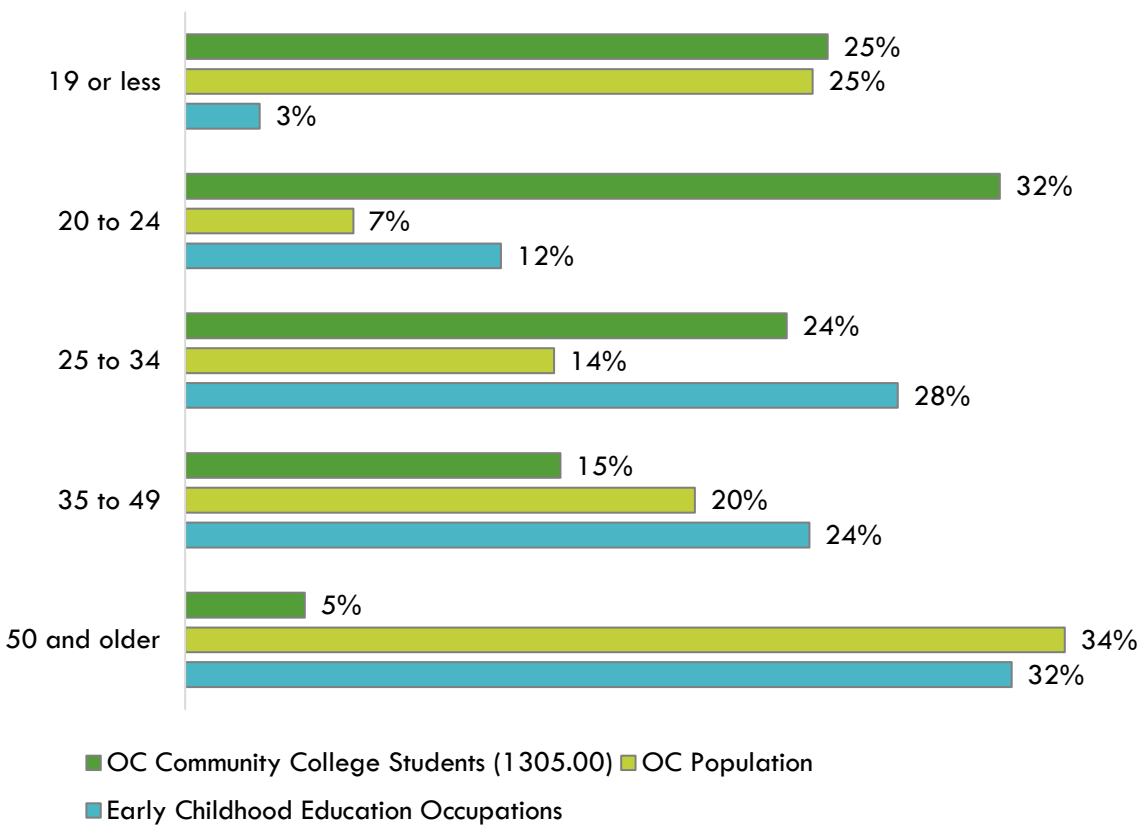


Age:

Exhibit 16 shows the age of Orange County community college students enrolled in child development/early care and education programs compared to the overall Orange County population, as well as the two early childhood education occupations included in this report. Over half (56%) of workers in these early childhood education occupations are 35 and older, which is similar to the population (54%) but significantly higher than community college child development/early care and education students (20%). Conversely, 57% of community college child development/early care and education students are 24 or less, which is significantly higher than the population (32%) and these early childhood education occupations (15%).

Examining disaggregated data by occupation (not shown), the majority (59%) of *preschool teachers, except special education* are 40 and older, which is significantly higher than *teaching assistants, except postsecondary* (45%). Conversely, 19% of *teaching assistants, except postsecondary* are 24 or less, which is significantly higher than *preschool teachers, except special education* (8%).

Exhibit 16: Program and County Demographics by Age

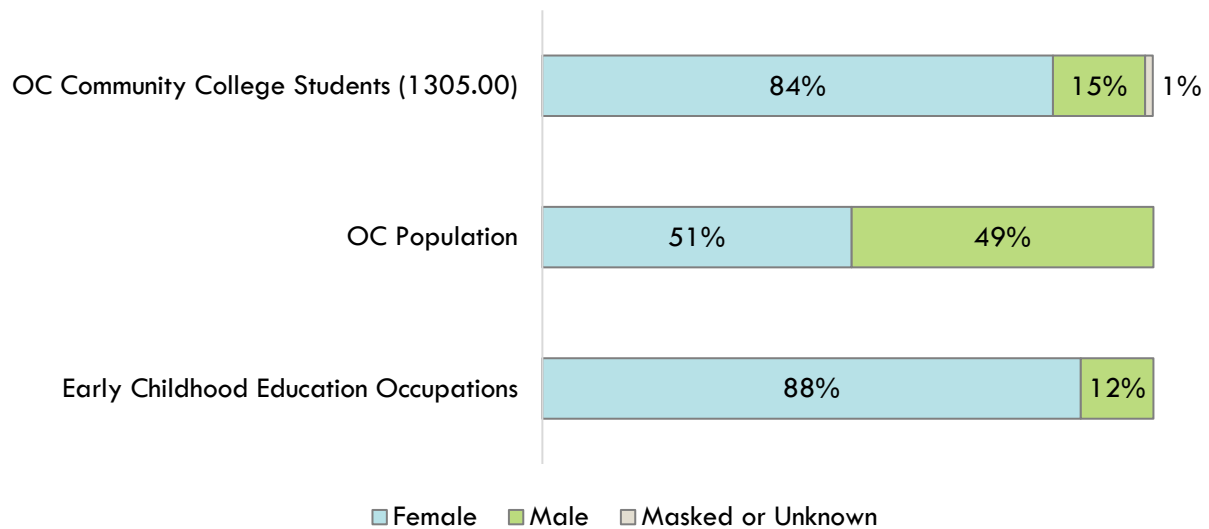


Sex:

Exhibit 17 shows the sex of Orange County community college students enrolled in child development/early care and education programs compared to the overall Orange County population as well as these early childhood education occupations.

Though the population is split nearly evenly, 84% of child development/early care and education students and 88% of workers in these early childhood education occupations are women. Examining disaggregated data by occupation (not shown), 99% of *preschool teachers, except special education* and 82% of *teaching assistants, except postsecondary* are women.

Exhibit 17: Program and County Demographics by Sex



Appendix A: Methodology

The OC COE prepared this report by analyzing data from occupations and education programs. Occupational data is derived from Lightcast, a labor market analytics firm that consolidates data from the California Employment Development Department (EDD), U.S. Bureau of Labor Statistics (BLS) and other government agencies. Program supply data is drawn from two systems: Taxonomy of Programs (TOP) and Classification of Instructional Programs (CIP).

Using a TOP-SOC crosswalk, the OC COE identified middle-skill jobs for which programs within these TOP codes train. Middle-skill jobs include:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

The OC COE determined labor market supply for an occupation or SOC code by analyzing the number of program completers or awards in a related TOP or CIP code. The COE developed a "supply table" with this information, which is the source of the program supply data for this report. TOP code data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP code data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data), also known as IPEDS. TOP is a system of numerical codes used at the state level to collect and report information on California community college programs and courses throughout the state that have similar outcomes. CIP codes are a taxonomy of academic disciplines at institutions of higher education in the United States and Canada. Institutions outside of the California Community College system do not use TOP codes in their reporting systems.

Data included in this analysis represent the labor market demand for relevant positions most closely related to the proposed program as expressed by the requesting college in consultation with the OC COE. Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job post advertisements for occupations relevant to the field of study which can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions.

All representations have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. The most recent data available at the time of the analysis was examined; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

Appendix B: Data Sources

Data Type	Source
Occupational Projections, Wages, and Job Postings	<p>Traditional labor market information data is sourced from Lightcast, a labor market analytics firm. Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment Statistics and the American Community Survey. For more information, see https://lightcast.io/</p>
Living Wage	<p>The living wage is derived from the Insight Center’s California Family Needs Calculator, which measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, child care, health care, transportation, and taxes. For more information, see: https://insightccd.org/family-needs-calculator/</p> <p>The living wage for one adult in Orange County is \$20.63 per hour (\$42,910.40 annually). This figure is used by the CCCCCO to calculate the percentage of students that attained the regional living wage.</p>
Typical Education and Training Requirements, and Educational Attainment	<p>The Bureau of Labor Statistics (BLS) provides information about education and training requirements for hundreds of occupations. BLS uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which BLS publishes projections data. For more information, see https://www.bls.gov/emp/documentation/education/tech.htm</p>
Emerging Occupation Descriptions, Additional Education Requirements, and Employer Preferences	<p>The O*NET database includes information on skills, abilities, knowledges, work activities, and interests associated with occupations. For more information, see https://www.onetonline.org/help/online/</p>
Educational Supply	<p>The CCCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: https://datamart.cccco.edu</p> <p>The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the number of postsecondary awards earned (completions). For more information, see https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions</p>
Student Metrics and Demographics	<p>LaunchBoard, a statewide data system supported by the California Community Colleges Chancellor's Office and hosted by Cal-PASS Plus, provides data on progress, success, employment, and earnings outcomes for California community college students. For more information, see: https://www.calpassplus.org/LaunchBoard/Home.aspx</p>

Data Type	Source
Population and Occupation Demographics	<p>The Census Bureau's American Community Survey (ACS) is the premier source for detailed population and housing information. For more information, see: https://www.census.gov/programs-surveys/acs</p> <p>Data is sourced from IPUMS USA, a database providing access to ACS and other Census Bureau data products. For more information, see: https://usa.ipums.org/usa/about.shtml</p>

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