

CLASSIFYING COMMUNITY COLLEGES BASED ON STUDENTS' PATTERNS OF USE

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ABSTRACT

In this study, I draw on Bahr's (2010, 2011a) behavioral typology of first-time community college students to examine college-level variation in students' patterns of use of 105 community colleges in California. I find that students' patterns of use vary greatly across the colleges and, further, these patterns tend to cluster in such a fashion that colleges may be classified based on dominant or disproportionate patterns of use. Using k-means cluster analysis, I identify five types of community colleges: *Community Education Intensive*, *Transfer Intensive*, *Workforce Development Intensive*, *High-Risk Intensive*, and *Mixed Use*. I describe each of these community college types and then investigate whether the patterns of student use that characterize the identified types appear to be primarily a consequence of institutional policies and practices or, conversely, a product of localized community demand and the associated circumstances and choices of the students who attend a given college. The evidence, though limited, tends to support the latter: variation in patterns of student use across institutions appears to be primarily a product of localized community demand. Finally, I draw on established performance indicators to examine the implications of the identified patterns of student use for observed institutional performance. I find that institutions that differ in terms of dominant or disproportionate patterns of student use also differ significantly and systematically on a number of measures of institutional performance.

TABLE 1:
DISTRIBUTION OF FIRST-TIME STUDENT BEHAVIORAL PROFILES ACROSS 105
COMMUNITY COLLEGES IN CALIFORNIA

	mean (%)	std dev (%)	minimum (%)	10th pctile (%)	25th pctile (%)	75th pctile (%)	90th pctile (%)	maximum (%)
Drop-In	30.4%	14.2%	9.3%	16.3%	21.2%	37.6%	50.3%	84.4%
Experimental	29.3%	7.1%	8.8%	19.5%	25.8%	34.1%	36.6%	45.4%
Noncredit	1.2%	1.8%	0.0%	0.0%	0.1%	1.3%	4.3%	7.6%
Terminal Vocational	2.8%	2.4%	0.2%	0.6%	1.5%	3.5%	5.1%	15.3%
Transfer	13.1%	5.5%	1.4%	5.8%	8.6%	17.1%	20.0%	28.8%
Exploratory	23.0%	7.2%	4.6%	15.1%	17.5%	28.1%	33.0%	38.1%

TABLE 2:
ZERO-ORDER CORRELATIONS BETWEEN THE PERCENTAGES OF FIRST-TIME STUDENTS IN EACH COLLEGE WHO EXHIBIT EACH OF SIX BEHAVIORAL PROFILES

	Drop-In	Experimental	Noncredit	Terminal Vocational	Transfer	Exploratory
Drop-In	1.00					
Experimental	-0.62***	1.00				
Noncredit	0.59***	-0.62***	1.00			
Terminal Vocational	-0.12	0.09	-0.15	1.00		
Transfer	-0.76***	0.08	-0.36***	-0.08	1.00	
Exploratory	-0.88***	0.29**	-0.47***	-0.09	0.77***	1.00

Notes: ** $p \leq 0.01$; *** $p \leq 0.001$

TABLE 3: MEANS OF THE STANDARDIZED PERCENTAGES OF EACH OF THE STUDENT BEHAVIORAL PROFILES, BY COLLEGE CLUSTER

	College Cluster					All Colleges
	Mixed Use	Community Education Intensive	Transfer Intensive	High-Risk Intensive	Workforce Development Intensive	
Means of Standardized Percentages						
Drop-In	-0.36	1.53	-1.02	0.13	-0.28	0.00
Experimental	0.28	-1.40	-0.14	1.11	0.20	0.00
Noncredit	-0.32	1.50	-0.45	-0.47	-0.54	0.00
Terminal Vocational	0.00	-0.27	-0.35	-0.08	3.69	0.00
Transfer	0.31	-0.97	1.33	-0.86	-0.27	0.00
Exploratory	0.28	-1.17	1.35	-0.55	-0.52	0.00
N	38	22	21	20	4	105

TABLE 4: MEANS OF THE RAW (UNSTANDARDIZED) PERCENTAGES OF EACH OF THE STUDENT BEHAVIORAL PROFILES, BY COLLEGE CLUSTER

	College Cluster					All Colleges
	Mixed Use	Community Education Intensive	Transfer Intensive	High-Risk Intensive	Workforce Development Intensive	
Means of Raw Percentages						
Drop-In	25.3%	52.1%	16.0%	32.3%	26.5%	30.4%
Experimental	31.5%	19.5%	28.4%	37.3%	30.8%	29.4%
Noncredit	0.6%	3.8%	0.4%	0.3%	0.2%	1.2%
Terminal Vocational	2.8%	2.2%	2.0%	2.6%	11.5%	2.8%
Transfer	14.8%	7.8%	20.4%	8.4%	11.6%	13.1%
Exploratory	25.0%	14.6%	32.8%	19.1%	19.3%	23.0%
N	38	22	21	20	4	105

TABLE 5: FIRST AND NINTH DECILES (10TH AND 90TH PERCENTILES) OF THE RAW (UNSTANDARDIZED) PERCENTAGES OF EACH OF THE STUDENT BEHAVIORAL PROFILES, BY COLLEGE CLUSTER

	College Cluster					All Colleges
	Mixed Use	Community Education Intensive	Transfer Intensive	High-Risk Intensive	Workforce Development Intensive	
10th and 90th Percentiles						
Drop-In	18.8–34.7%	41.7–64.4%	10.3–21.3%	25.2–40.2%	20.4–43.3%	16.3–50.3%
Experimental	26.9–36.3%	13.9–25.8%	22.8–30.6%	33.1–43.5%	24.9–34.3%	19.5–36.6%
Noncredit	0.0–2.1%	1.0–6.6%	0.0–0.7%	0.0–0.9%	0.0–0.7%	0.0–4.3%
Terminal Vocational	0.9–5.1%	0.5–3.6%	0.6–3.4%	0.6–5.0%	7.5–15.3%	0.6–5.1%
Transfer	11.5–18.4%	3.4–11.2%	17.2–23.4%	5.0–11.7%	5.8–14.1%	5.8–20.0%
Exploratory	20.3–29.4%	7.4–19.9%	28.1–35.5%	16.3–21.5%	11.6–26.2%	15.1–33.0%
N	38	22	21	20	4	105

TABLE 6: MEANS OF SELECTED INSTITUTIONAL CHARACTERISTICS FROM THE INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM (IPEDS) AND DATA PROVIDED BY THE CHANCELLOR'S OFFICE OF CALIFORNIA COMMUNITY COLLEGES, BY COLLEGE CLUSTER

	College Cluster					Test Statistic
	Mixed Use	Community Education Intensive	Transfer Intensive	High-Risk Intensive	Workforce Development Intensive	
Characteristics of the Institutions						
Number of Full-Time Equivalent Students (FTES)	7,181	6,678	9,835	3,720	7,894	F = 7.52***
Mean Urbanicity of Institutions	3.7	3.0	3.4	3.2	3.0	F = 1.57
Distance to Nearest CSU Institution (miles)	23.5	32.2	16.0	40.8	35.8	F = 1.81
Distance to Nearest UC Institution (miles)	44.0	57.5	27.1	56.8	44.9	F = 1.29
Characteristics of the Student Body						
Percentage of Students Attending College Part-Time	73.1%	74.9%	68.9%	75.7%	73.1%	F = 3.02*
Percentage of Students who are 18-21 Years of Age	32.8%	29.7%	39.9%	24.9%	30.2%	F = 10.14***
Percentage of Minority Students	33.9%	27.9%	25.2%	41.6%	55.2%	F = 4.15**
Percentage of Students Receiving Financial Aid ¹	43.5%	41.8%	32.3%	51.7%	60.3%	F = 4.99***
Percentage of Students Receiving Federal Grant Aid ²	29.1%	27.7%	21.6%	35.1%	45.0%	F = 3.97**
Percentage of Students Receiving State Grant Aid ²	41.1%	39.1%	30.7%	50.7%	58.7%	F = 5.92***
Institutional Use of Resources						
Expenditures on Instruction (\$ per FTES)	\$2,962	\$3,107	\$3,185	\$3,022	\$3,190	F = 0.67
Expenditures on Academic Support (\$ per FTES)	\$649	\$694	\$590	\$667	\$556	F = 0.80
Expenditures on Student Services (\$ per FTES)	\$998	\$987	\$891	\$1,274	\$1,464	F = 4.06**
Expenditures on Institutional Support (\$ per FTES)	\$1,244	\$1,008	\$966	\$1,491	\$1,491	F = 4.43**
Percentage of Faculty who are Part-Time	65.5%	63.3%	66.1%	63.7%	60.2%	F = 0.32
Ratio of FTES to All Faculty	14.1	13.4	12.9	15.4	16.4	F = 0.69
Ratio of FTES to Full-Time Faculty	42.2	39.4	39.1	51.3	42.7	F = 0.67

Notes: *p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001; ¹ one Mixed Use institution and one Workforce Development Intensive institution were missing data on this measure; ² one Mixed Use institution, one High-Risk Intensive institution, and one Workforce Development Intensive institution were missing data on this measure

TABLE 7: STATISTICALLY SIGNIFICANT ($P \leq 0.05$) COMPARISONS OF CELL MEANS FROM TABLE 6, USING THE ŠIDÁK CORRECTION

	Mixed Use (MU)	Community Education Intensive (CE)	Transfer Intensive (TR)	High-Risk Intensive (HR)	Workforce Development Intensive (WD)
Characteristics of the Institutions					
Number of Full-Time Equivalent Students (FTES)	HR	TR	CE,HR	MU,TR	none
Mean Urbanicity of Institutions	none	none	none	none	none
Distance to Nearest CSU Institution (miles)	none	none	none	none	none
Distance to Nearest UC Institution (miles)	none	none	none	none	none
Characteristics of the Student Body					
Percentage of Students Attending College Part-Time	none	none	HR	TR	none
Percentage of Students who are 18-21 Years of Age	TR,HR	TR	MU,CE,HR	MU,TR	none
Percentage of Minority Students	none	none	HR,WD	TR	TR
Percentage of Students Receiving Financial Aid	none	none	HR,WD	TR	TR
Percentage of Students Receiving Federal Grant Aid	none	none	HR,WD	TR	TR
Percentage of Students Receiving State Grant Aid	none	none	HR,WD	TR	TR
Institutional Use of Resources					
Expenditures on Instruction (\$ per FTES)	none	none	none	none	none
Expenditures on Academic Support (\$ per FTES)	none	none	none	none	none
Expenditures on Student Services (\$ per FTES)	none	none	HR	TR	none
Expenditures on Institutional Support (\$ per FTES)	none	HR	HR	CE,TR	none
Percentage of Faculty who are Part-Time	none	none	none	none	none
Ratio of FTES to All Faculty	none	none	none	none	none
Ratio of FTES to Full-Time Faculty	none	none	none	none	none

TABLE 8: MEANS OF SELECTED PERFORMANCE MEASURES FROM THE INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM (IPEDS) AND THE CALIFORNIA SYSTEM OF ACCOUNTABILITY REPORTING FOR COMMUNITY COLLEGES (ARCC), BY COLLEGE CLUSTER

	College Cluster					Test Statistic
	Mixed Use	Community Education Intensive	Transfer Intensive	High-Risk Intensive	Workforce Development Intensive	
IPEDS						
Graduation Rate of FTFTDS in 150% of Normal Time ¹	18.8%	24.5%	23.0%	16.3%	13.1%	F = 2.89*
ARCC						
Student Progress and Achievement Rate	51.1%	50.1%	57.2%	45.4%	41.4%	F = 13.08***
Percentage of Students Who Earned ≥ 30 Credits	69.7%	69.2%	73.6%	64.4%	66.7%	F = 13.37***
Year-to-Year Persistence Rate	67.5%	64.2%	72.0%	57.8%	66.8%	F = 9.59***
Vocational Course Completion Rate	75.8%	77.4%	76.7%	74.5%	80.5%	F = 1.09
Basic Skills Course Completion Rate	59.8%	59.7%	60.6%	59.0%	60.3%	F = 0.19
ESL Improvement Rate ²	46.8%	41.8%	52.7%	37.2%	51.3%	F = 1.85
Basic Skills Improvement Rate	49.8%	51.2%	51.1%	45.2%	53.9%	F = 3.24*

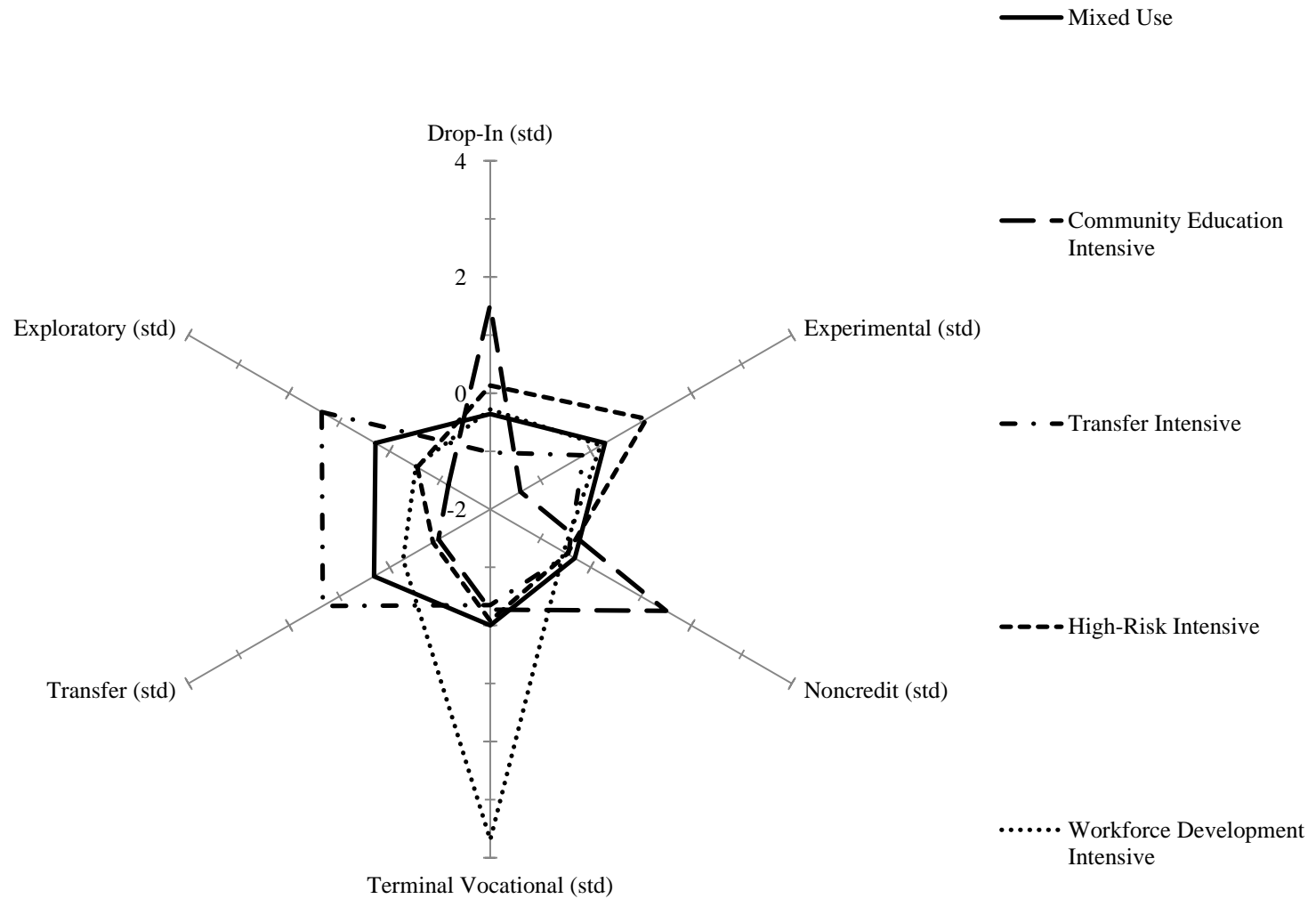
Notes: *p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001; 1 FTFTDS refers to first-time, full-time, degree-seeking students; 2 two Mixed Use institutions, two Community Education Intensive institutions, two Transfer Intensive institutions, and two High-Risk Intensive institutions were missing data on this measure

TABLE 9: STATISTICALLY SIGNIFICANT ($P \leq 0.05$) COMPARISONS OF CELL MEANS FROM TABLE 8, USING THE ŠIDÁK CORRECTION

	Mixed Use (MU)	Community Education Intensive (CE)	Transfer Intensive (TR)	High-Risk Intensive (HR)	Workforce Development Intensive (WD)
IPEDS					
Graduation Rate of FTFTDS in 150% of Normal Time	none	none	none	none	none
ARCC					
Student Progress and Achievement Rate	TR,HR,WD	TR	MU,CE,HR,WD	MU,TR	MU,TR
Percentage of Students Who Earned ≥ 30 Credits	TR,HR	TR,HR	MU,CE,HR,WD	MU,CE,TR	TR
Persistence Rate	HR	TR	CE,HR	MU,TR	none
Vocational Course Completion Rate	none	none	none	none	none
Basic Skills Course Completion Rate	none	none	none	none	none
ESL Improvement Rate	none	none	none	none	none
Basic Skills Improvement Rate	none	HR	none	CE	none

Context for Success is a research and practice improvement project designed to advance the best academic thinking on postsecondary institutional outcome measures. The project was organized by HCM Strategists LLC with support from the Bill & Melinda Gates Foundation. The papers may not represent the opinions of all project participants. Readers are encouraged to consult the project website at: www.hcmstrategists.com/contextforsuccess.

FIGURE 1: RADAR GRAPH OF THE RESULTS PRESENTED IN TABLE 3



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