Throughput in Transfer-Level English & Math for Students with Disabilities

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Introduction

Previous reports investigating the effects of AB 705 in California Community Colleges have shown that, generally, students have benefitted from its implementation. For example, in a prior report,[1] the total number of students successfully completing transfer-level English and mathematics more than doubled after AB 705, and overall throughput rates have risen by 18 to 24 percentage points. A subsequent report[2] illustrated that students belonging to special population groups (e.g., foster youth, veterans, EOPS, MESA, Puente, Umoja) were positively impacted by AB 705 when looking at enrollment and one-year throughput rates. For this brief, we are interested in the impact of AB 705 on throughput rates for students with disabilities. Further, we disaggregated data by primary disability type and gender[3] to allow for a thorough investigation of the policy's impact on different groups.

Findings

We used throughput rates to examine success in transfer-level English and mathematics courses. Throughput is defined as the proportion of the entire cohort of students attempting any level of English or mathematics course who successfully complete a transfer-level course in that same subject within one year at any California community college. Data in this brief show throughput rates by academic year for students who begin the sequence for each subject in that year. Data are shown based on whether students received services from the Disabled Students Programs and Services (DSPS), and are categorized as follows: non-DSPS students, DSPS students, and DSPS students broken out by primary disability as defined by the Chancellor's Office Management Information System (COMIS).[4,5] Throughput rates and cohort sizes can be found in the Appendix. Regarding cohort sizes, non-DSPS cohorts increased in size from 2015-16 in English by +12% but decreased in mathematics by -8%. Overall, DSPS cohorts shrunk in English and mathematics by -24% and -

[1] *Enrollment Transfer in Transfer-Level English and Math in the California Community College System*

[2] *Enrollment & Success in Transfer-Level English & Math for Special Populations*

[3] Ethnicity/race, gender, and age will be included in forthcoming briefs. For the latest outcomes by ethnicity/race, see *Enrollment & Success in Transfer-Level English & Math for Special Populations.*

[4] The following nomenclature is used in this report: ABI = Acquired Brain Injury; ADHD = Attention Deficit Hyperactivity Disorder; Autism = Autism Spectrum; Blindness = Blind and Low Vision; DHH = Deaf and Hard of Hearing; Intellectual = Intellectual Disability; Learning = Learning Disability; Mental = Mental Health Disability; Physical = Physical Disability; Other = Other Health Conditions and Disabilities. Speech/Language Impaired is omitted because data collection for this disability stopped in 2017-18.

[5] For definitions of the disability categories listed above, refer to Title 5 Sections 56032 to 56044.

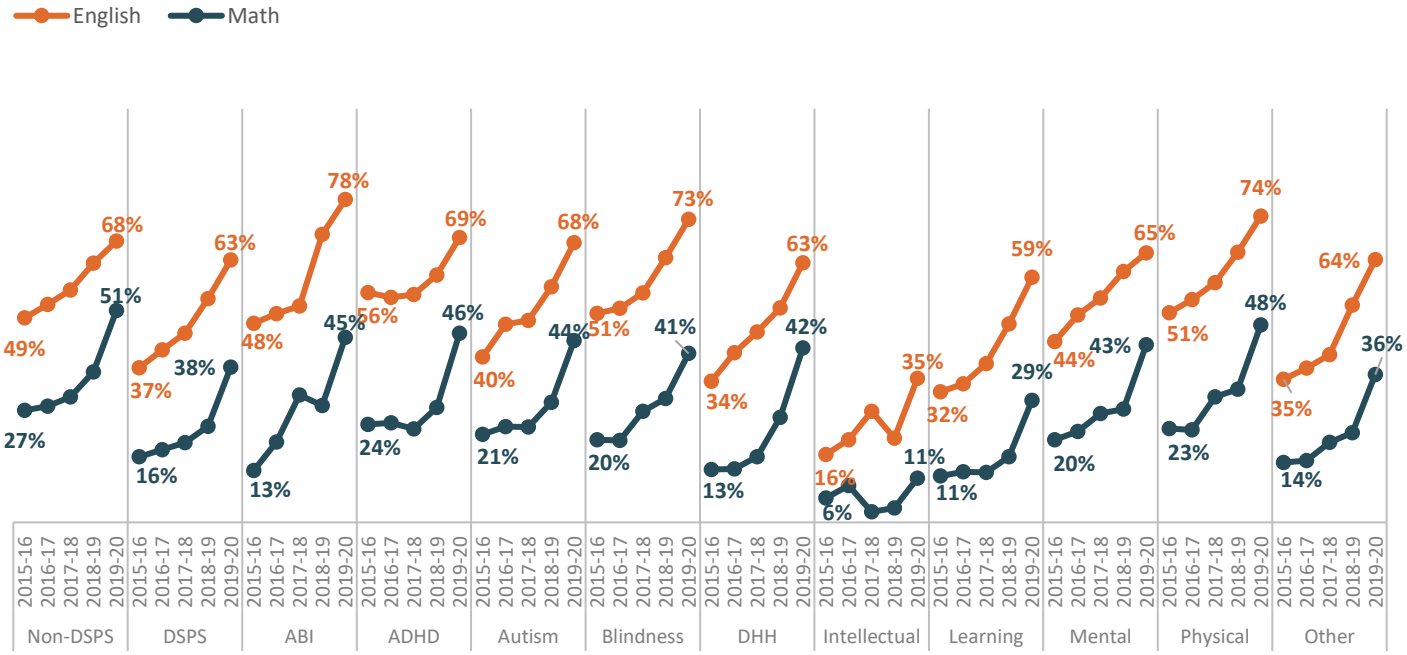
26%, respectively. Changes in cohort sizes by primary disability varied, with Autism and ADHD experiencing the biggest increases in English (+33% and +21%, respectively) and mathematics (+43% and +24, respectively). Cohorts for students with ABI, intellectual, and other disabilities experienced the most significant declines in size, ranging from -75% to -49% in English and -75% and -35% in mathematics.

For DSPS students overall, throughput rates increased substantially for both English and mathematics from 2015-16 to 2019-20 (Figures 1 and 2). Compared to non-DSPS students, DSPS students exhibited a larger percentage point increase in English throughput than non-DSPS students. DSPS students' English throughput rates climbed to 63% from 37% (+26% points), compared to non-DSPS students whose English throughput rates rose from 49% to 68% (+19% points). In math, while the increase in throughput rates among DSPS students did not quite match the increase seen among non-DSPS students, it came very close. DSPS students' math throughput rate jumped to 38% from 16% (+22% points) compared to non-DSPS students whose math throughput rates increased from 27% to 51% (+24% points).

When examining the results across the different disability types, **throughput rates increased for every disability type from 2015-16 to 2019-20 in both English and mathematics**. As Figure 1 shows, except for a few exceptions, most throughput rates by group matched or surpassed the non-DSPS rate.

Figure 1.

One-Year Transfer-Level Throughput Rates by Disability Type



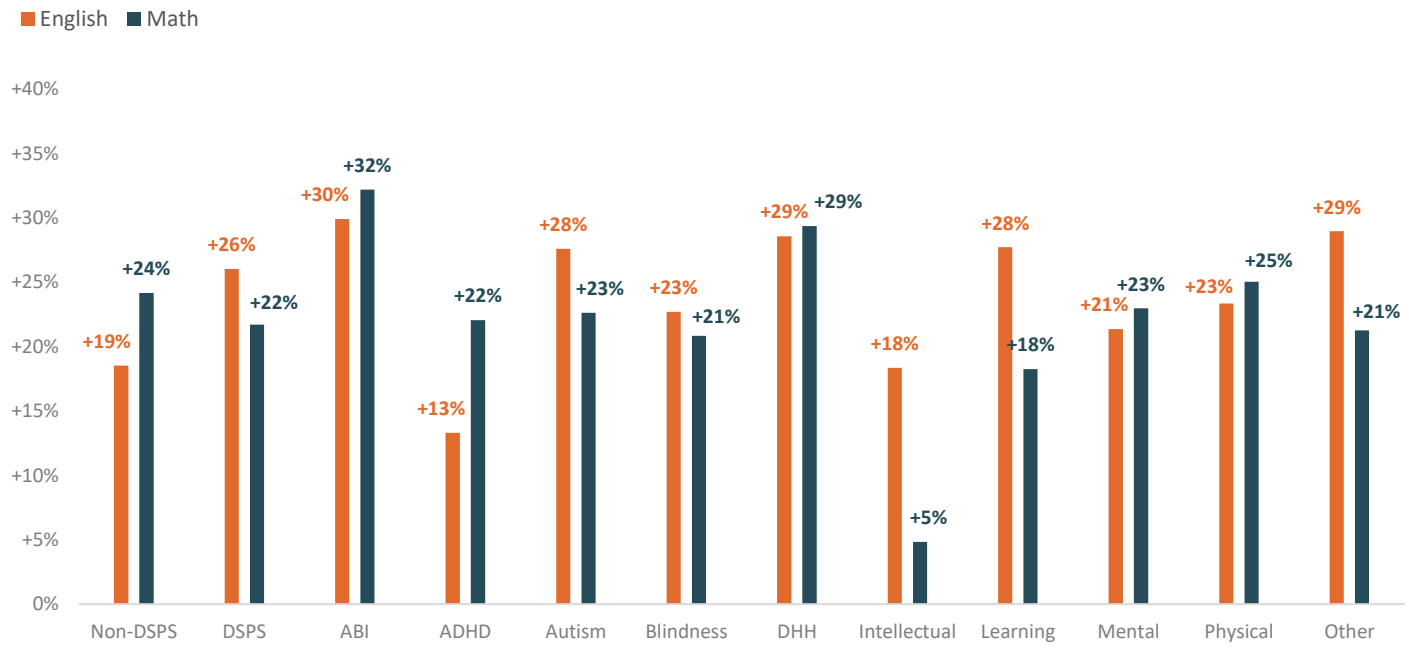
Note: ABI = Acquired Brain Injury; ADHD = Attention Deficit Hyperactivity Disorder; DHH = Deaf and Hard of Hearing.

However, the five-year percentage point change by **primary disability revealed that increases in throughput rates were not equivalent across groups** (Figure 2). For example, students whose primary disability was acquired brain injury (ABI) experienced the most significant increase in English throughput rates, jumping from 48% to 78%--an increase of +30% points. Students on the Autism spectrum, deaf and hard of hearing students (DHH), and students with learning disabilities also experienced significant increases in English throughput rates, ranging from +27% to +29% points. Students with attention deficit hyperactivity disorder (ADHD) and intellectual disabilities experienced moderate increases in English throughput (+13% and +18% points, respectively).

Trends in math throughput rates were similar in that they increased across groups and arrived at levels similar to rates of non-DSPS students. However, **math throughput rates were lowest for students with an intellectual or learning disability**. Percentage point increases differed among groups, with students with ABI, DHH, and physical disabilities experiencing the biggest increases and students with intellectual disabilities experiencing the smallest increases.

Figure 2

Five-Year % Pt. Change in Throughput Rates by Primary Disability Type



Note: Five-year % point change was calculated by taking the difference of 2019-20 and 2015-16 rates.
ABI =Acquired Brain Injury; ADHD = Attention Deficit Hyperactivity Disorder; DHH = Deaf and Hard of Hearing.

When examining gender differences, English throughput rates (Figure 3) were higher for female students than male students across all disability types; however, these gender differences were more pronounced for some disability types. For example, **throughput rates for female students with ABI soared to 90% in 2019-20**, while the throughput rate for male students with the same disability moderately increased to 66%. These changes represented a +41% point increase for female ABI students compared to a +18% point increase for male ABI students (Figure 4). Examination of sample sizes for ABI groups (see Appendix, Table 4) showed similar trends in cohort size for these female and male students; thus, the difference in throughput rate improvements is not entirely explained by group size. **Changes in throughput for blind students and students with physical disabilities were also significantly different between the genders**, with female students experiencing higher increases in rates over the five years. Figures 3 and 5 below display throughput rates for English and mathematics, respectively, disaggregated by disability type and binary gender.[6]

[6] Due to small sample sizes, data for non-binary and unknown gender are not included in the figures. However, as more data are collected, we hope to include rates for non-binary students in future iterations.

Figure 3.
One-Year Transfer-Level English Throughput Rates by Disability Type and Gender

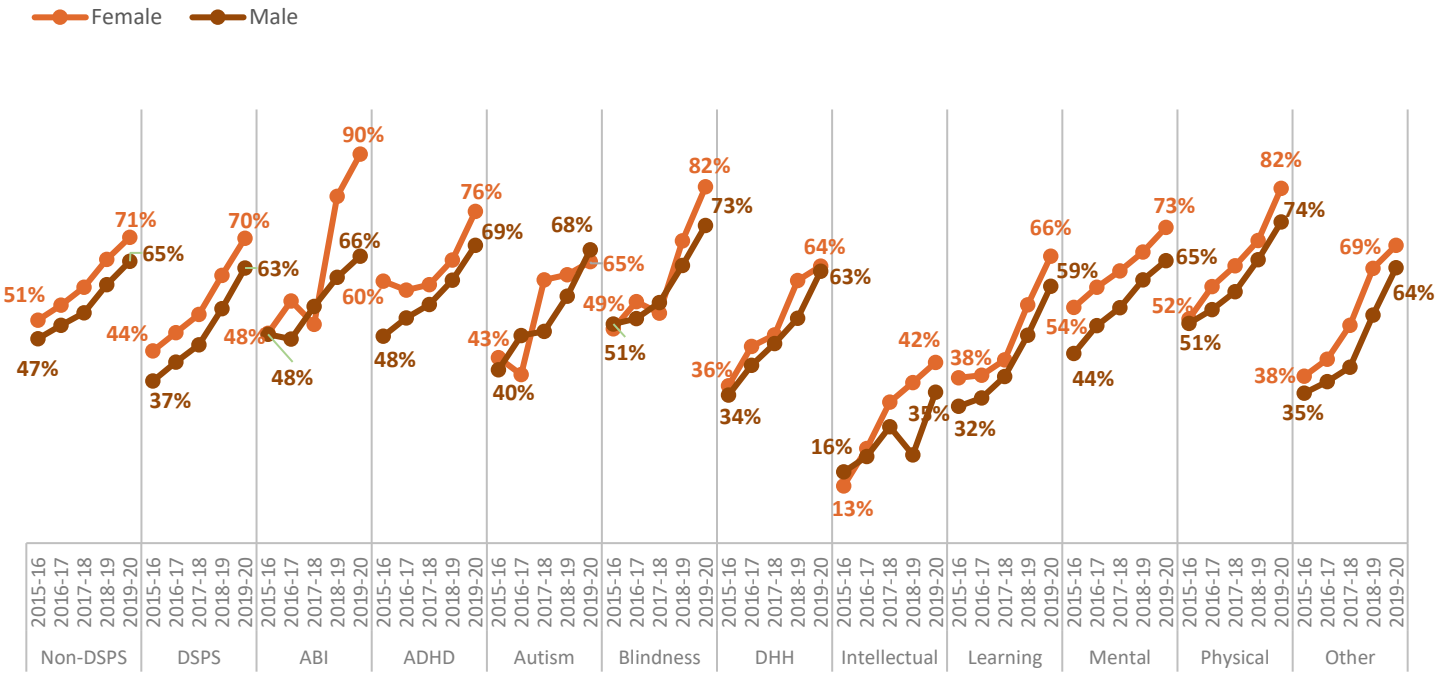
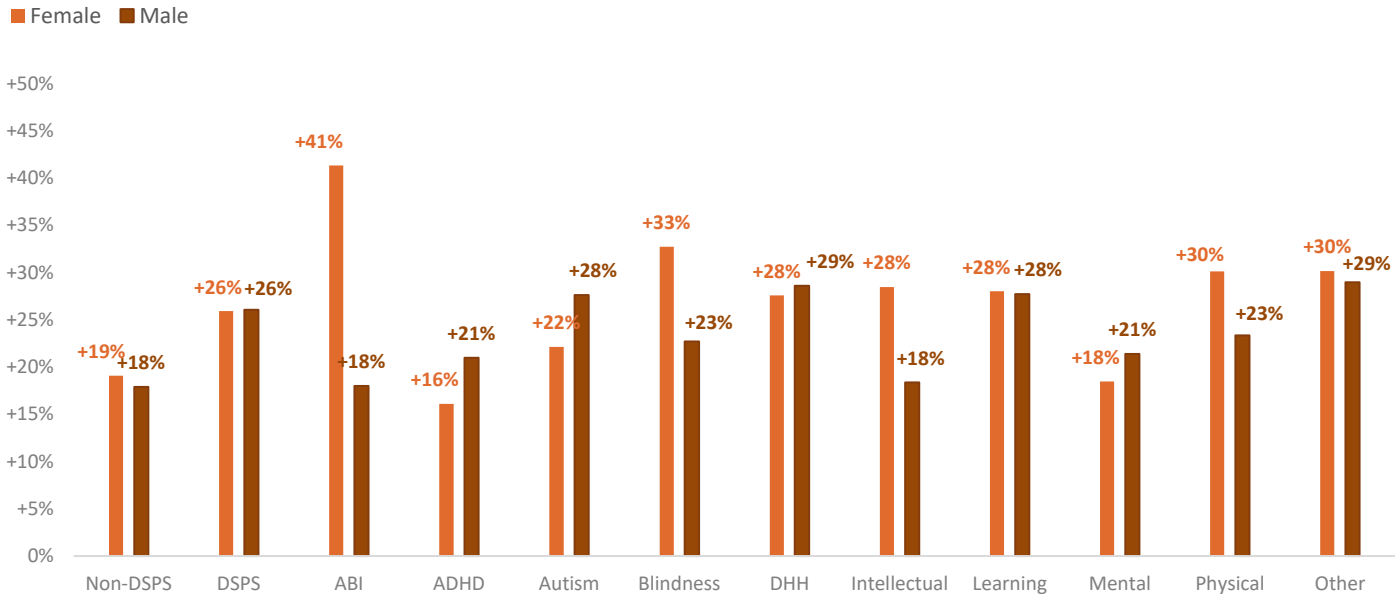


Figure 4
Five-Year % Pt. Change in English Throughput Rates by Primary Disability Type and Gender



* Five-year % point change was calculated by taking the difference between the 2019-20 and 2015-16.
ABI = Acquired Brain Injury; ADHD = Attention Deficit Hyperactivity Disorder; DHH = Deaf and Hard of Hearing.

Gender differences amongst math throughput rates (Figure 5) were not as apparent in earlier years but became more distinct by 2019-20. Notably, **female students with ABI, ADHD, blindness, intellectual disabilities, learning disabilities, and mental disabilities outperformed male students with the same disabilities** (see Figure 6).

Figure 5

One-Year Transfer-Level Math Throughput Rates by Disability Type and Gender

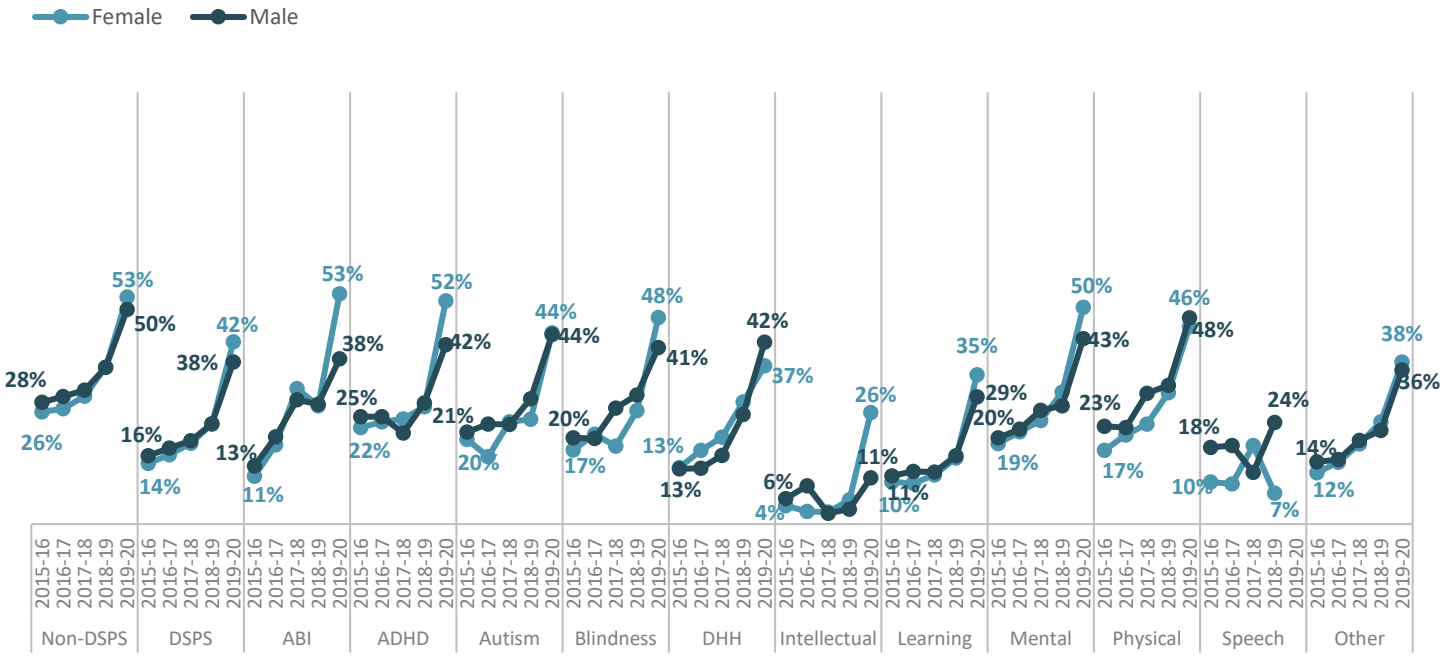
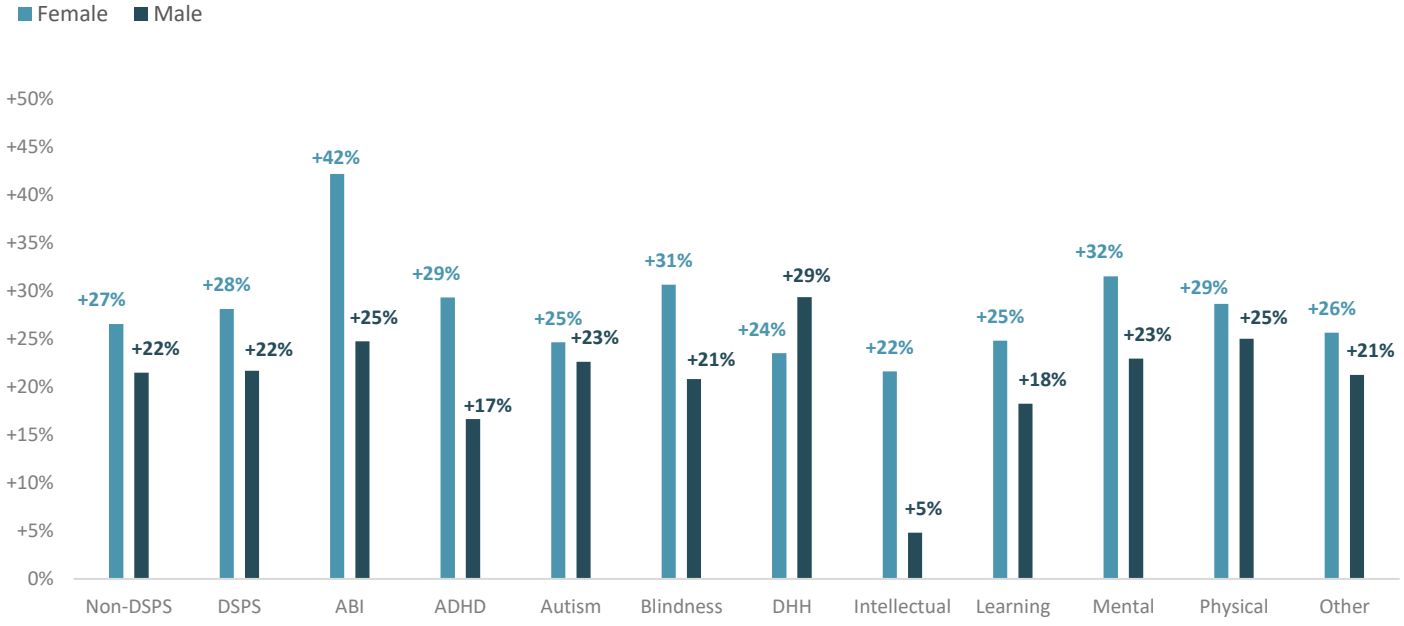


Figure 6.

Five-Year % Pt. Change in Math Throughput Rates by Primary Disability Type and Gender



* Five-year % point change was calculated by taking the difference between the 2019-20 and 2015-16.

ABI = Acquired Brain Injury; ADHD = Attention Deficit Hyperactivity Disorder; DHH = Deaf and Hard of Hearing.

Conclusion

Overall, there is evidence to support that AB 705 has resulted in improved outcomes for students with disabilities across all disability types. **Gains in throughput rates were evident for students with disabilities; however, benefits were more substantial for some disability types over others, and gender differences were apparent for English throughput rates.** Comparing rates from before AB 705 was implemented (2015-16) to after its implementation (2019-20) reveals increases for all disability types where complete data were available. Although students with different disabilities benefited, improvements in rates were more marked for some groups over others, especially when disaggregating by binary gender. For example, students with acquired brain injury, blindness, and physical disabilities had some of the highest throughput rates in 2019-20, but gender differences revealed these trends were likely driven by female students. Female students with disabilities experienced higher increases in one-year throughput rates in both English and mathematics. These differences were especially distinct among female students with ABI, blindness, or a physical disability.

These data indicate that students with disabilities are succeeding under the parameters of the law and thus should be placed similarly to non-DSPS students with appropriate support and adequate accommodations. Colleges need to ensure that students with disabilities are accessing transfer-level coursework at rates that are proportional to all non-DSPS students. By disaggregating these data, colleges will have an additional lens to students' experiences in completing transfer-level English and mathematics courses and can use this information to guide their decisions on where to focus resources and support to ensure the success of students with disabilities.

Appendix

Table 1. Throughput Rates by Primary Disability Type

Subject	Subgroup	2015-16	2016-17	2017-18	2018-19	2019-20	5-Yr % Pt. Change
English	Non-DSPS	49%	53%	56%	63%	68%	+19%
	DSPS	37%	42%	46%	54%	63%	+26%
	ABI	48%	50%	52%	70%	78%	+30%
	ADHD	56%	54%	55%	60%	69%	+13%
	Autism	40%	48%	49%	57%	68%	+28%
	Blindness	51%	52%	55%	64%	73%	+23%
	DHH	34%	41%	46%	52%	63%	+29%
	Intellectual	16%	20%	27%	20%	35%	+18%
	Learning	32%	33%	38%	48%	59%	+28%
	Mental	44%	50%	54%	61%	65%	+21%
	Physical	51%	54%	58%	65%	74%	+23%
	Other	35%	37%	41%	53%	64%	+29%
Math	Non-DSPS	27%	28%	30%	36%	51%	+24%
	DSPS	16%	18%	19%	23%	38%	+22%
	ABI	13%	19%	31%	28%	45%	+32%
	ADHD	24%	24%	23%	28%	46%	+22%
	Autism	21%	23%	23%	29%	44%	+23%
	Blindness	20%	20%	27%	30%	41%	+21%
	DHH	13%	13%	16%	25%	42%	+29%
	Intellectual	6%	9%	3%	3%	11%	+5%
	Learning	11%	12%	12%	16%	29%	+18%
	Mental	20%	22%	26%	27%	43%	+23%
	Physical	23%	22%	30%	32%	48%	+25%
	Other	14%	15%	19%	22%	36%	+21%

Note: ABI = Acquired Brain Injury; ADHD = Attention Deficit Hyperactivity Disorder; DHH = Deaf and Hard of Hearing
Data for speech disability are not included because data collection stopped in 2017-18.

Table 2. Cohort Sizes by Primary Disability Type

Subject	Subgroup	2015-16	2016-17	2017-18	2018-19	2019-20	5-Yr % Change
English	Non-DSPS	154,194	157,053	160,622	164,556	172,771	+12%
	DSPS	10,783	10,951	11,032	10,305	8,183	-24%
	ABI	263	244	236	202	133	-49%
	ADHD	911	1,365	1,409	1,264	1,100	+21%
	Autism	611	812	923	997	813	+33%
	Blindness	184	179	172	166	129	-30%
	DHH	299	282	268	255	266	-11%
	Intellectual	178	178	156	109	73	-59%
	Learning	2,966	3,571	3,874	3,617	2,779	-6%
	Mental	2,231	2,302	2,230	1,966	1,551	-30%
	Physical	734	671	558	478	366	-50%
	Other	5,590	3,322	2,225	1,906	1,376	-75%
Math	Non-DSPS	150,054	152,429	154,502	150,536	137,318	-8%
	DSPS	12,078	12,403	12,202	11,489	8,981	-26%
	ABI	248	309	250	195	161	-35%
	ADHD	947	1,466	1,534	1,417	1,177	+24%
	Autism	632	905	1,038	1,086	906	+43%
	Blindness	220	212	194	196	142	-35%
	DHH	360	366	318	299	236	-34%
	Intellectual	229	226	191	166	86	-62%
	Learning	3,129	4,003	4,232	3,962	2,951	-6%
	Mental	2,486	2,567	2,496	2,281	1,769	-29%
	Physical	862	757	668	551	403	-53%
	Other	6,400	3,894	2,466	2,133	1,630	-75%

Note: ABI = Acquired Brain Injury; ADHD = Attention Deficit Hyperactivity Disorder; DHH = Deaf and Hard of Hearing
Data for speech disability are not included because data collection stopped in 2017-18.

Table 3. English Throughput Rates by Primary Disability Type and Gender

Subject	Subgroup	2015-16	2016-17	2017-18	2018-19	2019-20	5-Yr % Pt. Change
Female	Non-DSPS	51%	55%	59%	65%	71%	+19%
	DSPS	44%	49%	53%	62%	70%	+26%
	ABI	48%	56%	50%	80%	90%	+41%
	ADHD	60%	58%	60%	65%	76%	+16%
	Autism	43%	39%	61%	62%	65%	+22%
	Blindness	49%	56%	53%	70%	82%	+33%
	DHH	36%	45%	48%	61%	64%	+28%
	Intellectual	13%	22%	33%	37%	42%	+28%
	Learning	38%	39%	42%	55%	66%	+28%
	Mental	54%	59%	63%	67%	73%	+18%
	Physical	52%	59%	64%	70%	82%	+30%
	Other	38%	42%	50%	63%	69%	+30%
Male	Non-DSPS	47%	50%	53%	60%	65%	+18%
	DSPS	37%	42%	46%	54%	63%	+26%
	ABI	48%	47%	55%	61%	66%	+18%
	ADHD	48%	52%	55%	61%	69%	+21%
	Autism	40%	48%	49%	57%	68%	+28%
	Blindness	51%	52%	55%	64%	73%	+23%
	DHH	34%	41%	46%	52%	63%	+29%
	Intellectual	16%	20%	27%	20%	35%	+18%
	Learning	32%	33%	38%	48%	59%	+28%
	Mental	44%	50%	54%	61%	65%	+21%
	Physical	51%	54%	58%	65%	74%	+23%
	Other	35%	37%	41%	53%	64%	+29%

Note: ABI = Acquired Brain Injury; ADHD = Attention Deficit Hyperactivity Disorder; DHH = Deaf and Hard of Hearing
Data for speech disability are not included because data collection stopped in 2017-18.

Table 4. English Cohort Sizes by Primary Disability Type and Gender

Subject	Subgroup	2015-16	2016-17	2017-18	2018-19	2019-20	5-Yr % Change
Female	Non-DSPS	79,311	80,165	82,979	85,511	91,380	+15%
	DSPS	5,530	5,585	5,597	5,229	4,069	-26%
	ABI	124	86	121	89	68	-45%
	ADHD	414	567	586	519	418	+1%
	Autism	124	139	177	160	132	+6%
	Blindness	85	88	64	65	56	-34%
	DHH	166	160	152	143	145	-13%
	Intellectual	106	109	84	53	49	-54%
	Learning	1,571	1,867	1,993	1,942	1,445	-8%
	Mental	1,416	1,525	1,470	1,307	1,029	-27%
	Physical	417	359	292	265	204	-51%
	Other	2,566	1,592	1,179	1,008	744	-71%
Male	Non-DSPS	72,154	73,734	74,927	76,335	78,318	+9%
	DSPS	5,014	5,105	5,191	4,852	3,935	-22%
	ABI	134	151	109	110	63	-53%
	ADHD	476	763	787	716	652	+37%
	Autism	470	656	718	808	666	+42%
	Blindness	95	85	101	99	72	-24%
	DHH	126	116	113	107	118	-6%
	Intellectual	67	69	67	54	23	-66%
	Learning	1,338	1,622	1,814	1,621	1,274	-5%
	Mental	752	713	699	588	471	-37%
	Physical	299	297	257	199	154	-48%
	Other	2,904	1,657	1,003	856	614	-79%

Note: ABI = Acquired Brain Injury; ADHD = Attention Deficit Hyperactivity Disorder; DHH = Deaf and Hard of Hearing
Data for speech disability are not included because data collection stopped in 2017-18.

Table 5. Math Throughput Rates by Primary Disability Type and Gender

Subject	Subgroup	2015-16	2016-17	2017-18	2018-19	2019-20	5-Yr % Pt. Change
Female	Non-DSPS	26%	27%	30%	36%	53%	+27%
	DSPS	14%	16%	19%	23%	42%	+28%
	ABI	11%	18%	31%	27%	53%	+42%
	ADHD	22%	24%	24%	27%	52%	+29%
	Autism	20%	16%	24%	24%	44%	+25%
	Blindness	17%	21%	18%	26%	48%	+31%
	DHH	13%	17%	20%	28%	37%	+24%
	Intellectual	4%	3%	3%	6%	26%	+22%
	Learning	10%	9%	11%	15%	35%	+25%
	Mental	19%	21%	24%	31%	50%	+32%
	Physical	17%	21%	23%	30%	46%	+29%
	Other	12%	14%	19%	24%	38%	+26%
Male	Non-DSPS	28%	30%	31%	36%	50%	+22%
	DSPS	16%	18%	19%	23%	38%	+22%
	ABI	13%	20%	29%	28%	38%	+25%
	ADHD	25%	25%	21%	28%	42%	+17%
	Autism	21%	23%	23%	29%	44%	+23%
	Blindness	20%	20%	27%	30%	41%	+21%
	DHH	13%	13%	16%	25%	42%	+29%
	Intellectual	6%	9%	3%	3%	11%	+5%
	Learning	11%	12%	12%	16%	29%	+18%
	Mental	20%	22%	26%	27%	43%	+23%
	Physical	23%	22%	30%	32%	48%	+25%
	Other	14%	15%	19%	22%	36%	+21%

Note: ABI = Acquired Brain Injury; ADHD = Attention Deficit Hyperactivity Disorder; DHH = Deaf and Hard of Hearing
Data for speech disability are not included because data collection stopped in 2017-18.

Table 6. Math Cohort Sizes by Primary Disability Type and Gender

Subject	Subgroup	2015-16	2016-17	2017-18	2018-19	2019-20	5-Yr % Change
Female	Non-DSPS	76,498	77,323	78,444	76,821	69,963	-9%
	DSPS	6,080	6,277	6,117	5,734	4,367	-28%
	ABI	117	109	121	84	75	-36%
	ADHD	389	596	641	585	438	+13%
	Autism	107	160	190	181	149	+39%
	Blindness	105	101	83	80	69	-34%
	DHH	183	187	184	159	131	-28%
	Intellectual	118	135	108	107	58	-51%
	Learning	1,681	2,096	2,159	2,048	1,480	-12%
	Mental	1,549	1,656	1,617	1,476	1,144	-26%
	Physical	474	422	354	309	212	-55%
	Other	2,905	1,872	1,282	1,103	863	-70%
Male	Non-DSPS	70,890	72,193	73,476	71,275	64,901	-8%
	DSPS	5,706	5,810	5,829	5,486	4,376	-23%
	ABI	126	193	125	108	81	-36%
	ADHD	538	825	857	798	699	+30%
	Autism	512	722	823	866	733	+43%
	Blindness	105	106	108	107	71	-32%
	DHH	172	170	126	134	102	-41%
	Intellectual	102	90	79	58	28	-73%
	Learning	1,376	1,813	2,016	1,854	1,399	+2%
	Mental	861	827	809	733	568	-34%
	Physical	366	318	297	227	176	-52%
	Other	3,354	1,924	1,135	982	725	-78%

Note: ABI = Acquired Brain Injury; ADHD = Attention Deficit Hyperactivity Disorder; DHH = Deaf and Hard of Hearing
Data for speech disability are not included because data collection stopped in 2017-18.