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High School Achievement and Aptitude Comparisons of Students Planning to Attend Different Types of College Institutions. Biographic Survey, Part I.

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College populations may differ greatly, not only in terms of traditional academic variables such as high school grades and test performances, but also in terms of student interests, values, educational aspirations, occupational plans, and socio-economic background. The recognition of biographic variables as potential predictors of academic success in college led to the development of a 20-minute questionnaire, Survey of Educational Plans after High School, which was administered to over 7,500 high school seniors between 1966 and 1967 by the Washington Pre-College Testing Program (WPC). This paper, the first of 3 that will describe and analyze results of the questionnaire, deals with 1 biographic variable--the type of college a student plans to attend-- and relates it to WPC aptitude and achievement variables. Twenty graphs compare cumulative percentage distributions of the overall high school GPA, the 6 high school subject GPAs, and 13 WPC Test scores for students electing to attend 3 kinds of institutions: 2-year colleges, 4-year state or private colleges, and state universities. On each of the 20 cognitive variables, students choosing universities ranked first as high achievers, those electing state and private colleges placed second, and those going to community colleges came third. In Tables 1 and 2, GPA and WPC Test scores differentiate between students who will attend each of the 3 types of institutions, and Table 3 lists WPC standard score means based on a 1968 high school standardization group. (WM)

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Biographic Survey, Part I: High School Achievement and Aptitude Comparisons of Students Planning to Attend Different Types of College Institutions

Gary F. Beanblossom

Awareness of the potential importance of biographic variables in the prediction of intellective and non-intellective criteria in college led to the development of a 20-minute questionnaire called Survey of Educational Plans after High School administered by WPC in 1966-67 to more than 7,500 high school seniors in the state. This paper focuses on just one biographic variable, the type of college a student plans to attend, and relates this to the WPC aptitude and achievement variables. About 18 per cent of this college-bound population plan to attend a university, 27 per cent a state or private college, and 46 per cent a community or other two-year college. Without exception, university students rank first, state and private college students second, and community college students third, on each of the 20 cognitive variables. For the most part, differences are sharp and distinct. Measures of association show overall high school GPA, English GPA, social studies GPA, English Usage, and Math Achievement to be most strongly correlated with college choice. These results strongly suggest that future research activities of WPC be oriented and directed more toward non-university populations.

Introduction. There has been a long-standing interest in the potential benefits of utilizing biographic variables in the prediction of academic success (C. E. Lunneborg, 1965). The college characteristics and environment are closely interwoven with academic success; such factors as size, location, curriculum, academic standing, and social opportunities

Bureau of Testing Project 0468-100.

not only are weighed in the determination of which college to attend but may affect academic success once a choice has been made. Since students do not randomly select colleges, college populations are apt to differ considerably not just in terms of the traditional academic variables upon which admissions decisions are generally based, such as high school grades and test performances, but also as regards more subjective personal-social attributes, such as interests, values, educational aspirations, occupational plans, and socio-economic background.

Awareness of the potential importance of biographic variables in the prediction of academic success in college, especially differential prediction (C. E. Lunneborg, 1968), led to the development of a 20-minute questionnaire called Survey of Educational Plans after High School administered by WPC to more than 7,500 high school seniors in the state (C. E. Lunneborg, 1966). Schools were sampled by size and percentage of students taking the WPC Test in an effort to acquire a reasonably representative sample of the college-bound population. An earlier report has described this sample in terms of the survey items and attempted to identify potentially best items through correlations with high school grades (Lunneborg & Lunneborg, 1967a). Twenty-three of the 46 items were eliminated the following year to allow for the inclusion of new materials (C. E. Lunneborg, 1967). This survey comprised two of the six experimental batteries administered by WPC in autumn 1967. During the upcoming WPC high school spring testing several of the more promising biographic items have been incorporated into the answer sheet format thus making it possible to obtain limited biographic data for about 25,000 students. Until now there has been no comprehensive attempt to examine

these data and scrutinize their research potential though the Lunneborgs have made use of biographic variables in some of their work (Lunneborg & Lunneborg, 1966, 1967b, 1968, P. W. Lunneborg, 1968).

Purposes. This is the first of three papers that describe and analyze results from the first Survey of Educational Plans after High School administered by WPC to high school seniors in 1966-67.

Part I will focus on just one biographic variable, the type of college a student plans to attend, and relate this to the WPC achievement and aptitude variables. It will essentially be concerned with demonstrating the wide divergencies between different college populations (e.g., community college, state college, and university) with respect to the pre-college variables primarily through graphic means. Until recently (Lunneborg & Lunneborg, 1967c) WPC research decisions have been most commonly based on studies of university populations, most notably the University of Washington. But high school seniors planning to commence their college studies at universities are not only vastly superior to other college oriented students on the WPC variables but numerically represent only a small minority of high school seniors with college plans. Among high school seniors graduating in 1967 who planned to attend college only about 18 percent contemplated commencing their college studies in a university setting. The trends toward greater functional differentiation of higher education institutions has placed the universities in the unique position of gearing their curriculum toward graduate training and advanced undergraduate education. The state colleges and, to an increasing extent, the community colleges, are absorbing the bulk of the entering college population. This means that the guidance, counseling, and placement goals of WPC, which are of most pertinence to the

first year of college, must be reshaped to keep pace with the accelerated structural changes in institutions of higher education.

Part II will concentrate exclusively on biographic variables. Fifteen biographic variables will be shown and discussed for students planning to attend different types of college institutions.

Part III will be less descriptive and more analytic. There were 820 high school seniors participating in the 1966-67 biographic survey who entered the University of Washington in the fall of 1967. Part III will report the analysis of these data.

Type of College Institution. Question #7 on the 1966-67 survey questionnaire inquires about where the student plans to start college. The ten choices were assigned to one of four categories for purposes of this analysis. Included under two-year colleges are community colleges, technical institutes, business colleges, and hospital nursing programs. More than 46 per cent of the sample chose one of these institutions; almost 94 per cent of these students were planning to attend community colleges. The second most populous category includes four-year state or private colleges, selected by 27.3 per cent of the students. Of these students, 62 per cent planned to attend state colleges, 24 per cent chose private, church controlled colleges, 13 per cent selected private, non-denominational colleges, and the remaining one per cent, "women's college." The third major category consists of those planning to attend state universities, a group that includes just 18 per cent of the high school seniors who planned to attend college. Students undecided about which college to attend make up the fourth category and amount to about 8.5 per cent of the total.

Percentile Graphs. Cumulative percentage distributions of the overall high school GPA, the six high school subject GPA's, and 13 WPC Test scores are compared in Graphs 1 through 20 for students electing to attend two-year colleges, four-year state or private colleges, and state universities. Below each graph are shown means and standard deviations for students planning to attend each type of institution, as well as the undecideds, subdivided by sex.

Probably the most surprising theme conveyed by the graphs is the absence of surprise--there is a remarkable consistency in the manner by which the three groups order themselves on the pre-college variables. Without exception, university students rank first, state and private college students second, and community college students third, on each of the 20 cognitive variables. The differences, with few exceptions, are sharp and distinct; the state and private college students align themselves somewhat more closely with university students than community college students on the GPA variables. The same tendency is discernible, though in lesser degree, on the test score variables. Even variables that wouldn't be expected to discriminate well (or at all) between the three groups, such as high school electives GPA, Mechanical Reasoning, Spatial Ability, and Reading Speed (which is simply the number of answers attempted) reveal the same persistent pattern, i.e., university choosers being the highest achievers, community college students the lowest, and state and private college students occupying an intermediate position. The mean attainments of the undecideds normally place them between the community college and state college populations. Admissions requirements of the various institutions play no small role in the achievement and aptitude profiles shown. A substantial majority of the community college students simply do not meet the

minimal GPA requirements for admission to the state universities.

Measures of Association. Tables 1 and 2 reveal more clearly the degree to which the various high school GPA and WPC Test scores differentiate between students who have formulated plans to attend each of the three types of institutions. The institutional types are ordered by scholastic standards from the highest (state university) to the lowest (two-year college). The WPC variables were trichotomized into an upper third, a middle third, and a lower third for each sex, based on the respective total populations of the two sexes (about 4,000 males and 3,600 females). For each sex the percentages of students planning to attend each type of institution were computed for the upper, middle, and lower categories of the 20 variables. The percentage differences between institutional types are reflected by gamma, a statistic used to denote the magnitude of association between ordinal variables (Goodman & Kruskal, 1954). The overall high school GPA yields the highest gamma for males (+.63). Only six per cent of state university males are in the lower third of the overall high school GPA for the total male population compared with 52 per cent of the community college males, a difference of 46 per cent; the percentages for the upper third are 68 and 16, respectively, a difference of 62 per cent.

The pre-college variables differentiate somewhat better between institutional types for the male population than the female population. For both groups high school grades show somewhat higher relationships than test scores; this is most noticeable for males. The gamma coefficients, ranked in order of magnitude by sex, are as follows:

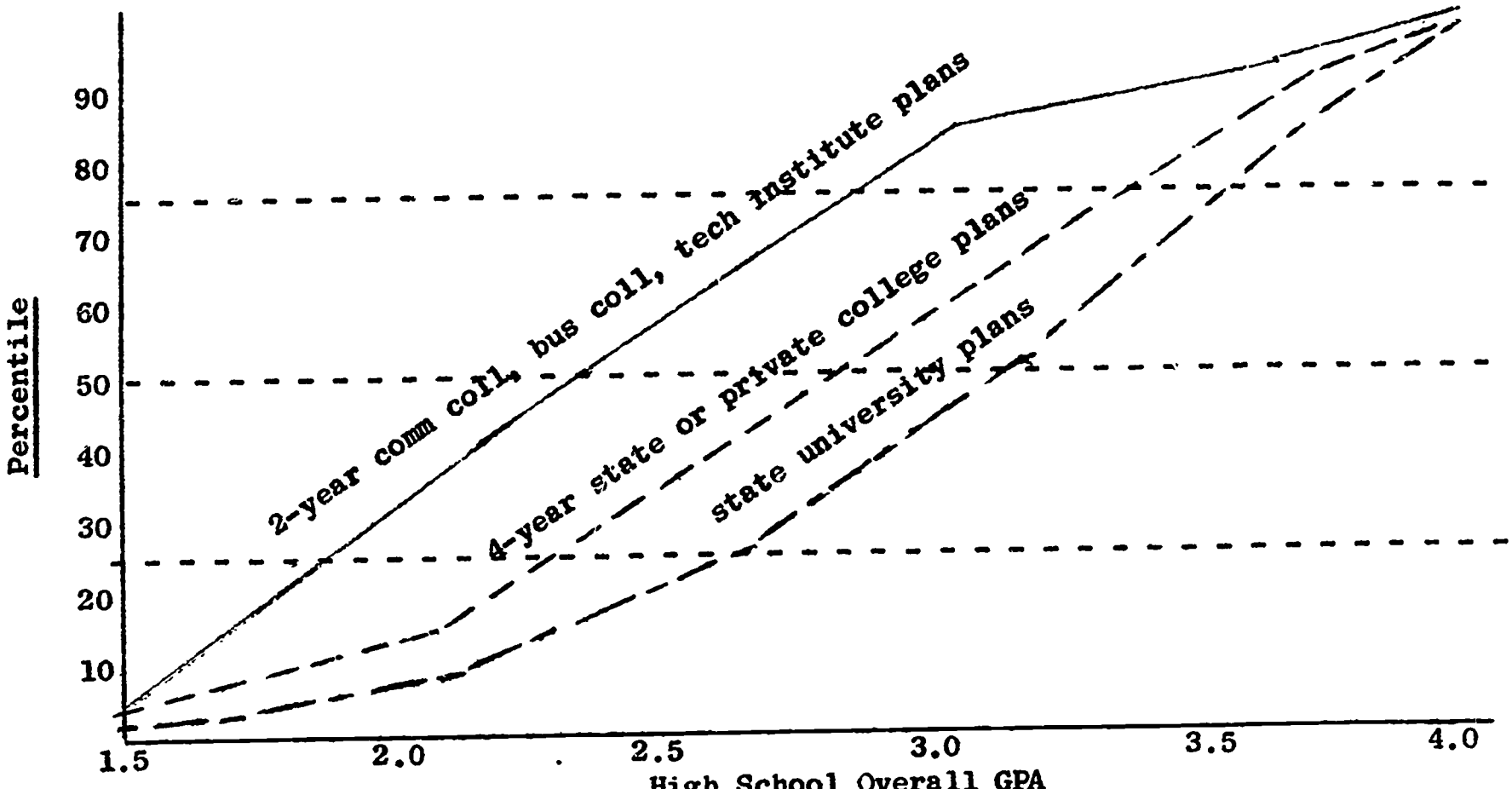
Males		Females	
HS overall GPA	.63	HS English GPA	.49
HS English GPA	.62	HS overall GPA	.48
HS social studies GPA	.58	HS social studies GPA	.48
Math Achievement	.55	English Usage	.44
English Usage	.54	Math Achievement	.44
HS natural science GPA	.54	Quantitative Skills	.44
HS mathematics GPA	.53	Reading Comprehension	.44
Quantitative Skills	.49	Vocabulary	.44
Applied Math	.48	Applied Math	.41
HS foreign language GPA	.48	HS electives GPA	.41
Vocabulary	.47	HS mathematics GPA	.41
Quantitative Judgment	.46	HS foreign language GPA	.40
HS electives GPA	.44	HS natural science GPA	.40
Reading Comprehension	.44	Quantitative Judgment	.39
Spelling	.41	Data Sufficiency	.38
Functional Relationships	.40	Functional Relationships	.33
Data Sufficiency	.39	Spelling	.30
Spatial Ability	.29	Spatial Ability	.22
Mechanical Reasoning	.21	Mechanical Reasoning	.21
Reading Speed	.20	Reading Speed	.14

Among the high school GPA's, the overall GPA, English, and social studies are the most powerful. English Usage and Math Achievement show the highest relationships among tests, and Spatial Ability, Mechanical Reasoning, and Reading Speed, the lowest. For the most part differences between gammas are minuscule.

Standard Score Means. Table 3 lists WPC standard score means based on the most recent high school standardization group, a spring 1968 sample of high school juniors (Beanblossom, Lunneborg, Langen, and Edwards, 1968, p. 10). Most means for the entire group are just a shade shy of 50, meaning of course that the sampling procedures succeeded in obtaining a very representative cross-section of high school students who take the WPC Test--representative, at least, with respect to test achievements. The community college means tend to cluster in the middle 40's and the university means in the middle 50's. Students attempting to interpret standard scores from WPC data sheets might do well to consider these differences since for some tests the differences approach one sigma between students planning to attend universities and those intending to initiate their studies at two-year colleges.

Graph 1

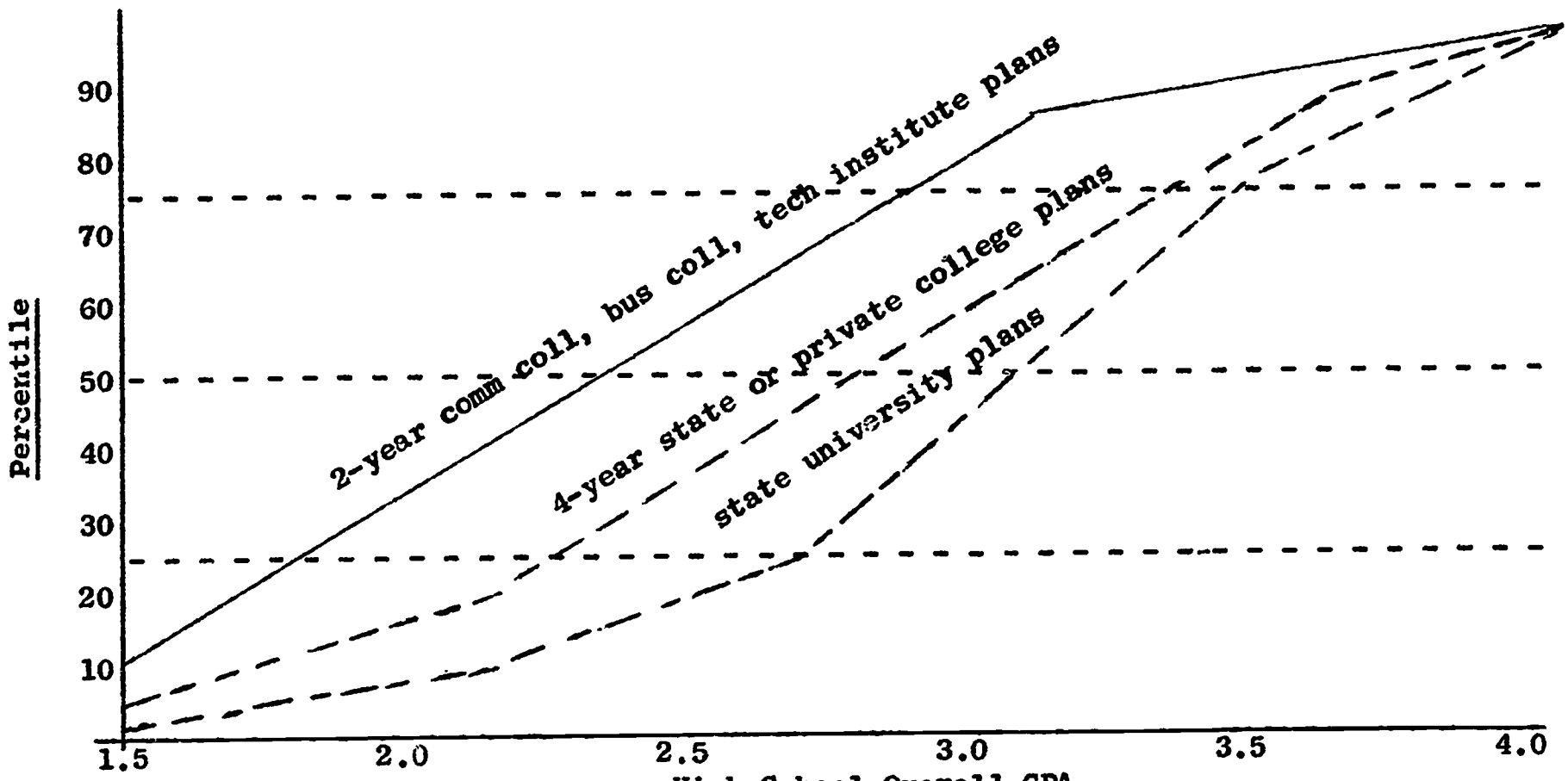
Percentile comparisons of high school overall GPA attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence



	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	2.25	.50	1875	2.57	.54	1625
4-year state or private college plans	2.68	.57	1007	2.92	.52	1063
state university plans	2.98	.48	741	3.11	.45	638
undecided	2.57	.63	360	2.83	.58	316

Graph 2

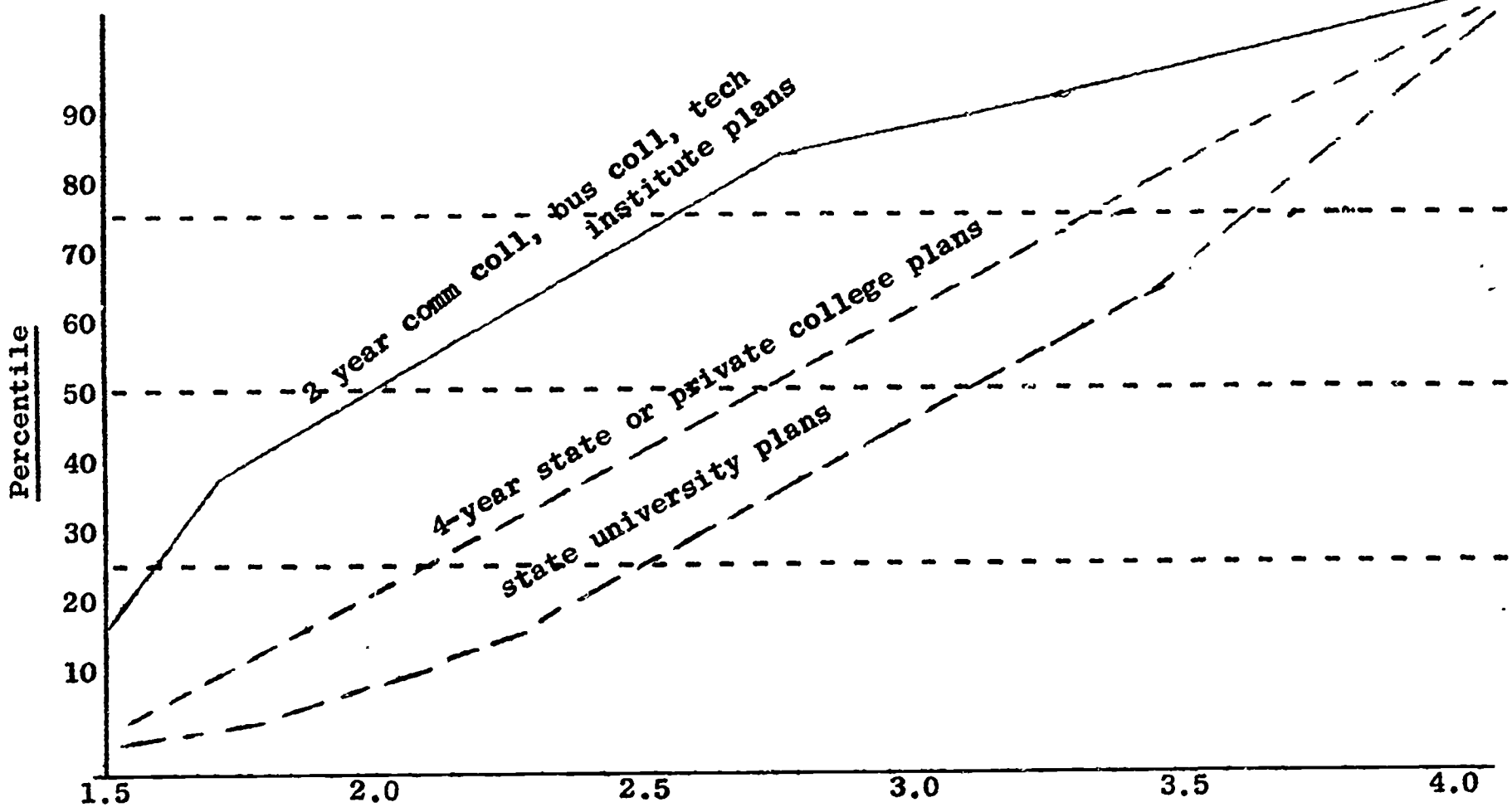
Percentile comparisons of high school English GPA attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence



	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	2.09	.62	1875	2.64	.64	1625
4-year state or private college plans	2.64	.70	1007	3.05	.59	1063
state university plans	2.96	.61	741	3.24	.49	638
undecided	2.42	.77	360	2.94	.67	317

Graph 3

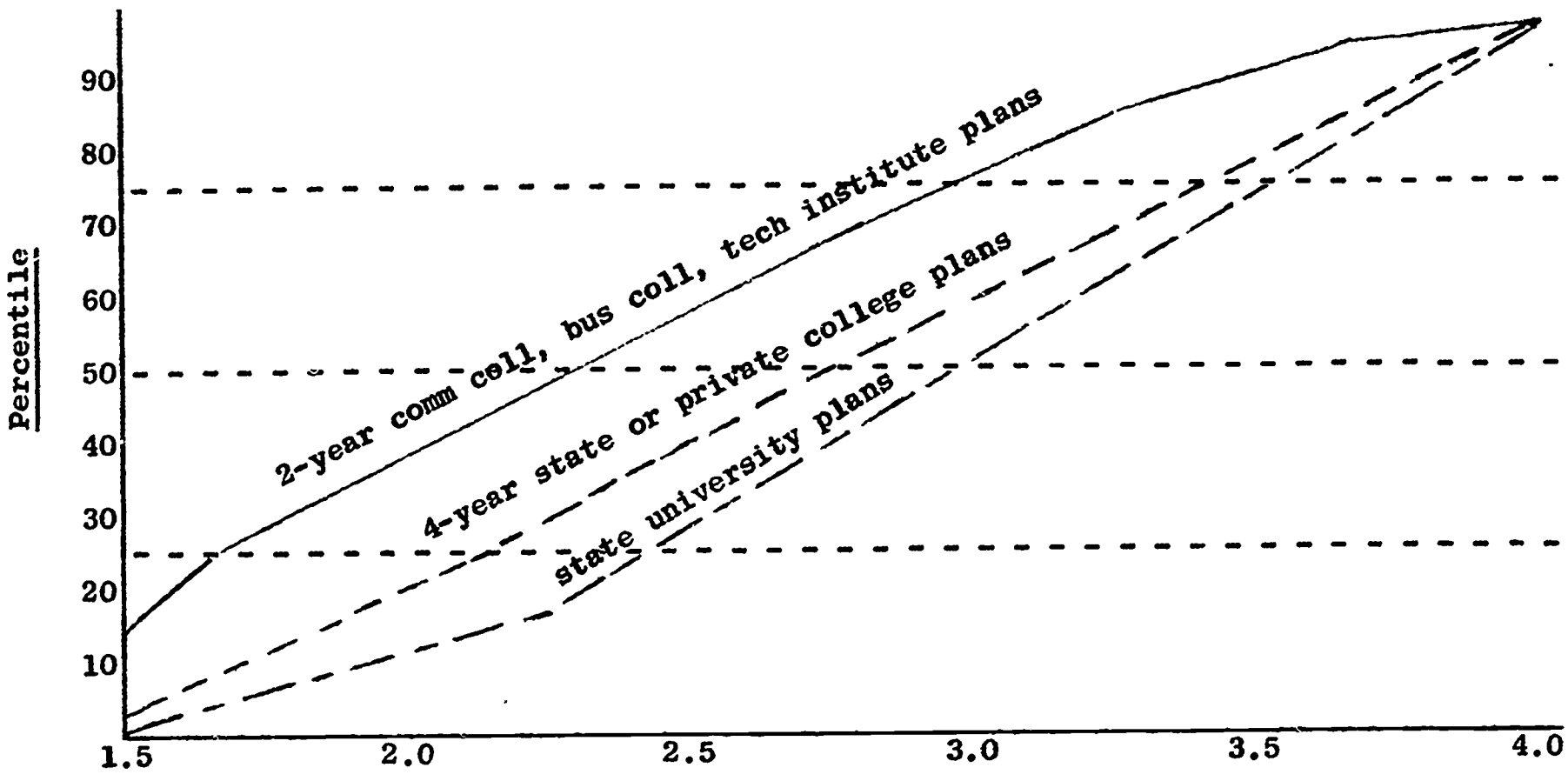
Percentile comparisons of high school mathematics GPA attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence



	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	1.98	.71	1875	2.18	.73	1625
4-year state or private college plans	2.45	.82	1006	2.54	.78	1063
state university plans	2.85	.74	741	2.82	.72	638
undecided	2.36	.86	360	2.48	.82	317

Graph 4

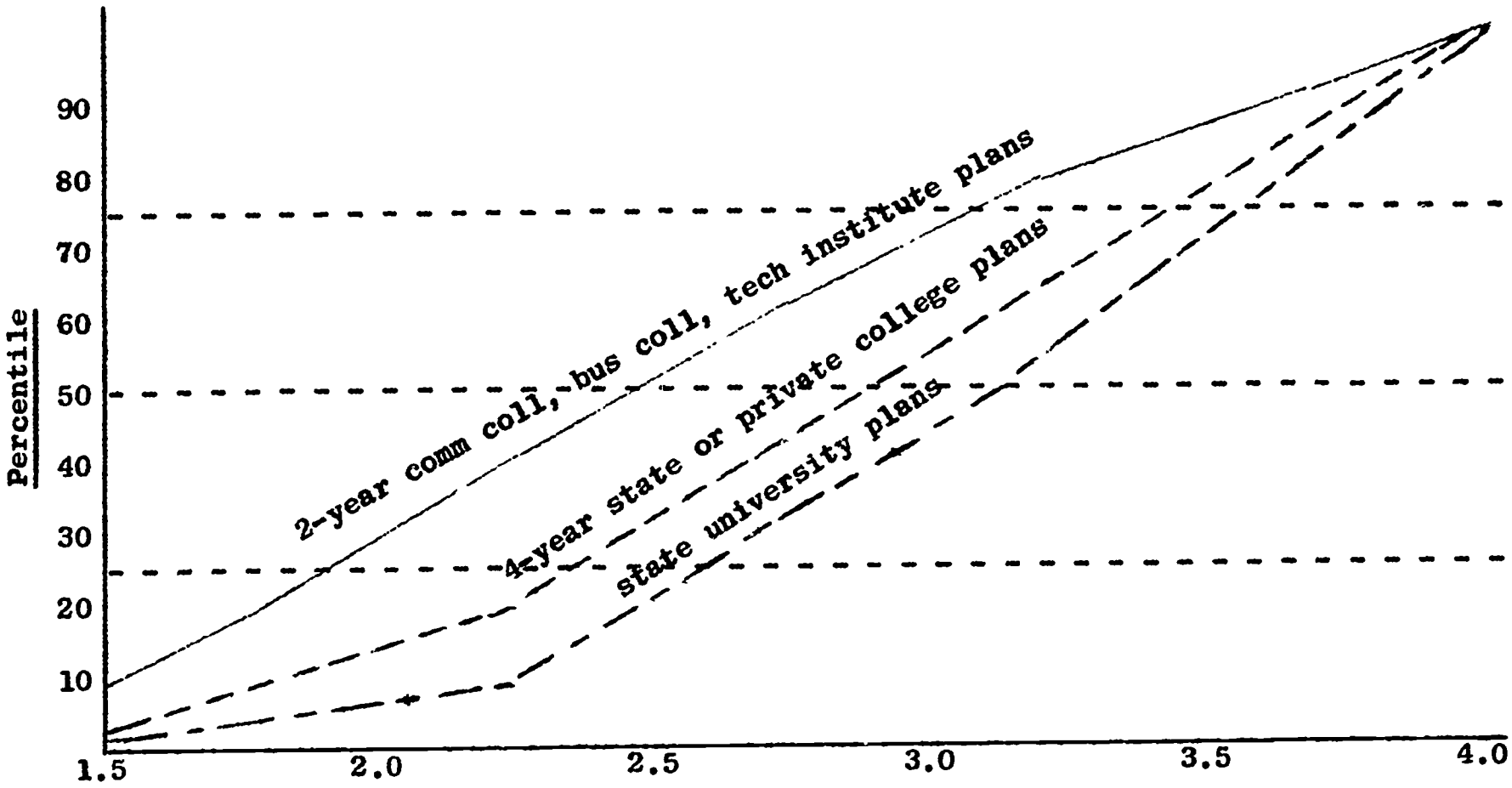
Percentile comparisons of high school foreign language GPA attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence



	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	1.97	.80	1620	2.52	.81	1490
4-year state or private college plans	2.48	.87	948	2.91	.80	1038
state university plans	2.79	.78	726	3.11	.68	635
undecided	2.43	.91	324	2.83	.81	300

Graph 5

Percentile comparisons of high school social studies GPA attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence

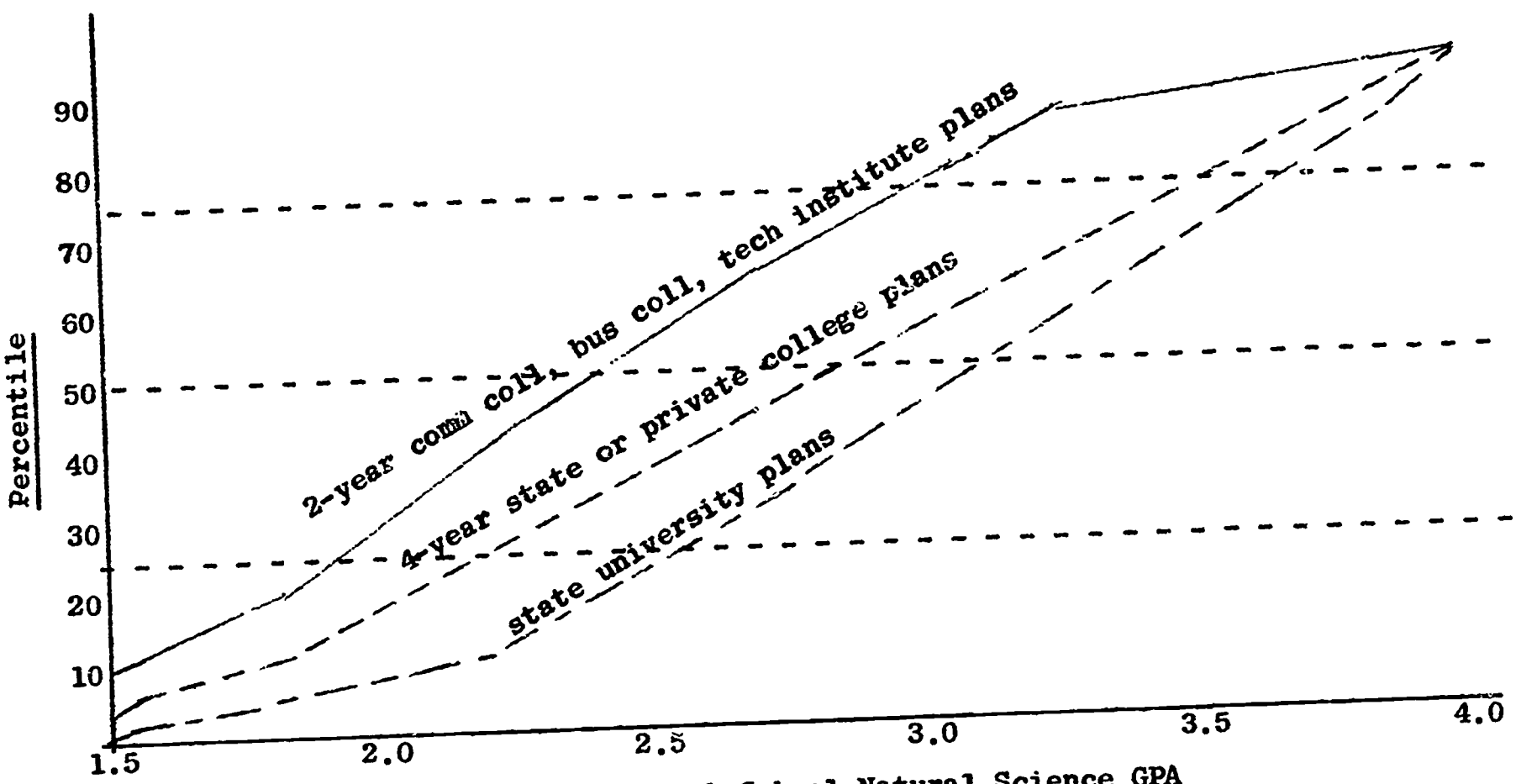


High School Social Studies GPA

	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institue plans	2.23	.70	1874	2.50	.73	1621
4-year state or private college plans	2.78	.74	1007	2.97	.69	1063
state university plans	3.11	.64	741	3.20	.60	638
undecided	2.62	.78	358	2.82	.79	317

Graph 6

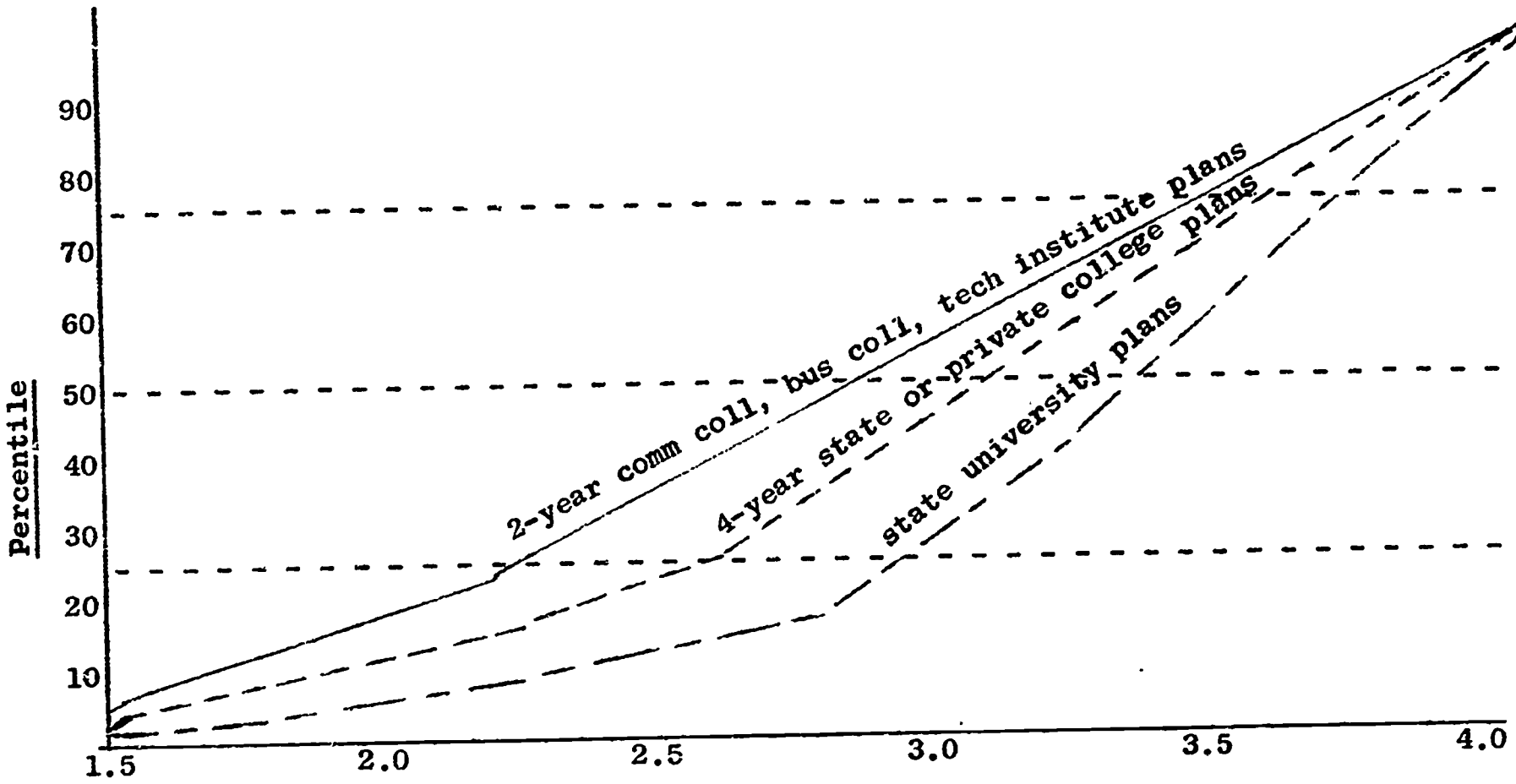
Percentile comparisons of high school natural science GPA attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence



	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	2.13	.71	1857	2.36	.76	1620
4-year state or private college plans	2.63	.78	995	2.71	.74	1057
state university plans	2.96	.70	734	2.93	.70	634
undecided	2.47	.87	357	2.59	.84	316

Graph 7

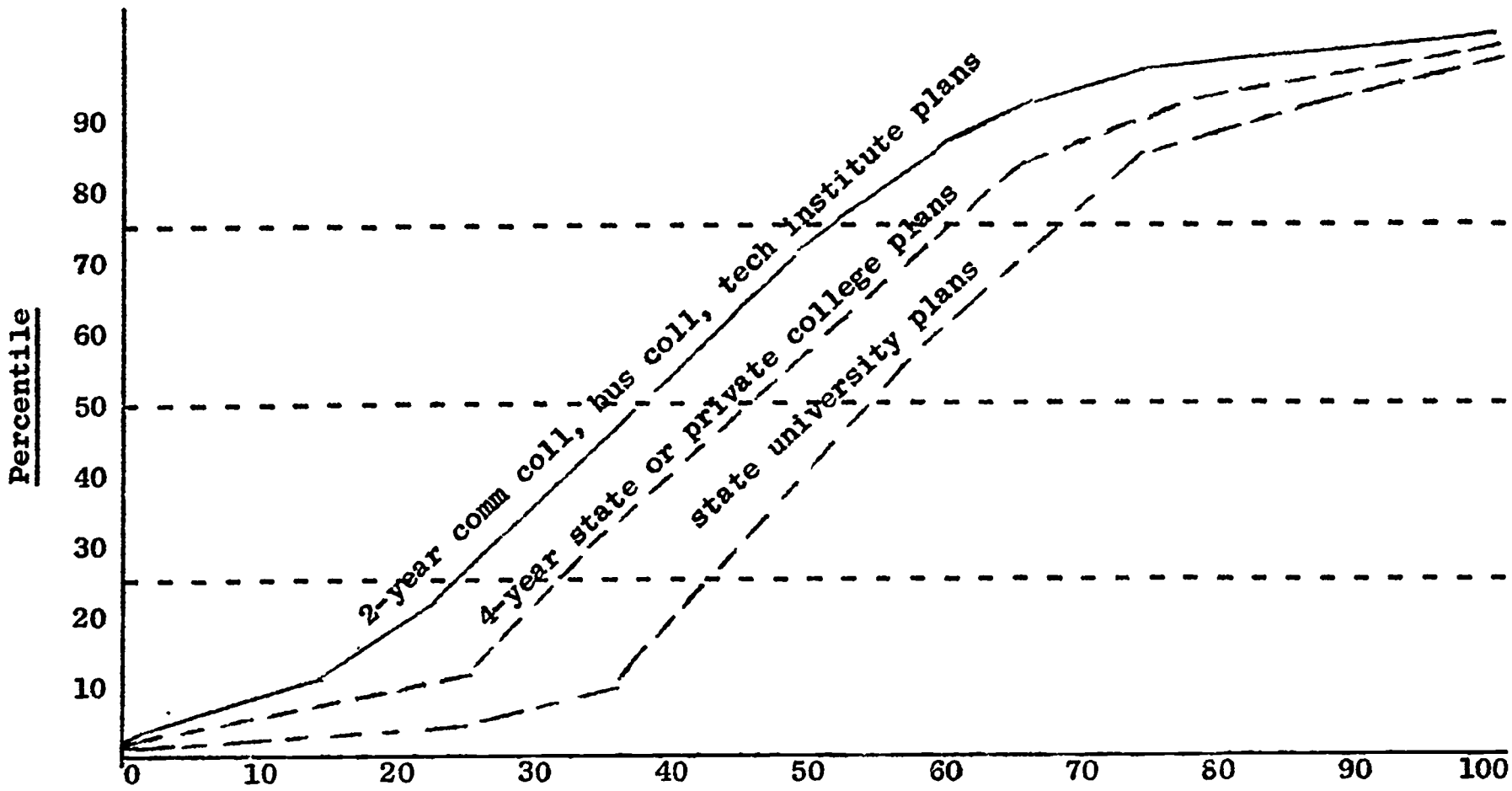
Percentile comparisons of high school electives GPA attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence



	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	2.63	.67	1861	2.89	.60	1624
4-year state or private college plans	2.94	.68	989	3.20	.55	1059
state university plans	3.23	.60	720	3.35	.53	637
undecided	2.87	.69	348	3.11	.64	316

Graph 8

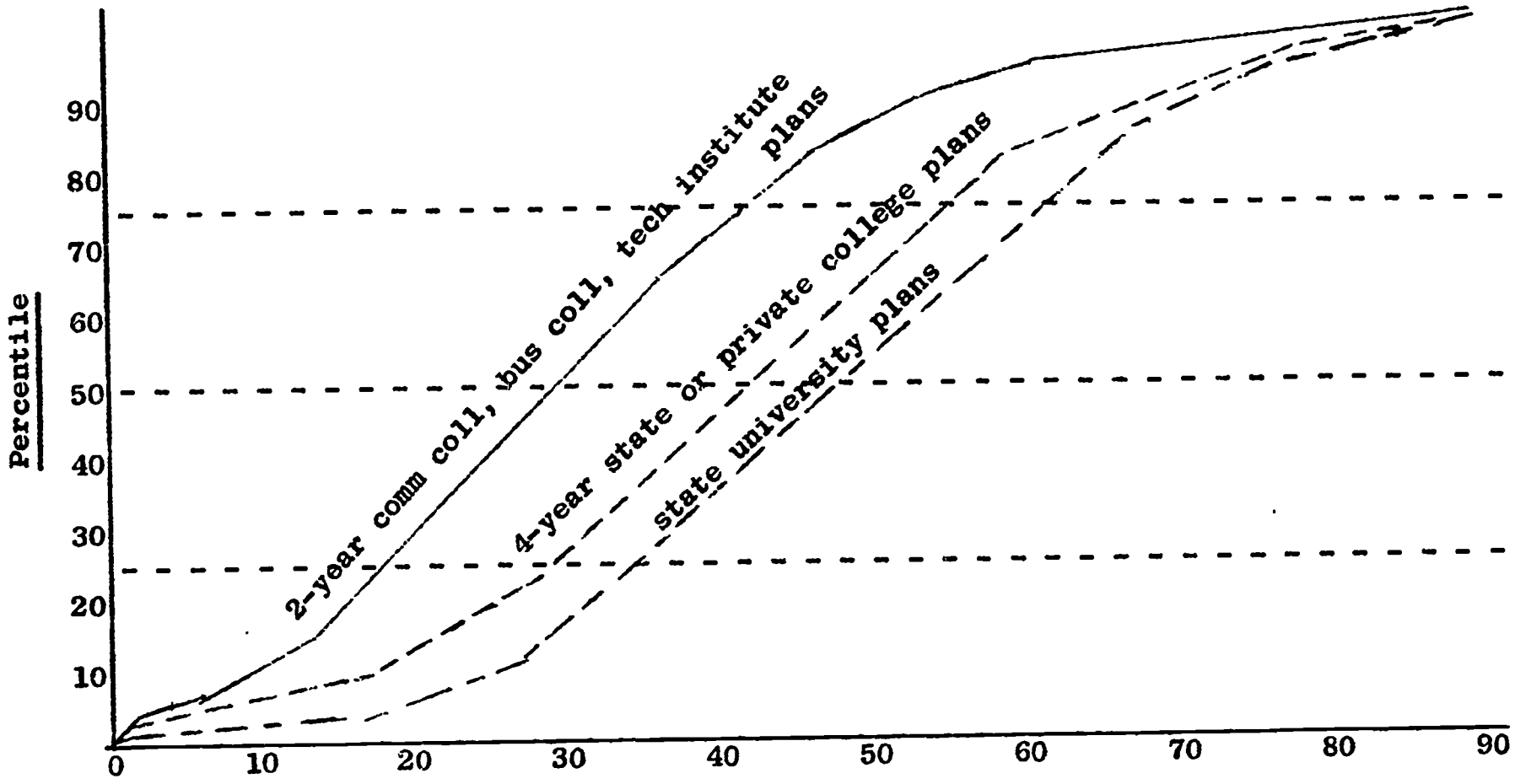
Percentile comparisons of WPC Vocabulary score attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence



	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	36.4	15.8	1875	40.2	15.3	1625
4-year state or private college plans	45.9	17.9	1008	50.0	17.8	1063
state university plans	52.6	16.5	741	55.5	17.1	638
undecided	42.7	18.0	360	47.0	19.0	317

Graph 9

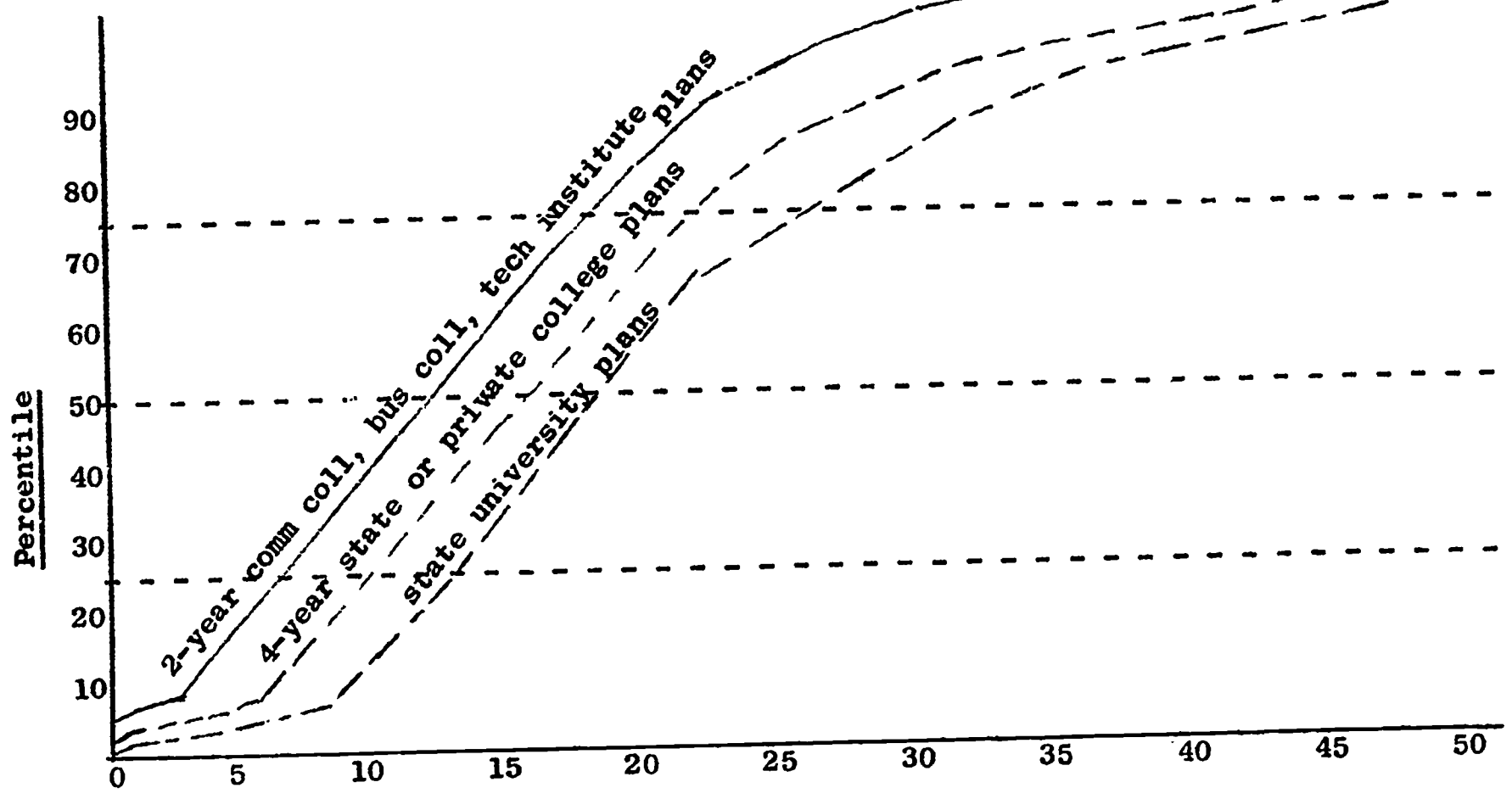
Percentile comparisons of WPC English Usage score attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence



	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	25.9	12.8	1875	33.2	14.3	1625
4-year state or private college plans	34.9	15.5	1008	41.8	15.2	1063
state university plans	41.6	14.3	741	47.0	14.3	638
undecided	32.5	15.4	360	38.3	17.1	317

Graph 10

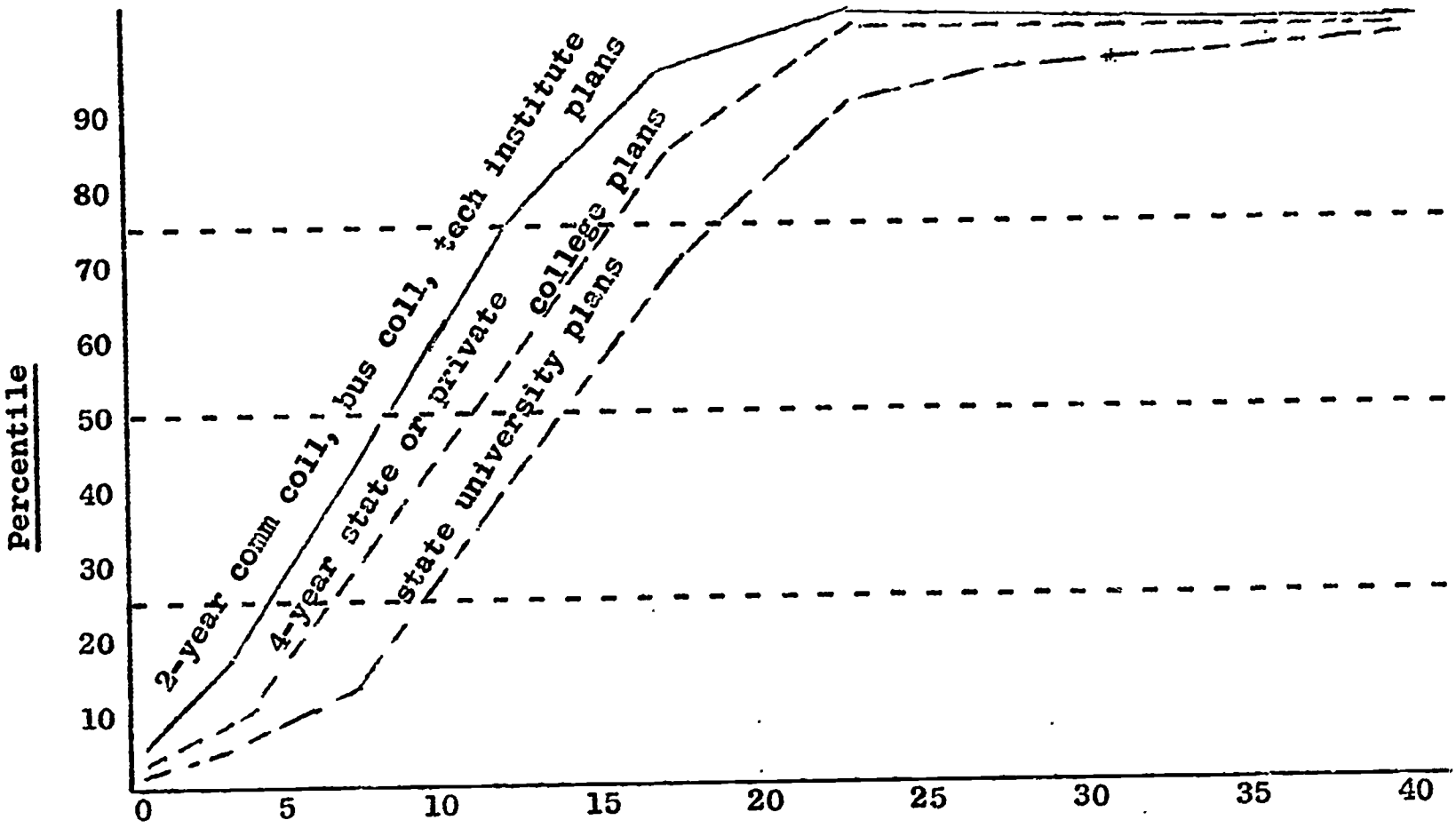
Percentile comparisons of WPC Spelling score attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence



	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	11.0	7.4	1875	15.2	7.9	1625
4-year state or private college plans	15.0	8.7	1008	18.5	8.6	1063
state university plans	17.9	9.0	741	20.7	8.4	638
undecided	13.4	9.0	360	17.6	8.9	317

Graph 11

Percentile comparisons of WPC Reading Comprehension score attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence

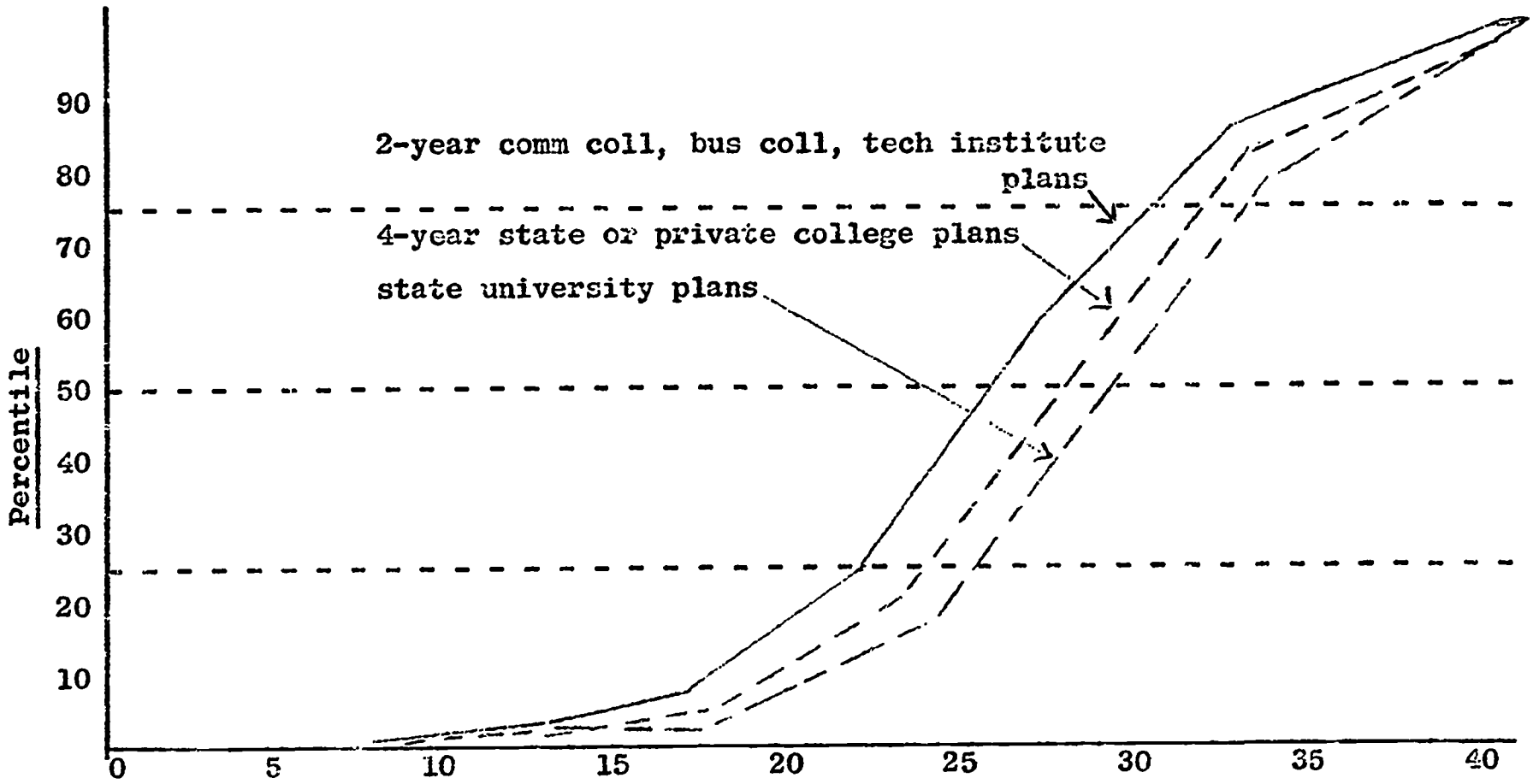


WPC Reading Comprehension Raw Score

	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	8.0	5.5	1375	8.5	5.5	1625
4-year state or private college plans	11.0	6.5	1008	11.8	6.6	1063
state university plans	13.7	6.6	741	14.0	6.4	638
undecided	10.5	6.4	360	10.7	7.0	317

Graph 12

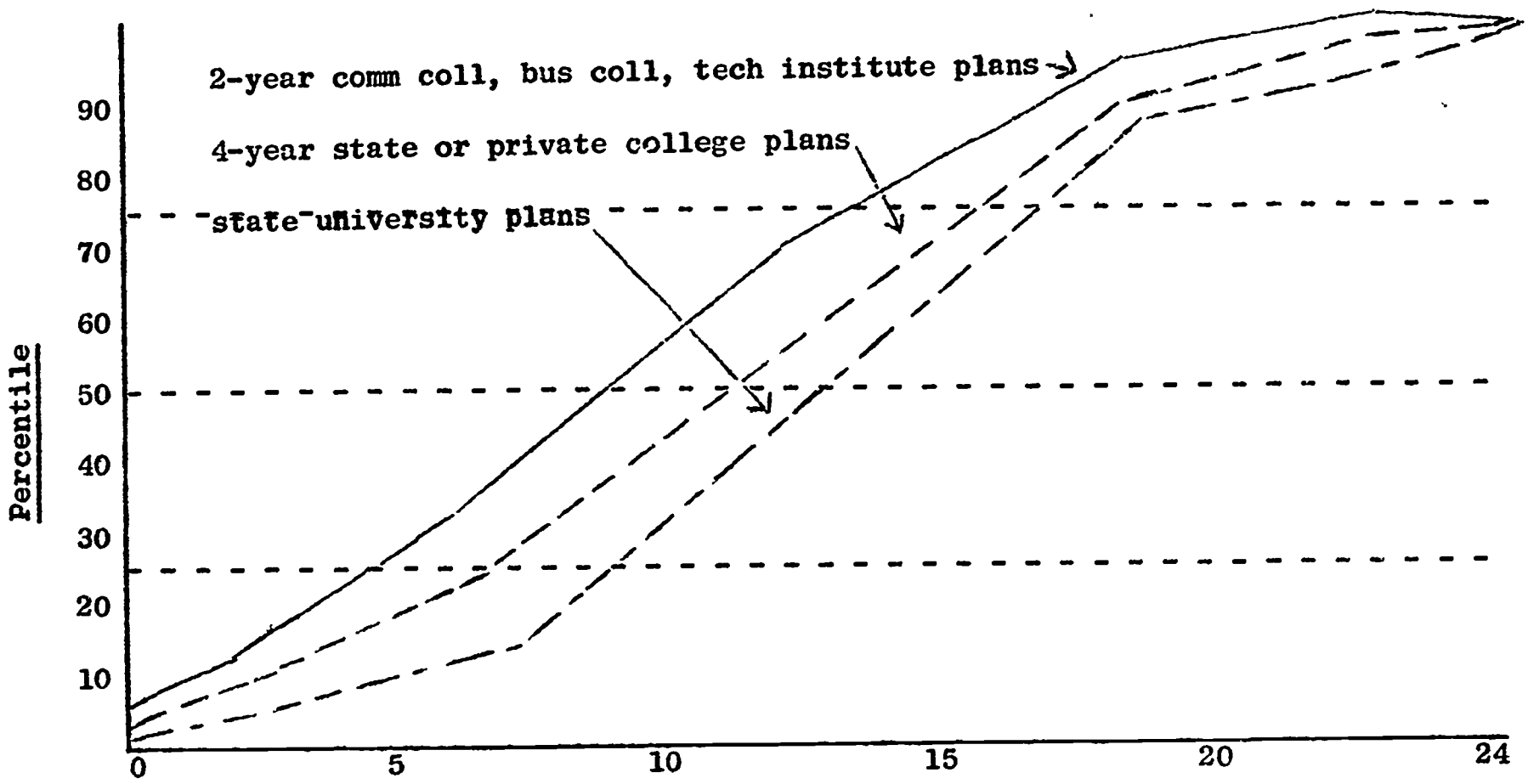
Percentile comparisons of WPC Reading Speed score attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence



	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	25.8	5.7	1875	25.4	5.3	1625
4-year state or private college plans	26.9	5.4	1008	26.4	5.2	1063
state university plans	27.6	5.5	741	26.9	5.4	638
undecided	26.1	5.9	360	25.7	5.7	317

Graph 13

Percentile comparisons of WPC Spatial Ability score attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence

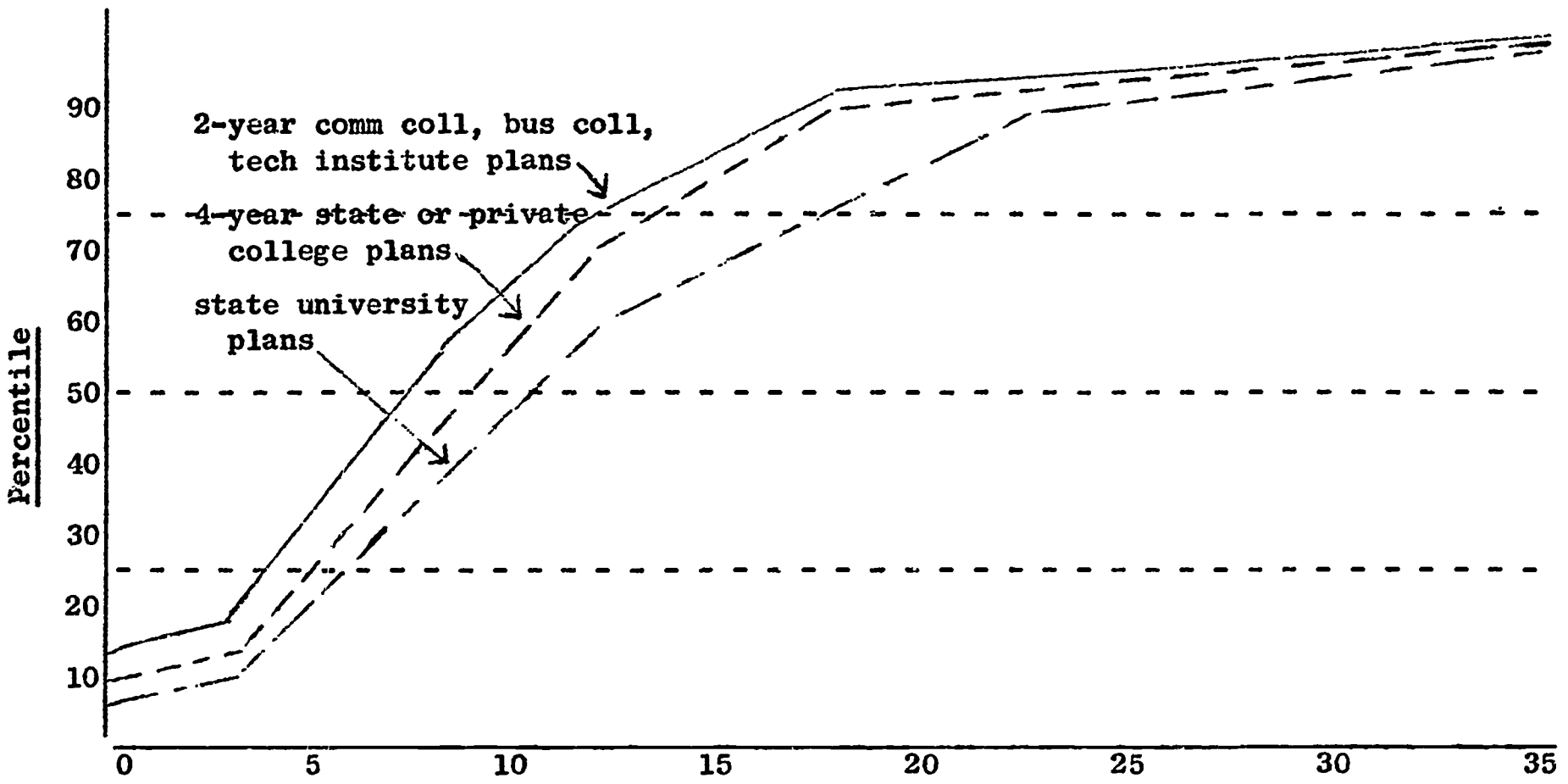


WPC Spatial Ability Raw Score

	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	9.8	4.8	1875	9.1	4.7	1625
4-year state or private college plans	11.0	4.8	1008	10.4	4.5	1063
state university plans	12.7	4.4	741	11.2	4.5	638
undecided	11.0	4.7	360	10.0	4.8	317

Graph 14

Percentile comparisons of WPC Mechanical Reasoning score attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence

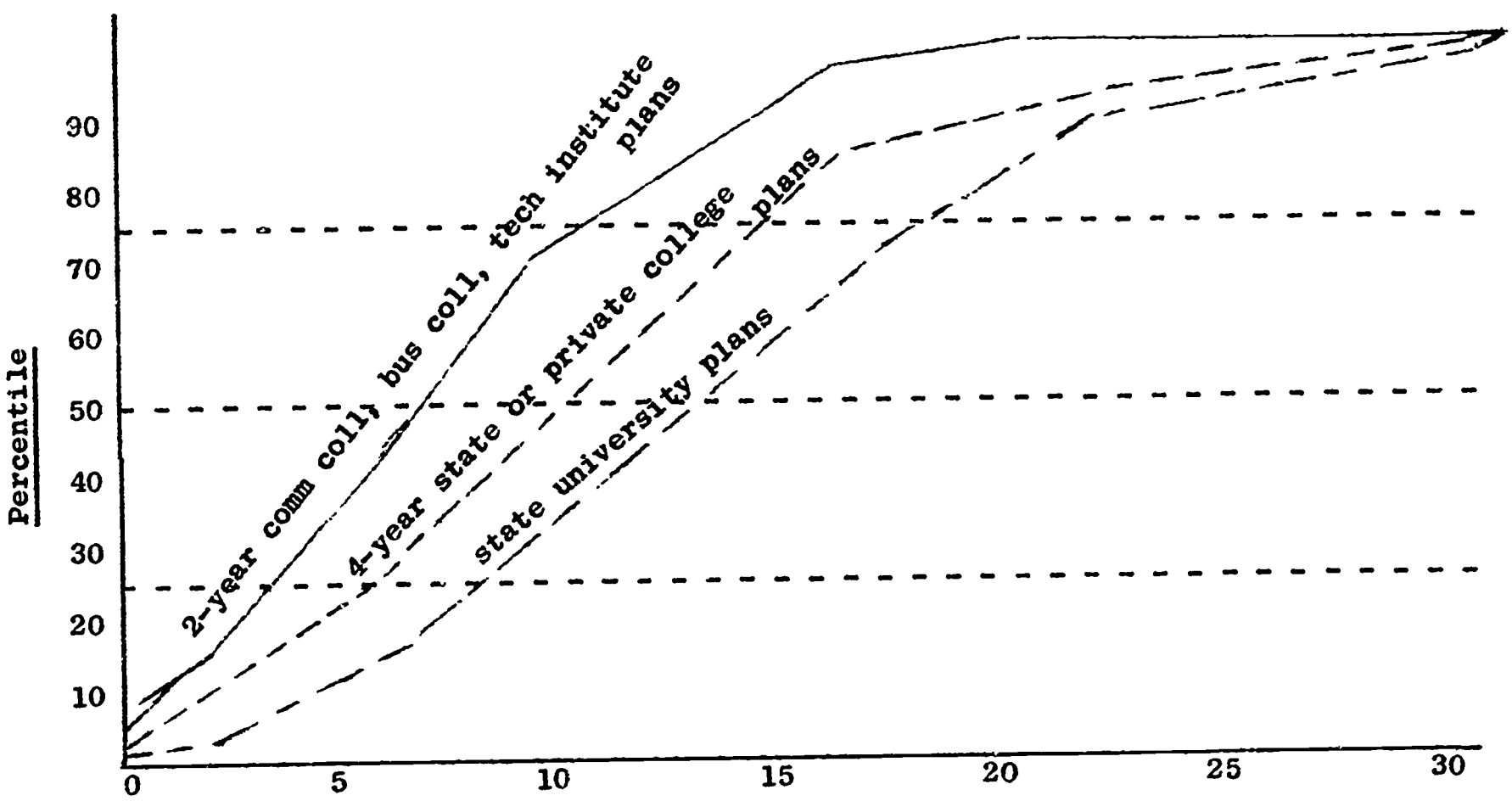


WPC Mechanical Reasoning Raw Score

	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	11.0	7.0	1875	4.0	4.2	1625
4-year state or private college plans	12.0	7.2	1008	5.2	4.7	1063
state university plans	14.5	7.1	741	5.7	4.9	638
undecided	12.3	7.5	360	4.5	4.5	317

Graph 15

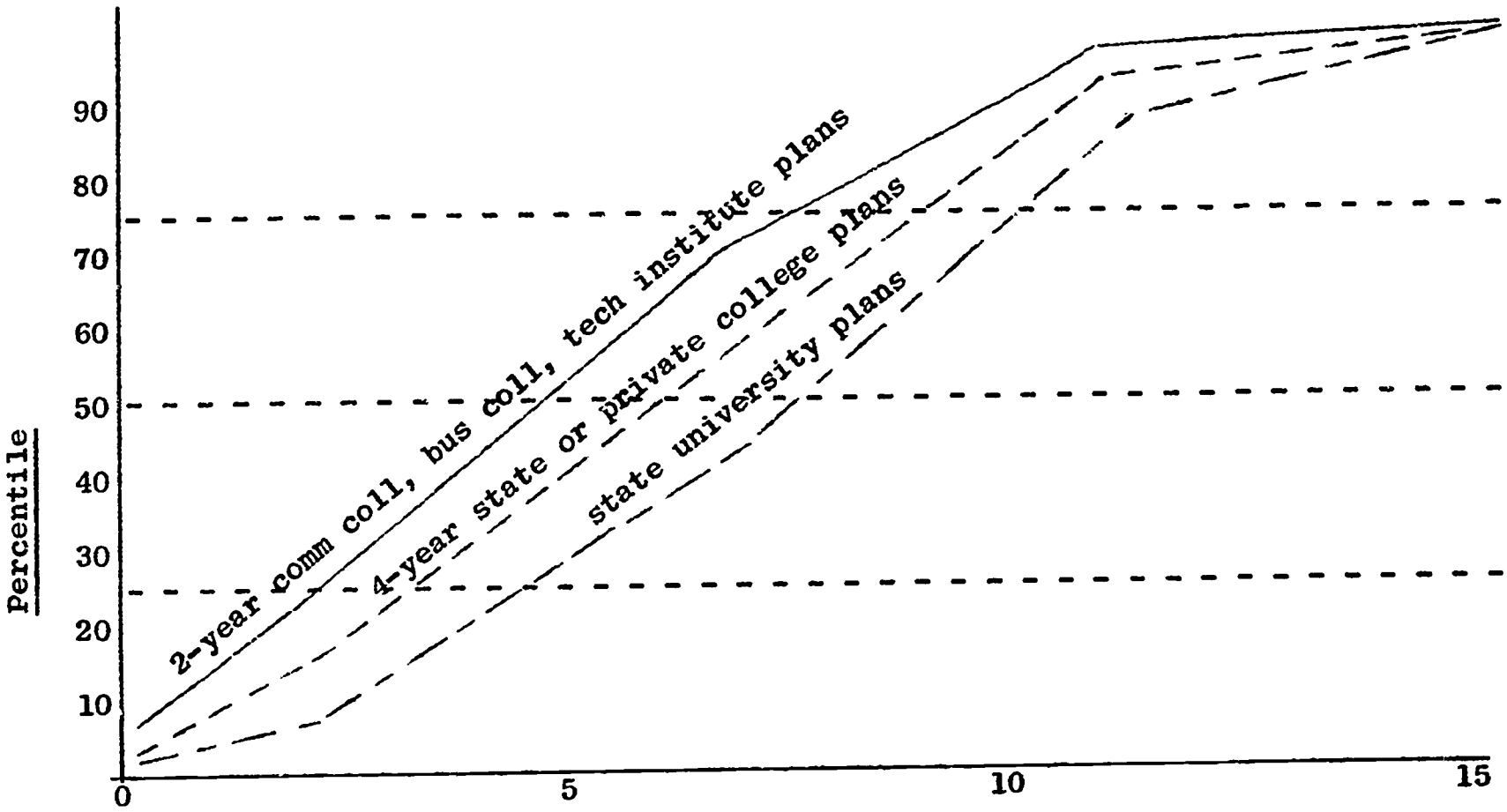
rcentile comparisons of WPC Applied Math score attainments of high school seniors taking the biographi- survey with plans regarding type of institution where college studies will commence



	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	9.7	4.9	1875	8.0	4.5	1625
4-year state or private college plans	12.7	5.5	1008	10.2	4.8	1063
state university plans	14.9	4.9	741	12.1	4.8	638
undecided	12.1	5.5	360	9.3	5.1	317

Graph 16

Percentile comparisons of WPC Data Sufficiency (QSA) score attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence

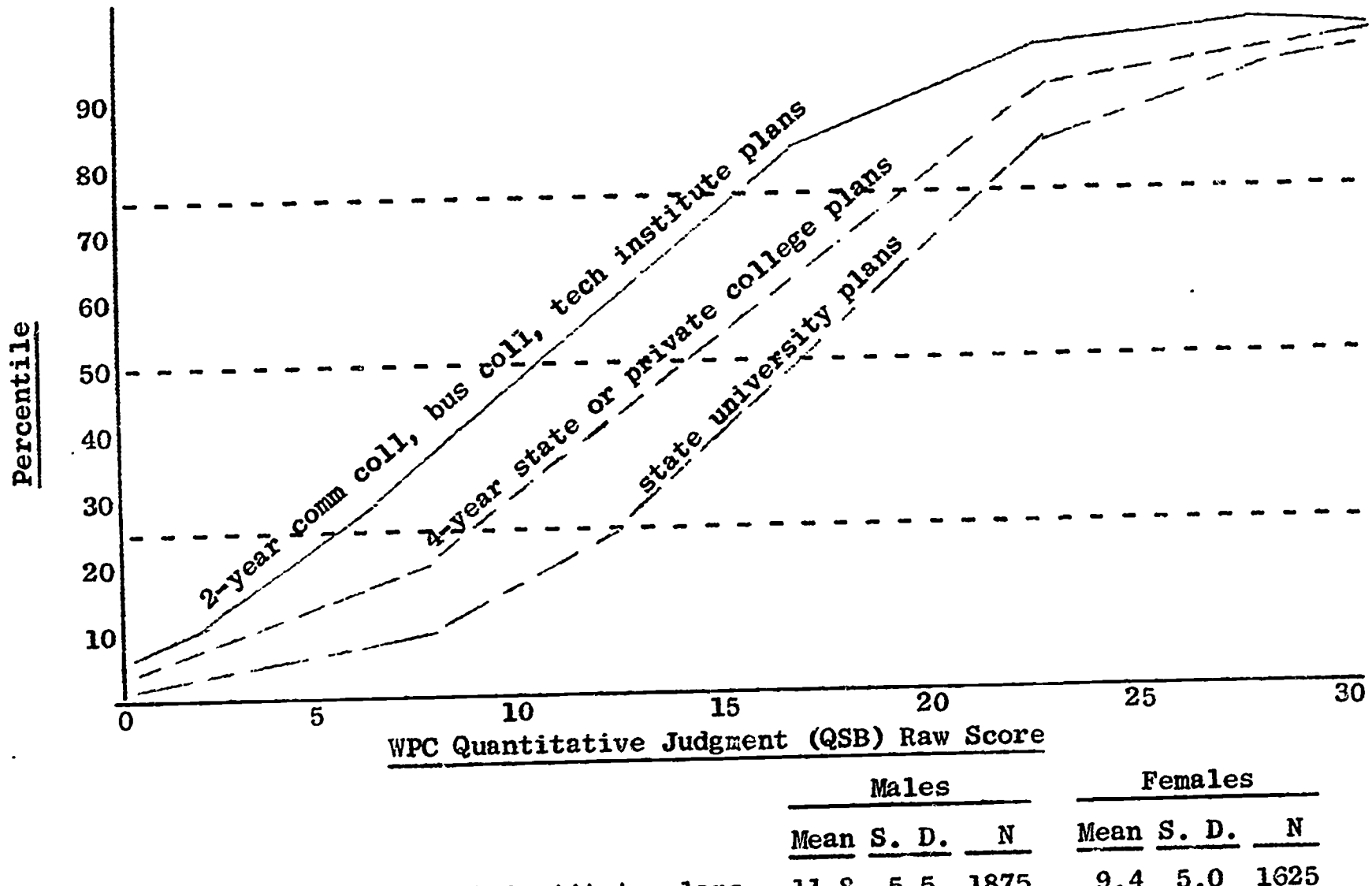


WPC Data Sufficiency (QSA) Raw Score

	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	5.5	3.2	1875	4.9	3.1	1625
4-year state or private college plans	7.1	3.4	1002	6.4	3.3	1063
state university plans	8.2	3.3	741	7.2	3.1	638
undecided	6.8	3.4	360	5.8	3.4	317

Graph 17

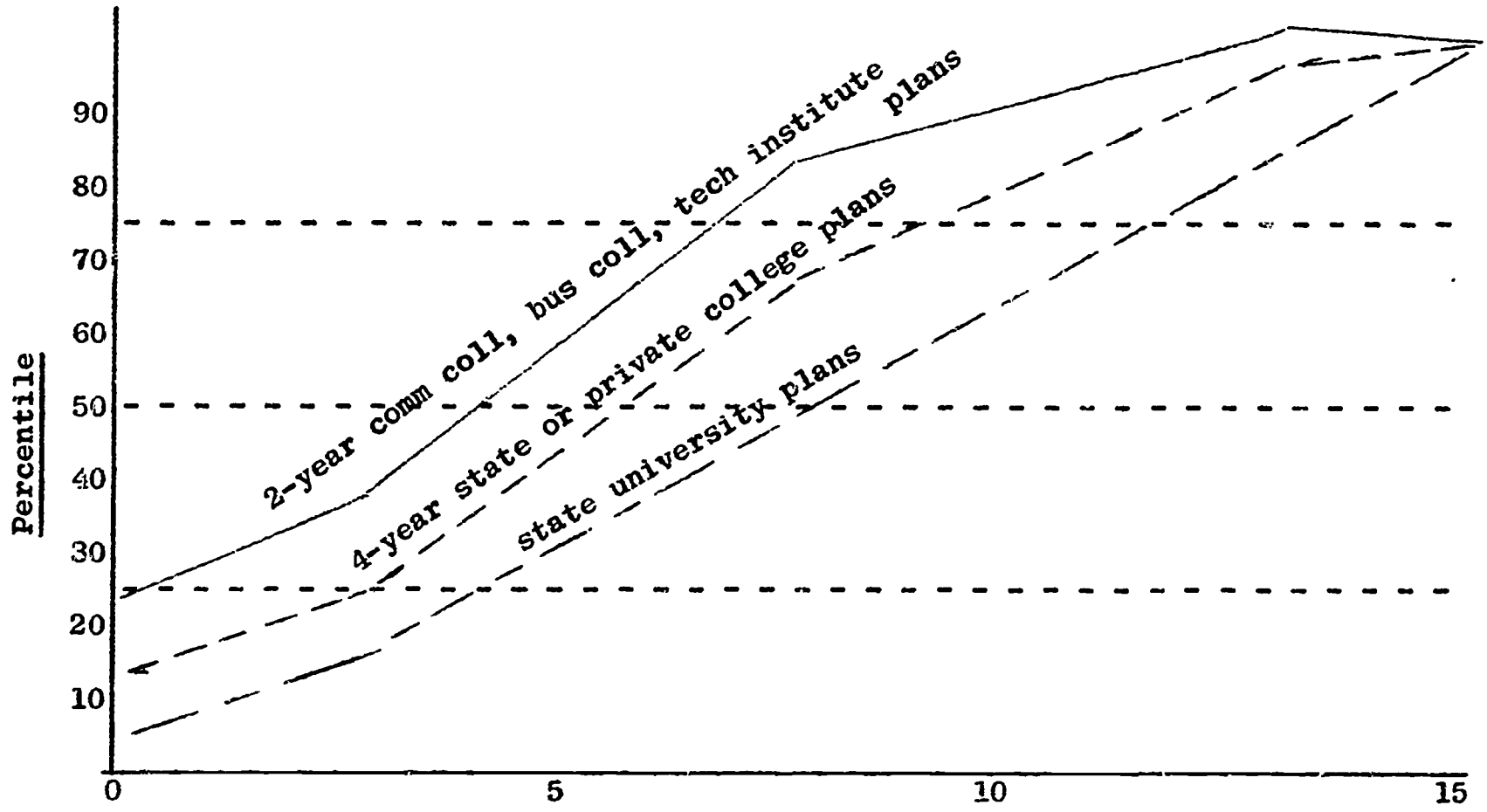
Percentile comparisons of WPC Quantitative Judgment (QSB) score attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence



	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	11.8	5.5	1875	9.4	5.0	1625
4-year state or private college plans	14.6	6.0	1008	12.0	5.2	1063
state university plans	17.4	5.1	741	13.6	5.1	638
undecided	14.3	5.6	360	11.2	5.7	317

Graph 18

Percentile comparisons of WPC Functional Relationships (QSC) score attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence

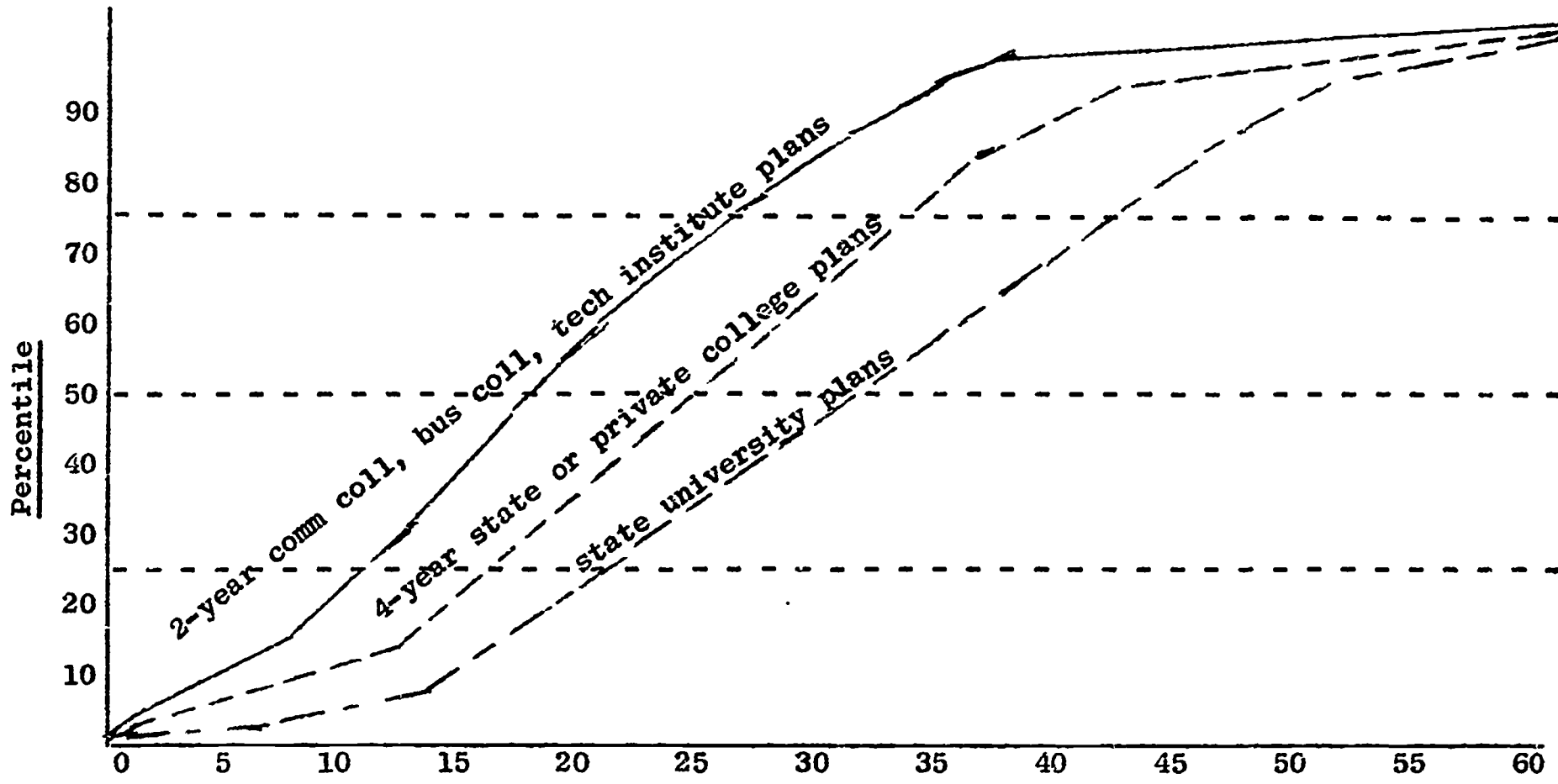


WPC Functional Relationships (QSC) Raw Score

	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	4.0	3.6	1875	3.4	3.2	1625
4-year state or private college plans	5.7	4.2	1008	4.7	3.7	1063
state university plans	7.2	4.1	741	5.7	3.9	638
undecided	5.3	4.0	360	4.4	3.7	317

Graph 19

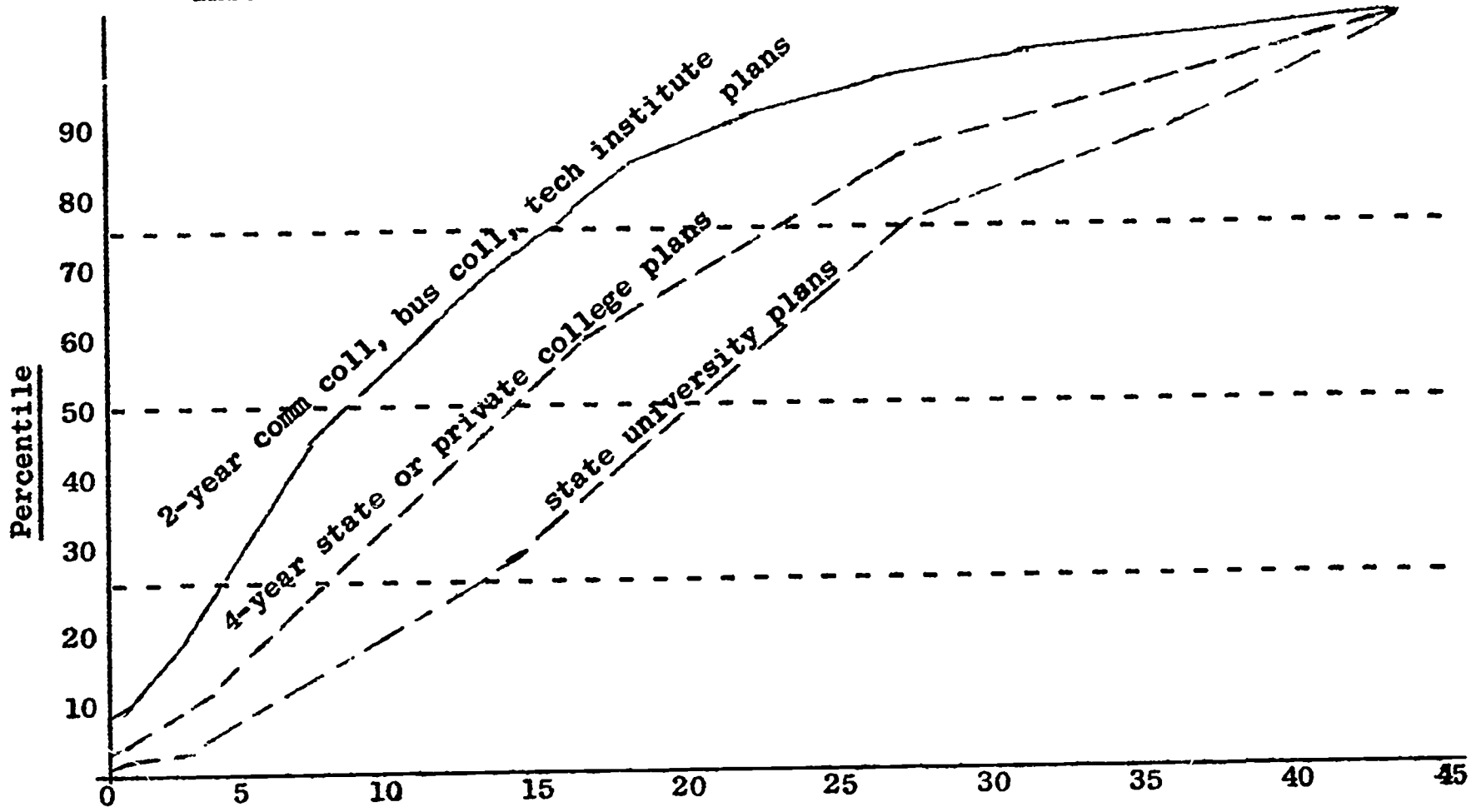
Percentile comparisons of WPC Quantitative Skills (QST) score attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence



	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	21.3	10.1	1875	17.8	9.1	1625
4-year state or private college plans	27.4	11.6	1008	23.1	10.1	1063
state university plans	32.7	10.3	741	26.5	9.9	638
undecided	26.5	11.0	360	21.4	10.8	317

Graph 20

Percentile comparisons of WPC Math Achievement score attainments of high school seniors taking the biographic survey with plans regarding type of institution where college studies will commence



	Males			Females		
	Mean	S. D.	N	Mean	S. D.	N
2-year comm coll, bus coll, tech institute plans	11.7	8.8	1875	8.2	7.2	1625
4-year state or private college plans	18.4	11.2	1008	12.8	9.9	1063
state university plans	24.0	10.2	741	16.7	10.1	638
undecided	17.5	11.2	360	11.8	10.3	317

Table 1

Percentages of high school seniors planning to attend 2-year colleges, 4-year state or private colleges, or state universities falling in the upper third, middle third, and lower third of selected high school GPA attainment distributions by sex; measures of association between plans regarding type of institution where college studies will commence and high school GPA attainments by sex

	Males				Females		
	State Univ Plans	St or Pr Col Plans	2-year Coll Plans		State Univ Plans	St or Pr Col Plans	2-year Col Plans
Upper Third	68	44	16		55	41	20
Middle Third	26	32	32	HS	33	34	31
Lower Third	6	24	52	overall GPA	12	26	49
	Gamma = +.63				Gamma = +.48		
Upper Third	65	45	15		52	38	18
Middle Third	26	32	32	HS	37	40	34
Lower Third	9	23	53	English GPA	11	22	48
	Gamma = +.62				Gamma = +.49		
Upper Third	58	42	20		52	41	22
Middle Third	30	33	34	HS	31	34	32
Lower Third	12	25	46	Foreign Language GPA	17	25	46
	Gamma = +.48				Gamma = +.40		
Upper Third	62	42	18		56	41	23
Middle Third	26	31	34	HS	25	25	24
Lower Third	12	27	48	Mathematics GPA	19	34	53
	Gamma = +.53				Gamma = +.41		
Upper Third	64	45	19		57	44	20
Middle Third	28	35	33	HS	30	31	32
Lower Third	8	20	48	Social Studies GPA	13	25	48
	Gamma = +.58				Gamma = +.48		
Upper Third	58	40	15		55	44	29
Middle Third	27	31	30	HS	29	28	26
Lower Third	15	29	55	Natural Science GPA	16	28	45
	Gamma = +.54				Gamma = +.36		
Upper Third	58	39	22		53	42	23
Middle Third	26	31	31	HS	31	33	31
Lower Third	16	30	47	Electives GPA	16	25	46
	Gamma = +.44				Gamma = +.41		

Table 2

Percentages of high school seniors planning to attend 2-year colleges, 4-year state or private colleges, or state universities falling in the upper third, middle third, and lower third of Washington Pre-College Test Score distributions by sex; measures of association between plans regarding type of institution where college studies will commence and test score attainments by sex

	Males				Females		
	State Univ Plans	St or Pr Col Plans	2-year Coll Plans		State Univ Plans	St or Pr Col Plans	2-year Coll Plans
Upper Third	59	44	22		53	42	20
Middle Third	29	30	32	WPC	33	33	33
Lower Third	12	26	46	Vocab	14	25	47
	Gamma = +.47				Gamma = +.44		
Upper Third	62	42	18		55	39	20
Middle Third	27	33	33	WPC	32	37	35
Lower Third	11	25	49	Engl Usage	13	24	45
	Gamma = +.54				Gamma = +.44		
Upper Third	55	36	20		56	40	21
Middle Third	31	37	36	WPC	29	31	30
Lower Third	14	27	44	Read Comp	15	29	49
	Gamma = +.44				Gamma = +.44		
Upper Third	52	39	22		48	38	25
Middle Third	35	36	36	WPC	32	33	31
Lower Third	13	25	42	Spelling	20	29	44
	Gamma = +.41				Gamma = +.30		
Upper Third	39	33	27		38	35	30
Middle Third	38	39	35	WPC	33	33	29
Lower Third	23	28	38	Read Speed	29	32	41
	Gamma = +.20				Gamma = +.14		
Upper Third	54	38	30		40	33	24
Middle Third	32	32	32	WPC	41	39	40
Lower Third	14	30	38	Spatial Ability	19	28	36
	Gamma = +.29				Gamma = +.22		
Upper Third	47	34	28		41	36	25
Middle Third	29	30	31	WPC	35	35	38
Lower Third	24	36	41	Mech Reason	24	29	37
	Gamma = +.21				Gamma = +.21		

Table 2

(continued)

	Males				Females		
	State Univ Plans	St or Pr Col Plans	2-year Coll Plans		State Univ Plans	St or Pr Col Plans	2-year Coll Plans
Upper Third	61	44	22		52	38	21
Middle Third	29	31	35	WPC	35	39	38
Lower Third	10	25	43	Appl Math	13	23	41
	Gamma = +.48				Gamma = +.41		
Upper Third	49	35	20		50	39	22
Middle Third	35	40	39	WPC	30	31	29
Lower Third	16	25	41	Data Suff Quant A	20	30	49
	Gamma = +.39				Gamma +.38		
Upper Third	58	39	21		54	38	22
Middle Third	29	32	32	WPC	29	37	34
Lower Third	13	29	47	Quant Judg Quant B	17	25	44
	Gamma = +.46				Gamma = +.39		
Upper Third	57	41	24		47	38	22
Middle Third	27	30	32	WPC	29	29	30
Lower Third	16	29	44	Funct Relation Quant C	24	33	48
	Gamma = +.40				Gamma = +.33		
Upper Third	61	40	19		54	39	20
Middle Third	27	33	35	WPC	30	34	32
Lower Third	12	27	46	Total Quant	16	27	48
	Gamma = +.49				Gamma = +.44		
Upper Third	63	41	17		57	37	20
Middle Third	28	33	34	WPC	30	36	37
Lower Third	9	26	49	Math Achieve	13	27	43
	Gamma = +.55				Gamma = +.44		

Table 3

Mean standard scores on the Washington Pre-College Tests for high school seniors planning to attend different types of college institutions

WPC Tests	State Univ Plans	St or Pr Col Plans	2-year Coll Plans	Undec	Total
Vocabulary	55.2	51.9	46.3	49.9	49.7
English Usage	56.1	52.5	46.6	50.4	50.3
Spelling	53.9	51.2	46.8	49.6	49.5
Reading Comprehension	55.1	51.4	46.5	50.1	49.7
Reading Speed	51.2	50.1	48.2	48.8	49.3
Spatial Ability	53.3	50.5	48.0	50.2	49.8
Mechanical Reasoning	52.6	49.9	48.8	50.1	49.9
Applied Math	55.2	51.0	46.2	49.8	49.5
Data Sufficiency (QSA)	54.0	51.1	46.6	49.9	49.4
Quantitative Judgment (QSB)	54.9	50.7	46.2	50.0	49.3
Functional Relationships (QSC)	53.7	50.3	46.5	49.5	49.1
Quantitative Skills (QST)	55.1	50.8	45.7	49.8	49.2
Math Achievement	55.1	50.3	45.1	49.6	48.7
N	1379	2071	3500	677	7627

References

Beanblossom, G. F., Lunneborg, C. E., Langen, T. D. F., and Edwards, J. Statistical revisions in the Washington Pre-College Testing Program. Seattle: Bureau of Testing, University of Washington, 1968. (Duplicated report)

Goodman, L. A. and Kruskal, W. H. Measures of association for cross classifications. Journal of the American Statistical Association, 1954, 49, 748-754.

Lunneborg, C. E. Report to the Washington Pre-College Testing Research Committee, April 23, 1965. Seattle: Bureau of Testing, University of Washington, 1965. (Duplicated report)

Lunneborg, C. E. A survey of educational plans after high school. Seattle: Bureau of Testing, University of Washington, 1966. (Duplicated report)

Lunneborg, C. E. 1967-68 survey of educational plans after high school. Seattle: Bureau of Testing, University of Washington, 1967. (Duplicated report)

Lunneborg, C. E. Biographic variables in differential vs. absolute prediction. Seattle: Bureau of Testing, University of Washington, 1968. (Duplicated report)

Lunneborg, C. E. and Lunneborg, P. W. A biographic survey of Washington state high school seniors. Seattle: Bureau of Testing, University of Washington, 1967a. (Duplicated report)

Lunneborg, C. E. and Lunneborg, P. W. Uniqueness of selected employment aptitude tests to a general academic guidance battery. Seattle: Bureau of Testing, University of Washington, 1967b. (Duplicated report)

References (continued)

Lunneborg, C. E. and Lunneborg, P. W. Predicting community college vocational criteria with traditional academic variables. Seattle: Bureau of Testing, University of Washington, 1967c. (Duplicated report)

Lunneborg, C. E. and Lunneborg, P. W. Architecture school performance predicted from ASAT intellective and non-intellective measures. Seattle: Bureau of Testing, University of Washington, 1968. (Duplicated report)

Lunneborg, P. W. Biographic survey responses of graduating college seniors. Seattle: Bureau of Testing, University of Washington, 1968. (Duplicated report)

Lunneborg, P. W. and Lunneborg, C. E. The differential prediction of college grades from biographic information. Educational and Psychological Measurement, 1966, 26, 917-925.