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ABSTRACT

The pamphlets included in this volume are technical reports prepared as outgrowths of the Student Information Systems of the Western Nevada Regional Education Center (WN-REC) funded by a Title III (Elementary and Secondary Education Act) grant. These reports describe methods of interpreting the printouts from the Student Information System; methods of handling test data for school placement purposes; and methods of approximating IQ's or standardized test scores when neither of these is available. Pamphlets included in the volume are Student Placement in Mathematics Based on Previous Achievement, Overage Students and Students in Lowest Quartile, Using Student Data from Computer Printouts, Using Student Entry Data and Standardized Test Data, Secondary Courses Offered in the WN-REC Region, and Predicting Stanford Achievement Scores (National Percentiles) from Student Marks. (PS)

END OF PROJECT REPORT

1968-1971

VOL. III

TECHNICAL REPORTS (PART I)

WN-REC Staff

June 26, 1971

WESTERN NEVADA REGIONAL EDUCATION CENTER

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ESEA TITLE III 1965

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INTRODUCTION

The pamphlets included in this volume (and the next) are technical reports prepared by the WN-REC staff as outgrowths of the development of the Student Information System. The first technical report was the fifth grade pilot study which tested the feasibility of a data collection system and the suitability of certain information items. That report is included with the Student Information System (SIS) System Book (Vol. II of this report). The remaining reports included in this volume and the next (Vol. IV) demo trate the use of the stored data. They appear more or less in chronological order. The reports for the most part deal with methods of interpreting the printouts from the Student Information System - each county is dealt with in order. Other reports describe methods of handling test data for school placement purposes, or methods of approximating IQ's or Standardized Test Scores when either of these are not available.

STUDENT PLACEMENT IN MATHEMATICS BASED ON PREVIOUS ACHIEVEMENT

AN EXAMPLE OF A STEP-WISE MULTIPLE LINEAR REGRESSION

March, 1970

Theodore G. Brough

WESTERN NEVADA REGIONAL EDUCATION CENTER

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EXAMPLE OF STEP-WISE MULTIPLE LINEAR REGRESSION:

The Problem:

Sixth grade students (177) in Fallon schools were placed in one of seven levels in their mathematics classes based on their fifth grade performance as judged by the fifth grade teacher. Among the variables available to the fifth grade teacher were the following:

1. Arithmetic concepts subscore on Stanford Achievement Test.
2. Arithmetic applications subscore on Stanford Achievement Test.
3. Arithmetic computations subscore on Stanford Achievement Test.
4. Semester grades for 1st and 2nd semester while in fifth grade.

Can a multiple linear regression fit be made utilizing the teacher assigned level (for sixth grade) as the dependent variable and the above four variables as independent variables?

Results:

The step-wise multiple linear regression fit was made using the Sigma-7 Computer at the University of Nevada. The accompanying sheets demonstrate the use of the computer program:

1. Statement of required card format.
2. Example of Punching Instructions.
3. Print-outs of Steps 1 to 4 in the regression solution along with the correlation matrix and the summary table of the steps in the regression.
4. A list of residuals, on which has been indicated the final best-fit equation utilizing four variables and the equation using only the first, most significant, variable.

Discussion:

Note the following:

1. All of the independent variables are highly correlated with each other as well as with the dependent variable (5).
2. The highest F ratio along with the highest degrees of freedom is obtained with the first variable included (2).
3. The multiple correlation factor increases most with the inclusion of the second variable (1) and increases only minutely with the addition of other variables.
4. By use of a function consisting of one-fourth of the raw score the student achieves on the Stanford Achievement subtest, arithmetic applications, a fairly good fit between level assigned and computed level occurs. (See the List of Residuals table, in which the S_5 Level, the teacher assigned level, has been listed along with the predicted level based on 1/4 APPL. (one-fourth arith. appl.)).

```
C SDS CAT NUMBER 890431                                                    43100000
C       STEPWISE REGRESSION - MAIN PROGRAM              MAY  2, 1966       43100010
C                                                                          43100020
C       THIS PROGRAM IS A SIFTED VERSION OF THE ORIGINAL FORTRAN II        43100030
C       PROGRAM, BMD02R WITH SOME MODIFICATIONS TO MAKE IT OPERABLE.       43100040
C       IT WAS THEN CONVERTED TO 360 FORTRAN IV (H-LEVEL)                  43100050
C                                                                          43100060
C     PROBLEM CARD FORMAT                                                  43100070
C      COL    NAME                                                         43100080
C      1- 6    XMAN      PROBLM                                           43100090
C     10-15    CODE      ALPHANUMERIC PROBLEM NAME                        43100100
C     17-20    N         NUMBER OF CASES                                  43100110
C     24-25    NBV       NUMBER OF ORIGINAL VARIABLES                     43100120
C     29-30    NTGC      NUMBER OF TRANSGENERATION CARDS                  43100130
C    34-35     NVA       NUMBER OF VARIABLES ADDED BY TRANSGENERATION     43100140
C    39-40     NAIT      ALTERNATE INPUT TAPE NUMBER                      43100150
C    44-45     NSPC      NUMBER OF SUBPROBLEM CARDS                       43100160
C     48-49    NLV       NUMBER OF LABELED VARIABLES                      43100170
C     51-53    SDAM      YES   IF ST. DEV. AND MEANS TO BE PRINTED       43100180
C     55-57    COVP      YES   IF COVARIANCE MATRIX TO BE PRINTED         43100190
C     59-61    CORP      YES   IF CORRELATION MATRIX TO BE PRINTED        43100200
C     63-65    ZERO1     YES   IF ZERO  REGRESSION INTERCEPT DESIRED      43100210
C     67-69    WIND      NO    IF ALT. INPUT TAPE NOT TO BE REWOUND       43100220
C     71-72    NVFC      NUMBER OF VARIABLE FORMAT CARDS                  43100230
C                                                                          43100240
C     SUB-PROBLEM CARD FORMAT                                              43100250
C                                                                          43100260
C      COL      NAME                                                      43100270
C      1- 6     WMAN      SUBPRO                                          43100280
C      9-10     KDEP      DEPENDENT VARIABLE NUMBER                       43100290
C     13-15     MAXSTP    MAXIMUM NUMBER OF STEPS                         43100300
C     20-25     FINC      F FOR INCLUSION                                 43100310
C     30-35     FOUT      F FOR DELETION                                  43100320
C     40-45     TOL       TOLERANCE                                       43100330
C     49-50     NVIP      NUMBER OF VARIABLES TO BE PLOTTED               43100340
C     53-55     CDF       YES   IF CONTROL DELETE CARDS ARE INCLUDED      43100350
C     58-60     RESID     YES   IF RESIDUALS ARE TO BE PRINTED             43100360
C     63-65     SUMTAB    YES IF SUMMARY TABLE DESIRED                    43100370
C                                                                          43100380
```

IBM EXAMPLE OF PUNCHING INSTRUCTIONS: FORTRAN Coding Form

PROGRAM: STEP-WISE MULTIPLE LINEAR REGRESSION | PUNCHING INSTRUCTIONS | GRAPHIC

PROGRAMMER: T.G. BROUGH (Dr. Koh's program) DATE: MARCH, 1970 | PUNCH

STEP 1

COMM. | STATEMENT NUMBER | CONT. | FORTRAN STATEMENT

```
C  PROBLEM CARD:
PROBLM     MATHSG  0177      05      00      00      00      01      00
C  SUB PROBLEM CARD:
SUBPRO     05      004               0               0               0
C  VARIABLE FORMAT STATEMENT:
(5F10.0)
DATA CARDS:
                13                  18                  24                  4                   5
                7                   9                   16                  3                   2
                6                   20                  11                  5                   3
                6                   15                  11                  2                   2
JOB CARD:
!JOB 90400350,WN-REC
```

...rd form, IBM electro 888157, is available for punching statements from this form

…NS :

FORTRAN Coding Form

X28-7327-6 U/M 025
Printed in U.S.A.

…EGRESSION	PUNCHING INSTRUCTIONS	GRAPHIC	PAGE OF
…MARCH, 1970		PUNCH	CARD ELECTRO NUMBER

FORTRAN STATEMENT — IDENTIFICATION SEQUENCE

```
      00      00      01      00  YES  YES  YES  YES  NO  01

      0               0                   YES  YES

              4               5
              3               2
              5               3
              2               2
```

```
SUB-PROBLM    1
 DEPENDENT VARIABLE                5
 MAXIMUM NUMBER OF STEPS           4
 F-LEVEL FOR INCLUSION                .010000
 F-LEVEL FOR DELETION                 .005000
 TOLERANCE LEVEL                      .001000


 STEP NUMBER     1
 VARIABLE ENTERED     2

 MULTIPLE R                        .9668
 STD. ERROR OF EST.               1.2207

 ANALYSIS OF VARIANCE
                        DF     SUM OF SQUARES      MEAN SQUARE
          REGRESSION     1          3748.723         3748.723
          RESIDUAL     176           262.273            1.490

                    VARIABLES IN EQUATION

  VARIABLE       COEFFICIENT   STD. ERROR   F TO REMOVE

      (CONSTANT        .00000 )
      2                .25075       .00500    2515.6187


 STEP NUMBER     2
 VARIABLE ENTERED     1

 MULTIPLE R                        .9781
 STD. ERROR OF EST.                .9956

 ANALYSIS OF VARIANCE
                        DF     SUM OF SQUARES      MEAN SQUARE
          REGRESSION     2          3837.543         1918.771
          RESIDUAL     175           173.453             .991

                    VARIABLES IN EQUATION

  VARIABLE       COEFFICIENT   STD. ERROR   F TO REMOVE

      (CONSTANT        .00000 )
      1                .15292       .01615      89.6117
      2                .13404       .01299     106.5488
```

CORRELATION MATRIX

VARIABLE NUMBER	1	2	3	4	5
1	1.000	.949	.942	.938	.965
2		1.000	.938	.942	.967
3			1.000	.942	.948
4				1.000	.944
5					1.000

SUBPRO 5 4 0. 0. 0. 0 YES YES

F RATIO
2515.608

VARIABLES NOT IN EQUATION

VARIABLE	PARTIAL CORR.	TOLERANCE	F TO ENTER
1	.58194	.0986	89.6116
3	.46722	.1210	48.8703
4	.38532	.1122	30.5124

F RATIO
1935.881

VARIABLES NOT IN EQUATION

VARIABLE	PARTIAL CORR.	TOLERANCE	F TO ENTER
3	.26816	.0940	13.4818
4	.19694	.0933	7.0207

STEP NUMBER 3
VARIABLE ENTERED 3

MULTIPLE R .9797
STD. ERROR OF EST. .9619

ANALYSIS OF VARIANCE

	DF	SUM OF SQUARES	MEAN SQUARE	F RATIO
REGRESSION	3	3850.016	1283.338	1387.132
RESIDUAL	174	160.980	.925	

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT	STD. ERROR	F TO REMOVE	VARIABLE
(CONSTANT	.00000)			
1	.12218	.01771	47.6008	4
2	.11327	.01376	67.7410	
3	.04508	.01228	13.4818	

STEP NUMBER 4
VARIABLE ENTERED 4

MULTIPLE R .9800
STD. ERROR OF EST. .9593

ANALYSIS OF VARIANCE

	DF	SUM OF SQUARES	MEAN SQUARE	F RATIO
REGRESSION	4	3851.783	962.946	1046.330
RESIDUAL	173	159.213	.920	

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT	STD. ERROR	F TO REMOVE	VARIABLE
(CONSTANT	.00000)			
1	.11649	.01813	41.2614	
2	.10639	.01460	53.1334	
3	.03795	.01328	8.1634	
4	.06607	.04768	1.9200	

SPECIFIED STEP REACHED

SUMMARY TABLE

STEP NUMBER	VARIABLE ENTERED	VARIABLE REMOVED	MULTIPLE R	RSQ
1	2		.9668	.9346
2	1		.9781	.9568
3	3		.9797	.9599
4	4		.9800	.9603

F RATIO
7.132

VARIABLES NOT IN EQUATION

IABLE | PARTIAL CORR. | TOLERANCE | F TO ENTER

4 | .10477 | .0793 | 1.9201

F RATIO
6.330

VARIABLES NOT IN EQUATION

IABLE | PARTIAL CORR. | TOLERANCE | F TO ENTER

INCREASE IN RSQ	F VALUE TO ENTER OR REMOVE	NUMBER OF INDEPENDENT VARIABLES INCLUDED
.9346	2515.6187	1
.0221	89.6117	2
.0031	13.4818	3
.0004	1.9200	4

LIST OF RESIDUALS : $Y = .1165 S_1 + .1064 S_2 + .038 S_3 + .066$

CASE	S_5 LEVEL	RESIDUAL	Y_1 ¼APPL	CASE	S_5 LEVEL	RESIDUAL	Y_1 ¼APPL	CASE	S_5 LEVEL	RESI
1	5	.39540	4.5	37	3	-.90595	2.5	73	3	-1.3
2	2	-.57843	2.25	38	3	-2.29874	5.25	74	4	.0
3	3	-.57463	5.0	39	2	-.88277	2.75	75	6	1.6
4	2	-.84446	3.75	40	5	-.03095	4.75	76	3	-.3
5	4	.41047	4.0	41	8	1.28709	7.0	77	5	.0
6	5	.71912	4.25	42	6	1.19482	4.75	78	6	1.2
7	3	-1.23038	3.25	43	6	-1.04186	9.0	79	6	.4
8	5	.26306	5.5	44	6	.48049	5.0	80	5	.0
9	5	-.06380	5.25	45	7	1.55659	4.0	81	3	-.4
10	3	-.37896	3.25	46	5	.26567	3.75	82	7	.6
11	3	1.57615	1.25	47	5	.60000	4.25	83	7	.7
12	6	.36163	5.25	48	3	-.49529	2.75	84	7	.5
13	7	1.41689	5.50	49	7	.39682	6.25	85	7	.7
14	6	.88876	3.75	50	2	.08451	2.25	86	5	.3
15	5	.48140	4.75	51	1	-1.90316	3.25	87	5	-.0
16	2	-1.18198	4.25	52	3	.20616	2.75	88	6	.8
17	5	.08853	5.75	53	4	-.24474	4.50	89	4	-.0
18	1	-2.21412	3.25	54	5	.56467	4.25	90	3	-1.1
19	5	.93700	4.25	55	5	.71623	4.00	91	3	-1.1
20	6	.78701	5.25	56	7	1.33877	5.25	92	6	1.4
21	4	-.02257	4.75	57	6	.69020	5.25	93	4	-.5
22	7	-.13566	7.0	58	2	-1.38996	4.50	94	2	-1.6
23	4	.58273	2.25	59	2	-.89040	3.00	95	4	-.0
24	1	-1.31785	1.75	60	6	.19638	5.50	96	6	.6
25	5	.12375	5.00	61	6	.53640	3.50	97	3	-.9
26	5	.26099	5.50	62	5	.36440	4.25	98	1	-1.6
27	6	.84324	5.25	63	2	-1.38270	0.5	99	2	-.9
28	6	.97678	5.25	64	1	-1.64229	2.5	100	6	.1
29	1	-1.69027	3.50	65	2	-1.67028	3.75	101	7	1.3
30	6	1.01999	5.25	66	7	1.08252	5.50	102	3	.0
31	6	.30592	5.75	67	6	-.18517	6.75	103	4	-.7
32	5	-.17263	4.50	68	4	-1.48604	5.75	104	2	-.9
33	7	-.11748	5.00	69	3	-1.35408	3.25	105	3	-1.6
34	7	1.24297	4.50	70	4	.06379	3.50	106	4	-.2
35	2	-.55346	1.75	71	6	1.12203	3.50	107	1	-1.6
36	4	-.60265	4.50	72	5	.13142	4.25	108	3	1.8

FORTRAN RUN-TIME ERROR IN '9BCDREAD' CALLED AT LOC X'046D3'.
END-OF-FILE ON UNIT 5

S_1 = Arith Concepts, Stanford Subscore (Raw)

S_2 = Arith Applications, Stanford Subscore (Raw)

S_3 = Arith Computations, Stanford Subscore (Raw)

S_4 = Combined Semester Grade pts. in Arith.

$Y = S_5$ = Level of Student Assignment

$S_3 + .066\,S_4$ Multiple $R = .980$

$R^2 = .960 = 96\%$ of variance accounted for.

S_5 LEVEL	RESIDUAL	Y_1 ¼APPL	CASE	S_5 LEVEL	RESIDUAL	Y_1 ¼APPL	CASE	S_5 LEVEL	RESIDUAL	Y_1 ¼APPL
3	-1.32334	3.25	109	2	-.42188	1.75	145	1	-1.90969	1.0
4	.04850	4.50	110	1	-2.17384	3.50	146	7	.09365	7.5
6	1.61828	4.25	111	7	1.38172	5.00	147	5	.21985	5.5
3	-.36120	2.75	112	1	-2.46486	3.75	148	2	-.56067	1.75
5	.07307	4.75	113	2	-.94592	2.5	149	4	-.20997	4.5
6	1.22823	4.25	114	7	.74181	7.0	150	4	.06811	3.25
6	.48004	5.75	115	2	-.67473	2.75	151	7	.79156	7.0
5	.07070	5.00	116	1	-1.30750	2.25	152	5	-.11932	4.75
3	-.45002	3.50	117	3	-.23724	3.0	153	5	.01262	5.75
7	.64211	6.75	118	7	.13024	7.75	154	5	1.01307	3.75
7	.72357	6.50	119	1	-2.05231	2.75	155	7	.74562	6.25
7	.58143	4.50	120	3	-.49090	3.75	156	4	-.01621	1.75
7	.72341	4.50	121	7	.47202	6.75	157	3	-1.18948	4.75
5	.30342	4.75	122	3	-.42938	3.25	158	4	-.13432	4.25
5	-.08131	6.0	123	7	.74084	7.25	159	5	-.11715	5.5
6	.81512	5.25	124	5	.92989	5.0	160	7	.24147	7.75
4	-.03751	4.25	125	1	-1.36620	1.75	161	2	-1.23724	3.0
3	-1.16435	3.75	126	1	-1.67251	3.0	162	4	.20762	2.75
3	-1.17938	5.00	127	3	-.46223	3.75	163	7	1.06290	6.75
6	1.45828	4.50	128	3	-.67589	2.75	164	4	.22781	3.25
4	-.53931	3.75	129	1	-.84686	1.0	165	7	.23164	7.75
2	-1.61988	2.0	130	7	.53127	4.75	166	4	-.36220	4.75
4	-.01764	3.25	131	2	-1.08753	3.5	167	3	-.67986	4.0
6	.67338	3.75	132	7	.33560	6.5	168	4	-.40263	4.25
3	-.92345	3.25	133	5	.31878	5.0	169	1	-1.23633	2.75
1	-1.68267	1.5	134	7	.54611	7.0	170	4	-.16724	3.5
2	-.93871	2.5	135	2	-.89812	2.5	171	6	1.00700	4.75
6	.12648	4.5	136	7	.68789	5.5	172	7	.28563	5.75
7	1.30303	5.5	137	7	-.51802	8.0	173	7	1.22975	5.50
3	.03636	2.5	138	3	-1.42594	5.0	174	6	-.37828	7.25
4	-.74417	3.75	139	2	-.95173	2.5	175	7	.00964	4.75
2	-.92835	3.0	140	7	1.09050	6.25	176	4	-.62067	4.75
3	-1.65301	5.75	141	7	.51744	7.0	177	2	-1.06523	3.5
4	-.29593	3.75	142	3	-.09001	3.0				
1	-1.60599	1.75	143	1	-1.25981	1.5				
3	1.82426	0.75	144	1	-1.99124	3.0				

$\frac{1}{4}APPL = Y_1 = 0.251\,S_2$ Multiple $R = .967$, $R^2 = .935$

(93.5% of variance accounted for)

OVERAGE STUDENTS AND STUDENTS IN LOWEST QUARTILE

DISTRICT A, NINTH GRADE

August 4, 1970

Theodore G. Brough

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I N T R O D U C T I O N

This pamphlet introduces the Partial Student Profile, a computer-based report of data on each student stored in the Western Nevada Regional Education Center's Student Information System. By its very nature (a computer printout--one line per student) the Profile is compact and much of the information is coded. Printouts of the complete coded information as it now exists for each student in the system are even more compact. Samples of this data (called Demonstration Data for discussion purposes) are included in a previous report in this series: Using Student Data From Computer Printouts, WN-REC, May 25, 1970. With a little experience, the codes can be learned and the information extracted for school analysis purposes. A discussion of how the data is handled is given in the above mentioned publication.

OVERAGE STUDENTS

Table I summarizes selected information for students classified according to placement in overage or non-overage groups. Students will be considered overage if their birthdays fall before January 1, 1955. The Table reveals the following trends:

1. An increase in reported learning limitations with increase in age.

2. An increase in proportion of students with a foreign language spoken in the home with increasing age. However, for the oldest age group the trend does not hold (scanty data).

3. An increase in proportion of male parent as either missing, a step-parent or other with increasing age placement.

4. A rapid decrease in student performance on the Stanford Achievement sub-tests indicated with increasing age placement.

5. An increase in proportion of Spanish-American, Indian and Oriental students with increasing age placement. All of the Oriental students (only 2, however), over 3/4 of the Indian students (5 out of 7) and half of the Spanish-American students are in the overage group - over twenty five percent of these students are in the oldest overage group. (Five out of the seven students in the overall group are members of minority groups).

6. With increasing age placement there is an increasing proportion of students with fathers in unskilled and unemployed occupation categories while the proportion <u>decreases</u> for students with

fathers in the skilled occupations. Interestingly enough, the proportion of students with fathers in the professional classification increases with increasing overage placement (scanty data).

7. The proportion of girls decreases with increasing age placement.

8. No definitely defineable trends are observable for transportation type. However, a decreasing trend in proportion of home-paid hot lunch with increasing age placement is apparent along with an increasing proportion of students taking school hot lunch.

In summary: Students who have a tendency to be overage and place lowest on the Stanford Achievement sub-tests are: those with learning limitations; those who speak a foreign language at home; those who are members of minorities; those with parents missing, step-or other; those with fathers unskilled or unemployed; those with hot-lunch not paid for by home; and those who are boys.

Table 1

District A, 9th Grade

Over-age vs. Non-over-age

	Percent Overage Over 6 mos. (N=7)	Percent Overage Group (N=19)	Percent Total Population (N=51)	Percent Non-overage Population (N=32)
Learning Limitations (Yes only)	71.5(5)	52.7(10)	49.0(25)	46.9(15)
Foreign Language Spoken at home (Yes only)	28.6(2)	36.8(7)	19.6(10)	9.4(3)
Male Parent: missing, Step parent or other	57.1(4)	31.6(6)	25.5(13)	21.8(7)
Occupation of Male Parent:+				
Professional	14.3(1)	15.8(3)	5.9(3)	0(0)
Self-Employed	28.6(2)	36.3(5)	33.3(17)	37.5(12)
Skilled	14.3(1)	31.6(6)	43.2(22)	50.0(16)
Unskilled	28.6(2)	15.8(3)	9.8(5)	6.3(2)
Unemployed	14.3(1)	10.5(2)	7.9(4)	6.3(2)
Students:				
Spanish-American	14.3(1)	21.0(4)	15.7(8)	12.5(4)
Indian	28.6(2)	26.3(5)	13.7(7)	6.3(2)
Oriental	28.6(2)	10.5(2)	3.9(2)	0(0)
Girl Students	42.8(3)	47.3(9)	60.8(31)	68.8(22)
Age (Yrs)	16.1(7)	15.8(19)	15.3(51)	14.9(32)
Trans. Type:				
Walk or Bike	42.8(3)	63.2(12)	54.9(28)	50.0(16)
Bus or Car	57.2(4)	36.8(7)	45.1(23)	50.0(16)
Time (min):				
Overall	25.1(7)	15.6(19)	16.5(51)	17.0(32)
Walk or Bike	8.3(3)	9.1(12)	8.2(28)	7.5(16)
Bus or Car	37.5(4)	27.0(7)	26.6(23)	27.5(16)
Lunch Type:				
School - Hot:	57.2(4)	21.1(4)	17.6(9)	15.6(5)
Home Pays:	25.0(1)	25.0(1)	55.5(5)	80.0(4)
School - Box:	0(0)	0(0)	4.9(2)	6.3(2)
None:	0(0)	0(0)	0(0)	0(0)
Other:	42.8(3)	73.9(14)	78.5(40)	78.2(25)
Average Score Stanford Sub-test (percentile):				
Adv. Para Mean	22.0(6)	30.5(16)	46.2(46)	54.5(30)
Arith. Comp.	24.5(6)*	19.6(15)	33.5(44)	40.7(29)

+When Male Parent is missing, Female Parent Occupation is substituted.

*One overage student scored in upper quartile in AR while in lower quartile in PA. (Removing this score puts the oldest group AR mean at 9.6)

LOWEST QUARTILE STUDENTS

Table 2 summarizes selected information for students classified on the basis of their performance on the Stanford Achievement sub-tests: advanced paragraph meaning (PA) and arithmetic computation (AR). The Table reveals the following trends:

1. An increasing proportion of overage students with decreasing quartile placement (upper quartile is an exception).

2. An increase in proportion of foreign language spoken at home with decreasing Stanford Test performance.

3. An increase in proportion of students with fathers unskilled and unemployed with decreasing performance and a <u>decrease</u> in proportion of students with professional fathers with decreasing performance. (See previous trend of increasing overage placement with increasing proportion of professional fathers).

4. An increase in proportion of Indian students with decreasing placement.

5. A trend toward increasing proportion of Spanish-American students with decreasing placement (not complete).

6. An <u>increase</u> in proportion of students with school hot-lunch with decreasing placement.

7. A decrease in proportion of students with <u>lunch-other</u> with decreasing placement.

8. No definite trends are observable linking transportation method or time to school with performance.

Table 2

District A, 9th Grade

Lowest Quartile Students vs. Others

	Percent Lower Quartile Group (N=27)*	Percent Total Population (N=51)	Percent Middle Quartile Group (N=18)*	Percent Upper 3/4 Group (N=24)	Percent Upper 1/4 Group (N=7)*
Learning Limitations (Yes only)	48.1(13)	49.0(25)	38.8(7)	50.0(12)	85.6(6)
Overage	48.1(13)	37.3(19)	27.8(5)	25.0(6)	28.6(2)
Up to 6 mos.	29.6(8)	23.5(12)	16.7(3)	16.7(4)	14.3(1)
6 to 12 mos.	18.5(5)	13.7(7)	11.1(2)	8.3(2)	14.3(1)
Foreign Language Spoken at Home (Yes only)	22.2(6)	19.6(10)	16.7(3)	16.7(4)	28.6(2)
Male Parent: missing, Step or Other	22.2(6)	25.5(13)	27.8(5)	29.2(7)	42.9(3)
Occupation of Male Parent:+					
Professional	0(0)	5.9(3)	11.1(2)	8.3(3)	28.6(2)
Self-Employed	39.6(8)	33.3(17)	44.4(8)	37.5(9)	14.3(1)
Skilled	44.4(12)	43.2(22)	33.3(6)	41.7(10)	57.1(4)
Unskilled	14.8(4)	9.8(5)	5.5(1)	4.2(1)	0(0)
Unemployed	11.1(3)	7.9(4)	5.5(1)	4.2(1)	0(0)
Students:					
Spanish-American	22.2(6)	15.7(8)	5.5(1)	8.3(2)	14.3(1)
Indian	18.5(5)	13.7(7)	11.1(2)	8.3(2)	0(0)
Oriental	3.7(1)	3.9(2)	5.5(1)	4.2(1)	14.3(1)
Girl Students	55.5(15)	60.8(31)	88.9(16)	66.7(16)	0(0)
Age (Yrs)	15.0	15.3(51)	14.4(18)	15.2(24)	15.0(7)
Transportation Type:					
Walk or Bike	55.5(15)	54.9(28)	50.0(9)	54.2(13)	71.5(5)
Bus or Car	44.4(12)	45.1(23)	50.0(9)	45.8(11)	28.6(2)
Time (min):					
Overall	17.4(27)	16.5(51)	15.6(18)	15.5(24)	14.1(7)
Walk or Bike	8.8(15)	8.2(28)	10.0(9)	7.5(13)	2.8(5)
Bus or Car	28.1(12)	26.6(23)	22.4(9)	25.1(11)	37.5(2)
Lunch Type:					
School - Hot	22.3(6)	17.6(9)	16.7(3)	12.5(3)	0(0)
Home Pays:	33.3(2)	55.5(5)	100.0(3)	100.0(3)	0(0)
School - Box:	3.7(1)	4.9(2)	0(0)	0(0)	14.3(1)
None:	0(0)	0(0)	0(0)	0(0)	0(0)
Other:	74.0(20)	78.5(40)	83.3(15)	87.5(20)	85.7(6)
Average Score Stanford Sub-Test (percentile)					
Adv. Para Mean	36.8(27)	46.2(46)	49.0(13)	59.4(19)	70.3(7)
Arith. Comp.	14.6(25)	33.5(44)	43.2(13)	56.9(19)	78.1(7)

+When Male Parent is missing, Female Parent Occupation is substituted.

*1 Person has scores both in lower quartile and upper quartile, hence total N adds up to 52, not 51

STUDENT PERFORMANCE AND AGE AS A FUNCTION OF RESIDENCE AREA

If students are identified as coming to school from one particular town or part of a given town then a pattern emerges. Organizing the data on the basis of residence and ranking the groups according to the proportion of overage students in each residence area results in the pattern shown in Table 3.

Table 3 shows the following:

1. A rapidly decreasing average performance (on paragraph meaning) for all students as the proportion of overage student increases. There is a partial trend in this direction for overall performances on arithmetic.

2. A rapid increase in the proportion of ethnic students from area to area (towns) with increasing overage proportion.

3. A general increase in the proportion of students placing in the lower quartile on both subtests with increasing proportion of overage students. (Incomplete, in that the trend falls off at the last town).

4. There is no general trend of performance falling off as a function of distance.

This particular residential structure is peculiar. The students who do best live in a ring on the outside edge of town, the students inside the town (close to school) are next in performance. The students living farthest from town do not place in the lowest category of performance. A small group of students living in town place lowest in performance.

Table 3

District A

Selected Characteristics of 9th Grade Students by Proportion of Overage in Each Area

Town	Dist. (mi)	Time (min)	Total prop.*	Overage prop.*	Lower Q. prop.*	Proportion in Each Residence Area** Overage	Lower Q	Overall Performance PA All	PA Over	PA LQ	AR All	AR Over	AR LQ	Proportion of ETHNICS+
A_1	2.6	17.0	7.9(4)	5.3(1)	3.7(1)	25.0	25.0	58.8	34.0	34.0	46.4	2.0	2.0	0
A_2	~.5	9.6	74.5(38)	68.5(13)	74.1(20)	38.2	52.6	48.7	41.1	43.2	28.3	26.7	15.4	34.2
B	42.5	60.0	9.8(5)	10.5(2)	14.8(4)	40.0	80.0	34.0	21.0	19.5	42.8	13.0	22.0	40.0
A_3	1.0	12.5	7.9(4)	15.8(3)	7.4(2)	75.0	50.0	10.0	10.0	10.0	10.0	10.0	10.0	75.0

*Percentage of Total Population

**Numbers in these two columns are percentages within each group.

+Total Students in Categories: Indian, Spanish-American, Spanish Surname, Oriental, Other and those who speak a Foreign Language at Home.

PA and AR: Average of Stanford Achievement Sub-scores, National percentiles.
All: all students in particular town (or subdivision)
Over: Overage Students
LQ: Students placing in lower quartile of either subtest

OVERAGE STUDENTS AND STUDENTS IN LOWEST QUARTILE

DISTRICT B, NINTH GRADE

August 17, 1970

Theodore G. Brough

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I N T R O D U C T I O N

This pamphlet introduces the use of the Partial Student Profile, a computer-based report of data on each student stored in the Western Nevada Regional Education Center's Student Information System. By its very nature (a computer printout--one line per student) the Profile is compact and much of the information is coded. Printouts of the complete coded information as it now exists for each student in the system are even more compact. Samples of this data (called Demonstration Data for discussion purposes) are included in a previous report in this series: Using Student Data From Computer Printouts, WN-REC, May 25, 1970. With a little experience, the codes can be learned and the information extracted for school analysis purposes. A discussion of how the data is handled to yield tables such as are in this memo is given in the above-mentioned publication.

OVERAGE STUDENTS

Table 1 summarizes selected information for ninth grade students classified according to placement in overage or non-overage groups. Students will be considered overage if their birthdays fall before December 1, 1954. The Table reveals the following trends:

1. A decrease in reported learning limitations with increase in age.

2. An increase in proportion of students with a foreign language spoken in the home with increasing age.

3. An increase in proportion of male parent as either missing, a step-parent or other with increasing age placement. This trend falls off in the oldest groups.

4. A rapid decrease in student performance on the Stanford Achievement sub-tests indicated with increasing age placement.

5. A general increase in proportion of Indian students with increasing age placement (incomplete trend). Over half of the Indian students (8 out of 14) are in the overage group. About one-fourth of the Spanish-American students are in the overage group. The overall proportion of students overage is about 25% (34/142).

6. With increasing age placement there is an increasing proportion of students with fathers in skilled and unemployed occupation

categories while the proportion decreases for students with fathers in the self-employed occupations. Interestingly enough, the proportion of students with fathers in the professional classification decreases with age category and then increases with increasing overage placement (scanty data).

7. The proportion of girls rapidly decreases with increasing age placement.

8. The time to get to school generally increases with increasing overage placement.

9. An increasing trend in proportion of school-paid hot lunch with increasing age placement is apparent along with a generally decreasing proportion of students taking school hot lunch.

In summary: Students who have a tendency to be overage and place lowest on the Stanford Achievement sub-tests are: those who speak a foreign language at home; those who are Indians; those with parents missing, step- or other; those with fathers skilled or unemployed; those with hot lunch paid for by school; and those who are boys.

Table 1

District B, 9th Grade

Over-age vs. Non-over-age

	Percent Overage Over 12 mos. (N=8)	Percent Overage Over 6 mos. (N=18)	Percent Overage Group (N=34)	Percent Total Population (N=142)	Percent Non-Overage Population (N=108)
Learning Limitations(Yes only)	0(0)	0(0)	2.9(1)	6.4(9)	7.4(8)
Foreign Language Spoken at home (Yes only)	37.5(3)	22.2(4)	32.4(11)	16.9(24)	12.0(13)
Male Parent: missing, Step parent or other	25.0(2)	27.8(5)	29.4(10)	21.1(30)	18.5(20)
Occupation of Male Parent:+					
Professional	12.5(1)	5.6(1)	2.9(1)	6.4(9)	7.5(8)
Self-Employed	12.5(1)	11.1(2)	14.7(5)	28.4(40)	32.7(35)
Skilled	62.5(5)	61.2(11)	58.8(20)	48.9(69)	45.8(49)
Unskilled	0(0)	11.1(2)	11.8(4)	10.6(15)	10.3(11)
Unemployed	12.5(1)	11.1(2)	11.8(4)	5.7(8)	3.7(4)
Students:					
Spanish American	25.0(2)	16.7(3)	11.8 (4)	12.7(18)	13.0(14)
Indian	25.0(2)	11.1(2)	23.5(8)	8.1(14)	5.6(6)
Black	0(0)	0(0)	0(0)	0.7(1)	0.9(1)
Oriental	0(0)	0(0)	0(0)	0.7(1)	0.9(1)
Other	0(0)	0(0)	0(0)	0(0)	0(0)
Girl Students	12.5(1)	22.2(4)	32.3(11)	47.1(67)	51.7(56)
Age (Yrs)	16.9(8)	16.5(18)	15.6(34)	15.2(142)	15.0(108)
Trans. Type:					
Walk or Bike	0(0)	5.6(1)	2.9(1)	3.5(5)	3.7(4)
Bus or Car	100(8)	77.8(14)	67.6(23)	57.7(82)	54.6(59)
Other	0(0)	16.7(3)	29.4(10)	38.7(55)	41.6(45)
Trans. Time (min):					
Overall	25.6(8)	21.0(18)	20.5(34)	17.0(142)	16.1(108)
Walk or Bike	0(0)	0(0)	30.0(1)	9.8(5)	4.8(4)
Bus or Car	25.6	23.2(14)	24.5(23)	22.6(82)	21.9(59)
Other	0(0)	8.3(3)	11.0(10)	9.6(55)	9.3(45)
Lunch Type:					
School - Hot:	71.4(5)	50.0(9)	61.8(21)	59.9(85)	49.2(64)
School Pays:	40.0(2)	44.5(4)	28.1(8)	14.1(12)	6.2(4)
Home Pays:	60.0(3)	44.5(4)	57.2(12)	84.6(72)	93.8(60)
School - Box	0(0)	0(0)	0(0)	0(0)	0(0)
None:	0(0)	22.2(4)	14.7(5)	3.1(13)	7.4(8)
Other:	28.6(2)	27.8(5)	23.5(8)	30.3(43)	32.4(35)
Average Score Stanford Sub-test (percentile):					
Adv. Para Mean.	13.5(2)	21.5(8)	31.2(16)	47.8(95)	51.2(79)
Arith. Comp.	11.0(2)	18.3(8)	35.7(16)	46.5(95)	48.6(79)

+When Male Parent is missing, Female Parent Occupation is substituted.

LOWEST QUARTILE STUDENTS

Table 2 summarizes selected information for students classified on the basis of their performance on the Stanford Achievement sub-tests: Advanced Paragraph Meaning (PA) and Arithmetic Computation (AR). The Table reveals the following trends:

1. An increasing proportion of overage students with decreasing quartile placement (overall average is an exception).

2. A decrease in proportion of foreign language spoken at home with decreasing Stanford Test performance.

3. An increase in proportion of students with fathers skilled and unskilled with decreasing performance and a general decrease in proportion of students with professional fathers with decreasing performance. (See previous trend of increasing and then decreasing proportion of professional fathers with increasing overage placement).

4. A decrease in proportion of minority students with decreasing placement. (This should be compared with the increasing proportion of Indian students who are overage).

5. An increase in proportion of students with school hot lunch with decreasing placement.

6. A decrease in proportion of students with lunch-other with decreasing placement.

7. No definite trends are observable linking transportation method or time to school with performance.

Table 2
District B, 9th Grade
Lowest Quartile Students vs. Others

	Percent Lower Q Group (N=39)	Percent Total Population (N=142)	Percent Middle Q Group (N=73)*	Percent Upper 3/4 Group (N=103)	Percent Upper 1/4 Group (N=32)
Learning Limitations (Yes only)	7.7(3)	6.4(9)	8.2(6)	5.8(6)	0(0)
Overage	30.8(12)	23.9(34)	28.8(21)	21.4(22)	9.4(3)
Up to 6 mos.	10.3(4)	11.3(16)	13.7(10)	11.7(12)	9.4(3)
6 to 12 mos.	17.9(7)	7.1(10)	5.5(4)	2.9(3)	0(0)
12 mos. and over	2.6(1)	5.6(8)	9.6(7)	6.8(7)	0(0)
Foreign Language Spoken at Home (Yes only)	10.3(4)	16.9(24)	23.3(17)	19.4(20)	9.4(3)
Male Parent: missing, Step or Other	20.5(8)	21.1(30)	21.9(16)	21.4(22)	18.7(6)
Occupation of Male Parent:+					
Professional	5.1(2)	6.4(9)	5.5(4)	6.8(7)	9.4(3)
Self-Employed	23.1(9)	28.4(40)	31.5(23)	30.1(31)	28.1(9)
Skilled	53.9(21)	48.9(69)	46.6(34)	46.6(48)	36.9(15)
Unskilled	15.4(6)	10.6(15)	6.9(5)	8.7(9)	12.5(4)
Unemployed	2.6(1)	5.7(8)	9.6(7)	6.8(7)	0(0)
Students:					
Spanish-American	5.1(2)	12.7(18)	17.8(13)	15.5(16)	9.4(3)
Indian	2.6(1)	8.1(14)	17.8(13)	12.6(13)	0(0)
Black	0(0)	0.7(1)	1.4(1)	1.0(1)	0(0)
Oriental	0(0)	0.7(1)	1.4(1)	1.0(1)	0(0)
Girl Students	38.5(15)	47.1(67)	48.0(35)	50.5(52)	56.2(18)
Age (Yrs)	15.3(39)	15.2(142)	15.2(73)	15.1(103)	15.1(32)
Transportation Type:					
Walk or Bike	2.6(1)	3.5(5)	5.5(4)	3.9(4)	3.1(1)
Bus or Car	53.9(21)	57.7(82)	64.4(47)	59.2(61)	43.8(14)
Other	43.6(17)	38.7(55)	30.1(22)	36.9(38)	53.1(17)
Time (min):					
Overall	18.6(39)	17.0(142)	16.9(73)	16.4(103)	15.4(32)
Walk or Bike	30.0(1)	9.8(5)	4.8(4)	4.8(4)	30.0(1)
Bus or Car	25.8(21)	22.6(82)	21.6(47)	21.6(61)	20.8(14)
Other	8.5(17)	9.6(55)	9.7(22)	10.0(38)	9.9(17)
Lunch Type:					
School - Hot	61.7(26)	59.9(85)	58.9(43)	57.2(59)	56.2(18)
Home Pays:	92.4(24)	84.7(72)	74.5(32)	81.3(48)	94.4(17)
School Pays:	3.8(1)	14.1(12)	25.5(11)	18.7(11)	5.6(1)
School - Box:	0(0)	0(0)	0(0)	0(0)	0(0)
None:	10.5(4)	3.1(13)	8.2(6)	8.7(9)	12.5(4)
Other:	23.1(9)	30.3(43)	34.3(25)	57.7(34)	59.4(9)
Average Score Stanford Sub-Test (percentile)					
Adv. Para Mean	36.8(39)	47.8(95)	48.7(26)	62.4(56)	75.7(32)
Arith Comp.	20.8(39)	46.5(95)	49.6(26)	64.2(56)	75.3(32)

*2 Persons have scores both in lower quartile and upper quartile, hence total N adds up to 73, not 71.

+When Male Parent is missing, Female Parent Occupation is substituted.

STUDENT PERFORMANCE AND AGE AS A FUNCTION OF RESIDENCE AREA

If students are identified as coming to school from one particular town or part of a given town then a pattern emerges. Organizing the data on the basis of residence and ranking the groups according to the time to school from that place of residence results in the pattern shown in Table 3.

Table 3 shows the following:

1. A decreasing average performance (on Arithmetic Computation) for all students as the time to school increases. There is a trend in this direction for overall performances in Paragraph Meaning, but it does not hold for overage students and students placing in the lowest quartile.

2. A rapid increase in the proportion of ethnic students from area to area (towns) with increasing time to school.

3. A general decrease in the proportion of students placing in the lowest quartile on both sub-tests with increasing time to school. (Incomplete, in that the trend falls off at one middle distance town).

Table 3

District B

Selected Characteristics of 9th Grade Students by Distance From School

Town	Time (min)	Total prop.*	Overage prop.*	Lower Q prop.**	Proportion in Each Residence Area*** Overage	Lower Q	Overall Performance PA All	PA Overage	PA LQ	AR All	AR Overage	AR LQ	Proportion of Ethnics+
A_1	7.4	50.6(72)	8.5(12)	23.2(22)	16.7(12)	56.4(22)	48.7(59)	18.4(8)	24.8(22)	47.5(59)	40.2(8)	22.2(22)	16.7(12)
A_2	19.8	23.2(33)	6.3(9)	14.7(14)	27.5(9)	42.4(14)	46.2(30)	43.5(7)	30.6(14)	44.7(30)	34.0(7)	19.2(14)	24.2(8)
B	29.0	1.4(2)	0(0)	0(0)	0(0)	0	--	--	--	--	--	--	50.0(1)
C	58.3	4.2(6)	0.7(1)	3.2(3)	16.7(1)	50.0(3)	39.2(1)	48.0(1)	24.0(3)	34.2(1)	11.0(1)	17.7(3)	0(0)
D	63.7	2.8(4)	0(0)	0(0)	0(0)	0	86.0(1)	0	0	98.0(1)	0	0	0(0)
E_1	5.7	4.2(6)	0.7(1)	--	16.7(1)	--	--	--	--	--	--	--	50.0(3)
E_2	29.5	13.4(19)	7.0(10)	--	63.2(12)	--	--	--	--	--	--	--	63.2(12)

*Percentage of Total Population

**Percentage of pupils with test scores reported

***Numbers in these two columns are percentages within each group.

+Total Students in Categories: Indian, Spanish-American, Spanish Surname, Oriental, Other and those who speak a Foreign Language at Home.

PA and AR: Average of Stanford Achievement Sub-scores, National percentiles.
All: all students in particular town (or subdivision)
LQ: Students placing in lower quartile of either subtest

OVERAGE STUDENTS AND STUDENTS IN LOWEST QUARTILE

DISTRICT C, NINTH GRADE

August 27, 1970

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I N T R O D U C T I O N

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OVERAGE STUDENTS

Table 1 summarizes selected information for ninth grade students classified according to placement in overage or non-overage groups. Students will be considered overage if their birthdays fall before December 1, 1954. The Table reveals the following trends:

1. A decrease in reported learning limitations with increase in age.

2. A tendency toward an increase in the proportion of students with a foreign language spoken at home with increasing age. This trend does not hold for the oldest age groups.

3. A slight trend toward a <u>decrease</u> in the proportion of male parents as either missing, a step-parent or other with increasing age placement.

4. A rapid decrease in student performance on the Stanford Achievement sub-tests indicated with increasing age placement. This trend does <u>not</u> hold for the oldest average group.

5. A decrease in proportion of Spanish-American students with increasing age placement. The rate of decrease is slightly faster than for the population as a whole.

6. A slight increase in the proportion of Indian students with increasing age placement. About one-third of the total Indian population is overage (5/16) while about one fourth of the population as a whole is overage (35/139).

7. A rapid increase in the proportion of black students with increasing age placement. One third of the black students are overage while about half of these overage students are overage by 12 months or more (4/9). Black students account for one-fourth of the total over-age students, but total one-half of those that are overage by 12 months or more.

8. The proportion of girl students decreases with increasing age placement. However, among the younger students (non-overage) the proportion of girls also decreases.

9. The proportion of students with fathers in the self-employed, unskilled, and unemployed categories increases with increasing age placement. This trend falls off for the oldest groups. There is no definite trend among students with skilled fathers (perhaps a slight tendency toward decreasing proportion with age placement). There is a mixed trend for students with professional fathers, perhaps an overall increase in proportion with increasing age placement.

10. The time to school generally decreases with increasing age placement for all categories of school transportation. The proportion of students transported to school increases with increasing age placement (and decreasing achievement score placement).

11. There is a decrease in proportion of students with school-paid hot lunch and a general increase in proportion of no lunch reported with increasing age placement. There is a general increase in the proportion of school hot lunch reported with increasing age placement. The proportion of Lunch-other falls off with age placement.

In summary: Students who have a tendency to be overage and place lowest on the Stanford Achievement Sub-tests are: those who speak a foreign language at home; those who are either Negroes or Indians (but not Spanish-American or with Spanish Sur-names); those who are boys; those with self-employed, unskilled or unemployed fathers; those who are transported to school (rather than walk or ride bike) but not those who live the farthest; and those who report no lunch.

Table 1

District C, 9th Grade
Overage vs. Non-Overage

	Percent Overage Over 12 mos. (N=8)	Percent Overage Over 6 mos. (N=16)	Percent Overage Group (N=35)	Percent Total Population (N=139)*	Percent Non-Overage Population (N=102)
Learning Limitations (Yes only)	0	6.3(1)	11.4(4)	11.5(16)	11.8(12)
Foreign Language Spoken at home (Yes only)	0	12.5(2)	20.0(7)	11.5(16)	8.8(9)
Male Parent: missing, step-parent or other	25.0(2)	18.8(3)	26.7(9)	28.0(39)	28.4(29)
Occupation of Male Parent:+					
Professional	25.0(2)	12.5(2)	17.1(6)	18.0(25)	17.7(18)
Self-Employed	0	6.3(1)	5.7(2)	5.0(7)	4.9(5)
Skilled	62.5(5)	62.5(10)	60.0(21)	62.6(87)	64.8(66)
Unskilled	12.5(1)	18.7(3)	8.6(3)	7.9(11)	6.9(7)
Unemployed	0	0	8.6(3)	5.0(7)	3.9(4)
No Response	0	0	0	1.4(2)	2.0(2)
Students:					
Spanish-American	0	6.3(1)	5.7(2)	9.4(13)	10.8(11)
Indian	12.5(1)	12.5(2)	14.3(5)	11.5(16)	10.8(11)
Black	50.0(4)	37.5(6)	25.7(9)	19.4(27)	17.6(18)
Oriental, Other	0	0	0	0	0
Girl Students	37.5(3)	37.5(6)	40.0(14)	49.4(81)*	47.0(48)
Age (Yrs.)	17.2(8)	16.6(16)	16.4(35)	15.1(137)	14.7(102)
Trans. Type:					
Walk or Bike	25.2(2)	25.0(4)	28.6(10)	37.7(52)	40.6(41)
Bus, Car or Other	75.0(6)	75.0(12)	71.5(25)	62.3(86)	59.4(60)
Trans. Time (min.):					
Overall	9.5(8)	14.5(16)	15.3(35)	15.8(137)	16.0(101)
Walk or Bike	5.5(2)	9.0(4)	10.7(10)	11.0(52)	11.1(41)
Bus, Car or Other	6.5(6)	16.3(12)	17.2(25)	18.8(86)	19.4(60)
Lunch Type:					
School - Hot:	37.5(3)	37.5(6)	31.4(11)	25.9(36)	24.5(25)
School Pays	0	16.7(1)	27.3(3)	27.8(10)	28.0(7)
Home Pays	100.0(3)	83.3(5)	63.6(7)	66.7(24)	68.0(17)
School - Box:	12.5(1)	6.3(1)	2.9(1)	4.3(6)	4.9(5)
None:	0	12.5(2)	8.6(3)	5.0(7)	3.9(4)
Other:	37.5(3)	37.5(6)	54.3(19)	64.7(90)	66.7(68)
Average Score Stanford Subtest (percentile):					
Adv. Para. Mean	28.6(3)	21.5(8)	32.7(24)	39.9(135)*	41.6(91)
Arith. Comp.	13.3(3)	11.3(8)	22.6(24)	30.7(135)*	34.4(90)

* Standardized test scores and sex description were available for 26 additional students. Some students with adequate records had no standardized test scores.

+ When male parent is missing, female parent occupation is substituted.

LOWEST QUARTILE STUDENTS

Table 2 summarizes selected information for students classified on the basis of their performance on the Stanford Achievement sub-tests: Advanced Paragraph Meaning (PA) and Arithmetic Computation (AR). The table reveals the following trends:

1. An increasing proportion of reported learning limitations with decreasing quartile placement.

2. An increasing proportion of overage students with decreasing quartile placement. The trend for the oldest group (12 months and more overage) is somewhat the reverse of this.

3. The proportion of foreign language spoken in the home remains virtually constant with decreasing quartile placement. There is a slightly increasing trend with decreasing quartile placement.

4. The proportion of male parents in the categories missing, step-parent or other decreases with decreasing placement.

5. The proportion of male parents in the unskilled category decreases with decreasing quartile placement (scanty data). The trend for proportion of professional fathers is mixed, but slightly toward a decrease with decreasing placement. The proportion of self-employed and skilled fathers is virtually unchanged with decreasing quartile achievement.

6. An increase in proportion of minority students with decreasing placement.

7. The proportion of Spanish-American students remains somewhat constant with decreasing placement (slight increase).

8. A decreasing proportion of Indian students with decreasing quartile placement (this trend falls off for the highest quartile group).

9. A rapid increase in the proportion of Black students with decreasing quartile placement.

10. Over two thirds (19/27) of the black students place in the lowest quartile, while 54% of the Spanish-American students and 37.5% of the Indian students place in the lowest quartile. These figures are to be compared with the 48% of the total population that place in the lowest quartile (67/139). It should be observed that 48% (35/73) of those students that are not members of racial minorities place in the lowest quartile.

11. The proportion of girl students fluctuates with decreasing quartile placement, generally increasing. The proportion of girls in each of the quartile placement categories exceeds that of boys. Only in their proportion of the total population is the ratio near 50%. Of the 29 students with missing standardized test scores, 17 (58.6%) are boys. Hence the imbalance is probably caused by this imbalance of about 5% of the boys being missing from each quartile category.

12. There is a tendency for the proportion of students getting to school by walking or riding bike to increase with decreasing quartile placement. However, this trend is reversed for the highest quartile placement. Overall, when comparing highest quartile with lowest quartile placement, the trend is toward lower proportions of students walking or riding bike to school.

13. When examining distance to school (in minutes) there is no definite, observable trend. Only when comparing the upper quartile group with the lower quartile group is there a trend toward longer time to school with lower placement. In all other cases the trends are mixed.

14. There is a strong increase in the proportion of school-paid hot-lunch with decreasing quartile placement. There is also an increase in proportion of school box-lunch with decreasing quartile placement (scanty data). All other trends are either mixed or the proportions are unchanging with quartile placement.

One interesting observation concerns the achievement of students in the middle quartiles. By isolating the 81 students who placed in the lowest quartile and the 21 students who placed in the highest quartile, we are left with 34 students who placed in the middle two quartiles. Although only 25% of the total population placed in the middle two quartiles (34/135), their performance on the two subtests approached the national norm. It would be interesting to see, on another measurement, if the total population of students in this county were in fact non-homogeneous. That is, to see if the population was truly skewed to the left (lower quartile) in ability. The middle quartiles group seems to be normally distributed.

Table 2
District C, 9th Grade
Lowest Quartile Students vs. Others

	Percent Lower Q (N=67)	Percent Total Population (N=139)	Percent Middle Q Groups (N=55)*	Percent Upper 3/4 Group (N=72)	Percent Upper 1/4 Group (N=18)
Learning Limitations (Yes only)	14.9(10)	11.5(16)	9.1(5)	8.3(6)	5.6(1)
Overage:					
Up to 6 mos.	16.4(11)	13.7(19)	10.9(6)	11.1(8)	11.1(2)
6 to 12 mos.	7.5(5)	5.8(8)	5.5(3)	4.2(3)	0
12 mos. and over	3.0(2)	5.8(8)	10.9(6)	8.3(6)	0
Foreign Language Spoken at Home (Yes)	11.9(8)	11.5(16)	10.9(6)	11.1(8)	11.1(2)
Male Parent:					
Missing, step-, or other	23.9(16)	28.0(39)	31.0(17)	32.0(23)	33.3(6)
Occupation of Male Parent:+					
Professional	19.4(13)	18.0(25)	14.5(8)	16.7(12)	22.2(4)
Self-Employed	6.0(4)	5.0(7)	5.5(3)	4.2(3)	5.6(1)
Skilled	61.2(41)	62.6(87)	65.5(36)	63.9(46)	55.5(10)
Unskilled	6.0(4)	7.9(11)	9.1(5)	9.7(7)	11.1(2)
Unemployed	7.5(5)	5.0(7)	1.8(1)	2.8(2)	5.6(1)
Students:					
Spanish-American	10.4(7)	9.4(13)	7.3(4)	8.3(6)	16.7(3)
Indian	9.0(6)	11.5(16)	14.5(8)	13.9(10)	11.1(2)
Black	28.4(19)	19.4(27)	12.7(7)	11.1(8)	5.6(1)
Oriental, Other	0	0	0	0	0
Girl Students**	59.8(40)	49.4(81)**	58.2(32)	57.0(41)	55.5(10)
Trans. Type:					
Walk or Bike	41.8(28)	37.4(52)	29.1(16)	33.4(24)	44.4(8)
Bus, Car and Other	56.8(38)	61.2(85)	69.0(38)	65.4(47)	55.6(10)
Trans. Time (Min.):					
Overall	15.7(66)	15.8(137)	17.4(54)	16.2(71)	14.3(18)
Walk or Bike	11.2(28)	11.0(52)	10.6(16)	10.7(24)	11.1(8)
Bus, Car, and Other	18.9(38)	18.8(85)	20.3(38)	19.0(47)	16.8(10)
Lunch Type:					
School - Hot:	20.9(14)	25.9(36)	34.6(19)	30.6(22)	16.7(3)
School Pays	35.7(5)	27.8(10)	26.3(5)	22.8(5)	0
Home Pays	50.0(7)	66.7(24)	73.7(14)	77.2(17)	100.0(3)
School - Box:	6.0(4)	4.3(6)	3.6(2)	2.8(2)	0
None:	4.5(3)	5.0(7)	5.5(3)	5.6(4)	11.1(2)
Other:	67.2(45)	64.7(90)	58.3(32)	62.5(45)	72.3(13)
Average Score Stanford Subtest (percentile):					
Adv. Para. Mean.	25.0(81)**	39.9(135)**	46.0(34)	62.4(54)**	86.0(21)**
Arith. Comp.	15.6(81)	30.7(135)	47.2(34)	53.5(54)	61.2(21)

*One person had scores in both lower and upper quartiles; hence, total N adds up to 55, not 54.

**Standardized test scores and sex description were available for 26 additional students. Some students with adequate records had no standardized test scores.

STUDENT PERFORMANCE AND AGE AS A FUNCTION OF RESIDENCE AREA

If students are identified as coming to school from one particular town or part of a given town then a pattern emerges. Organizing the data on the basis of residence and ranking the groups according to the time to school from that place of residence results in the pattern shown in Table 3.

Table 3 shows the following:

1. There is a general tendency toward decreasing overall average performance on the standardized test scores recorded with time to town. This tendency does not hold up for the last two outlying towns for Paragraph Meaning and for the next to last town for Arithmetic Computation. These trends more or less hold up for the other categories of students: Overage and Lower Quartile for these test scores.

2. There is a general tendency toward an increase in proportion of students falling in the Lower Quartile with increasing time to school. Again, this tendency falls off for the students in the farthest outlying towns.

3. No definite trends concerning proportion of ethnics as a function of time to school. The ethnics in this county are concentrated in two residential areas, hence any other trends of ethnicity as a function of distance in the county as a whole are masked.

4. There is a trend toward an increase in proportion of overage students with increasing time to school. This is a not a smooth trend and is barely detectable from an overall view of the population (from closest in to farthest out).

5. There is a trend toward an increase in proportion of students placing in the lowest quartile with increasing time to school. This trend falls off for the students in towns farthest out.

Table 3
District C
Selected Characteristics of 9th Grade Students by Time From School

Town	Time (min)	Total prop.*	Overage prop.*	Lower Q prop.**	Proportion in Each Residence Area *** Overage	Lower Q	Overall Performance PA All	PA Overage	PA LQ	AR All	AR Overage	AR LQ	Proportion of Ethnics+
A_1	6.4	32.7(54)	31.4(11)	37.3(25)	20.4(11)	46.3(25)	45.2(46)	40.6(7)	21.3(25)	36.1(46)	25.3(7)	17.5(25)	29.6(16)
B	12.3	20.0(33)	34.3(12)	23.9(16)	36.4(12)	48.5(16)	40.2(26)	34.6(8)	21.2(16)	33.5(26)	24.2(8)	16.8(16)	63.6(21)
A_2	15.0	11.5(19)	11.4(4)	17.9(12)	21.0(4)	63.2(12)	33.0(18)	21.3(3)	19.5(12)	28.0(17)	15.0(4)	20.9(12)	42.1(8)
A_3	25.0	5.5(9)	8.6(3)	9.0(6)	33.3(3)	75.0(6)	36.0(8)	25.7(3)	27.3(6)	22.9(8)	21.3(3)	10.5(6)	12.5(1)
C	45.0	9.7(16)	11.4(4)	10.4(7)	25.0(4)	43.8(7)	36.2(12)	13.3(3)	20.4(7)	32.8(12)	24.7(3)	15.0(7)	87.5(14)
D	45.0	2.3(4)	2.9(1)	1.5(1)	25.0(1)	25.0(1)	76.0(2)	-	-	22.0(2)	-	18.0(1)	25.0(1)

* Percentage of total population
** Percentage of pupils with test scores reported
*** Numbers in these two columns are percentages within each group
\+ Proportion of pupils in each town of the sum of the students in the categories: Indian, Spanish-American, Spanish surname, and those who speak a foreign language at home.

PA and AR: Average of Stanford Achievement Sub-scores, National Percentiles
All: All students in particular town (or subdivision)
LQ: Students placing in lower quartile of either subtest

OVERAGE STUDENTS AND STUDENTS IN LOWEST QUARTILE

DISTRICT D, NINTH GRADE

September 24, 1970

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I N T R O D U C T I O N

This pamphlet introduces the use of the Partial Student Profile, a computer-based report of data on each student stored in the Western Nevada Regional Education Center's Student Information System. By its very nature (a computer printout--one line per student) the Profile is compact and much of the information is coded. Printouts of the complete coded information as it now exists for each student in the system are even more compact. Samples of this data (called Demonstration Data for discussion purposes) are included in a previous report in this series: Using Student Data From Computer Printouts, WN-REC, May 25, 1970. With a little experience, the codes can be learned and the information extracted for school analysis purposes. A discussion of how the data is handled to yield tables such as are in this memo is given in the above-mentioned publication.

OVERAGE STUDENTS

Table 1 summarizes selected information for ninth grade students classified according to placement in overage or non-overage groups. Students will be considered overage if their birthdays fall before December 31, 1954. The Table reveals the following trends:

1. An increase in reported learning limitations with increase in age.

2. No tendency toward an increase or decrease in the proportion of students with a foreign language spoken at home with increasing age.

3. An increase in the proportion of male parents as either missing, a step-parent or other with increasing age placement.

4. A rapid decrease in student performance on the Stanford Achievement sub-tests indicated with increasing age placement.

5. An increase in proportion of Oriental students with increasing age placement. (Scanty data).

6. A slight decrease in the proportion of Indian students with increasing age placement. About one-fifth of the total Indian population is overage (4/22), about the same as the overage population as a whole (58/302).

7. An increase in the proportion of black students with increasing age placement. (Scanty Data). One half (1) of the black students (2) are overage. None of these overage students are overage by 12 months or more.

8. The proportion of girl students increases slightly with increasing age placement.

9. The proportion of students with fathers in the self-employed and skilled categories increases with increasing age placement. This trend falls off for the oldest groups in the skilled category. The proportion of students with professional, unskilled and unemployed fathers decreases with increasing age placement.

10. The time to school generally increases with increasing age placement for all categories of school transportation. The proportion of students transported to school increases with increasing age placement (and decreasing achievement score placement).

11. There is a <u>decrease</u> in proportion of students with school-paid hot lunch and with lunch reported as other. There is a general increase in proportion of <u>no lunch</u> reported with increasing age placement. (Scanty data in the overage categories). There is a general increase (with one exception) in the proportion of school <u>hot lunch</u> reported with increasing age placement. The proportion of Lunch-other falls off with age placement.

<u>In summary</u>: Students who have a tendency to be overage and place lowest on the Stanford Achievement Sub-tests are: those with reported learning limitations; those who are either Blacks or Other (but not Indians, Orientals, Spanish-American or with Spanish Sur-names); those who are boys; those with self-employed, or skilled fathers; those who are transported to school (rather than walk or ride bike); and those who report <u>no lunch</u>.

Table 1

District D, Ninth Grade
Over-age vs. Non-overage

	Percent Overage over 12 mos. (N=5)	Percent Overage over 6 mos. (N=17)	Percent Overage Group (N=58)	Percent Total Population (N=302)	Percent Non-overage (N=244)
Learning Limitations (Yes only)	80.0(4)	52.9(9)	43.9(26)	38.8(117)	37.3(91)
Foreign Language spoken at home (Yes only)	0(0)	5.9(1)	5.2(3)	5.3(16)	5.3(13)
Male Parent: missing, step-parent or other	40.0(2)	29.4(5)	31.0(18)	27.2(82)	26.2(64)
Occupation of Male Parent+					
Professional	20.0(1)	29.4(5)	25.8(15)	31.2(94)	32.4(79)
Self-Employed	40.0(2)	17.6(3)	17.2(10)	15.9(48)	15.6(38)
Skilled	40.0(2)	47.1(8)	51.8(30)	41.7(126)	39.4(96)
Unskilled	0(0)	5.9(1)	3.5(2)	7.6(23)	8.6(21)
Unemployed	0(0)	0(0)	1.7(1)	3.6(11)	4.1(10)
Students:					
Spanish-American	0(0)	0(0)	0(0)	0.7(2)	0.8(2)
Indian	0(0)	0(0)	6.9(4)	7.3(22)	7.4(18)
Black	0(0)	0(0)	1.7(1)	0.7(2)	0.4(1)
Oriental	20.0(1)	5.9(1)	1.7(1)	0.7(2)	0.4(1)
Other	0(0)	0(0)	0(0)	0(0)	0(0)
Girls	40.0(2)	29.4(5)	36.2(21)	47.7(144)	50.5(123)
Age (Yrs)	16.8(5)	16.3(16)	15.7(58)	15.1(302)	14.8(244)
Transportation Type:					
Walk or Bike	40.0(2)	35.3(6)	41.4(24)	43.0(130)	43.4(106)
Bus or Car	40.0(2)	52.9(9)	50.0(29)	49.4(149)	31.6(77)
Other	20.0(1)	11.8(2)	8.6(5)	7.6(23)	7.8(19)
Transportation (Min.)					
Overall	24.0(5)	13.1(22)	13.9(58)	12.9(302)	12.7(244)
Walk or Bike	15.0(2)	14.0(4)	9.9(24)	11.2(130)	11.5(106)
Bus or Car	20.0(2)	19.4(9)	17.9(29)	14.9(149)	14.2(120)
Other	20.0(1)	15.0(2)	9.4(5)	8.4(23)	8.2(18)
Lunch Type:					
School - Hot	20.0(1)	5.3(1)	12.1(7)	11.3(34)	11.1(27)
School Pays	0(0)	0(0)	14.3(1)	17.6(6)	18.5(5)
Home Pays	100.0(1)	100.0(1)	85.7(6)	82.4(28)	81.5(22)
School - Box	20.0(1)	41.2(7)	32.8(19)	28.8(87)	27.9(68)
None:	20.0(1)	15.0(2)	3.4(2)	4.1(14)	4.9(12)
Other:	40.0(2)	41.2(7)	51.8(30)	53.3(161)	53.7(131)
Av. Stanford:					
Adv. Paragraph Meaning	5.7(3)	24.5(13)	30.5(41)	51.2(229)	55.7(188)
Arith. Comp.	12.7(3)	23.4(13)	33.1(41)	48.1(229)	51.4(188)

+n male parent is missing, female parent occupation is substituted.

LOWEST QUARTILE STUDENTS

Table 2 summarizes selected information for students classified on the basis of their performance on the Stanford Achievement sub-tests: Advanced Paragraph Meaning (PA) and Arithmetic Computation (AR). The table reveals the following trends:

1. A relatively stable proportion of reported learning limitations with decreasing quartile placement. The proportion increases for both the lower quartile and upper quartile placement categories when compared with the total population.

2. The proportion of students with foreign language spoken in the home decreases with decreasing quartile placement.

3. An increasing proportion of overage students with decreasing quartile placement.

4. The proportion of students with male parents in the categories missing, step-parent or other increases slightly (overall) with decreasing placement. However, the trend from the upper 3/4 placement category to the lower quartile category is a general decrease.

5. The proportion of male parents in the professional and unskilled categories decreases with decreasing quartile placement. The trend for proportion of self-employed and unemployed fathers is mixed, but is slightly toward a decrease with decreasing placement. The proportion of students with skilled fathers increases with decreasing quartile placement.

6. An increase in proportion of Spanish-American (scanty data) and Indian placement. About 45 percent of the Indian students (10/22) place in

the lowest quartile, while 27 percent of the students overall (82/302) place in the lowest quartile. Fifty percent of the Spanish-Americans (1/2) place in the lowest quartile.

7. The proportion of Black students decreases with decreasing placement (scanty data).

8. The proportion of girl students decreases with decreasing quartile placement. The proportion of girls in each of the upper quartile placement category exceeds that of boys. Only in their proportion of the total population is the ratio near 50%.

9. There is a tendency for the proportion of students getting to school by walking or riding bike to decrease with decreasing quartile placement. The proportion of students riding bus or car to school and coming to school by other means fluctuates with decreasing quartile placement. The overall trend is toward a decrease with decreasing placement. For Bus or Car travel, however, there is in general no difference in proportion in each quartile category after the upper quartile.

10. When examining distance to school (in minutes) there is no definite, observable trend. Only when comparing the upper quartile group with the lower quartile group is there a trend toward longer time to school with lower placement for all categories except other, which tends toward a decrease. In all other cases the trends are stable or mixed.

11. There is a strong increase in the proportion of school-paid hot-lunch with decreasing quartile placement. There is also a slight increase in the proportion of school box-lunch with decreasing quartile placement. All other trends are either mixed or the proportions are virtually unchanged with decreasing quartile placement.

Table 2

District D, Ninth Grade
Lowest Quartile vs. Others

	Percent Lower Q (N=82)	Middle Quartiles (N=132)	Percent Total Pop. (N=302)*	Percent Upper 3/4 (N=220)	Upper Quartile (N=90)
Learning Limitations (Yes only)	47.6(39)	28.8(38)	38.8(117)	35.4(78)	44.5(40)
Foreign Language Spoken at home (Yes only)	3.7(3)	3.8(5)	5.3(16)	5.9(13)	8.9(8)
Overage	28.0(23)	22.0(29)	19.2(58)	15.9(35)	6.7(6)
Overage 6 months and over	11.0(9)	6.1(8)	5.6(17)	3.6(8)	0(0)
Male Parent: missing, step-parent or other	24.4(20)	32.6(43)	27.2(82)	28.2(62)	20.0(18)
Occupation of Male Parent:+					
Professional	28.0(23)	31.1(41)	31.2(94)	32.3(71)	33.3(30)
Self-Employed	13.4(11)	16.7(22)	15.9(48)	16.8(37)	16.6(15)
Skilled	48.8(40)	40.2(53)	41.7(126)	39.1(86)	36.6(33)
Unskilled	7.3(6)	6.8(9)	7.6(23)	7.7(17)	10.0(9)
Unemployed	2.4(2)	5.3(7)	3.6(11)	4.1(9)	3.3(3)
Students:					
Spanish-American	1.2(1)	0.7(1)	0.7(2)	0.5(1)	0(0)
Indian	12.2(10)	6.8(9)	7.3(22)	5.5(12)	3.3(3)
Blacks	0(0)	0.7(1)	0.7(2)	0.9(2)	1.1(1)
Oriental	0(0)	0.7(1)	0.7(2)	0.9(2)	1.1(1)
Other	0(0)	0(0)	0(0)	0(0)	0(0)
Girls	41.5(34)	47.0(62)	47.7(144)	50.0(110)	53.4(48)
Age (yrs.)	15.2(82)	14.9(132)	15.1(302)	14.9(220)	14.9(90)
Transportation Type:					
Walk or Bike	39.0(32)	43.9(58)	43.0(130)	44.6(98)	45.5(41)
Bus or Car	48.8(40)	52.3(69)	49.4(149)	49.5(109)	44.5(40)
Other	12.2(10)	3.8(5)	7.6(23)	5.9(13)	10.0(9)
Transportation Time (min)					
Overall	12.5(82)	14.3(132)	12.9(302)	13.1(220)	11.3(90)
Walk or Bike	11.5(32)	11.5(58)	11.2(130)	11.1(98)	10.7(41)
Bus or Car	14.5(40)	16.4(69)	14.9(149)	15.1(109)	12.7(40)
Other	7.7(10)	7.8(5)	8.4(23)	9.0(13)	8.5(9)
Lunch Type:					
School-Hot	9.8(8)	13.6(18)	11.3(34)	11.8(26)	8.9(8)
School Pays	25.0(2)	16.7(3)	17.6(6)	15.4(4)	12.5(1)
Home Pays	75.0(6)	83.3(15)	82.4(28)	84.6(22)	87.5(7)
School-Box	30.5(25)	25.8(34)	28.8(87)	28.2(62)	33.3(30)
None	4.9(4)	4.6(6)	4.1(14)	4.6(10)	4.5(4)
Other	54.9(45)	51.5(68)	53.3(161)	52.7(116)	53.3(48)
Average Stanford Ach.					
Adv. Paragraph Mean (PA)	27.4(82)	46.8(59)	51.2(229)	65.1(147)	78.5(90)
Arith. Comp. (AR)	16.5(82)	45.5(59)	48.1(229)	65.7(147)	77.7(90)

*Persons have scores in both the lower quartile and upper quartile, hence the N for the middle quartiles total 302, not 300.
+When Male Parent is missing, Female Parent Occupation is substituted.

STUDENT PERFORMANCE AND AGE AS A FUNCTION OF TRANSPORTATION TIME AND METHOD

If students are identified as coming to school by various means of transportation, subdivided by time involved, then a pattern emerges. Organizing the data on the basis of method of travel and ranking the groups according to the time to school by that method (a function of the place of residence) results in the pattern shown in Table 3.

Table 3 shows the following:

1. There is a general tendency toward decreasing overall average performance on the standardized test scores recorded with time to town. This tendency does not hold up for the students bussed the furthest in the Paragraph Meaning measure, where a slight increase in average occurs. These trends more or less hold up (with some variations) for other categories of students: Overage and Lower Quartile in the Paragraph Meaning measure. For the categories Overage and Lower Quartile in the Arithmetic Computation (AR) measure the trends do not hold.

2. There is a partial tendency toward an increase in proportion of students falling in the Lower Quartile with increasing time to school. This tendency falls off for the students transported by car or bus.

3. There is no definite trend relating proportion of overage students with increasing time to school.

4. There is a tendency for the proportion of ethnics to increase with increasing time to school for each method of transportation (except walk or bike). There is no overall trend toward increasing ethnicity with increasing time to school. However, the proportion of ethnic students fluctuates in strict accordance with the overage Lower

Quartile average scores for Arithmetic Computation (AR). This may indicate a true relationship between ethnicity (including foreign language spoken in the home) and placement on this Stanford Achievement Sub-test.

Table 5
District D
Selected Characteristics of 9th Grade Students by Transportation Method and Time to School

Trans. Meth.[x]	Time (min)	Total Prop.*	Overage Prop.*	Lower Q Prop.**	Proportion in Each Residence Area*** Overage	Lower Q	Overall Performance PA All	PA Overage	PA LQ	AR All	AR Overage	AR LQ	Prop. of Ethnics+
W_1	8.0(109)	26.7(109)	7.7(23)	8.4(25)	21.1(23)	22.9(25)	55.0(88)	32.7(18)	26.7(25)	51.9(88)	32.7(18)	14.8(25)	8.3(9)
C_1	8.0(73)	24.6(73)	3.4(10)	8.1(24)	13.7(10)	32.9(24)	49.8(59)	33.7(7)	26.0(24)	48.8(59)	49.7(7)	18.8(24)	15.1(11)
B_1	12.2(34)	11.4(34)	2.4(7)	3.4(10)	20.6(7)	29.4(10)	47.8(25)	26.2(6)	23.4(10)	45.5(25)	27.5(6)	13.0(10)	11.7(4)
B_2	23.9(48)	16.2(48)	4.4(13)	4.0(12)	27.1(13)	25.0(12)	52.8(34)	30.4(8)	25.9(12)	45.0(34)	34.3(8)	18.9(12)	22.9(11)
W_2	25.4(21)	7.1(21)	0.3(1)	2.7(8)	4.8(1)	38.1(8)	47.8(11)	---	33.3(8)	33.0(11)	---	9.6(8)	4.8(1)
C_1	25.4(12)	4.0(12)	1.0(3)	1.0(3)	25.0(3)	25.0(3)	25.8(6)	11.0(1)	13.7(3)	32.7(6)	28.0(1)	36.7(3)	16.7(2)

[x] W_1 = Walk, ride bike, up to 19 minutes

W_2 = Walk, ride bike, 20 minutes and over

C_1 = Ride in car, up to 19 minutes

C_2 = Ride in car, 20 minutes and over

B_1 = Ride bus, up to 19 minutes

B_2 = Ride bus, 20 minutes and over

* Percentage of total population
** Percentage of pupils with test scores reported
*** Numbers in these two columns are percentages within each group
\+ Proportion of pupils in each area of the sum of the students in the categories: Indian, Spanish-American, Spanish surname, and those who speak a foreign language at home.

PA and AR: Average of Stanford Achievement Sub-scores, National Percentiles
All: All students in particular area and method of transportation.
LQ: Students placing in lower quartile of either subtest

OVERAGE STUDENTS AND STUDENTS IN LOWEST QUARTILE

DISTRICT E, NINTH GRADE

September 30, 1970

Theodore G. Brough

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INTRODUCTION

This pamphlet introduces the use of the Partial Student Profile, a computer-based report of data on each student stored in the Western Nevada Regional Education Center's Student Information System. By its very nature (a computer printout--one line per student) the Profile is compact and much of the information is coded. Printouts of the complete coded information as it now exists for each student in the system are even more compact. Samples of this data (called Demonstration Data for discussion purposes) are included in a previous report in this series: Using Student Data From Computer Printouts, WN-REC, May 25, 1970. With a little experience, the codes can be learned and the information extracted for school analysis purposes. A discussion of how the data is handled to yield tables such as are in this memo is given in the above-mentioned publication.

Table 1 summarizes selected information for Ninth Grade students classified according to placement in overage or non-overage groups. Students will be considered overage if their birthdays fall before January 1, 1955. The Table reveals the following trends:

1. An increase in reported learning limitations with increase in age.

2. An increase in proportion of students with a foreign language spoken in the home with increasing age.

3. A slight increase in proportion of male parent as either missing, a step-parent or other with increasing age placement. This trend falls off in the oldest group.

4. A rapid decrease in student performance on the Stanford Achievement sub-tests indicated with increasing age placement.

5. A general increase in proportion of Indian students with increasing age placement. About half of the Indian students (4 out of 9) are in the overage group. One-third of the Spanish-American students are in the overage group. The overall proportion of students overage is 23% (46/199).

6. With increasing age placement there is an increasing proportion of students with fathers in unskilled and unemployed occupation categories, while the proportion generally <u>decreases</u> for students with fathers in the self-employed occupations. Interestingly

enough, the proportion of students with fathers in the professional classification increases with age category and then decreases with increasing overage placement (scanty data). The proportion of students with fathers in the skilled labor category tends toward a decrease with increasing age placement (with some fluctuations).

7. The proportion of girls decreases with increasing age placement.

8. The time to get to school generally increases with increasing overage placement. This effect is evident for those who ride car or bus to school. However, the time to school for students who walk or ride bike is almost constant (slight decrease). For those who come to school by the method Other, there is a rapid decrease in proportion with increasing overage placement.

9. An increasing trend in proportion of school-paid hot lunch with increasing age placement is apparent along with a generally decreasing proportion of students taking school hot lunch. An increasing proportion of students with Lunch Other with increasing age placement is apparent.

In summary: Students who have a tendency to be overage and place lowest on the Stanford Achievement sub-tests are: those who have a learning disability; those who speak a foreign language at home; those who are Indians; those with parents missing, step- or other; those with fathers unskilled or unemployed; those who ride car or bus to school; those with hot lunch paid for by school; and those who are boys.

Table 1

District E, 9th Grade
Over-age vs. Non-Over-age

	Percent Overage Over 6 Mos. (N=15)	Percent Overage Group (N=46)	Percent Total Population (N=199)	Percent Non-Overage Population (N=153)
Learning Limitations (Yes only)	20.0(3)	13.0(6)	12.6(25)	12.4(19)
Foreign Language Spoken at home (Yes only)	40.0(6)	17.4(8)	13.6(27)	12.4(19)
Male Parent: missing, step-, or other	20.0(3)	23.9(11)	23.6(47)	23.5(36)
Occupation of Male Parent:+				
Professional	6.7(1)	10.9(5)	10.0(20)	9.8(15)
Self-employed	26.6(4)	15.2(7)	27.6(55)	31.4(48)
Skilled	46.7(7)	50.0(23)	43.2(96)	47.7(73)
Unskilled	6.7(1)	8.7(4)	6.5(13)	5.9(9)
Unemployed	13.3(2)	13.0(6)	6.0(12)	3.9(6)
Students:				
Spanish-American	0(0)	4.3(2)	3.0(6)	2.6(4)
Indian	13.3(2)	8.7(4)	4.5(9)	3.3(5)
Black	0(0)	0(0)	0(0)	0(0)
Oriental	0(0)	0(0)	0.5(1)	0.7(1)
Other	0(0)	0(0)	2.5(5)	3.3(5)
Girl Students	33.5(5)	50.0(23)	51.7(103)	52.3(80)
Transportation Type:				
Walk or Bike	13.3(2)	17.4(8)	15.6(31)	15.0(23)
Bus or Car	86.7(13)	78.3(36)	76.4(152)	73.2(116)
Other	0(0)	4.3(2)	7.5(15)	8.5(13)
Transportation Time (min.):				
Overall	26.9(15)	24.4(46)	23.1(198)	22.8(152)
Walk or Bike	10.0(2)	11.0(8)	11.6(31)	11.8(23)
Bus or Car	29.5(13)	28.5(36)	26.4(152)	25.8(116)
Other	0(0)	3.5(2)	13.8(15)	15.4(13)
Lunch Type:				
School Hot	13.3(2)	13.0(6)	16.1(32)	17.0(26)
School Pays	0(0)	16.7(1)	9.4(3)	7.7(2)
Home Pays	100.0(2)	66.7(4)	84.4(27)	88.5(23)
School - Box	0(0)	0(0)	1.0(2)	1.3(2)
None	0(0)	4.3(2)	6.0(12)	6.5(10)
Other	86.7(13)	82.6(38)	75.4(150)	73.2(112)
Average Score Stanford Sub-test (percentile):				
Adv. Para. Mean. (PA)	25.6(13)	31.4(41)	46.1(181)	50.5(140)
Arith. Comp. (AR)	7.2(13)	14.0(41)	27.2(181)	31.1(140)

+When Male Parent is missing, Female Parent Occupation is substituted.

LOWEST QUARTILE STUDENTS

Table 2 summarizes selected information for students classified on the basis of their performance on the Stanford Achievement sub-tests: Advanced Paragraph Meaning (PA) and Arithmetic Computation (AR). The Table reveals the following trends:

1. An increasing proportion of overage students with decreasing quartile placement (overall average is an exception).

2. A decrease in proportion of foreign language spoken at home with decreasing Stanford Test performance.

3. An increase in proportion of students with male parents in the categories Missing, Step- or Other with decreasing quartile placement.

4. An increase in proportion of students with fathers skilled and unskilled with decreasing performance and a general decrease in proportion of students with professional and self-employed fathers with decreasing performance. The proportion of students with skilled fathers also increases at the upper 3/4 and upper 1/4 end of the scale.

5. A decrease in proportion of Spanish-American, Oriental (scanty data) and Other students with decreasing quartile placement. However, the proportion of Indian students increases with decreasing quartile placement.

6. A decreasing proportion of girls with decreasing quartile placement. However, in the upper quartiles, there is a decreasing proportion of girls with increasing quartile placement.

7. An increase in travel time for students who walk or ride bike and students who ride bus or car with decreasing quartile placement. For those students who are transported by other means, the time to school decreases with decreasing quartile placement and also with increasing quartile placement in the upper quartiles. The overall transportation time remains relatively stable with changing quartile placement.

8. A decrease in proportion of students with school hot lunch with decreasing quartile placement. A trend toward an increase in proportion of school-paid hot lunch with decreasing performance.

9. An increase in proportion of students with Lunch-Other with decreasing placement.

Table 2
District E, 9th Grade
Lowest Quartile Students vs. Others

	Percent Lower Q Group (N=113)	Percent Total Population (N=199)	Percent Middle Q Group (N=60)*	Percent Upper 3/4 Group (N=86)	Percent Upper 1/4 Group (N=33)
Learning Limitations (Yes only)	8.9(10)	12.6(25)	15.0(9)	17.4(15)	18.2(6)
Overage					
Up to 6 months	22.1(25)	15.6(31)	6.7(4)	7.0(6)	6.1(2)
12 mos. and over	11.5(13)	7.5(15)	3.3(2)	2.3(2)	3.0(1)
Foreign Language Spoken at Home (Yes only)	11.5(13)	13.6(27)	13.3(8)	16.3(14)	18.2(6)
Male Parent: Missing, Step- or Other	25.6(29)	23.6(47)	38.3(23)	20.9(18)	18.2(6)
Occupation of Male Parent:†					
Professional	7.1(8)	10.0(20)	11.7(7)	14.0(12)	15.1(5)
Self-Employed	23.9(27)	27.6(55)	35.0(21)	32.6(28)	30.3(10)
Skilled	54.0(61)	43.2(96)	36.7(22	40.7(35)	51.5(17)
Unskilled	7.1(8)	6.5(13)	6.7(4)	5.8(5)	3.0(1)
Unemployed	6.2(7)	6.0(12)	8.3(5)	5.8(5)	0(0)
Students:					
Spanish-American	1.7(2)	3.0(6)	6.7(4)	4.7(4)	0(0)
Indian	5.3(6)	4.5(9)	5.0(3)	3.5(3)	0(0)
Black	0(0)	0(0)	0(0)	0(0)	0(0)
Oriental	0(0)	0.5(1)	1.7(1)	1.2(1)	0(0)
Other	0.9(1)	2.5(5)	5.0(3)	4.7(4)	3.0(1)
Girl Students	49.5(56)	51.7(103)	60.0(36)	54.6(47)	42.4(14)
Age (Yrs.)	15.2(133)	15.0(199)	15.0(40)	14.9(66)	14.9(33)
Transportation Type:					
Walk or Bike	20.4(23)	15.6(31)	6.7(4)	9.3(8)	15.2(5)
Bus or Car	70.8(80)	76.4(152)	81.6(49)	83.7(72)	69.7(23)
Other	8.0(9)	7.5(15)	1.7(1)	7.0(6)	15.2(5)
Transportation Time (min.):					
Overall	23.1(112)	23.1(198)	27.3(53)	23.2(86)	21.3(33)
Walk or Bike	12.9(23)	11.6(31)	8.0(4)	6.5(8)	9.0(5)
Bus or Car	27.2(80)	26.4(152)	22.1(62)	25.6(72)	27.2(23)
Other	13.0(9)	13.8(15)	31.0(2)	15.0(6)	6.6(5)
Lunch Type:					
School - Hot	15.0(17)	16.1(32)	16.7(10)	17.4(15)	18.2(6)
School Pays	11.7(2)	9.4(3)	10.0(1)	6.7(1)	0(0)
Home Pays	82.3(14)	84.4(27)	90.0(9)	86.7(13)	66.7(4)
School - Box	0.9(1)	1.0(2)	1.7(1)	1.2(1)	0(0)
None	4.4(5)	6.0(12)	8.3(5)	8.2(7)	6.2(2)
Other	78.7(89)	75.4(150)	70.0(42)	70.9(61)	75.7(25)
Average Score Stanford Sub-test (percentile):					
Adv. Para. Mean.(PA)	35.3(113)	46.1(181)	50.5(42)	64.2(68)	85.3(33)
Arith. Comp. (AR)	11.1(113)	27.2(181)	47.5(42)	54.0(68)	53.5(33)

* 7 persons had scores in both Lower and Upper Quartiles, hence total N adds up to 60, not 53.

† Male Parent is missing, Female Parent Occupation is tituted.

STUDENT PERFORMANCE AND AGE AS A FUNCTION OF RESIDENCE AREA

If students are identified as coming to school from one particular town or part of a given town, then a pattern emerges. Organizing the data on the basis of residence and ranking the groups according to the time to school from that place of residence results in the pattern shown in Table 3.

Table 3 shows the following:

1. A decreasing average overall performance for most students as the time to school increases. This trend holds overall, although there are some fluctuations at the middle distances (times). This trend holds true generally for the Lower Quartile students but <u>not</u> for the Overage students.

2. A general increase in the proportion of ethnic students from area to area (towns) with increasing time to school. There are some exceptions at the middle distance (time) towns.

3. A trend toward an increase in proportion of overage students in each area with increasing time to school. There are some fluctuations in the middle distance (time) towns.

4. A trend toward an increase in proportion of Lower Quartile students in each area with increasing time to school.

Each of these overall trends are interrupted by the performance of students who come from residence areas A_4, B, and C. The performance

of the students in these areas drops well below the performance of the students in the areas closer in (Ride 34 minutes or less or Walk 19 minutes or less) and of the students in the next furthest area (Ride 35 minutes or more). The data for the students in these three residence areas is scanty (10 students altogether). One interpretation would be that these students come from socio-economic areas that are different from the central town and its surroundings. Further investigation is in order.

District E

Selected Characteristics of 9th Grade Students by Distance From School

Town	Time (min)	Total Prop.*	Overage Prop.*	Lower Q Prop.**	Proportion in Each Residence Area*** Overage	Lower Q	Overall Performance PA All	PA Overage	PA LQ	AR All	AR Overage	AR LQ	Proportion of Ethnics +
A_1	10.1	4.6(52)	4.5(9)	15.5(28)	17.3(9)	53.9(28)	50.9(46)	32.1(7)	41.2(26)	31.1(46)	12.6(7)	12.5(26)	19.2(10)
A_2	10.3	14.1(28)	3.0(6)	10.5(19)	21.4(6)	67.9(28)	47.2(28)	30.0(6)	34.2(19)	27.8(28)	7.8(6)	11.4(19)	21.4(6)
A_3	24.2	37.9(75)	8.6(17)	21.6(39)	22.7(17)	52.0(39)	46.3(66)	25.4(13)	35.1(40)	25.8(66)	10.1(13)	9.5(40)	14.7(11)
A_4	24.7	1.5(3)	0.5(1)	1.7(3)	33.3(1)	100.0(3)	13.7(3)	10.1(1)	13.7(3)	22.7(3)	40.0(1)	22.7(3)	0(0)
B	32.5	1.0(2)	0.5(1)	0.6(1)	50.0(1)	50.0(1)	16.0(1)	16.0(1)	16.0(1)	10.0(1)	10.0(1)	10.0(1)	50.0(1)
C	41.0	2.5(5)	0.5(1)	1.7(3)	20.0(1)	60.0(3)	23.7(4)	18.0(1)	14.5(2)	22.0(4)	4.0(1)	8.0(2)	40.0(2)
A_5	45.0	16.2(32)	3.5(7)	10.5(19)	21.8(7)	59.4(19)	45.6(32)	45.9(7)	36.5(19)	26.6(32)	15.6(7)	11.5(19)	18.7(6)
D	99.0	0.5(1)	0.5(1)	0.6(1)	100.0(1)	100.0(1)	22.0(1)	22.0(1)	6.0(1)	6.0(1)	22.0(1)	6.0(1)	100.0(1)

A_1 = Ride up to 19 min.
A_2 = Walk, Bike up to 19 min.
A_3 = Ride 20 to 34 min.
A_4 = Walk, Bike 20 to 34 min.
A_5 = Ride 35 min. and over

Postal address in central town

B = Nearby town
C = Nearby town
D = Nearby town

* Percentage of Total Population.
** Percentage of pupils with test scores reported.
*** Numbers in these two columns are percentages within each group.
\+ Total Students in Categories: Indian, Spanish-American, Spanish Surname, Oriental, Other and those who speak a Foreign Language at Home.

PA and AR: Average of Stanford Achievement Sub-scores, National Percentiles.
All: All students in particular town (or subdivision)
LQ: Students placing in Lower Quartile of either subtest

OVERAGE STUDENTS AND STUDENTS IN LOWEST QUARTILE

DISTRICT F, THIRD, EIGHTH, NINTH GRADES

September 15, 1970

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I N T R O D U C T I O N

This pamphlet introduces the Partial Student Profile, a computer-based report of data on each student stored in the Western Nevada Regional Education Center's Student Information System. By its very nature (a computer printout--one line per student) the Profile is compact and much of the information is coded. Printouts of the complete coded information as it now exists for each student in the system are even more compact. Samples of this data (called Demonstration Data for discussion purposes) are included in a previous report in this series: Using Student Data From Computer Printouts, WN-REC, May 25, 1970. With a little experience, the codes can be learned and the information extracted for school analysis purposes. A discussion of how the data is handled to yields tables such as are in this memo is given in the above-mentioned publication.

For this particular county, a sampling from the available data for third, eighth, and ninth grade students was used. The same definition of overage, lower quartile, and upper quartile was used for each set of students. The resulting data is reported for the students as a single group.

OVERAGE STUDENTS

Table 1 summarizes selected information for the students selected (third, eighth and ninth grade), classified according to placement in overage or non-overage groups. Students will be considered overage if their birthdays fall before January 1, 1955 (for ninth graders), before January 1, 1956 (for eighth graders), and before January 1, 1961 (for third graders). The table reveals the following trends:

1. An increase in proportion of students with reported learning limitations with increase in age.

2. A <u>decrease</u> in proportion of students with a foreign language spoken at home with increasing age. (Scanty data).

3. A <u>decrease</u> in proportion of students with male parents as either missing, a step-parent or other with increasing age placement.

4. A <u>decrease</u> in proportion of fathers in the professional, self-employed, unskilled and unemployed categories with increasing age (scanty data in some categories). However, there is a rapid <u>increase</u> in proportion of fathers in the skilled occupation categories with increasing age placement.

5. A <u>decrease</u> in proportion of minority students with increasing age placement (scanty data).

6. A <u>decrease</u> in proportion of girls with increasing age placement.

7. The time to school decreases with increasing age placement for all transportation methods combined and for those who walk or ride a bike. No such trend exists for the other two categories - Bus or Car and Other.

8. An increase in proportion of students having lunch in the category other with increasing age placement. However, since only one person reports lunch in another category (none) the data reveals no real trend.

9. A decrease in student performance on the Stanford Achievement sub-tests indicated with increasing age placement.

In summary: Students who have a tendency to be overage and place lowest on the Stanford Achievement Sub-Tests are: those with learning limitations, those with fathers in the skilled occupation category, and those who are boys.

Table 1

District F, 3rd, 8th, 9th Grade
Overage vs. Non-Overage

	Percent Overage (N=3)	Percent Total Population (N=21)	Percent Non-Overage (N=18)
Learning Limitations	33.3(1)	19.1(4)	16.7(3)
Foreign Language Spoken at Home	0(0)	4.8(1)	5.6(1)
Male Parent: missing, step-parent or other	33.3(1)	52.4(11)	55.6(10)
Occupation of Male Parent:			
Professional	0(0)	9.5(2)	11.1(2)
Self-Employed	33.3(1)	42.9(9)	44.4(8)
Skilled	66.7(2)	33.4(7)	27.8(5)
Unskilled	0(0)	9.5(2)	11.1(2)
Unemployed	0(0)	4.8(1)	5.6(1)
Students:			
White	100.0(3)	95.2(20)	94.5(17)
Minority	0(0)	4.8(1)	5.5(1)
Girls	0(0)	52.4(11)	61.1(11)
Transportation Type:			
Walk or Bike	66.7(2)	52.4(11)	50.0(9)
Bus or Car	0(0)	38.1(8)	44.4(8)
Other	33.3(1)	9.5(2)	5.5(1)
Transportation Time (min.):			
Overall	7.0(3)	8.1(21)	8.4(18)
Walk or Bike	5.5(2)	5.8(11)	5.9(2)
Bus or Car	0(0)	9.6(8)	0(0)
Other	10.0(1)	10.0(2)	10.0(2)
Lunch Type:			
School - Hot	0(0)	0(0)	0(0)
School - Box	0(0)	0(0)	0(0)
Other	100.0(3)	95.3(20)	94.5(17)
None	0(0)	4.7(1)	5.5(1)
Stanford Scores (average)			
Paragraph Meaning	01(1)	44.2(17)	46.9(16)
Arithmetic Comp.	01(1)	42.3(17)	44.8(16)

LOWEST QUARTILE STUDENTS

Table 2 summarizes selected information for students classified on the basis of their performance on the Stanford Achievement Sub-Tests: Paragraph Meaning (PA) and Arithmetic Computation (AR). The table reveals the following trends:

1. A trend toward an increasing proportion of students with learning limitations with decreasing quartile placement.

2. A trend toward a decreasing proportion of students with fathers in the professional (scanty data) and self-employed categories. A trend toward an increasing proportion of students with fathers in the skilled, unskilled and unemployed categories. This trend reveals for the upper quartile placements for skilled occupations. The data for the unskilled and unemployed occupation categories is scanty.

3. A general decrease in proportion of girls with decreasing quartile placement.

4. An increase in proportion of students who walk or ride bike to school with decreasing quartile placement.

5. A decrease in proportion of students who ride bus or car with decreasing placement.

6. A slight decrease in average time to school with decreasing quartile placement. A general trend toward an increase in time to school for those students who walk or ride a bike. There is a slight trend toward an increase in time with decreasing quartile placement for those who ride bus or car.

Table 2

District F, 3rd, 8th, 9th Grade
Lowest Quartile Students vs. Others

	Percent Lower Quartile (N=7)	Percent Total Pop. (N=21)	Middle Quartiles (N=9)	Percent Upper 3/4 (N=14)	Upper Quartile (N=5)
Learning Limitations	28.6(2)	19.1(4)	22.2(2)	14.3(2)	0(0)
Foreign Language spoken at Home	0(0)	4.8(1)	11.1(1)	7.1(1)	0(0)
Overage	14.3(1)	14.3(3)	22.2(2)	14.3(2)	0(0)
Male Parent: missing, step-parent or other	57.1(4)	52.4(11)	44.5(4)	50.0(7)	60.0(3)
Occupation of Male Parent:					
Professional	0(0)	9.5(2)	22.2(2)	14.3(2)	0(0)
Self-Employed	28.6(2)	42.9(9)	44.5(4)	50.0(7)	60.0(3)
Skilled	42.9(3)	33.4(7)	22.2(2)	28.6(4)	40.0(2)
Unskilled	14.3(1)	9.5(2)	11.1(1)	7.1(1)	0(0)
Unemployed	14.3(1)	4.8(1)	0(0)	0(0)	0(0)
Students:					
White	100(7)	95.2(20)	88.9(8)	92.9(13)	100.0(5)
Minority	0(0)	4.8(1)	11.1(1)	7.1(1)	0(0)
Girls	42.9(3)	52.4(11)	44.5(4)	57.1(8)	80.0(4)
Trans. Type:					
Walk or Bike	71.5(5)	52.4(11)	44.5(4)	42.8(6)	40.0(2)
Bus or Car	28.6(2)	38.1(8)	33.3(3)	42.8(6)	60.0(3)
Other	0(0)	9.5(2)	22.2(2)	14.3(2)	0(0)
Trans. Time (min.):					
Overall	7.9(7)	8.1(21)	8.2(9)	8.3(14)	8.8(5)
Walk or Bike	7.0(5)	5.8(11)	4.7(4)	4.8(6)	5.0(2)
Bus or Car	10.0(2)	9.6(8)	7.7(3)	9.5(6)	3.3(3)
Other	0(0)	10.0(2)	10.0(2)	10.0(2)	0(0)
Lunch Type:					
Schoot - Hot	0(0)	0(0)	0(0)	0(0)	0(0)
School - Box	0(0)	0(0)	0(0)	0(0)	0(0)
Other	100.0(7)	95.3(20)	88.9(8)	92.9(13)	100.0(5)
None	0(0)	4.7(1)	0(0)	7.1(1)	0(0)
Stanford Scores (average)					
Paragraph Meaning	23.3(7)	44.2(17)	38.6(5)	58.9(10)	79.2(5)
Arith. Comp.	13.4(7)	42.3(17)	50.0(5)	61.5(10)	73.0(5)

STUDENT PERFORMANCE AND AGE AS A FUNCTION OF RESIDENCE AREA

If students are identified as coming to school by one means or another (walk, ride in car, ride in bus) then a pattern emerges. One would surmise that students who walk live closer to school than students who ride in a family car. Students who ride the bus to school should live furthest out. The average time to school figures show this. Organizing the students with regard to the method of transportation to school yields the results shown in Table 3. The Table reveals the following trends:

1. There is a trend toward <u>increasing</u> overall average performance on the standardized sub-tests recorded with increasing time (and distance) to school. This trend does not hold true for the overage students in each mode of transportation (because of lack of test data) or for students who place in the lowest quartile in one or both sub-tests. There is a trend in this direction for the lower quartile students but it is not complete (scanty data).

2. There is a partial trend toward <u>decrease</u> in proportion of students in the lower quartile with increasing time to school (scanty data).

3. There is a trend toward a <u>decrease</u> in the proportion of overage students with increasing time to school (scanty data).

4. There is no definite trend concerning proportion of ethnics as a function of time to school, the data is too scanty. The one ethnic member lives out of town and rides a bus to school.

Table 3

District F

Selected Characteristics of 3rd, 8th and 9th Grade Students by Time From School

Method to School	Time (min)	Total Prop.*	Overage Prop.*	Lower Q Prop.**	Proportion in Each Residence Area***		Overall Performance						Proportion of Ethnics+
							PA			AR			
					Overage	LQ	All	Overage	LQ	All	Overage	LQ	
Walk	5.8	52.4(11)	66.7(2)	71.5(5)	18.2(2)	45.5(5)	36.8(8)	1.0(1)	17.8(5)	35.1(8)	1.0(1)	12.8(5)	0(0)
Car, Other	8.4	23.8(5)	33.3(1)	14.3(1)	20.0(1)	20.0(1)	39.2(4)	0(0)	10.0(1)	45.0(4)	0(0)	16.0(1)	0(0)
Bus	12.0	23.8(5)	0(0)	14.3(1)	0(0)	20.0(1)	60.4(5)	0(0)	64.0(1)	51.6(5)	0(0)	14.0(1)	100.0(1)

* Percentage of total population.
** Percentage of pupils with test scores reported.
*** Numbers in these two columns are percentages within each group.
\+ Proportion of pupils in each town who speak a foreign language at home.

PA and AR: Average of Stanford Achievement Sub-scores, National Percentiles.
All: All students in particular town (or subdivision).
LQ: Students placing in lower quartile of either subtest.

USING STUDENT DATA FROM COMPUTER PRINTOUTS

THREE EXAMPLES:

1. Characteristics of Overage Students
2. Characteristics of Students in Lowest Quartile
3. Calculation of IQ's from Stanford Achievement Test Subscores

May 25, 1970

Theodore G. Brough

WESTERN NEVADA REGIONAL EDUCATION CENTER

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CONTENTS

I N T R O D U C T I O N

This pamphlet introduces the Partial Student Profile, a computer-based report of data on each student stored in the Western Nevada Regional Education Center's Student Information System. By its very nature (a computer printout--one line per student) the Profile is compact and much of the information is coded. Printouts of the complete coded information as it now exists for each student in the system are even more compact. Samples of this data (called Demonstration Data for discussion purposes) are included in an appendix to this report. With a little experience, the codes can be learned and the information extracted for school analysis purposes.

USING THE PARTIAL STUDENT PROFILE

The Student Profile lists most of the data submitted for each student. Data not printed on the Student Profile is:

Street or P.O. Box County of Residence ZIP Code Date of Filling Out	Entry Data
Father on active Military Duty Father's Name Mother's Name	Home Data
Distance from School	Personal Data

The Student Profile does include the first initial of the Male and Female Parent's last name in order to indicate whether a name is listed. This can also be used as an indication of the name differing from the student's last name. See the Appendix for examples of the complete input data.

Two Stanford Achievement Scores have been listed (when available). These are the percentile standings in Advanced Paragraph Meaning and Arithmetic Computations. These two were chosen because the Paragraph Meaning subscore has the highest correlation with the Otis IQ score and the Arithmetic Computation subscore is the most sensitive of the three mathematics subscores. The rest of the Stanford Achievement Subscores are stored in the Student Information System, both as interpreted scores (Percentile Standing, Grade Equivalence and Stanine) and as Raw Scores. Examples of how these are stored are shown in the Appendix (Demonstration Data). A sample page from the Partial Student Profile, with explanation, is printed on the following pages. Some of the cities have not been decoded--the codes are listed in the Student Information System Reference Guide.

PARTIAL STUDENT PROFILE AS REPORTED TO WN-REC 5/09/70 PAGE 1

	ETH GRP	SEX	CITY	B. DATE	SCHOOL	GR	SEC	L	MALE PARNT	FEM PARNT	T	TME MIN	LEARN LIN	LCK TYP	STAN% PA	AR
IA	L WHITE	F		11/18/55		1	01	1	A 1 3	A 1 3	1	20	2	4	34	01
IY	A WHITE	M		12/23/53		1	01	1	A 1 3	A 1 3	1	10	2	4		
ICL	A WHITE	F		01/06/55		1	05	1	A 1 3	A 1 5	1	10	2	4	01	04
IALD	M WHITE	M		08/17/55		1	08	1	A 1 2	A 1 3	1	05	1 1	2 12	32	10
IEMARY	SPAN-AM	F		12/13/53		1	07	2	A 1 2	A 1 5	4	25	1 11	2 12		
IFFERYS	WHITE	M		06/11/55		1	07	1	A 1 3	A 1 4	5	02	1 1	2 12	82	62
IALD	R WHITE	M		03/21/55		1	10	1	A 1 3	A 1 4	4	30	1 1	2 2	84	46
ILENE	A WHITE	F		02/15/55		1	05	1	A 1 3	A 1 5	4	05	2	4	36	20
IYRE	L WHITE	F		03/10/55		1	01	1	A 1 3	A 1 5	4	30	1 1	2 12	50	18
IISON	M WHITE	F		04/05/55		1	10	1	A 1 1	A 1 5	1	15	1 1	3 4	70	72
IRIA	L INDIAN	F		09/13/54		1	07	2	W 2 4	W 1 5	4	30	2	11	52	26
IDALL	D WHITE	M		08/27/54		1	10	1	B 1 3	B 1 1	1	17	2	2		
IELA	SPAN-AM	F		05/22/55		1	21	2	B 1 3	B 1 3	2	15	1 1	2 4	48	26
IKEY	S INDIAN	M		01/06/55		1	07	1		B 1 3	2	20	1	1 2 11	08	11
IDY	M WHITE	F		02/21/55		1	04	1	B 1 3	B 1 4	1	10	2	4	64	94
IRICK	J WHITE	M		10/30/54		1	07	2	B 1 3	B 1 4	4	45	2	12	52	54
IGLAS	N WHITE	M		02/26/54		1	01	1	B 1 1	B 2 3	1	15	1	1 2 12		
IE	W WHITE	M		07/29/55		1	01	1	B 1 3	B 1 4	4	10	2	12	12	04
IRA	K WHITE	F		10/27/55		1	01	1	B 1 2	B 1 4	1	08	2	12	54	64
I	J WHITE	M		08/04/54		1	05	1	B 1 2	B 1	4	40	1 1	2		
ICY	E WHITE	F		02/24/55		1	08	1	B 1 3	B 1 2	1	05	2	4	94	90
ILEY	A WHITE	M		08/31/55		1	01	1	B 1 3	B 1 1	2	07	2	12	66	64
IRY	L WHITE	F		12/20/55		1	21	1	R 2 3	R 1 5	5	05	2	4	86	90
IDOLPHT	INDIAN	M		01/11/54		1	01	2	B 1 2	B 1 3	2	60	1 1	2 12	04	14
ISHA	J WHITE	F		10/13/55		1	07	2	C 1 2	C 1 2	4	30	2	12	98	98
IK	I WHITE	M		11/05/55		1	10	1	C 1 3	C 1 3	1	05	1 1	2 2	07	38
INA	L WHITE	F		12/20/55		1	04	1	C 1 3	C 1 3	4	10	1 1	2 4	24	18
IN	E WHITE	M		02/03/55		1	01	1	C 1 2	C 1 5	2	15	2	4	96	5
IHERINN	WHITE	F		04/12/55		1	01	1	L 3 3	C 1 5	4	30	2	4	36	1

The headings and codings are abbreviated as follows:

GR = Grade Level: 1 = 9th grade, 2 = 10th, 3 = 11th, 4 = 12th 03 = 3rd grade, 06 = 6th grade, 08 = 8th grade, etc.

SEC = Section (classroom group): 1 to 9 in grade school, 01 to 99 in Jr. High and High School

L = Language Spoken at Home: 1 = English Only; 2 = English and Other

Male Parnt = Male Parent Characteristics:
Fem Parnt = Female Parent Characteristics:

1st column: Letter is first letter of Parent's Name

2nd column = Relationship: 1 = Natural Parent 3 = Other (Foster parent, etc)
2 = Step-parent

3rd column = Occupation: 1 = Professional 4 = Unskilled Labor
2 = Self-Employed 5 = Unemployed
3 = Skilled Labor

T = School Transportation Type: 1 = Walk or Ride Bike 4 = School Bus
2 = Family Car 5 = Other
3 = Own Car

TME MIN = Time to get to school, minutes

LEARN LIM = Known Learning Limitations:

1st column = Is there a learning limitation: 1 = YES 2 = NO
2nd column = Hearing: 1 = YES, blank = NO (This column is usually blank)
3rd column = Vision: 1 = YES, blank = NO
4th column = Locomotive: 1 = YES, blank = NO
5th column = OTHER: 1 = YES, blank = NO
6th column = How Known: 1 = Parent Report 3 = School Observation
2 = Professional Exam 4 = Student Report

LCH TYP = Noon Lunch - Most Often:

1st column = Type of Lunch: 1 = School Hot Lunch 3 = None
2 = School Box Lunch 4 = Other

2nd column = Who pays for Hot Lunch: 1 = School 2 = Family/Self

STAN % = Stanford achievement sub-test scores(National percentile score):
PA = Paragraph Meaning (advanced), 1st sub-test score
AR = Arithmetic Computation, 3rd subtest score in advanced Battery.

Three examples of how this data can be used are discussed below. They are:

1. Characteristics of Overage Students
2. Characteristics of Students in Lowest Quartile of the Two Stanford Achievement Test Subscores
3. Calculation of IQ's From Stanford Achievement Test Subscores

The data for these examples are taken from the printout of data for ninth grade students in one county.

1. Characteristics of Overage Students

Students in the ninth grade will be considered overage if their birthdates fall before December 1, 1954. That is to say, their age cohort in the ninth grade should have entered school together if their birthdays fall between December 1, 1954 and November 30, 1955. On this basis, the overage students can be easily identified. Of the 179 ninth grade students in the county under consideration, 39 are overage. Of these, 22 are overage up to six months (birthdays between June 1 and November 30, 1954). Selected data considered of importance for these overage students is included in the following tables (Tables 1 and 2). (This data is from the 7-page printout for the county--only the first page is included with this discussion as an example). The investigator in this study of overage students considered only male parent relationship and male parent occupation, not female parent relationship and occupation. In cases where a male parent was missing,

Table 1

Ninth Grade Students Overage up to 6 months

(Birthdate June 1, 1954 to November 30, 1954) (N = 22)

ETH GRP	SEX	L (LANG)	MALE PARENT REL*	MALE PARENT OCC*	LEARN LIM	STAN PA	% AR
I	F	2	2	4	2	52	26
W	M	1	1	3	2	--	--
W	M	2	1	3	2	52	54
W	M	1	1	2	1	--	--
W	M	1	1	3	2	--	--
W	M	1	1	5	2	92	64
W	F	1	1	3	1	08	01
W	M	1	1	2	2	06	46
S	F	2	1	3	2	18	56
W	F	1	1	3	2	--	--
I	M	1	1	3	2	--	--
W	M	1	2	3	1	--	--
W	M	1	2	2	2	--	--
W	M	1	1	3	1	50	34
W	F	1	(1)	(5)	2	16	18
W	F	1	1	2	1	82	37
I	F	1	2	2	1	48	84
W	F	1	1	3	2	48	64
W	M	1	1	2	2	--	--
W	F	1	1	2	2	05	01
W	F	1	1	3	2	08	04
I	M	1	1	3	1	12	58

* If Male Parent is missing, Female Parent is substituted (shown in parentheses).

Table 2

Ninth Grade Students Overage 6 months and above

(Birthdate before June 1, 1954) (N = 17)

ETH GRP	SEX	L (LANG)	MALE PARENT REL*	MALE PARENT OCC*	LEARN LIM	STAN PA	% AR
S	F	1	1	3	1	48	26
I	M	2	1	2	1	04	14
W	F	1	1	3	2	18	08
W	F	1	1	3	2	12	01
W	M	1	1	2	1	48	06
S	F	2	1	3	2	62	10
W	M	1	1	3	1	14	16
I	F	2	1	3	2	18	24
W	F	1	1	3	1	30	12
I	F	1	3	4	1	32	42
W	M	1	1	5	2	30	02
W	F	1	1	(4)	2	14	14
W	F	1	1	3	2	--	--
W	M	2	1	2	1	--	--
W	M	1	(1)	(5)	2	--	--
W	M	1	1	2	2	--	--
W	F	1	3	3	2	--	--

* If Male Parent is missing, Female Parent is substituted (shown in parentheses).

however, he included the corresponding relationship and occupation of the female parent in its place. Some of the data is coded. An explanation of the codes used appears in the previous pages, as well as in the Appendix to this report.

A summary of the characteristics of the average population indicated is done by counting the number of entries for a given code under the data categories considered and converting each to a percentage. The results for the two groups of overage students are indicated in Table 3. These results can be compared with those for the group of 179 students overall and for the portion of the group (140) that are not overage. These results are also indicated in the table.

Note the following in Table 3:

1. Overage students perform well below the overall average (local or national) or the average of the non-overage. The more overage the student group, the lower the average performance.

2. The overall performance on the Arithmetic Computation Subtest is below the national norm. The group overage up to six months performs a little below the local norms, the group overage six months and above performs well below the mean, local and national norms.

3. The percentage of students with learning limitations is higher among the 6-months-and-over overage group than is the overall percentage. The percentage of students with learning limitations in the non-overage group is somewhat less than the overall percentage.

Table 3
Overage vs. Non-overage

	Percent* Overage up to 6 mos. (N=22)	Percent* Overage over 6 mos. (N=17)	Percent* Total Population (N=179)	Percent* non-overage Population (N=140)
Learning Limitations (Yes only)	33.3(7)	58.8(10)	38.2(68)	36.7(51)
Foreign Language Spoken at home (Yes only)	13.6(3)	23.5(4)	9.0(16)	6.5(9)
Male Parent: missing, Step parent, or other	22.7(5)	17.6(3)	16.7(30)	15.7(22)
Occupation of Male Parent:				
Professional	0	0	11.2(20)	14.3(20)
Self-Employed	31.8(7)	23.5(4)	22.9(41)	21.4(30)
Skilled	54.5(12)	53.0(9)	56.4(101)	57.2(80)
Unskilled	4.5(1)	11.7(2)	3.9(7)	2.9(4)
Unemployed	9.1(2)	29.4(5)	5.6(10)	4.3(6)
Students:				
Spanish American	4.5(1)	11.8(2)	2.2(4)	0.7(1)
Indian	18.2(4)	17.6(3)	11.2(20)	9.3(13)
Girl Students	45.4(10)	58.8(10)	48.6(87)	47.8(67)
Average Score Stanford Sub-test:				
Adv. Para Mean	35.5(14)	27.5(12)	53.2(148)	57.8(122)
Arithmetic Computation	39.1(14)	15.4(12)	42.9(148)	47.3(122)

* Numbers in parentheses are the number of students in each category

4. Among students, the frequency of foreign language spoken in the home increases as the degree of student overage increases (or vice versa). The increase is by a factor of one-half above the average for the up-to-6-months overage group and by one and one-half (1½) for the 6-months-and-over overage group.

5. There is a small fluctuation in the proportion of missing, step-, or other type of male parent among the various groups, but the changes are small.

6. No members of the overage groups come from families with male parent classified as professional.

7. The proportion of students with unemployed fathers increases with degree of overage (five times the average for the oldest group).

8. Three out of the four Spanish-American students in the population sampled are in the overage group, while seven out of the 20 Indians in the population sampled are in the overage group. There is a general tendency (not complete, however) for the proportion of Spanish-Americans and Indians to increase as age of group increases.

9. The number of girls exceeds the number of boys in only the oldest age group. There is a general trend (not complete) for the proportion of girls to increase with age of the group.

Of course, the above example uses only some of the data available either on the Student Profile or in the stored data. For example, no consideration was taken of school bus data, the lunch

pattern, or school identity within the county. Other standardized test data is available and may be worth considering. A detailed analysis of the students' health pattern, school performance, absentee record, and extra-curricular activity record might be useful. Most of this data has not yet been gathered and stored in the Student Information System. It is here that the individual counselor or teacher can use his ingenuity in looking at the available data.

2. Characteristics of Students in Lowest Quartile

An examination of the Partial Student Profile reveals that some students are doing extremely poorly in either or both Stanford Achievement Subtests (Advanced Paragraph Meaning and Arithmetic Computation). A standard practice is to isolate for further study the students who place in the lowest quartile.

Proceeding through the Partial Student Profile for this particular county and recording the students' identity numbers and certain selected data on each student results in the data shown in Table 4. The type of data recorded is the same as that in the previous example, with the exception that the Type of School Lunch (coded) for the student was also considered of importance. In addition, the estimated Otis IQ for these students was computed and listed since a frequent question would be, "Are these students achieving within the range of their abilities?" A technique for computing the estimated Otis IQ from Stanford Achievement Test Subscores will be described in a later section.

Table 4 (1 of 3)

Ninth Grade Students with Stanford Achievement Scores in lowest quartile on either sub-score

(N=53)

STU. NO.	ETH GRP	SEX	L (LANG)	MALE PARENT REL*	MALE PARENT OCC*	LEARN LIM	LUNCH TYPE	STAN % PA	STAN % AR	EST OTIS IQ
2001	W	F	1	1	3	2	4	34	01	94
2301	W	F	1	1	3	2	4	01	04	74
2351	W	M	1	1	2	1	12	32	10	86
2302	W	F	1	1	3	2	4	36	20	91
2003	W	F	1	1	3	1	12	50	18	101
2104	I	M	1	(1)	(3)	1	11	08	11	72
2005	W	M	1	1	3	2	12	12	04	75
2008	I	M++	2	1	2	1	12	04	14	69
2404	W	M	1	1	3	1	2	07	38	82
2252	W	F	1	1	3	1	4	24	18	92
2010	W	F	1	3	3	2	4	36	12	97
2012	W	M	1	1	3	1	4	40	18	88
2453	W	F	1	1	2	2	3	34	10	89
2305	W	F++	1	1	3	2	2	18	08	75
2017	W	F+	1	1	3	1	12	08	01	68
2359	W	M+	1	1	2	2	4	06	46	70
2018	I	M	1	1	3	2	4	11	06	75
2019	S	F+	2	1	3	2	4	18	56	80

* If Male Parent is missing, Female Parent is substituted (shown in parentheses).
**Estimated from Stanford Subscores, see discussion for technique.
+ Overage up to 6 months
++Overage 6 months and over.
○ Underage

Table 4 (Cont.) (2 of 3)

Students in Lowest Quartile

STU. NO.	ETH GRP	SEX	L (LANG)	MALE PARENT REL*	MALE PARENT OCC*	LEARN LIM	LUNCH TYPE	STAN % PA	STAN % AR	EST OTIS IQ
2110	W	F	2	1	1	2	4	10	58	77
2024	I	F	1	1	3	2	12	54	03	91
2457	W	F	1	2	3	1	2	42	06	103
2458	W	F	1	1	3	1	4	18	26	80
2027	W	F	1	1	2	2	1	26	04	95
2028	W	F	1	1	2	2	4	20	26	87
2307	W	F++	1	1	3	2	2	12	01	67
2411	W	M	1	2	2	2	12	50	10	96
2030	W	M	1	1	4	2	12	54	23	99
2412	W	(F)	1	1	3	2	4	24	26	101
2364	W	M	1	3	1	2	4	50	18	97
2414	W	M+	1	1	2	2	4	26	18	84
2309	I	M	1	(3)	(5)	1	11	34	10	85
2113	W	F	1	1	2	2	4	58	11	98
2225	W	M++	1	1	2	1	4	48	06	80
2462	W	F	1	1	3	1	4	06	26	84
2062	W	F+	1	(1)	(5)	2	12	16	18	83
2211	S	F++	2	1	3	2	4	62	10	88

* If Male Parent is missing, Female Parent is substituted (shown in parentheses).
**Estimated from Stanford Subscores, see discussion for technique.
+ Overage up to 6 months
++Overage 6 months and over
( )Underage

Table 4 (Cont.)

Students in Lowest Quartile

STU. NO.	ETH GRP	SEX	L (LANG)	MALE PARENT REL*	MALE PARENT OCC*	LEARN LIM	LUNCH TYPE	STAN % PA	STAN % AR	EST OTIS IQ
2419	W	F	1	1	3	2	4	64	23	99
2064	W	m	1	1	3	2	12	26	06	91
2065	I	F	2	2	3	1	12	40	20	90
2066	I	(M)	1	1	3	2	12	76	23	100
2310	W	M++	1	1	3	1	1	14	16	71
2226	I	F++	2	1	3	2	4	18	24	76
2311	W	F++	1	1	3	1	3	30	12	83
2312	W	F+	1	1	2	2	4	05	01	63
2313	W	F+	1	1	3	2	4	08	04	82
2266	W	M	1	1	3	2	4	69	02	105
2073	W	M++	1	1	5	2	4	30	02	71
2267	I	M+	1	1	3	1	12	58	18	91
2373	W	F	1	1	3	1	4	40	14	95
2269	W	M	1	1	1	2	12	34	10	89
2075	W	F	1	2	2	1	4	10	26	86
2212	W	F++	1	1	(4)	2	4	14	14	70
2076	W	F	1	1	3	2	12	40	01	99

* If Male Parent is missing, Female Parent is substituted (shown in parentheses).
**Estimated from Stanford Subscores, see discussion for technique.
+ Overage up to 6 months
++Overage 6 months and over
(M) Underage

Counting the number of entries for various codes in various categories for these students and converting the tallies to percentages, we have the data listed in Table 5. In addition, the average performance for the students overall and in various categories has been computed.

Note the following in Table 5:

1. The performance of students who rank in the lower quartile in one of the Stanford Achievement Subtests is generally also low (but not necessarily lower quartile) in the other subtest. The students place lowest in the Arithmetic Computation Subtest.

2. The low average performance of the lower quartile students is reflected in the average of their Otis IQ's.

3. The frequency of learning limitations reported varies only slightly from group to group, there being a slight tendency toward fewer learning limitations the lower the placement in the achievement tests.

4. There is a strong trend toward increasing average age of students with lower average achievement.

5. There is a trend of decreasing average placement with increasing proportion of Foreign Language Spoken in the Home.

6. There is a slight decrease in proportion of missing, step-, or foster parents with decreasing performance on the Stanford Achievement Subtests.

Table 5

Lower Quartile Group vs. Others

	Percent Lower Quartile Group (N=53)	Percent Overall Group (N=179)	Percent Non-lower Quartile Group (N=126)
Learning Limitations (Yes only)	35.8(19)	38.2(68)	38.9(49)
Overage	34.0(18)	21.8(39)	16.7(21)
Six months or more	18.9(10)	9.5(17)	5.6(7)
Foreign Language			
Spoken at home (Yes only)	11.3(6)	9.0(16)	7.9(10)
Male Parent: missing, Step parent, or other	15.1(8)	16.7(30)	17.5(22)
Occupation of Male Parent:			
Professional	5.7(3)	11.2(20)	13.5(17)
Self-Employed	22.6(12)	22.9(41)	23.0(29)
Skilled	62.3(33)	56.4(101)	54.0(68)
Unskilled	3.8(2)	3.9(7)	4.0(5)
Unemployed	5.7(3)	5.6(10)	5.6(7)
Students:			
Spanish-American	3.8(2)	2.2(4)	1.6(2)
Indian	17.0(9)	11.2(20)	8.7(11)
Girl Students	60.4(32)	48.6(87)	43.7(55)
Average Score Stanford Sub-test:			
Adv. Para Mean	29.5(53)	53.2(148)	-------*
Arithmetic Computation	15.3(53)	42.9(148)	-------*
Average Otis IQ Score	85.5(53)	98.3(144)	106.3(91)
Lunch Type			
School-Hot	35.8(19)	35.4(63)	35.2(44)
School-Box	7.5(4)	18.0(32)	22.4(28)
None	3.8(2)	2.3(4)	1.6(2)
Other	52.9(28)	44.4(79)	40.7(51)

*Not Computed

7. The proportion of students with male parents in the professions decreases with decreasing performance. The proportion of students with male parents in the skilled occupations increases with decreasing performance. The proportion of students with male parents in the other categories of occupations remains virtually constant, there being a small decrease with decreasing performance for self-employed and unskilled categories and a slight increase for the unemployed category.

8. There is a strong trend of increasing proportions of Spanish-American, Indian, and Girl students with decreasing performance. Half of the total population of Spanish-American students and nearly half of the total population of Indian Students have performances (on one or both of the Stanford Achievement Subtests) in the lowest quartile. Over one-third of the Girl students also place in the lower quartile.

9. There is a decreasing proportion of students with lunch in the School-Box Lunch category with decreasing achievement. There is a definite increasing trend in proportion of students in None or Other Lunch category with decreasing performance. There is a slight increase in the proportion of students in the Hot Lunch category with decreasing performance.

10. There are four children in the Hot Lunch supported program. Fifty percent of the students who have hot lunch paid for by the schools are in the lower quartile performance group. Fifty percent of the

students reporting no lunch are in the lower quartile performance group.

The interested reader can isolate students in more than one category while in the lowest quartile and compile an abridged version of Table 4. From this a tally of the characteristics of the students in that table can be made. Of course, other data, such as specific learning limitation, absentee rate, grades in various subjects, extra-curricular activities, time or distance to school, etc., can be utilized. Some of this information (learning limitation, transportation data) is stored in the Student Information System, and some (semester marks) is being collected. The other data is available only locally. Again, we appeal to the imagination of the administrator, counselor, and teacher in the use of the stored data, as well as other types of information available.

3. Calculation of IQ's From Stanford Achievement Test Subscores

High correlations exist between the Otis Quck Scoring Mental Ability Test and the two subtests of the Stanford Achievement Battery: Paragraph Meaning and Language. The correlations for these two subtests and the Otis range between .70 and .77 for grades 4 to 9 in the Intermediate I, Intermediate II, and Advanced Batteries. For the Primary II Battery the highest correlations between the Otis and the Stanford Subtest exist for Paragraph Meaning and Arithmetic Concepts (correlations range between .53 and .65). For the Primary I Battery, the highest correlations with the Otis are for the Vocabulary and Arithmetic Subtests (.49 and .57, respectively).*

Recognizing the high correlations between the Otis and the two subscores mentioned, one can compute an approximate Otis IQ utilizing these two subscores. The method is given below.

IQ is by definition:** $\frac{\text{Mental Age}}{\text{Chronological Age}}$

If we use as Mental Age the student's average grade equivalent for the two Stanford Achievement Subtests with the highest correlation with

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* Kelley, T. L., Madden, R., Gardner, E. F., and Rudman, H. C., Technical Supplement, Stanford Achievement Test (New York: Harcourt, Brace & World, 1966), p. 24.

** Berelson, B., and Steiner, G. A., Human Behavior (New York: Harcourt, Brace & World, 1964), pp. 209-210.

the Otis, plus the average age at admission to school (less one year), we could compute an IQ score from the student's age and the Stanford Achievement subscores. The relationship for such a calculation becomes:

$$IQ = \frac{\frac{\text{GE Para} + \text{GE Lang}}{2} + 5.3}{\text{Chronological Age}} \times 100$$

Where: GE Para = Grade Equivalent Placement on Stanford Achievement Subtest Paragraph Meaning

GE Lang = Grade Equivalent Placement on Stanford Achievement Subtest Language

5.3 = Average Age of cohort at beginning of first grade less one year. (Based on admission age of 6 by December 1 of entry year. The average age of the group would be 6.3 years)

Computations of the IQ for the 53 students placing in the lower quartile (Table 4) are shown in Table 6. The GE scores shown in the table are repeated from the printout of the Interpreted Stanford Achievement Scores for students in the county (Card S). An example is shown on the next page (Table 7). The GE scores for these subscores are in the first three columns of the twelve column block of data shown, and the first three columns of the succeeding 36-column block of data. The first 14 digits are the Student Identification Number. An appendix following this discussion describes the raw data.

How accurate is this method of estimating IQ's? A comparison of the Estimated IQ's as just computed can be made with other estimates of IQ's for a given placement score in these Stanford Achievement Subtexts. A Table of Deviations From Stanford Grade Scores for

Table 6

Computation of Estimated OTIS IQ from Stanford Achievement Scores

STU. NO.	ADV. Para Mean (GE Score)	LANG-UAGE (GE Score)	Birth Date	Age at Test Time*	$\frac{\text{PARA + LANG}}{2}$ (GE)	M.A.**	EST OTIS IQ +
2001	077	072	11-18-55	14.6	7.45	12.75	94
2301	044	064	01-06-55	14.4	5.40	10.70	74
2351	076	057	08-17-55	13.9	6.65	11.95	86
2302	078	077	02-15-55	14.3	7.75	13.05	91
2003	089	096	03-10-55	14.2	9.25	14.55	101
2104	052	048	01-06-55	14.4	5.00	10.30	72
2005	060	033	07-29-55	14.0	4.65	9.95	75
2008	048	058	01-11-54	15.4	5.30	10.60	69
2404	052	065	11-05-55	13.6	5.85	11.15	82
2252	070	071	12-20-55	13.5	7.05	12.35	92
2010	078	088	04-12-55	14.1	8.30	13.80	97
2012	080	065	03-14-55	14.2	7.25	12.55	88
2453	077	073	01-03-55	14.4	7.50	12.80	89
2305	064	061	01-02-54	15.4	6.25	11.55	75
2017	054	061	09-20-54	14.8	5.75	11.05	68
2359	050	049	10-27-54	14.7	4.95	10.25	70
2018	058	042	10-14-55	13.7	5.00	10.30	75
2019	065	063	10-18-54	14.7	6.40	11.70	80

* April 30, 1969 ** M.A. = MENTAL AGE = $\frac{\text{PARA + LANG}}{2} + 5.3$

+ $\text{IQ} = \frac{\frac{GE_{PARA} + GE_{LANG}}{2} + 5.3}{\text{AGE}} \times 100,$

where 5.3 = (Average age of entering 1st grade) - 1

Table 6 (Cont.)

Computation of Estimated OTIS IQ from Stanford Achievement Scores

STU. NO.	ADV. Para Mean (GE Score)	LANG-UAGE (GE Score)	Birth Date	Age at Test Time*	$\frac{PARA + LANG}{2}$ (GE)	M.A.**	EST OTIS IQ +
2110	044	063	08-15-55	13.9	5.35	10.65	77
2024	092	053	04-06-55	14.1	7.25	12.55	91
2457	082	090	12-01-55	13.5	8.60	13.90	103
2458	065	062	12-10-54	14.5	6.35	11.65	80
2027	072	079	12-02-55	13.5	7.55	12.85	95
2028	066	068	09-30-55	13.8	6.70	12.00	87
2307	058	037	05-07-54	15.0	4.75	10.05	67
2411	089	076	03-30-55	14.2	8.25	13.55	96
2030	092	068	12-12-55	13.5	8.00	13.30	99
2412	089	076	01-06-56	13.4	8.25	13.55	101
2364	089	077	05-05-55	14.0	8.30	13.60	97
2414	072	066	11-13-54	14.6	6.90	12.30	84
2309	076	060	03-22-55	14.2	6.80	12.10	85
2113	076	101	01-21-55	14.4	8.85	14.15	98
2225	086	061	09-05-53	15.8	7.35	12.65	80
2462	052	079	03-01-55	14.2	6.55	11.85	84
2062	064	074	10-30-54	14.7	6.90	12.20	83
2211	100	061	03-31-54	15.2	8.05	13.35	88

* April 30, 1969 ** M.A. = MENTAL AGE = $\frac{PARA + LANG}{2} + 5.3$

$$+IQ = \frac{\frac{GE_{PARA} + GE_{LANG}}{2} + 5.3}{AGE} \times 100,$$

where 5.3 = (Average age of entering 1st grade) - 1

Table 6 (Cont.)

Computation of Estimated OTIS IQ from Stanford Achievement Scores

STU. NO.	ADV. Para Mean (GE Score)	LANG-UAGE (GE Score)	Birth Date	Age at Test Time*	$\frac{PARA + LANG}{2}$ (GE)	M.A.**	EST OTIS IQ +
2419	102	073	03-18-55	14.2	8.75	14.05	99
2064	072	077	06-10-55	14.0	7.45	12.75	91
2065	080	061	10-20-55	13.7	7.05	12.35	90
2066	108	069	03-14-55	14.2	8.85	14.15	100
2310	060	049	03-16-54	15.2	5.45	10.75	71
2226	064	064	01-16-54	15.4	6.40	11.70	76
2311	074	074	01-09-54	15.4	7.40	12.70	83
2312	048	033	06-08-54	14.9	4.10	9.40	63
2313	054	080	11-13-54	14.6	6.70	12.00	82
2266	102	076	12-04-55	13.5	8.90	14.20	105
2073	074	035	04-06-54	15.1	5.45	10.75	71
2267	096	072	07-05-54	15.0	8.40	13.70	91
2373	080	076	09-29-55	13.8	7.80	13.10	95
2269	077	065	05-11-55	14.0	7.10	12.40	89
2075	056	086	12-16-54	14.5	7.10	12.40	86
2212	060	049	02-14-54	15.3	5.45	10.75	70
2076	080	090	08-15-55	13.9	8.50	13.80	99

* April 30, 1969 ** M.A. = MENTAL AGE = $\frac{PARA + LANG}{2} + 5.3$

$$+_{IQ} = \frac{\frac{GE_{PARA} + GE_{LANG}}{2} + 5.3}{} \times 100,$$

where 5.3 = (Average age of entering 1st grade) - 1

Table 7
Stanford Achievement Scores - Advanced Battery -
6-Digits/Subscore

601101342001	077344104666	0722840360110661630671630520520773 64	S
601101342002			S
601101342003	089505122898	0965650661830722340742640500421087 77	S
601101342004			S
601101342005	060123062143	0330110510420661630823840530620520 62	S
601101342006	092545111726	1067461006461077261087060804050854 65	S
601101342007	104666072284	0905251006460965851168671117461219 69	S
601101342008	048042078364	0581330641430692030400110601130440 32	S
601101342009	123969124928	1219690895050854451259691188871229 69	S
601101342010	078364057102	0885050621230783240823840773440874 85	S
601101342011	096585096585	1016460844250925450915450895051168 98	S
601101342012	080405090525	0652230661830996261046461046461026 86	S
601101342013	092545086465	0733040966061148071198981086861026 86	S
601101342014	080405084445	0794050803440965850742640965650925 45	S
601101342015			S
601101342016			S
601101342017	054082088485	0611530360110692030915450520520631 83	S
601101342018	058113062163	0420420560620601020742640460210601 43	S
601101342019	065183074304	0631830925650965850915450591020540 82	S
601101342020			S
601101342021	076324111726	0794051006461117661219280743040460 42	S
601101342022			
601101342023	113847108706	0692640895050996261046460895051249 89	S
601101342024	092545096585	0530820480320570620722230804050986 06	S
601101342025			S
601101342026	121948106686	1026660925650803641198980884450925 45	S
601101342027	072264099606	0794050480420631230530620743040672 34	S
601101342028	066203108706	0682440762640783440985850641630601 43	S
601101342029	116898120887	1067461198871249481299991219281108 07	S
601101342030	092545066203	0682440722340783240915450864850874 85	S
601101342031			S
601101342032			S
601101342033			S
601101342034			S
601102342051			S
601102342052			S
601102342053	118928124928	1077660864650996261138071209081219 69	S
601102342054	086485096585	0642030966061208981138070864851047 06	S
601102342055	124989126969	1057261087661269691138071209081269 99	S
601102342056	082425104666	1067461006461188671087061026260874 85	S
601102342057			S

students with a given Otis IQ is given in the publication: Directions For Administering Stanford Achievement Test, Advanced Battery,* p. 23. That table is intended for use in predicting expected scores on the Stanford Achievement Subtests for students with given IQ's. If we reverse the process, and find a predicted IQ on the basis of observed deviations from the expected Grade Equivalent Score at the time the test was given (8.8), then we can get another estimate of Otis IQ from the SAT subscores. This has been done with the results shown in Table 8. A fairly close agreement between the two methods is shown in the table. Only a few cases show any disagreement and the disagreements are minor. No estimate of reliability of the estimated Otis IQ using this method has been made.

It is suggested that this same technique may be used with the SAT subscores for Primary I and Primary II Batteries. Since the correlations between the appropriate subscores are lower, the reliability would be lower.

A computer program to compute estimated Otis IQ's based on Stanford Achievement Test Subscores is being devised. It will involve some programming time and probably a different input format (birthdate and subscores on the same card) but it is possible to do it. The resultant computed IQ can be stored in the Student Information System--probably on the Raw Score input card (Card R). The reader's patience is implored.

*Published by Harcourt, Brace & World, New York, 1964.

Table 8

Expected Range of IQ's On Otis Quick-Scoring Mental Ability Test

For Observed Deviation of Stanford GE Scores From Norms for Group (088)

STU. NO.	ADV.PARA. (GE Score)	LANG-UAGE (GE Score)	Deviations from Mean GE Score, 088 PARA. (GE Score)	LANG. (GE Score)	EXPECTED IQ	CALC. IQ
2001	077	072	-011	-016	91-98	94
2301	044	064	-044	-024	81 and below	74
2351	076	057	-012	-031	82-90	86
2302	078	077	-010	-011	91-98	91
2003	089	096	+001	+008	106-111	101
2104	052	048	-056	-040	81 and below	72
2005	060	033	-028	-055	81 and below	75
2008	048	058	-040	-030	81 and below	69
2404	052	065	-036	-023	82-90	82
2252	070	071	-018	-017	91-98	92
2010	078	088	-010	0	99-105	97
2012	080	065	-008	-023	91-98	88
2453	077	073	-011	-015	91-98	89
2305	064	061	-024	-027	82-90	75
2017	054	061	-034	-027	81 and below	68
2359	050	049	-038	-039	81 and below	70
2018	058	042	-030	-046	81 and below	75
2019	065	063	-023	-025	82-90	80

APPENDIX A

DEMONSTRATION OF PRINTOUT OF RAW INPUT DATA

The following pages are demonstration printouts of the input data. The format for each input card is exactly as shown. Explanatory headings and footnotes have been added to explain the input. Further information on these inputs and the questionnaires used to get the data are given in the Student Information System Reference Guide. This appears as a pamphlet (green or yellow cover) or as part of the Western Nevada Regional Education Center's Continuation Application 1970-71, Supplement. This Reference Guide is being revised for reissue at an early date.

As shown on the accompanying printouts, the various types of data appear on various input cards (indicated by a letter on the far right of each line).

Entry Data = Card A
Home Data = Card B
Personal Data = Card C
Stanford Achievement Test Scores = Card S
Stanford Achievement Raw Scores = Card R

Headings appear on each of the demonstration data outputs except for Card R. The Raw Scores occupy three digits for each subtest and appear in the same relative position as the corresponding test scores on Card S.

DEMONSTRATION# ENTRY DATA

CO	GR	STU NO	EXY	B.DATE	NAME	ADDRESS	CITY	ZIP	DATE	SUR	
14201051362001			WM	14090158	DUNN MARK	UPO 778		22419	1169		A
14201051362002			WM	14080970	MADDEN BRUCE	KP U BOX 893		22419	1169		A
14201101382004			WM	14 3 1754	PONCIA JACK	222 12TH ST		22419	11691		A
14601101382001			WF	14 5 1353	GAMBOA JOY	140 J		22419	11691		A
14601101382002			WM	14 6 1954	HYDEN JR VICTOR	MPO 856		22419	1169		A
14601101382003			SF	14 4 2754	MONTEZ LOLA	MBOX 962		22419	11691		A
14601101382005			WF	14 3 2954	STICH MARGARET	BOX 893		22419	1169		A
14601102382051			WF	14 3 2854	AROBIO ANGIE	PPOBOX683		22419	1169		A
14601102382052			WM	14 3 0454	BROUGH THEODOREG	BOX 958		22419	1169		A
14601102382053			WM	14 4 1254	DUNN DALE	E475 15TH ST		22419	1169		A
14601102382054			SM	14 4 1954	GARCIA JOHN	JBOX 254		22419	11691		A
14601201386001			WF	14 1 2654	MADDEN DONNA	L1395 CENTRAL		22419	1169		A

DEMONSTRATION# HOME DATA

CO	GR	STU NO	LANG	MALE PARENT	RJ EDL LBL	FEMALE PARENT	RJ EDL LB	DATE	
14201051362002			1	LMMADDEN	133	MSMADDEN	131	1169	B
14201051362001			1	DEDUNN	113	ODDUNN	151	1169	B
14201101382004			1	APPONCIA	113	G PONCIA	131	1169	B
14601101382001			2	JGGAMBOA	131	MAGAMBOA	151	1169	B
14601101382002			1	VMHYDEN	133	MGHYDEN	151	1169	B
14601101382003			2	PJMONTEZ	133	DRMONTEZ	141	1169	B
14601101382005			2	KFSTICH	133	A STICH	151	1169	B
14601102382051			2	LPAROBIO	123	ETAROBIO	151	1169	B
14601102382052			1	JCBROUGH	113	HMBROUGH	151	1169	B
14601102382053			1	WADUNN	123	HEDUNN	151	1169	B
14601102382054			2	ARGARCIA	133	MGGARCIA	141	1169	B
14601201386001			1	LMMADDEN	133	MSMADDEN	131	1169	B

DEMONSTRATION# PERSONAL DATA

CO	GR	STU NO	TRANS	DIST	TEMP	KNOWN LEARNING LIMITATIO	UN H	DATE	
14201051362001			1	000	031	1 1 4	4	1169	C
14201051362002			1	000	031	1 1 2	11	1169	C
14201101382004			4	12	252		12	1169	C
14601101382001			1	1	082		12	1169	C
14601101382002			1	001	101	1 2	4	1169	C
14601101382003			4	15	251	1 1 3	2	1169	C
14601101382005			1	1	151	1 1 3	4	1169	C
14601102382051			1	000	052		4	1169	C
14601102382052			2	2	152		2	1169	C
14601102382053			1	001	102		2	1169	C
14601102382054			4	12	302	1	22	1169	C
14601201386001			1	000	031	1 1 2	12	1169	C

DEMONSTRATION# STANFORD ACHIEVEMENT SCORES, FORM W, ADVANCED

CO	GR	STU NO	WORD MEAN GEPRS #	ADV PARA MEAN GEPRS #	SPELL ING GEPRS #	WORD STUD SKILL GEPRS #	LAN- GUAGE GEPRS #	ARITH COMPO TATIO GEPRS #	ARITH CONC- CEPTS GEPRS #	ARITH APPLI CATION GEPRS #	SOCIAL STUD- IES GEPRS #	SCIENCE GEPRS #	
1420105	1362001		116898	099887		121969	100646	126966	108706	121928	116898		S
1420105	1362002		124969	104666		096565	096606	111766	123948	124969	122969		S
1420110	1382004		116898	129999		117928	112777	103686	085445	117867	116898		S
1460120	1386001		112827	116907		106746	080344	082405	108706	122948	116898		S
1460110	1382002		110787	099506		088495	092565	096585	111766	111746	106746		S
1460110	1382003		102696	070244		076364	048021	078324	079324	089505	106746		S
1460110	1382005		098585	084445		072284	066183	076284	098585	102626	112847		S
1460110	2382051		113847	120857		108777	112777	114807	082384	102626	092545		S
1460110	2382052		077344	070244		065223	060102	066163	063113	086485	083425		S
1460110	2382053		077344	070244		065223	060102	066163	063113	086485	083425		S
1460110	2382054		077344	070244		065223	060102	066163	063113	086485	083425		S
1460110	1382001		077344	070244		065223	060102	066163	063113	086485	083425		S

# GEPRS MEANS# GE= GRADE EQUIVALENT,A 3 DIGIT NO# 081=8.1
PR= PERCENTILE RANK# 47= 47TH PERCENTILE ON NATIONAL NORM
S= STANINE# 6= 6TH STANINE

DEMONSTRATION# STANFORD ACHIEVEMENT RAW SCORES

1420105 1362001	051039	131028034021074047	569	R
1420105 1362002	056041	109027027026077052	569	R
1420110 1382004	051057	128031026017070047		R
1460110 1382001	048047	118021021021075047		R
1460110 1382002	041025	096008019015055042		R
1460110 1382003	041025	096008019015055042		R
1460110 1382005	039033	092016018019059045		R
1460110 2382051	049050	120031028016059036		R
1460110 2382052	031025	086013014010053034		R
1460110 2382053	013013	085009015008045033		R
1460110 2382054	033049	097015023017047033		R
1460120 1386001	032027	089023026018038028		R

```
C
C
C   ASTERISKS INDICATE INFO IS CODED-- SEE FOLLOWING COMMENTS FOR EXPLANATION
C  EXPLANATION OF ABBREVIATED HEADINGS# ENTRY DATA SECTION A
C
C     CO (COLUMNS 1-2)# 14 = PERSHING COUNTY
C     SCHOOL (COLUMNS 3-5)# 601 = PERSHING COUNTY H S
C                           201= LOVELOCK ELEMENTARY
C
C     GR (COLUMN  6 )#    1 = 9TH GRADE
C       GR(COLUMN 7)#    5= 5TH GRADE
C                        2= 10TH GRADE
C
C     RACE (COLUMN 23)#  B = BLACK              S = SPANISH AM
C                        I = AMER INDIAN        W = WHITE
C                        O = ORIENTAL           Z = OTHER
C
C     COUNTY OF RESIDENCE (COLUMN 26)# 14 = PERSHING COUNTY
C
C     CITY OF RESIDENCE (COLUMN 68)#  21= IMLAY, 22= LOVELOCK
C
C     SPANISH SURNAME (COLUMN 77)# 1 IN THIS COLUMN INDICATES SP SURNAME
C
C
C  EXPLANATION OF ABBREVIATED HEADINGS#  HOME DATA SECTION B
C
C   *LANGUAGE (COLUMN 19)# 1 = ENGLISH+ 2 = ENGLISH & OTHER+ 3 = OTHER ONLY
C    RELATIONSHIP(COLUMNS 36 & 55)# 1=FATHER,MOTHER,2=STEPFATHER,-MOTHER,3=OTHER
C
C    JOB,OR OCCUPATION(COLUMNS 37&55)# 1=PROF,2=SELF-EMPL,3=SKILLED
C                                      4=UNSKILLED,      5=UNEMPLOYED
C
C    MIL# ACTIVE MILITARY (COL 38)# 1= YES, 3= NO
C
C
C  EXPLANATION OF ABBREVIATED HEADINGS#  PERSONAL DATA SECTION C
C
C   *TRANSPORTATION METHOD(COL 19)# 1=WALK,BIKE     4=SCHOOL BUS
C                                   2=FAMILY CAR    5=OTHER
C                                   3=OWN CAR
C
C    KNOWN LEARNING OR ACTIVITY LIMITATIONS(COL 25-30)# 1=YES,BLANK = NO
C                          HEARING(COL 26)# 1=YES,BLANK = NO
C                          VISION (COL 27)# 1=YES,BLANK = NO
C                          LOCOMOTIVE(COL 28)#1=YES,BLANK = NO
C                          OTHER      (COL 29)# 1(OR BLANK IF COL 25 IS 1)=YES
C
C                       HOW KNOWN (COL 30)# 1=PARENT REPORT
C                                           2=PROFESSIONAL EXAM
C                                           3=SCHOOL OBSERVATION
C                                           4=STUDENT REPORT
C
C    LUNCH TYPE(COL 31)# 1=SCHOOL HOT LUNCH
C                        2=SCHOOL BOX LUNCH
C                        3=NONE
C                       BLANK= OTHER
C   IF HOT LUNCH,PAID BY(COL 32)# 1=SCHOOL, 2=FAMILY/SELF
```

OVERAGE STUDENTS AND STUDENTS IN LOWEST QUARTILE

DISTRICT G, NINTH GRADE

September 28, 1970

Theodore G. Brough

WESTERN NEVADA REGIONAL EDUCATION CENTER

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INTRODUCTION

This pamphlet is a supplement to a previous report in the series: Using Student Data From Computer Printouts, WN-REC, May 25, 1970. In that publication, a transportation analysis for the county was not performed. If the present pamphlet is read with the previous publication close at hand, the points made will become clearer.

STUDENT PERFORMANCE AND AGE AS A FUNCTION

OF RESIDENCE AREA

If students are identified as coming to school from one particular town or part of a given town, then a pattern emerges. Organizing the data on the basis of residence and ranking the groups according to the time to school from that place of residence results in the pattern shown in Table 1.

Table 1 shows the following:

1. A trend toward an increase in overall average performance on the standardized subtests indicated with increasing time to school (up to about 25 minutes), followed by a decrease at the furthest distances (times) out. This trend is interrupted at two residence areas for Paragraph Meaning; one, B, decreases, the other, D, increases rapidly. For Arithmetic Computation, these changes occur at Areas C and D, respectively.

2. A trend toward decreasing overall performance with increasing distance (time) from school for Overage and Lower Quartile Students. This trend does <u>not</u> hold for the average performance of Overage students on the Arithmetic Computation measure. Again, Residence Area D is an exception (increases rapidly).

3. An increase in the proportion of students in each residence area who place in the lowest quartile on one or both of the sub-tests considered.

4. A tendency toward an increase in the proportion of ethnic students with increasing distance (time) from school.

The data in the table is a composite of many residence areas in the county, the distances and characteristics compacted and averaged. Students from various residence areas have been combined when they lie at similar distances (times) from school. The result is as described above. Of course, each particular town may have individual peculiarities which will have to be analyzed separately.

Table 1

District G

Selected Characteristics of 9th Grade Students by Time to School

Area[x]	Aver. Time (Min.)	Total Prop.*	Overage Prop.*	Lower Q Prop.**	Proportion in Each Residence Area*** Overage	LQ	Overall Performance PA All	PA Overage	PA LQ	AR All	AR Overage	AR LQ	Proportion of Ethnics+
A_1	9.0	28.6(105)	14.5(26)	19.9(29)	24.8	27.6	49.7(85)	34.3(16)	25.4(28)	45.9(88)	24.3(16)	16.0(28)	10.5(11)
B	11.0	4.5(8)	0.6(1)	2.0(3)	12.5	38.5	44.7(6)	18.0(1)	31.3(3)	46.8(6)	56.0(1)	9.7(3)	50.0(4)
C	14.5	9.5(17)	1.1(2)	4.1(6)	11.7	35.3	56.1(15)	12.0(1)	36.3(6)	38.2(15)	1.0(1)	15.4(6)	5.9(1)
D	22.6	3.9(7)	0.6(1)	0(0)	14.3	-	90.5(4)	72.0(1)	-	79.0(4)	84.0(1)	-	42.9(3)
A_2	27.8	18.4(33)	5.6(10)	8.2(12)	30.3	36.4	56.4(29)	13.3(8)	35.3(12)	39.1(29)	31.9(8)	12.0(12)	18.2(6)
E	41.1	5.0(9)	0.6(1)	2.7(4)	11.1	44.4	51.6(7)	4.0(1)	29.7(4)	31.0(7)	14.0(1)	10.7(4)	66.7(6)

x A_1 = In town, travel time up to 19 min.
A_2 = Out of town, travel time 20 min. and over.
B = Other towns, 10 to 12 min. away.
C = Other towns, 13 to 19 min. away.
D = Other towns, 20 to 24 min. away.
E = Other towns, over 25 min. away.

* Percentage of Total Population.
** Percentage of pupils with test scores reported.
*** Numbers in these two columns are percentages within each group.
\+ Total Students in Categories: Indian, Spanish-American, Spanish Surname, Oriental, Other, and those who speak a Foreign Language at Home.

PA and AR: Average of Stanford Achievement Sub-scores, National Percentiles.
All: All students in particular town (or subdivision).
LQ: Students placing in lower quartile of either subtest.

USING STUDENT ENTRY DATA

AND

STANDARDIZED TEST DATA

Overage Students

Lower Quartile Students

Sex Differences

Distance From Town

July 28, 1970

Theodore G. Brough

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Using Student Entry Data and Standardized Test Data

This memorandum demonstrates a technique of analyzing Entry Data along with Standardized Test Data as applied to a 9th grade group in a nearby county.

The Entry Data form yields the following information about students:

- Name
- Ethnic group
- Sex
- Birthdate
- City of Residence (or at least mailing address)

The Stanford Achievement Test yields a variety of Student Performance measures. From this we can compute an Estimated IQ (see previous publication: Using Student Data From Computer Printouts, May 25, 1970)
For this analysis we will use the sub-scores: Advanced Paragraph Meaning (PA) and Arithmetic Computation (AR), the two most useful single indicators of excellence in English and Arithmetic. Any other sub-scores or any legitimate measure of student performance (such as grade point average or some teacher estimate) could be used.

From the Birthdate information, the student's age at any particular date (in this case, May 1, 1970) can be computed. With this information, the identity of students over (or under) age can be identified, and these can be subdivided into three overage groups:

up to six months overage (born between June 1 and November 30, 1954)

six to twelve months over-age (born between December 1, 1953 and May 31, 1954)

over twelve months over-age (born befor December 1, 1953)

The remainder of the students are in the non-overage group.

From the city of residence, the distance from school for each student can be determined (using a road map).

From the Standardized Test data, the students falling in the lower quartile on one or both standardized tests can be identified.

This information, along with Ethnic group and sex identity allows us to analyze certain over-age characteristics of the various groups of students in this county.

Table 1 summarizes selected information for students classified according to placement in overage or non-overage groups or in lower quartile or upper 3/4 groups. This table reveals the following trends:

1. a general increase in age with decreasing placement in quartile group.

2. a general decrease in performance with increasing age group placement.

3. an increase in proportion of male students with increasing age group and decreasing quartile placement.

4. a strong increase in proportion of Spanish-American students with increasing age and a moderate increase in proportion of Spanish-American students with decreasing quartile placement.

5. virtually no change in proportion of boys and girls among Spanish-American students with changing age-groups or quartile placement.

6. among students who live out of town: a rapid increase in proportion of students with decreasing quartile placement and an equally rapid increase in proportion of students with increasing age placement.

In summary: Girls are doing better than boys (except for Spanish-Americans); the Spanish-American students and out-of-town students are doing much worse than the in-town students. The Spanish-American boys and girls are not being affected differently.

Table 1

Selected Characteristics of 9th grade Students by Age or Performance Group

	Upper 3/4	Group Less Overage	Overall Group	Overage Group	Lower Quartile
Age:	15.1	14.9	15.3	16.0	15.7
PA:	63.0	59.2	48.2	31.9	22.1
AR:	65.8	64.1	51.7	32.4	26.9
Prop. M:	41.1	34.7	44.1	60.7	52.4
Prop. F:	58.9	65.3	55.9	39.3	47.6
% of Total:	72.7	63.6	100	36.4	27.3
Prop of Sp-Amer:	5.35	2.04(1)	6.5(5)	14.3(4)	9.5(2)
Prop. of Total Sp.:	60	20	100	80	40
Prop. M:	50	50	40(2)	50	50
Prop. F:	50	50	60(3)	50	50
Prop 5 mi & more:	5.35	14.3	18.2	28.6(8)	28.6

Prop. M: = proportion of Males in each classification etc.,

Numbers in parenthesis are the number in that group

PA and AR: Stanford Achievement subscores, National Percentiles

Table 2 explores the overage group further. The upper part of the Table refers to all students in the overage groups as compared to the total group and the non-overage group (total minus overage). The lower part of the Table has similar data for the out-of-town students (5 miles or more from school).

The Table reveals the following:

1. an increase in proportion of males with increasing age grouping, which reverses and levels off for the groups overage by 6 months and more.

2. a decrease in performance on Paragraph meaning (PA) and arithmetic (AR) subtests with increasing age.

3. an almost stable proportion Spanish-American students in each overage category (most in 6 to 12 months overage group) but that 4 out of 5 Spanish-American students are overage.

4. the out-of-town students are slightly older than the other students in each age group with the exception of the non-overage group.

5. there is a larger proportion of students in the overage group among out-of-town students than for the whole group.

6. for out-of-town students the proportion of male students to female students increases with overage grouping (sketchy data).

7. there are no Spanish-American students coming into school from out-of-town in the 9th grade.

8. the academic performance (standardized test results) is lower for out-of-town students in all categories but one - arithmetic, overage up to 6 months, where the performances of the out-of-towners match the group performance.

Table 2

Selected Characteristics of Overage Group vs. Others (9th grade)

	Non-Overage	All Students	Over-age Group: Up to 6 mos.	6 to 12 mos.	Over 12 mos.
Age (yrs.):	14.9	15.3	15.5	16.1	16.6
Prop. of All:	63.6	100	15.6	13.0	7.8
Prop. in: group of M:	34.7	44.1	66.7(8)	60(6)	50(3)
group of F:	65.3	55.9	33.3(4)	40(4)	50(3)
% Sp-Amer.:	2.04(1)	6.5(5)	2.04(1)	4.08(2)	2.04(1)
STAN ACH PA:	59.2	48.2	34.6	29.6	32.7
AR:	64.1	51.7	31.3	35.1	29.3
Students 5 mi. or more from school:					
Age (yrs.):	14.3	15.6	15.7	16.2	16.7
Prop. of group:	42.8	100	35.7	14.3	7.1
Prop. of M:	50	42.7(6)	40(2)	50(1)	100(1)
Prop. of F:	50	57.3(8)	60(3)	50(1)	0
% Sp-Amer:	0	0	0	0	0
STAN ACH PA:	43.5	31.1	19.0	20.0	28.0
AR:	48.2	36.1	32.5	9.0	1.0

Numbers in parentheses are number of students in group.

PA and AR: Stanford Achievement Sub-Scores, National Percentiles.

Table 3 displays the data for students classified according to place of residence. Town A has been divided into two district halves, upper A (A_1) and lower A (A_2). The rest of the letters refer to nearby towns surrounding Town A.

Table 3 shows the following:

1. the proportion of overage students increases strongly with distance from school (distance from A).

2. the proportion of students in the lower quartile increases strongly with distance from school.

3. fifty percent or more of the students in the outlying towns are either overage or in the lower quartile. This increases to 100 percent in the farthest outlying towns. (Scanty data).

4. the average academic performance of the students in the classifications: overall, overage, and lower quartile in general <u>decreases</u> with increasing distance (some exceptions).

5. the population of students in upper A (A_1) and lower A (A_2) is quite different as indicated on all measures. Students in lower A outperform students in upper A in all areas but arithmetic, where upper A overage and lower quartile students have a slight performance advantage. Without the students in lower A, the average county-wide performance on the Stanford Subtests would be vastly different.

Table 3

Selected Characteristics of 9th grade students by Town of Residence

Town	Travel Dist (mi.)	Total prop.	Overage prop.	Lower Quartile prop.	Prop. in each Residence Area		Av. Performance					
							PA			AR		
					Overage	Lower Q	All	Over	LQ	All	Over	LQ
A_1		53.3	57.2	52.4	39.0	26.8	42.6	29.6	18.5	51.1	37.6	27.5
A_2		28.6	14.3	19.1	18.2	18.2	67.9	48	37.5	61.1	32	25.5
B	5	7.8	14.3	14.3	66.6	50.0	22.5	19	14	39	36	29.3
C	10	3.9	0	0	0	0	88	-	-	86	-	-
D	10	2.6	3.6	4.8	50.0	50.0	31	28	28	32.5	01	01
E	13	2.6	7.2	4.8	100.0	100.0	22	22	04	14	14	25
F	17	1.3	3.6	4.8	100.0	100.0	18	18	18	04	04	04

Numbers in Proportion (prop.) part of table are percentages within each group.
Numbers in columns 3, 4, 5 and 6 should be compared with numbers in column 3.

PA and AR: Average of Stanford Achievement Sub-scores, National percentiles.
All: all students in particular town (or subdivision)
Over: Overage Students
LQ: Students placing in lower quartile of either subtest

STANDARDIZED TESTING, REGIONAL NORMS, WESTERN NEVADA REGION

8TH GRADE: SPRING 1969, SPRING 1970

3RD GRADE: SPRING 1970

September 26, 1970

Theodore G. Brough

Beryl I. Riehm

WESTERN NEVADA REGIONAL EDUCATION CENTER

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1. Achievement of Students in the Region

Stanford Achievement Testing was performed in each county of the Region in the Spring and Fall of 1969 (8th grade) and in the Spring of 1970 (3rd and 8th grades). The Center has compiled Regional Norms for these results at the 8th grade and the 3rd grade levels. The Means (National Percentiles) for each grade level for each sub-test as well as the Overall Means are listed in Table 1.

In examining the regional test results as given in Table 1, the weakest area for the students tested at the 8th grade level in Spring 1969 was Arithmetic Computation (Mean: 34% on National Norm). Other weak areas were Science (Mean: 40%), Social Studies (Mean: 42%), and Language (Mean: 43%). For the 8th grade students tested in Spring 1970, the weakest area was again Arithmetic Computation (Mean: 32%). Other weak areas were Arithmetic Applications (Mean: 42%), Spelling (Mean: 42%), and Language Usage (Mean: 43%). The Overall Mean for both years was 43%. Except for the changes in Science (from 40% to 45%) and in Spelling (from 46% down to 42%) there were no real differences between the two successive groups of 8th grade students.

The 3rd grade test results reveal weaknesses in two areas: Word Meaning (41%) and Arithmetic Computation (44%). Apparently, Arithmetic Computation is a continuing problem area in the region's schools. However, when the quartile breaks are calculated and readjusted for scoring at 3.8 instead of 3.9, the quartiles fall at or above National Norms. (See the

discussion concerning quartile breaks, which follows.) A conclusion as to whether or not the weakness observed in Word Meaning at the 3rd grade is an indicator of a later problem in Spelling or Language at the higher grades must await further study. It seems possible, however.

Perhaps of more interest than Regional Means based on a national standard, would be local quartile standings based on national grade equivalents. Tables 2, 3 and 4 which follow define the quartile break points for the test results in the Region. The quartile break points show the quartile rankings (in Grade Equivalents and percentiles as National Norms) for the students in the 8-county Region. That is, the scores given in the tables define the grade levels of achievement below which 1/4, 1/2 and 3/4 of the students in the Region placed on the Stanford Achievement sub-tests. With these breakpoints as indicated, the various schools in the Region can examine local school performance as compared to a rural complex of 8 counties as well as to National Norms.

Table 1

EIGHT COUNTY SCHOOL DISTRICTS IN
WESTERN NEVADA REGION

Mean Performances For Two Successive Years On Stanford
Achievement Test (Percentiles), 8th Grade Level

	Word Mean.	Para. Mean.	Spel-ling	Word Study Skill	Lan-guage	Arith. Comp.	Arith. Conc.	Arith. Appl.	Soc. Stud.	Sci-ence
Spring-Fall 1969 (8th)	-	47%	46%	-	43%	34%	46%	44%	42%	40%
	(Overall 43%)									
Spring 1970 (8th)	-	48%	42%	-	43%	32%	47%	42%	46%	45%
	(Overall 43%)									

* *

Mean Performances, 3rd Grade Level

Spring 1970 (3rd)	41%	48%	50%	58%	52%	44%	50%	-	-	54%
	(Overall 49%)									

Table 2

EIGHT COUNTY SCHOOL DISTRICTS IN
WESTERN NEVADA REGION

Quartile Breakdowns, Regional Norms, Spring 1969, 8th Grade

For Stanford Achievement Test given at grade level 8.9,* the following are the Grade Equivalents and National Percentile Scores for the quartile breaks of the subscores:

	Q 1 - 25%		Mean**		Q 3 - 75%	
	G.E.	%	G.E.	%	G.E.	%
Para. Mean.	6.90	23	8.48	47	10.60	72
Spelling	7.05	25	8.62	46	10.80	70
Language	6.40	20	8.06	43	10.20	66
Arith. Comp.	6.20	12	8.04	34	10.20	66
Arith. Conc.	6.90	20	8.72	46	10.90	74
Arith. Appl.	7.20	22	8.46	44	10.52	66
Soc. Studies	6.50	17	8.25	42	10.80	68
Science	6.30	18	8.16	40	10.80	77

*Some Districts tested in the Fall of 1969 (at 9.2), but the differences in grade placement levels between late Spring and early Fall are minor, see p. 21 of Directions for Administering, Stanford Achievement Test, Advanced Battery (Harcourt, Brace and World, 1964).

**N = 965.

Table 3

EIGHT COUNTY SCHOOL DISTRICTS IN
WESTERN NEVADA REGION

Quartile Breakdowns, Regional Norms, Spring 1970, 8th Grade

For Stanford Achievement Test given at grade level 8.9, the following are the Grade Equivalents and National Percentile Scores* for the quartile breaks of the subscores:

	Q 1 - 25%		Q 2 - 50%		Q 3 - 75%	
	G.E.	%	G.E.	%	G.E.	%
Para. Mean.	6.85	23	8.98	51	10.75	76
Spelling	6.77	22	8.18	42	10.40	66
Language	6.47	21	8.21	44	10.19	66
Arith. Comp.	6.25	12	7.92	32	9.47	59
Arith. Conc.	7.14	23	8.61	45	11.25	78
Arith. Appl.	7.04	19	8.20	38	10.23	62
Soc. Studies	6.81	22	8.25	42	10.62	66
Science	6.42	19	8.52	46	10.67	75

*Means, based on National Norms:

Adv. Para. Mean:	8.79, 49%	Arith. Concepts:	8.93, 50%
Spelling:	8.42, 44%	Arith. Appl.:	8.53, 44%
Language:	8.28, 45%	Social Studies:	8.56, 45%
Arith. Comp.:	8.00, 34%	Science:	8.56, 47%

N = 1224

Table 4

EIGHT COUNTY SCHOOL DISTRICTS IN
WESTERN NEVADA REGION

Quartile Breakdowns, Regional Norms, Spring 1970, 3rd Grade

For Stanford Achievement Test given at grade level 3.9, the following are the Grade Equivalents and National Percentile Scores* for the quartile breaks of the subscores:

	Q 1 - 25%		Q 2 - 50%		Q 3 - 75%	
	G.E.	%	G.E.	%	G.E.	%
Word Meaning	3.06	20	3.61	36	4.28	62
Para. Meaning	3.11	24	3.73	43	4.52	68
Science & Social Studies Concepts	2.97	26	4.04	55	5.07	76
Spelling	3.15	18	3.84	46	4.63	75
Word Study Skills	2.80	28	4.39	57	6.03	80
Language	3.06	23	3.88	49	4.82	70
Arith. Comp.	3.36	23	3.81	45	4.27	71
Arithmetic Conc.	2.98	28	3.96	51	4.72	76

*Means, based on National Norms:

Word Meaning:	3.72, 41%	Word Study Skills:	4.46, 58%
Paragraph Meaning:	3.85, 48%	Language:	4.00, 52%
Science & Social Studies:	4.03, 54%	Arith. Comp.:	3.78, 44%
Spelling:	3.91, 50%	Arith. Conc.:	3.92, 50%

N = 1019.

2. Quartile Breakdown, National Norms

As a further aid in analyzing Standardized Test data, two additional tables have been compiled. The tables furnished with the Stanford Achievement Test Batteries* give Grade Equivalents, National Percentiles and Quartile breakdowns for tests given at grade levels 3.6 and 3.9 or at grade levels 8.6 and at 8.9. For testing done close to May 1 (grade levels 8.8 or 3.8) some adjustments have to be made for the scores given in the tables. Tables 5 and 6 which follow are quartile breakdowns (at 3.8 and 8.8) of the National Norms for each Stanford Achievement Subscore (given as Grade Equivalent Scores). These norms were computed by interpolation between the scores given in tables at grades 3.6 and 3.9 and at 8.6 and 8.9.*

Applying this same logic to the average GE scores given in Tables 2, 3, and 4 of this report and computing quartile breaks at grade levels 8.8 and 3.8 results in the data shown in Tables 7, 8, and 9, which follow.

Use of Tables 5 and 6 enables one to compare local results (individuals, classes, schools, and the region) with Nationally Normed Quartiles at grade levels 3.8 and 8.8.

Use of Tables 6, 7, and 8 enables one to compare local results (individuals, classes, and schools) with Regionally Normed Quartiles at grade levels 3.8 and 8.8.

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*Directions for Administering, Stanford Achievement Test, Primary II Battery (Harcourt, Brace and World, New York, 1969), pp. 28, 29.

Directions for Administering, Stanford Achievement Test, Advanced Battery (Harcourt, Brace and World, New York, 1964), pp. 19, 20.

Table 5

QUARTILE BREAKDOWN, NATIONAL NORMS

For Stanford Achievement Test given at grade level 3.8, the following are Grade Equivalents for various percentiles for the subscores:

	25%	50%	75%
Word Meaning	3.16	3.80	4.60
Paragraph Meaning	3.08	3.80	4.70
Science & Social Studies Concepts	2.87	3.80	4.86
Spelling	3.23	3.80	4.53
Word Studies Skills	2.67	3.80	5.52
Language	3.06	3.80	4.94
Arithmetic Computation	3.29	3.80	4.20
Arithmetic Concepts	2.84	3.80	4.59

(These are interpolated G.E. scores based on the G. E. scores given at 3.6 and at 3.9.)

Table 6

QUARTILE BREAKDOWN, NATIONAL NORMS

For Stanford Achievement Test given at grade level 3.8, the following are Grade Equivalents for various percentiles for the subscores:

	25%	50%	75%
Paragraph Meaning	7.03	8.80	10.72
Spelling	7.01	8.80	11.22
Language	6.85	8.80	10.62
Arithmetic Computation	7.34	8.80	10.97
Arithmetic Concepts	7.34	8.80	10.93
Arithmetic Applications	7.33	8.80	11.03
Social Studies	6.97	8.80	11.11
Science	6.82	8.80	10.60

(These are interpolated G.E. scores based on the G. E. Scores given at 8.6 and at 8.9.)

Table 7

EIGHT COUNTY SCHOOL DISTRICTS IN
WESTERN NEVADA REGION

Quartile Breakdowns, Regional Norms, Spring 1969, 8th Grade

For Stanford Achievement Test given at grade level 8.8, the following are the National Percentiles for the Grade Equivalents in Table 2, after interpolating between the G.E. scores given in the tables at grades 8.6 and 8.9.*

	Q 1 - 25% %	Mean** %	Q 3 - 75% %
Paragraph Meaning	24	48	73
Spelling	26	48	73
Language	20	44	67
Arithmetic Computation	13	35	67
Arithmetic Concepts	20	48	75
Arithmetic Applications	22	44	67
Social Studies	17	43	69
Science	18	41	77

*Directions for Administering, Stanford Achievement Test, Advanced Battery (Harcourt, Brace and World, New York, 1969), pp. 19, 20.

**No Q 2 scores were computed for this set of scores. The means were computed, however, and were used in place of the Q 2. They should differ only slightly from the true Q 2 scores.

Table 8

EIGHT COUNTY SCHOOL DISTRICTS IN
WESTERN NEVADA REGION

Quartile Breakdowns, Regional Norms, Spring 1970, 8th Grade

For Stanford Achievement Test given at grade level 8.8, the following are the National Percentiles for the Grade Equivalents in Table 3, after interpolating between the G.E. scores given in the tables at Grades 8.6 and 8.9.*

	Q 1 - 25% %	Q 2 - 50% %	Q 3 - 75% %
Paragraph Meaning	23	52	76
Spelling	23	43	67
Language	21	45	67
Arithmetic Computation	13	33	60
Arithmetic Concepts	23	47	79
Arithmetic Applications	20	39	63
Social Studies	22	43	67
Science	19	47	76

*Directions for Administering, Stanford Achievement Test, Advanced Battery (Harcourt, Brace and World, New York, 1969), pp. 19, 20.

Table 9

EIGHT COUNTY SCHOOL DISTRICTS IN
WESTERN NEVADA REGION

Quartile Breakdowns, Regional Norms, Spring 1970, 3rd Grade

For Stanford Achievement Test given at grade level 8.8, the following are the National Percentiles for the Grade Equivalents in Table 4, after interpolating between the G.E. scores given in the tables at grades 3.6 and 3.9.*

	Q 1 - 25% %	Q 2 - 50% %	Q 3 - 75% %
Word Meaning	23	41	67
Paragraph Meaning	27	46	71
Science & Social Studies Concepts	28	58	78
Spelling	22	51	78
Word Study Skills	32	58	81
Language	25	52	72
Arithmetic Computation	28	50	77
Arithmetic Concepts	29	54	77

*Directions for Administering, Stanford Achievement Test, Primary II Battery (Harcourt, Brace and World, New York, 1969), pp. 28, 29.

3. Quartile Breakdown, Regional Norms

Analyzing the Quartile Breaks given in Tables 7, 8, and 9 reveals the following:

The weaknesses observed in Arithmetic Computation at the Eighth Grade level for two successive years is again observed in the quartile breakouts. In fact, at the successive quartiles the Region's Eighth Grade students seem to fall further behind. The Spring 1969 Eighth graders at the third quartile are not as bad off as the Spring 1970 Eighth Grade students, however.

The weaknesses observed in Eighth Grade Science performance for two successive years are also observed in the quartile breakouts. In the case of the 1969 Eighth Grade students, the Science weakness is most serious at the first and second quartile breaks, but the upper quartile group does not depart from the National Norm. For the 1970 Eighth Grade students, the obvious weak point is at the first quartile break; the others almost reach or exceed the National Norms.

The Eighth Grade students are weak in Social Studies at each of the quartile breaks for both years tested. In Language Usage, the Eighth Grade students become increasingly weak as one progresses from the first quartile break point to the third. In other words, the average and better students do not compare well with the average and better students nationally. The Eighth Grade students' performance in Spelling for 1970 follows a similar pattern, the upper quartile groups depart further and further from National Norms.

For the Third Grade students, the apparent weakness in Arithmetic Computation does not appear in the adjusted quartile breaks in Table 9. The Third Grade students are apparently achieving at the National Norm or are exceeding it.

In Word Meaning, however, the weakness observed among Third Grade students by analyzing the Means (Table 1) is still apparent in the Quartile Breakdown Analysis. In this case, the weakness is most serious among the middle and upper achieving students.

The weakness in spelling is still apparent among the lowest quartile students. This may be the precursor to the weakness in spelling among the eighth grade students.

A P P E N D I X

Stanford Achievement Test, Spring 1970

Regional Distributions and Cumulative Percentages

Third Grade

Eighth Grade

STANFORD ACHIEVEMENT TEST PRIMARY PAGE 1

REGION DISTRIBUTIONS AND CUMULATIVE PERCENTAGES

ERN NEVADA MID PROGRESS NO. 54-1400-

REPORT FROM HARCOURT, BRACE & WORLD SCORING SERVICE

GRADE 2 3 FORM W DATE TESTED 04/70

GE INTERVAL	WORD MEANING F	WORD MEANING CP	PRI PARA-GRAPH MEANING F	PRI PARA-GRAPH MEANING CP	SCIENCE AND SOC STD F	SCIENCE AND SOC STD CP	SPELL-ING F	SPELL-ING CP	WORD STUDY SKILLS F	WORD STUDY SKILLS CP	LANG-UAGE F	LANG-UAGE CP	ARITH COMPU-TATION F	ARITH COMPU-TATION CP	ARITH CON-CEPTS F	ARITH CON-CEPTS CP
12.6-12.9																
12.2-12.5																
11.8-12.1																
11.4-11.7																
11.0-11.3																
10.6-10.9																
10.2-10.5																
9.8-10.1																
9.4- 9.7																
9.0- 9.3																
8.6- 8.9																
8.2- 8.5																
7.8- 8.1																
7.4- 7.7	299		699						5399		1199				599	
7.0- 7.3					199				6095		1199		199		699	
6.6- 6.9	1499		899		699				3789		1798				899	
6.2- 6.5	1698		1299		3399		4799		7985		1896		599		1298	
5.8- 6.1			1897		5096				8877		2994		599		1897	
5.4- 5.7	3297		5296		8691		6195		7169		5092		1399		7795	
5.0- 5.3	4394		5991		11283		5089		7562		8587		4198		6488	
4.6- 4.9	4889		8985		12772		11984		2754		10978		0594		11381	
4.2- 4.5	14785		13776		5559		10773		4652		10868		14985		15770	
3.8- 4.1	13870		12063		14654		15762		4647		10757		24070		10255	
3.4- 3.7	20257		16451		5640		15246		10043		11047		22347		7845	
3.0- 3.3	17237		17135		9834		13231		4933		15036		10024		13437	
2.6- 2.9	12620		8718		12924		9618		8228		10321		10014		13924	
2.2- 2.5	26	8	36	9	5012		56	9	9620		8511		16	5	5010	
1.8- 2.1	41	5	47	6	42	7	18	3	6710		18	3	17	3	32	5
1.4- 1.7	12	1	12	1	21	3	9	1	35	4	8	1	9	1	21	2
1.0- 1.3			1	1	7	1	6	1	4	1			4	1	1	1
Q3-PERCENTILE 75	4.28		4.52		5.07		4.63		6.03		4.82		4.27		4.72	
Q2-PERCENTILE 50	3.61		3.73		4.04		3.84		4.29		3.88		3.81		3.96	
Q1-PERCENTILE 25	3.06		3.11		2.97		3.15		2.80		3.06		3.36		2.98	
MEAN	3.72		3.95		4.03		3.91		4.46		4.00		3.78		3.92	
STD DEV	.98		1.07		1.26		1.07		1.79		1.21		.77		1.17	
HORN-G1025 N-CNT	1019		1019		1019		1010		1015		1019		1008		1017	

STANFORD ACHIEVEMENT TESTS — PAGE 1

REGION DISTRIBUTIONS AND CUMULATIVE PERCENTAGES

NORMS MID — PROGRESS NO. 60-2522-

HORN NEVADA — GRADE 8 — FORM W — DATE TESTED 04/70

REPORT FROM HARCOURT, BRACE & WORL SCORING SERVICE

GE INTERVAL	WORD MEANING F	WORD MEANING CP	ADV PARA-GRAPH MEANING F	ADV PARA-GRAPH MEANING CP	SPELL-ING F	SPELL-ING CP	WORD STUDY SKILLS F	WORD STUDY SKILLS CP	LAN-GUAGE F	LAN-GUAGE CP	ARITH COMPU-TATION F	ARITH COMPU-TATION CP	ARITH CON-CEPTS F	ARITH CON-CEPTS CP	ARITH APPLI-CATIONS F	ARITH APPLI-CATIONS CP	SOCIAL STUDIES F	SOCIAL STUDIES CP	SCIENCE F	SCIENCE CP
12.6-12.9			1999		2399				2099		2799		6599		3799		1299		699	
12.2-12.5			2398		4098				1498		2298		7294		3597		3299		1999	
11.8-12.1			4897		3895				3097		4696		6188		5594		4496		4498	
11.4-11.7			6793		6892				3495		4492		9384		3690		4793		9194	
11.0-11.3			9387		5086				6692		1489		4676		4187		10689		8387	
10.6-10.9			11380		6282				6887		3987				5683		8080		9180	
10.2-10.5			12270		6877				8381		4884		5272		5979		6874		8973	
9.8-10.1			5060		3471				9574		3680		4968		7074		2768		9865	
9.4- 9.7			3856		3369				1967		4377		5364				4166		4958	
9.0- 9.3			4253		6266				4865		4574		6760		8168		3363		3954	
8.6- 8.9			4450		7461				6661		8870		6054				8560			
8.2- 8.5			7446		6555				8156		10563		6849		16562		5053		7250	
7.8- 8.1			6740		10150				7249		9654		9444		9648		9549		4445	
7.4- 7.7			4535		7541				7743		5047		11136		14340		8041		2641	
7.0- 7.3			5831		7635				7337		4643		4927		5929		8535		5539	
6.6- 6.9			6126		11329				5731		10939		9023		7724		9328		7834	
6.2- 6.5			10021		7120				8226		8130		7916		6218		6820		11428	
5.8- 6.1			4313		2714				6020		10323		36 9		4912		8815		6519	
5.4- 5.7			3810		5012				5615		6615		48 6		38 8		29 7		7813	
5.0- 5.3			44 6		21 8				4410		23 9		10 3		30 5		22 5		33 7	
4.6- 4.9			14 2		35 6				31 7		30 8		8 2		15 3		22 3		32 4	
4.2- 4.5			10 2		7 3				24 4		41 5		6 1		9 2		14 1		12 2	
3.8- 4.1			6 1		10 3				17 2		9 2		5 1		10 1		3 1		9 1	
3.4- 3.7			1 1		8 1				3 1		5 1		3 1		2 1					
3.0- 3.3			2 1		4 1				3 1		5 1									
2.6- 2.9			2 1								2 1									
2.2- 2.5									2 1											
1.8- 2.1													1 1							
1.4- 1.7																				
1.0- 1.3																				
Q3-PERCENTILE 75			10.75		10.40				10.19		9.47		11.25		10.23		10.62		10.67	
Q2-PERCENTILE 50			8.98		8.18				8.21		7.92		8.61		8.20		8.25		8.52	
Q1-PERCENTILE 25			6.85		6.77				6.47		6.25		7.14		7.04		6.81		6.42	
MEAN			8.79		8.42				8.28		8.00		8.93		8.53		8.56		8.56	
STD DEV			2.23		2.26				2.23		2.26		2.28		2.11		2.15		2.31	
HORN=01231 N-CNT			1224		1224				1225		1223		1225		1225		1224		1225	

SECONDARY COURSES OFFERED

IN THE WN-REC REGION

October 19, 1970

Victor M. Hyden, Jr.
Margaret S. Madden

WESTERN NEVADA REGIONAL EDUCATION CENTER

220 Main Street
P. O. Box 421
Lovelock, Nevada 89419

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INTRODUCTION
****

Purpose of Study

It is hoped the preparation, publication, and distribution of this document will serve at least three purposes:

1. Provide schools/districts with data for use in analyzing secondary (9-12) course offerings within the Region.

2. Provide the means by which student classroom performances can eventually be inserted in the WN-REC Student Information System.

3. Provide to appropriate agencies course identity data for use in any state-wide or regional curriculum study.

Scope of Study

In designing a student information system for use by the schools it was found necessary to identify all course offerings by title in the eight districts. These titles, with assigned numbers, would be incorporated in the system along with student marks (grades) and credits.

It was discovered that the Clark County School District had recently conducted an extensive study of their secondary course offerings. WN-REC's analysis of their subject categories and numbering format resulted in the same categories and numbering system being adopted for this Region's student data system. However, the Center stopped short of requesting course content descriptions. Such a request is not within the scope of the Center's obligations even though it seems logical that a course content study would be an appropriate follow-up to this study.

For reasons of managability and pertinence, it was finally decided to collect only titles of courses which are (1) included in the transcripts of current secondary students, (2) continuing or new courses for 1970-71, and (3) projected courses for the near future. The compilation's accuracy and completeness can be attributed to excellent cooperation from the following schools:

Churchill County	- E. C. Best Junior High School
	- Churchill County High School
Carson City County	- Carson Junior High School
	- Carson City High School
Douglas County	- Douglas County High School
	- George Whittell High School
Humboldt County	- Albert Lowry High School
	- McDermitt High School
Lyon County	- Fernley High School
	- Smith Valley High School
	- Yerington High School
Mineral County	- Mineral County High School
Pershing County	- Pershing County High School
Storey County	- Storey County High School

Special credit goes to the Center's secretary, Mrs. Margaret Madden, for guiding and pushing this study through to its publication.

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LANGUAGE ARTS		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
Elements of English	001													x	
English I	003	x		x		x	x	x	x	x	x	x	x	x	x
English II	004		x		x	x	x	x	x	x	x	x	x	x	x
English III	005		x		x	x	x	x	x	x	x	x	x	x	x
English IV	006		x		x	x	x	x	x	x	x	x	x	x	x
Language Arts	008												x		
Practical English	009			x				x		x					
College Preparatory English	010						x								
Composition I	011										x	x			
Creative Writing	013						x	x							
Technical Writing	014		x												
Related Technical English	015		x												
Debate I	020				x		x								
Debate II	021						x								
Speech and Drama	024					x									
Beginning Drama	025									x					x
Drama I	026				x										
Beginning Journalism	033		x		x							x			x
Journalism I	035		x	x						x			x		x
Journalism II	036									x					

		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
Beginning Library Science	045		x							x		x	x		
Library Science	046		x		x			x		x				x	
Communicative Skills	056				x										
Literature	061						x								
Mythology	064										x				
The Novel	067						x	x							
Elements of Reading	070											x			
Developmental Reading	071			x								x			
Remedial English	074		x												
Remedial Reading	075						x								
Beginning Speech	081				x		x		x						
Speech I	082		x				x	x		x	x	x	x		x
Speech II	083		x				x	x				x	x		x
Orientation	090				x										

FOREIGN LANGUAGE		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
French I	102		x	x	x	x	x								x
French II	103		x		x	x	x								x
French III	104					x	x								
German I	120				x			x	x			x			
German II	121				x			x				x			
German III	122							x							
Latin I	134				x	x									
Latin II	135				x	x									
Spanish I	141	x	x	x	x	x	x	x		x	x	x	x	x	x
Spanish II	142		x		x	x	x	x		x	x	x	x	x	x
Spanish III	143		x		x	x	x	x		x		x		x	
Spanish IV	144		x											x	

MATHEMATICS		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
Pre-Algebra	200			x						x	x				x
Intermediate Algebra	201											x			
Algebra I	202	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Algebra II	203		x		x	x	x	x	x				x		x
Algebra II and Trigonometry	204						x			x	x	x			x
Plane Geometry	220		x			x	x	x	x	x	x				x
Plane and Solid Geometry	221				x							x	x		x
Math II (Algebra & Geometry)	227													x	
General Math	232	x		x	x	x	x	x	x	x	x	x	x	x	x
Basic Mathematics, Vocational	238									x					
Business Mathematics	239		x				x	x		x		x			x
Traditional Mathematics I	240												x		
Traditional Mathematics II	241												x		
Shop Mathematics	246									x					
Technical Math I, Vocational	247		x												
Math Analysis	250									x		x			
Senior Mathematics	251		x		x										x
Trigonometry	252				x		x				x			x	x
Trigonometry, Advanced Math, and Analytic Geometry	253					x		x			x		x		
Trigonometry, Math Analysis	254					x									
Advanced Trigonometry and Calculus	255													x	

		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
Special Problems in Math	260									x					
Consumer Math	261	x	x												

SCIENCE		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
General Science	304			x	x		x	x	x				x	x	x
Life Science	305		x							x		x			
Earth Science	306											x			
Physical Science	307	x	x		x	x				x	x				
Agriculture Science	308		x												
Aviation Science	309		x												
Advanced Science	310		x												
Vocational Physical Science	311											x			
Advanced Aeronautics	312		x												
General Biology	320		x		x		x	x		x	x	x	x	x	x
Biology I (BSCS Blue Version)	321							x							
Biology I (BSCS Green Version)	322								x						
Biology II	324						x	x			x		x	x	x
Chemistry I	332		x		x	x	x	x	x	x	x	x	x	x	x
Chemistry II	333														x
Physics I	342		x		x	x	x	x		x	x	x	x	x	x
Transistor Electronics	365		x										x		
Photography I	370		x		x							x		x	
Photography II	371		x												
Physiology	375														x
Zoology	385				x										
Botany	390				x										

SOCIAL SCIENCE		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
World Geography	400	x			x			x		x	x	x	x		
Current Events	403							x							x
Nevada History	404			x			x		x		x			x	x
United States History	406		x		x	x	x	x	x	x	x	x	x	x	x
World History	407		x	x	x	x	x	x	x	x	x	x	x	x	x
Current Affairs and Events	417						x	x							x
World Problems	421				x										
Civics	430						x				x			x	
American Government	431		x		x	x		x	x	x	x	x	x		x
U.S. Government I, Vocational	433		x												
Student Government and Leadership	436		x												
Senior Problems	437					x									
Discovering Yourself	440									x					
Orientation	442									x					
Orientation, Vocational	444								x						
Vocations (Careers)	445									x					
Family Living	450											x			
Marriage and the Family	452						x	x							
Psychology	453		x		x			x				x	x		x
Social Studies	466													x	

		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
Sociology	471		x		x			x				x	x		x
Economics	485		x				x	x					x	x	

BUSINESS		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
Person Typing	502							x				x			
Typing I	503	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Typing I, Vocational	504						x								
Typing II	505		x		x	x	x	x		x	x	x			x
Typing II, Vocational	506						x		x				x		
Shorthand Theory, Vocational	510						x								
Shorthand I	512				x	x	x	x		x		x	x	x	x
Shorthand II	513				x		x	x		x		x	x		
Notehand	518				x		x								
General Business	521				x		x	x						x	x
Business English	523		x					x							x
Business Law	524		x				x				x		x		x
Business Mathematics	526		x								x				
Commercial Mathematics, Vocational	530						x								
Distributive Education I	533		x					x	x						
Distributive Education II	534		x												
Accounting I, Vocational	540		x										x		
Accounting II, Vocational	541												x		
Bookkeeping I	542				x	x		x	x	x	x	x		x	x
Bookkeeping II	543										x				

		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
Office Practice	551		x		x		x	x		x	x		x	x	x
Office Practice I, Vocational	552									x					
Office Practice II, Vocational	553									x					
Applied Office Practice I	554		x					x							
Applied Office Practice II	555		x												
Clerical Office Practice	556									x					
Filing, Vocational	557						x	x							
Office Machines	558						x	x				x			
Production Typing and Office Machines, Vocational	561						x								
Office Occupations	563								x						
Cooperative Office Education	564												x		
Data Processing	571						x								

PHYSICAL EDUCATION		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
Drivers Training	600		x		x		x	x		x	x	x	x	x	x
Health - Junior High	601			x			x			x	x				
Health I - Senior High	602						x	x		x		x	x	x	x
Physical Education - Jr. High	614	x		x			x				x				
Physical Education - Sr. High	617		x		x	x	x	x	x	x	x	x	x	x	x
Co-Educational P.E.	618						x				x				

MUSIC		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
Glee Club	625														x
Mixed Chorus	626		x		x	x	x	x		x		x	x		
Choir	627	x		x							x			x	
Madrigals	629							x							
Folk Singers	630				x										
Beginning Band	631			x	x		x		x	x					
Junior Varsity Band	633													x	
Varsity Band	634	x	x		x	x	x	x		x		x	x	x	
Pep Band	635		x			x	x	x	x	x			x	x	
Stage Band	636		x							x			x		
Concert Band	637		x												
Marching Band	638		x												
General Music	640												x		
Music Appreciation	641				x		x	x		x		x			
Music Theory	643											x			

ART		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
Art - 9th Grade	652			x										x	
Art I	653		x		x	x				x		x	x	x	x
Art II	654		x		x							x	x	x	
Art III	655		x		x							x	x	x	
Art IV	656											x	x	x	
Fundamentals of Design	659											x			
Drawing and Painting I	663											x			
Arts and Crafts	670									x					
Arts and Crafts I	671	x													
Ceramics	676											x			
Crafts	679					x									
Commercial Art I	680		x												
Jewelry Design	681											x			
Fabric Design	685						x								
General Printing I	686		x												
General Printing II	687		x												
Graphics	690									x					

HOME ECONOMICS		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
Bachelor Homemaking - Jr. High	700						x								
Bachelor Homemaking - Sr. High	701								x	x					
Beginning Homemaking	702						x		x						
Homemaking I	704	x		x	x			x	x			x			
Home Economics I	706					x	x	x		x			x	x	
Home Economics II	707				x	x	x		x	x				x	
Advanced Home Economics	708						x			x				x	
Senior Homemaking	710				x				x	x					
Home Management	711							x							
Family Living	712		x				x	x	x	x			x		
Family Living and Child Development	713							x		x					
Child Development	715												x		
Clothing	721							x							
Advanced Clothing and Textiles	722							x					x		
Clothing for Jr. Girls	724									x					
Fashion Sewing	725		x												
Dressmaking	726											x			
Foods	741					x		x					x	x	
Introduction to Food Service	747		x												
Creative Foods	748											x			
Housing and Housing Furnishing	761					x							x		
Interior Design	762		x												

INDUSTRIAL AND VOCATIONAL ARTS		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
Agriculture I, Vocational	810	x	x					x		x		x		x	
Agriculture II, Vocational	811		x					x		x				x	
Agriculture III, Vocational	812		x					x		x				x	
Automotive Mechanics I	821		x		x	x		x	x	x		x	x	x	
Automotive Mechanics II	822		x					x				x	x	x	
Automotive Mechanics III	823													x	
Auto Engine Testing and Service, Vocational	832		x												
Small Gas Engines	833	x	x			x									
Gas Engines (Farm, Home and Recreational)	834									x					
Drafting I	840				x			x		x	x	x	x	x	
Basic Drafting, Vocational	841				x										
Architectural Drafting, Vocational	843												x		
Electro-Mechanical Drafting I, Vocational	844		x												
Drafting II	845				x			x		x		x		x	
Drafting II, Vocational	846				x										
Electro-Mechanical Drafting II, Vocational	847		x												
Drafting III	848		x		x										
Drafting III, Vocational	849		x												
Drafting IV	851		x												

		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
Technical Drafting I	860							x							
Basic Electricity	870					x				x			x		
Basic Electricity, Vocational	871											x			
Beginning Electronics	880		x												
Electronics I	881		x		x										
Basic Electronic Circuits and Systems, Vocational	884		x												
Crafts	930									x					
Industrial Arts I	932			x					x				x	x	
Industrial Arts II	933								x				x	x	
Industrial Arts III	934								x				x	x	
Industrial Crafts I	935								x		x				
Welding	941					x									
Metals	943	x			x										
Metal Lathes	946					x									
Woodwork for Girls	950									x					
Wood Technology	951		x												
Wood I	952	x	x		x	x	x	x		x					
Wood II	953		x		x		x	x		x		x			
Wood III	954		x												
Carpentry & Cabinet Making	955		x											x	
Carpentry I, Vocational	956		x												
Carpentry II, Vocational	957		x												
Carpentry III, Vocational	958		x												

		E.C. Best Jr. Hi.	Churchill Cty. H.S.	Carson Jr. Hi.	Carson City H.S.	Douglas Cty. H.S.	Geo. Whittell H.S.	Albert Lowry H.S.	McDermitt H.S.	Fernley H.S.	Smith Valley H.S.	Yerington H.S.	Mineral Cty. H.S.	Pershing Cty. H.S.	Storey Cty. H.S.
Mechanical Drawing I	980	x													
Welding, Cement and General Construction	981										x				
Power Mechanics	982	x	x												
Masonry and Carpentry	983					x									
Concrete and Masonry	984											x			
Masonry	985									x					
Basic Shop Skills	986											x			
Girls General Shop	987								x						
Construction I	990											x			
Construction II	991											x			
Construction Tech. I	992		x												
Construction Tech. II	993		x												

PERSHING COUNTY HIGH SCHOOL MINI-CLASSES

Pershing County (Lovelock) High School is piloting a new secondary curriculum package during 1970-71 - the Mini-Classes. These classes, offered in grades 10-12, consist of approximately two dozen student originated, high interest, quarter-credit courses offered each semester. The uniqueness of these offerings suggested their being identified, at least temporarily, in a separate section of this publication. Following are the titles of courses offered in the first semester of the 1970-71 school year:

Arts and Crafts
Boys Home Economics
Community Problems
Computer Program
Conservation
Consumer Education
Creative Writing
Current Events
Drama Workshop
Ethnic Literature and History
Girls' Auto Mechanics
Good Grooming
Horse Care
How to Get a Job and Hold it
Motor Tune-up
Personal Typing
Preventive Maintenance, Farm Machinery
Publications
Special Projects in Science
Speech
Welding

Persons desiring additional information should contact Mr. Richard Frazier, Principal, Pershing County High School, Lovelock, Nevada.

PREDICTING STANFORD ACHIEVEMENT SCORES (NATIONAL PERCENTILES) FROM STUDENT MARKS

December 18, 1970

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PREDICTING STANFORD ACHIEVEMENT SCORES (NATIONAL PERCENTILES) FROM STUDENT MARKS.

No evidence regarding the predictive validity of the Stanford Achievement Test is available.[1] For that reason it has been recommended that the Stanford Achievement Test Subtests not be used for individual diagnosis. "The decision to change the grade placement of a pupil must be based on a more detailed analysis of a pupil's functioning than is represented by a grade score."[2] If, however, an evaluation of an individual's (or a group's) relative strengths or weaknesses is desired, then the Stanford Achievement Test Subscores, especially when expressed as national norms, can be used.

A previous memorandum has described a method for approximating Otis IQ's when Stanford Achievement sub-scores are available.[3] These, of course, should not be used for individual but rather for group diagnosis. The present memorandum describes a technique for predicting placement on Stanford Achievement sub-scores when semester grades are available.

Its only purpose is to supply estimated Stanford Achievement Test data when only semester marks are available for groups of students in order to identify relative strengths and weaknesses. These estimates should be discarded when more definitive data is available.

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1. Mehrens, W. A. and I. J. Lehmann, Standardized Tests in Education (New York: Holt, Rinehart and Winston, 1969), p. 184

2. Kelly, T. L., R. Madden, E. F. Gardner, and H. C. Rudman, Stanford Achievement Test Technical Supplement (New York: Harcourt, Brace and World, 1966) p. 16

3. Brough, T. G., Using Student Data From Computer Printouts, Three Examples (Lovelock, Nevada: Western Nevada Regional Education Center, May 25, 1970), pp. 19-26.

Performance data was available from 9th grade students in County A. This consisted of 1) Semester marks for the previous 8th grade year and 2) Stanford Achievement Test Data from the fall semester of the 9th grade year. Correlations between the sum of the semester grades for each pupil (based on a scale, F=1 to A=5) and the raw score for the corresponding Stanford Achievement subtests were computed. The results are shown in Table 1.

Table 1

Correlations between Semester Marks and Stanford Achievement Subscores, County A

Subject	Stanford Sub-test	Correlation* (N=40)
Literature	Para Meaning	.817
Spelling	Spelling	.630
English	Language	.755
Mathematics	Arith. Computations	.809
Mathematics	Arith. Concepts	.855
Mathematics	Arith. Applications	.609
Social Studies	Social Studies	.520
Science	Science	.597

*Product-Moment Correlation: Garrett, H. E. and R. S. Woodworth, Statistics in Psychology and Education, sixth edition (New York: David McKay, 1966), p. 143

Additional performance data was available from a group of fifth grade students from County E. The correlations between the data on marks (mathematics semester marks) and Achievement Test Scores is shown in Table 2.

Table 2

Correlations between Semester Marks and Stanford Achievement Sub-scores, County E

Subject	Stanford Sub-test	Correlation* (N=180)
Mathematics	Arith. Computations	.942
Mathematics	Arith. Concepts	.938
Mathematics	Arith. Applications	.942

*Product-Moment Correlation, see: Brough, T. G., Student Placement in Mathematics based on previous achievement (Lovelock, Nevada: Western Nevada Regional Education Center, March, 1970).

These correlations (especially those in Table 2) indicate a high degree of correlation between semester marks (teacher judgment) and achievement on Stanford Sub-tests. With this as evidence for a connection between the two, an empirical equation was devised to link the marks received to the Stanford achievement scores (National percentile). National percentile was chosen as the measure to be predicted in order to free the resulting function from the grade level of performance.

After much trial and error the following function resulted:

$$P = kG(G-1) \qquad (1)$$

Where P = percentile placement (individuals)
G = sum of two successive semester marks

$$k = \frac{P_m}{G_m(G_m-1)}$$, a constant for each local group for each sub-test area

in which

P_m = Local mean for Stanford Achievement Sub-test

G_m = Local mean of semester marks (sum of two semesters)

The factor k reflects differing performance levels on the Stanford Achievement Sub-tests for groups of students (classroom to classroom, school to school, or county to county), and differing marking practices of classroom achievement levels for groups of students. This factor might be viewed as an educational quality loading factor for marks given.

Applying equation (1) to the two sets of data available (County A and County E) we can check to see how successful the expression is. The first step is to compute values for the quality factor k. Using this factor and the recorded marks for each student, predicted Stanford Achievement Sub-test scores were computed. These predicted scores were then averaged and then compared with the actual performance of these same students on the Stanford Achievement Sub-tests. The results of these calculations for the two counties are shown in Table 3:

Table 3

Predicted vs. Achieved Stanford Achievement Test Sub-Scores

Sub-test	(GPA)x2 (G)	Quality Factor (k)	Mean of Achieved Scores (P_m,%)	Mean of Predicted Scores (P,%)	Proportion within ±15 pts. (%)	Proportion within proper Quartile (%)
			County A			
Para. Mean.	6.60	1.24	45.8	51.3	35.0	52.5
Spelling	6.67	1.24	47.1	51.9	84.5	84.5
Language	6.25	1.27	41.6	45.7	55.0	70.0
Arith. Comp.	5.48	1.22	30.1	30.5	62.5	65.0
Arith. Conc.	5.48	2.05	50.4	45.2	67.5	70.0
Arith. Appl.	5.48	1.74	42.7	41.5	68.5	57.9
Soc. Stu.	6.87	0.803	32.4	35.6	65.0	62.5
Science	6.64	0.982	36.8	39.9	47.4	65.8
Means (N=40):	6.18	1.32	40.9	42.7	60.7	66.0
			County E			
Arith Comp.	5.18	2.48	53.9	55.5	48.1	50.0
Arith Conc.	5.18	2.62	56.9	56.2	46.1	44.3
Arith Appl.	5.18	2.19	47.5	50.2	48.1	65.4
Means (N=52):	5.18	2.43	52.8	53.9	47.4	53.2

Two criteria were used to judge success of these predictions: 1) The proportion of predicted scores that came within 15 points of the actual score, and 2) The proportion of predicted scores that fell within the same quartile as the actual score. The second criterion is more rigid than the first in that no spread of scores is allowed (the cut-off points are rigidly chosen at the 25 and 75 percent boundaries.

The results of the two criteria for County A show that:

1) the predicted scores fall within ± 15 points of the achieved scores about 60% of the time (with a range of agreement of 35 to 84.5%).
2) The predicted scores fall within the achieved quartile 66% of the time (with a range of agreement of 52.5 to 70%).

For County E:

1) The predicted scores fall within ± 15 points of the achieved scores about 47% of the time (with a small range of agreement of 46.1 to 48.1%).
2) The predicted scores fall within the achieved quartile about 53% of the time (with a range of agreement of 44.3 to 65.4%).

If we rearrange the data in Table 3 and place them in order of the calculated value of k we get the following results:

Table 4

Calculated Value				Rank Order			
G	k	P_m	P	G	k	P_m	P
6.87	0.803	32.4	35.6	11	1	2	2
6.64	0.982	36.8	39.9	9	2	3	3
5.48	1.22	30.1	30.5	5	3	1	1
6.60	1.24	45.8	51.3	8	4.5	6	8
6.67	1.24	47.1	51.9	10	4.5	7	9
6.25	1.27	41.6	45.7	7	6	4	6
5.48	1.74	42.7	41.5	5	7	5	4
5.48	2.05	50.4	45.2	5	8	9	5
5.18	2.19	47.5	50.2	2	9	8	7
5.18	2.48	53.9	55.5	2	10	10	10
5.18	2.62	56.9	56.2	2	11	11	11

From the rank order (low to high) indicated in the table we can calculate correlations between the various variables (Spearman-Rank Correlations)*. The resulting correlations are as follows:

		Probability Level	Percent of Variation
k vs. P_m :	r_s = 0.891	P < .01	79.2
k vs. G :	r_s = -0.843	P < .01	71.0
P vs. P_m :	r_s = 0.864	P < .01	74.3
G vs. P_m :	r_s = -0.612	P < .05	37.5

* Siegel, S., Nonparametric Statistics for the Behavioral Sciences (New York: McGraw-Hill, 1956), pp. 202-213.

The above results indicate that the quality factor k is an indication of student ability to score well on Stanford Achievement Subtests. They also show that the correlation between the predicted sub-test scores and the scores achieved utilizing the k factor and Equation (1) is much higher than the correlation between the recorded marks and the sub-test scores. In fact the amount of variation in the sub-test scores accounted for has been increased from 37.5% to 74.3% by using k and Equation (1). The quality factor k, accounts for nearby 80% of the variability among the Stanford Achievement sub-scores.

METHOD

This method of estimating Stanford Achievement Test scores from marks given is relatively easy if a systematic calculation system is followed. A suggested procedure is given below.

1. Locate the Stanford Achievement Test means for the nearest comparable group of students. If the missing scores are a few students from a particular class or school at a particular grade level, choose the results for that group. If the missing scores are for students scattered throughout the district, choose the results for the whole district. Do not mix students of different grade levels.

2. Convert the averages to national percentiles.

3. Compute the average classroom performance (teacher marks) for the students with Stanford Achievement Test results available. This should be done for each subject area for which a corresponding Stanford Achievement Sub-test is available. Note: Paragraph Meaning is a test of achievement in Literature, while Language is a test of achievement in English. The others are more or less obvious. The average performance should be computed on the basis of the total performance for two semesters (both semester grades), using A = 5, B = 4, C = 3, D = 2, F = 1. The total achieved grades for each student would range from 2 to 10, with averages for groups falling around 6.00.*

* If marks other than A, B, C are used, such as P or F, then some estimate of the equivalency of these marks to A, B, C must be made. If an isolated mark of P or F (or S or U) is issued, then use: P = 3, F = 1, S = 3, U = 1. A plus or a minus will raise or lower these equivalencies by 1 point. If only one semester's mark or one mark for the year is available, double this mark in the calculation.

4. Compute a quality factor for each sub-score utilizing the data of paragraphs 1, 2, 3 above, using the definition of the quality factor k, associated with Equation (1) above.

5. Compute Individual Stanford Achievement Sub-scores for each student using this factor and the mark performance (two semesters) for each student by inserting these factors into Equation (1) above.

If overall (rather than individual sub-score) placement is desired, then the average of the battery of scores and the average of all corresponding marks should be used to get a national percentile and a mark average to compute a corresponding value of k and then an overall percentile placement for each individual. Do not attempt to use this scheme to predict overall placement of groups with one calculation, since the nature of expression 1 guarantees an answer identical to the observed average. Average predicted performance must come from the average of each prediction.

It is recommended that this prediction scheme be used by interested parties in order to measure the overall predictive capability of Stanford Achievement Tests and of the quality factor, k. The author would be interested in any results obtained.

OVERAGE STUDENTS

AND

STUDENTS IN LOWEST QUARTILE

DISTRICTS A, B, C, D, E, G, THIRD GRADE

TRANSPORTATION ANALYSES
FOR SMALL DISTRICT A AND LARGE DISTRICT E

April 15, 1971

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SUMMARY

The general trends revealed in this analysis of third grade performances in 7 rural counties are that the students who are overage or who place lowest in performance on the two Standardized tests are: students with learning disabilities, who speak a foreign language at home, are usually members of minority groups, are boys, and who live the furthest from school.

These findings reinforce similar findings in studies of 9th grade students. The differences between the results for the 3rd and 9th graders are one of degree. The trends observed are generally more severe for 9th graders than for 3rd graders and the general performance in all categories for 9th graders is generally much inferior to the general performance for 3rd graders.

INTRODUCTION

This pamphlet continues the use of the Partial Student Profile, a computer-based report of data on each student stored in the Western Nevada Regional Education Center's Student Information System. By its very nature (a computer printout-one line per student) the Profile is compact and much of the information is coded. Printouts of the complete coded information as it now exists for each student in the system are even more compact. Samples of this data (called Demonstration Data for discussion purposes) are included in a previous report in this series: Using Student Data From Computer Printouts, WN-REC, May 25, 1970. With a little experience, the codes can be learned and the information extracted for school analysis purposes. A discussion of how the data is handled to yield tables such as are in this memo is given in the above-mentioned publication.

Previous publications dealing with student performance in these six county school districts in Western Nevada are:

> Overage Students and Students in Lowest Quartile, Districts A, B, C, D, E, G, 9th grade (WN-REC, various dates: August 4, 1970 to September 30, 1970)
>
> Using Student Data from Computer Printouts, (WN-REC, May 25, 1970) also deals with County G (overage and lower quartile placement only - no transportation analysis).

OVERAGE vs. NON-OVERAGE STUDENTS

District A

Table 1 summarizes selected information for third grade students classified according to placement in overage or non-overage groups. Students will be considered overage if their birthdays fall before January 1, 1961. The Table reveals the following trends:

1. A tendency toward a larger incidence of learning disabilities the more overage the student (9.5% for non-overage to 28.6% for overage over 6 months).

2. An increase in proportion of children reporting a foreign language spoken at home with increasing overage placement.

3. An increase in proportion of students from families with professional and unskilled fathers with increasing overage placement (falls off for oldest group), and a decrease for students from families with self-employed and skilled fathers (falls off for the oldest group).

4. A tendency toward an increase in proportion of Spanish Americans with increasing overage placement (not complete).

5. A decrease in proportion of girls with overage placement.

6. A slight tendency toward a <u>decrease</u> in proportion of students who walk or ride bike with increasing overage placement and a similar <u>increase</u> for students who ride bus, car or other to school.

7. A <u>decrease</u> in time to school for students with increasing overage placement. This decrease holds for students overall as well as for students when classified by transportation method. It is most pronounced for students who walk or ride bike to school.

8. A <u>rapid</u> decrease in proportion of students who eat a hot cafeteria lunch with increasing overage placement. There are corresponding increases in the proportion of students who have box lunch or lunch-other.

9. A <u>rapid</u> decrease in Standardized test scores with increasing overage placement. This is true for both Standardized tests listed: Paragraph Meaning and Arithmetic Computation.

<u>In Summary</u>: Students who have a tendency to be overage and place in the lowest performance categories are: students with learning disabilities, who speak a foreign language at home, who are Spanish-Americans, who are boys, who ride bus or car to school, who walk or bike a <u>short</u> distance to school and who do <u>not</u> eat a hot cafeteria lunch.

Table 1

District A, 3rd Grade
Overage vs. Non-Overage

	Percent Overage Over 6 mos. (N=7)	Percent Overage Group (N=13)	Percent Total Population (N=55)	Percent Non-Overage Population (N=42)
Learning Limitations: (Yes only)	28.6(2)	23.1(3)	12.7(7)	9.5(4)
Foreign Language Spoken at Home (Yes only):	28.6(2)	23.1(3)	9.1(5)	4.8(2)
Male Parent: missing, step-parent or other	0(0)	0(0)	14.5(8)	0(0)
Occupation of Male Parent:+				
Professional	0(0)	15.4(2)	9.1(5)	7.1(3)
Self-Employed	14.3(1)	7.7(1)	14.5(8)	16.7(7)
Skilled	57.2(4)	38.5(5)	56.4(31)	61.9(26)
Unskilled	28.6(2)	38.5(5)	20.0(11)	14.3(6)
Unemployed	0(0)	0(0)	0(0)	0(0)
No Response	14.3(1)	7.7(1)	1.8(1)	2.4(1)
Students:				
Spanish-American	14.3(1)	15.4(2)	12.7(7)	0(0)
Indian	0(0)	0(0)	1.8(1)	2.4(1)
Black	0(0)	0(0)	0(0)	0(0)
Oriental, Other	0(0)	0(0)	0(0)	0(0)
Girl Students	28.6(2)	38.5(5)	54.5(30)*	57.1(24)
Transportation Type:				
Walk or Bike	57.2(4)	53.9(7)	58.2(32)	58.5(25)
Bus, Car or Other	42.8(3)	46.1(6)	41.8(23)	41.5(17)
Transportation Time (min.):				
Overall	11.7(7)	11.7(13)	13.6(55)	14.2(42)
Walk or Bike	5.5(4)	4.6(7)	7.3(32)	8.1(25)
Bus, Car or Other	20.0(3)	20.0(6)	22.4(23)	23.2(17)
Lunch Type:				
School - Hot	14.3(1)	34.0(4)	50.9(28)	57.1(24)
School Pays	0(0)	0(0)	0(0)	0(0)
Home Pays	100.0(1)	100.0(4)	100.0(28)	100.0(24)
School - Box	28.6(2)	23.1(3)	21.8(12)	21.5(9)
None:	0(0)	0(0)	0(0)	0(0)
Other:	57.2(4)	46.1(6)	27.3(15)	21.5(9)
Average Score Stanford Subtest (percentile):				
Paragraph Meaning	20.4(7)	22.9(13)	40.9(56)*	46.3(42)
Arith. Comp.	35.4(7)	34.8(13)	56.3(56)*	62.8(42)

* 1 girl student Standardized test scores only.

+ When male parent is missing, female parent occupation is substituted

STUDENTS CLASSIFIED BY QUARTILE STANDING

District A

Table 2 summarizes selected information for students classified on the basis of their performance on the Stanford Achievement sub-tests: Paragraph Meaning (PA) and Arithmetic Computation (AR). The Table reveals the following trends:

1. An increase in the proportion of students with learning limitations with decreasing quartile placement.

2. An increase in proportion of overage students with decreasing quartile placement.

3. A rapid increase of proportion of students who speak a foreign language at home with decreasing quartile placement.

4. A tendency toward an increase in proportion of students with missing, step- or other male parents with decreasing quartile placement.

5. A decrease in proportion of students with self-employed fathers and an increase in proportion of students with skilled and unskilled fathers with decreasing quartile placement.

6. A tendency toward an increase in proportion of Spanish-American and Indian students with decreasing quartile placement.

7. A rapid decrease in proportion of girls with decreasing quartile placement.

8. An increase in time to school for students travelling by bus, car and other with decreasing quartile placement.

9. A decreasing proportion of students eating school hot lunch with decreasing quartile placement.

Table 2

District A, 3rd Grade
Lowest Quartile Students vs. Others

	Percent Lower Q (N=21)	Percent Total Population (N=55)	Percent Middle Q Groups (N=18)*	Percent Upper 3/4 Group (N=35)*	Percent Upper 1/4 Group (N=17)
Learning Limitations (Yes only):	23.8(5)	12.7(7)	11.1(2)	5.7(2)	0(0)
Overage:					
Up to 6 months	23.8(5)	10.9(6)	0(0)	2.9(1)	5.9(1)
6 to 12 months	23.8(5)	12.7(7)	11.1(2)	5.7(2)	0(0)
Foreign Language Spoken at Home (Yes only)	19.1(4)	9.1(5)	5.5(1)	2.9(1)	0(0)
Male Parent: Missing, Step, or Other	23.8(5)	14.5(8)	5.5(1)	8.6(3)	11.7(2)
Occupation of Male Parent:+					
Professional	9.5(2)	9.1(5)	5.5(1)	8.6(3)	17.7(3)
Self-Employed	9.5(2)	14.5(8)	11.1(2)	17.1(6)	23.5(4)
Skilled	57.1(12)	56.4(31)	66.6(12)	57.1(20)	41.2(7)
Unskilled	23.8(5)	20.0(11)	16.7(3)	17.1(6)	17.7(3)
Unemployed	0(0)	0(0)	0(0)	0(0)	0(0)
Students:					
Spanish-American	23.8(5)	12.7(7)	5.5(1)	8.6(3)	11.7(2)
Indian	4.8(1)	1.8(1)	0(0)	0(0)	0(0)
Black	0(0)	0(0)	0(0)	0(0)	0(0)
Oriental, Other	0(0)	0(0)	0(0)	0(0)	0(0)
Girl Students**	38.1(8)	54.5(30)	50.0(9)	62.9(22)	76.5(13)
Transportation Type:					
Walk or Bike	61.9(13)	58.2(32)	44.4(8)	54.3(19)	64.7(11)
Bus, Car or Other	38.1(8)	41.8(23)	55.5(10)	45.7(16)	35.3(6)
Transportation Time (min.):					
Overall	12.6(21)	13.6(55)	22.2(18)	14.1(35)	10.0(17)
Walk or Bike	6.1(13)	7.3(32)	10.0(8)	8.2(19)	6.8(11)
Bus, Car, or Other	23.1(8)	22.4(23)	17.0(10)	21.2(16)	15.8(6)
Lunch Type:					
School - Hot	33.3(7)	50.9(28)	66.7(12)	62.9(22)	58.9(10)
School Pays	0(0)	0(0)	0(0)	0(0)	0(0)
Home Pays	100.0(7)	100.0(28)	100.0(12)	100.0(22)	100.0(10)
School - Box	14.3(3)	21.8(12)	22.2(4)	25.4(9)	29.4(5)
None	0(0)	0(0)	0(0)	0(0)	0(0)
Other	52.4(11)	27.3(15)	11.1(2)	11.4(4)	11.7(2)
Average Score Stanford Subtest (percentile):					
Paragraph Meaning	20.2(21)	40.9(56)**	40.3(19)	52.4(36)	65.9(17)
Arith. Comp.	35.2(21)	56.3(56)**	54.0(19)	69.2(36)	86.3(17)

* 1 student was in both LQ and UQ.
**1 girl student has Standardized test scores only.
+ When male parent is missing, female parent occupation is substituted.

STUDENT PERFORMANCE AND OTHER CHARACTERISTICS AS A FUNCTION OF RESIDENCE AREA

District A

If students are identified as coming to school from one particular town or part of a given town then some patterns emerge. Organizing the data on the basis of residence and ranking the groups according to the proportion of overage students in each residence area results in the pattern shown in Table 3. The order of residence areas is same as the previous ranking for this county (District A, 9th grade, August 4, 1970).

Table 3 shows the following:

1. An increase in proportion of students placing in the lower quartile with increasing overage proportion in the communities.
2. A tendency toward an increase in proportion of ethnics with increasing distance from school.
3. A tendency toward a decrease in overall performance in Paragraph Meaning with distance from school (one exception).

All other trends are mixed. For these third graders, the students doing best are students living on the edge of town, followed by the group living closest to school and the farthest out group doing worst. The ring effect observed in the study of 9th graders in this county still holds true: the group the furthest distance out generally does the worst (in Paragraph Meaning) but for Arithmetic Computation, they are not seriously behind.

Table 3
District A
Selected Characteristics of 3rd Grade Students by Time from School

Town	Dist. (mi.)	Time (min)	Total Prop. *	Overage Prop.*	Lower Q Prop.**	Prop. in Each Residence Area*** Overage	Lower Q	Overall Performance PA All	PA Over	PA Lower Q	AR All	AR Over	AR Lower Q	Prop. of Ethnics+
A_1	2.6	23.7(20)	36.4(20)	41.7(5)	38.1(8)	25.0(5)	40.0(8)	35.8(21)	28.2(5)	14.2(8)	58.0(21)	53.2(5)	45.0(8)	15.0(3)
A_2	~.5	5.6(26)	47.2(26)	58.3(7)	61.9(13)	26.9(7)	50.0(13)	40.0(26)	19.1(7)	24.1(13)	51.4(26)	16.9(7)	27.1(13)	7.7(2)
B	1.0	13.3(3)	5.5(3)	0(0)	0(0)	0(0)	0(0)	62.7(3)	---	---	61.3(3)	---	---	33.3(1)
A_3	1.0	15.0(5)	10.9(6)	0(0)	0(0)	0(0)	0(0)	51.3(6)	---	18.0(1)	69.3(6)	---	68.0(1)	16.7(1)

* Percentage of total population
** Percentage of pupils with test scores reported
*** Numbers in these two columns are percentages within each group
\+ Proportion of pupils in each town of the sum of the students in the categories: Indian, Spanish-American, Spanish surname, and those who speak a foreign language at home.

PA and AR: Average of Stanford Achievement Sub-scores, National Percentiles
All: All students in particular town (or subdivision)
LQ: Students placing in lower quartile of either subtest

OVERAGE Vs. NON-OVERAGE STUDENTS

District B

Table 4 summarizes the selected information for third grade students classified according to placement in overage or non-overage groups. Students will be considered overage if their birthdays fall before January 1, 1961. The table reveals the following trends.

1. A tendency toward a larger incidence of learning disabilities with increasing overage placement.

2. An increase in proportion of students reporting a foreign language spoken at home with increasing overage placement.

3. A decrease in proportion of male parents reported as missing, step-, or other with increasing student overage placement.

4. An increase in proportion of students from families with professional, skilled, and unemployed fathers with increasing age placement and a decrease in proportion of students with self-employed fathers with increasing age placement. The proportion of children with unskilled fathers remains remarkably stable with increasing overage placement.

5. An increase in proportion of Spanish-American students with increasing age placement. For other minority students the trend is toward a decrease in proportion with increasing age placement.

6. A decrease in proportion of girls with increasing age placement.

7. A strong trend toward an increasing proportion of students who walk or ride bike with increasing age placement.

8. A decrease in the time traveled with increasing age placement. A decrease in the time traveled for students traveling by bus, car, or other with increasing age placement, while the time increases slightly with increasing age placement for students who walk or bike.

9. An increase in proportion of students with School Hot Lunch with increasing age placement, and a corresponding decrease in proportion of students having box lunch with increasing age placement. The proportion of students having lunch-other increases with increasing overage placement. The proportion of students with hot and box lunch remains roughly constant with increasing age placement (falls off for the oldest group).

10. A general trend toward decreasing overage percentile placement in the Stanford Achievement test scores with increasing age placement. This trend falls off for the youngest age group for Paragraph Meaning and for the oldest age group for Arithmetic Computation.

In summary: Students who have a tendency to be average and place lowest on Standardized tests are: students with learning disabilities, who speak a foreign language at home, who have professional, skilled or unemployed fathers, who are Spanish-American (but not Indian or Oriental), who are boys, who walk or ride bike to school, who travel the furthest, and who have lunch-other.

Table 4

District B, 3rd Grade
Overage vs. Non-Overage

	Percent Overage over 12 mos. (N=2)	Percent Overage over 6 mos. (N=9)	Percent Overage Group (N=27)	Percent Total Population (N=138)	Percent Non-Overage (N=111)
Learning Limitations (Yes only):	0(0)	11.1(1)	25.9(7)	13.1(18)	9.9(11)
Foreign Language Spoken at Home (Yes only):	50.0(1)	22.2(2)	18.5(5)	18.1(25)	18.0(20)
Male Parent: missing, step-parent or other	50.0(1)	11.1(1)	18.5(5)	19.6(27)	19.8(22)
Occupation of Male Parent:+					
Professional	0(0)	0(0)	7.4(2)	3.6(5)	2.7(3)
Self-Employed	0(0)	0(0)	7.4(2)	24.6(34)	28.8(32)
Skilled	50.0(1)	44.4(4)	37.0(10)	23.2(32)	19.8(22)
Unskilled	50.0(1)	44.4(4)	44.4(12)	44.9(62)	45.0(50)
Unemployed	0(0)	11.1(1)	3.7(1)	3.6(5)	3.6(4)
Students:					
Spanish-American	50.0(1)	22.2(2)	11.1(3)	8.0(11)	7.2(8)
Indian	0(0)	0(0)	7.4(2)	13.8(19)	15.3(17)
Black	0(0)	0(0)	0(0)	0(0)	0(0)
Oriental, Other	0(0)	0(0)	0(0)	0.7(1)	9.0(1)
Girl Students	50.0(1)	55.5(5)	55.5(15)	60.1(83)	61.2(68)
Transportation Type:					
Walk or Bike	100.0(2)	66.7(6)	63.0(17)	50.7(70)	27.7(53)
Bus, Car or Other	0(0)	33.3(3)	37.0(10)	49.3(68)	52.3(58)
Transportation (min.):					
Overall	7.5(2)	6.8(9)	12.7(27)	14.2(138)	14.5(111)
Walk or Bike	7.5(2)	5.0(6)	11.4(17)	10.0(70)	9.6(53)
Bus, Car or Other	0(0)	10.3(3)	14.9(10)	18.4(68)	19.0(58)
Lunch Type:					
School - Hot	0(0)	33.3(3)	40.7(11)	31.8(44)	29.7(33)
School Pays	0(0)	33.3(1)	36.4(4)	34.1(15)	33.3(11)
Home Pays	0(0)	66.7(2)	63.6(7)	65.9(29)	66.7(22)
School - Box	0(0)	22.2(2)	33.3(9)	39.8(55)	41.4(46)
None	0(0)	0(0)	0(0)	0(0)	0(0)
Other	100.0(2)	44.4(4)	25.9(7)	28.4(39)	28.8(32)
Average Score Stanford ++ Subtest (percentile):					
Paragraph Meaning*	6.0(2)	13.9(9)	24.6(25)	38.1(155)	35.8(130)
Arithmetic Comp.**	83.5(2)	50.5(9)	50.2(25)	49.6(154)	54.5(129)

* 17 Students Names and Scores only.
** 16 Students Names and Scores only.
\+ When male parent is missing, female parent occupation is substituted.
++ 2 Students with no Stanford scores.

STUDENTS CLASSIFIED BY QUARTILE STANDING

District B

Table 5 summarizes selected information for students classified on the basis of performance on the Stanford Achievement sub-tests: Paragraph Meaning (PA) and Arithmetic Computation (AR). The table reveals the following trends:

1. An increase in the proportion of students with learning limitations with decreasing quartile placement.

2. A trend toward a decrease in the proportion of overage students with decreasing quartile placement.

3. An increase in proportion of students having a foreign language spoken at home with increasing quartile placement.

4. An increase in the proportion of students with missing, step-, or other parent with decreasing quartile placement.

5. A decrease in proportion of students with fathers self-employed or skilled with decreasing quartile placement, but an increase in proportion of students with fathers who are professional, unskilled, or unemployed.

6. A rapid increase in the proportion of students who are Indian with decreasing quartile placement. There is a mixed trend for Spanish-American students: a decrease in proportion of students with decreasing quartile placement from mid-quartile on down, but with a decrease also with increasing quartile placement for mid-quartile on up.

7. An overall trend toward a decrease in proportion of students who walk or bike to school with decreasing quartile placement.

8. A general overall trend toward increasing time to school with decreasing quartile placement (the highest quartile students travel the least time). However, from the middle quartiles on down the trend is toward decreasing time traveled. These same trends hold true for students who walk or bike and for students who ride bus, car or other to school.

9. A rapid increase in proportion of students with school hot lunch with decreasing quartile placement, and a general decrease in proportion of students having box lunch at school. The proportion of students having either hot lunch or box lunch at school decreases with quartile placement for the mid-quartile

groups on down, but also decreases for the mid-quartile groups on up. The proportion of students with lunch-other increases slightly with decreasing quartile placement (mid-quartile down) and also with increasing quartile placement (mid-quartile up).

10. The average performance of students decreases with decreasing quartile placement on both performance measures (Paragraph Meaning and Arithmetic Computation).

Table 5

District B, 3rd Grade
Lowest Quartile Students vs. Others

	Percent Lower Q (N=43)*	Percent Total Population (N=138)*	Percent Middle Q Groups (N=47)**	Percent Upper 3/4 Group (N=98)**	Percent Upper 1/4 Group (N=51)*
Learning Limitations (Yes only):	7.0(3)	13.1(18)	12.8(6)	15.3(15)	17.7(9)
Overage:					
Up to 6 months	2.3(1)	13.1(18)	27.7(13)	18.4(18)	9.8(5)
6 to 12 months	0(0)	5.1(7)	12.8(6)	8.2(8)	3.9(2)
12 months and over	0(0)	1.4(2)	2.1(1)	2.0(2)	2.0(1)
Foreign Language Spoken at Home (Yes only):	30.0(13)	18.1(25)	19.2(9)	13.3(13)	7.9(4)
Male Parent - missing, step-parent, other:	25.6(11)	19.6(27)	19.2(9)	16.3(16)	13.7(7)
Occupation of Male Parent:+					
Professional	7.0(3)	3.6(5)	0(0)	2.0(2)	3.9(2)
Self-Employed	13.9(6)	24.6(34)	29.8(14)	28.6(28)	27.5(14)
Skilled	16.3(7)	23.2(32)	19.2(9)	26.6(26)	33.4(17)
Unskilled	50.8(24)	44.9(62)	46.9(22)	40.8(40)	35.3(18)
Unemployed	7.0(3)	3.6(5)	4.2(2)	2.0(2)	0(0)
Students:					
Spanish-American	7.0(3)	8.0(11)	12.8(6)	9.2(9)	5.9(3)
Indian	34.9(15)	13.8(19)	8.5(4)	4.1(4)	0(0)
Black	0(0)	0(0)	0(0)	0(0)	0(0)
Oriental, Other	0(0)	0.7(1)	0(0)	1.0(1)	2.0(1)
Girl Students	51.1(22)	60.1(83)	57.5(27)	64.3(63)	70.6(36)
Transportation Type:					
Walk or Bike	44.2(19)	50.7(70)	46.9(22)	54.1(53)	60.8(31)
Bus, Car or Other	50.8(24)	49.3(68)	55.3(26)	46.9(46)	39.2(20)
Transportation Time (min.):					
Overall	14.0(43)	14.2(138)	17.7(47)	14.1(98)	10.9(51)
Walk or Bike	9.3(19)	10.0(70)	11.7(22)	10.2(53)	9.1(31)
Bus, Car or Other	17.8(24)	18.4(68)	22.9(25)	18.8(45)	13.6(20)
Lunch Type:					
School - Hot	44.2(19)	31.8(44)	29.8(14)	25.5(25)	21.6(11)
School Pays	57.9(11)	34.1(15)	7.1(1)	16.0(4)	27.3(3)
Home Pays	42.1(8)	65.9(29)	92.9(13)	84.0(21)	72.7(8)
School - Box	25.6(11)	39.8(55)	51.1(24)	46.9(46)	43.2(22)
None	0(0)	0(0)	0(0)	0(0)	0(0)
Other	30.2(13)	28.4(39)	21.3(10)	27.6(27)	33.4(17)
Average Score Stanford Subtest (percentile):					
Paragraph Meaning	19.9(45)	38.1(155)	28.6(57)	44.8(113)	61.2(56)
Arithmetic Comp.	28.1(45)	49.6(154)	32.6(56)	59.4(112)	86.1(56)

* 17 students, names and scores only; 2 in Lower Quartile; 5 in Upper Quartile.
** 3 students in both Upper and Lower Quartile
+ If male parent is missing, female parent occupation is substituted.

OVERAGE Vs. NON-OVERAGE STUDENTS

District C

Table 6 summarizes selected information for third grade students classified according to placement in overage or non-overage groups. Students will be considered overage if their birthdays fall on or before December 31, 1960. The Table reveals the following trends in District C:

1. An increasing tendency toward a larger percentage of students with learning disabilities the more overage the child (from 6.2 for non-overage to 60% for overage over 12 months). A decrease of percentage of professional, self-employed, and skilled with overage placement.

2. No children of professional parents overage by 12 months; same for self-employed.

3. An increase in proportion of children with unskilled fathers with increasing overage category. An increase in proportion of children who speak foreign language at home.

4. An increase in proportion of Spanish-American children with increasing overage category. A decrease in proportion of ethnic students with increase in overage category for Indians, Blacks and Others.

5. A decrease in proportion of girls with increasing overage category.

6. A slight increase in time traveled by bus or car as overage category increases.

7. An increase in proportion of students who ride to school with increasing overage category.

8. An increase in proportion of students with school-paid hot lunch with increasing overage category.

9. An increase in proportion of students who have lunch-other with increasing overage category.

10. A rapid decrease in Paragraph Meaning scores with increasing overage category.

11. An increase in Arithmetic Computation scores with increasing overage category.

Table 6

District C, 3rd Grade
Overage vs. Non-overage

	Percent Overage Over 12 mos. (N=5)	Percent Overage Over 6 mos. (N=13)	Percent Overage Group (N=30)	Percent Total* Population (N=126)	Percent Non-overage (N=97)
Learning Limitations (Yes only)	60.0(3)	23.1(3)	10.0(3)	7.1(9)	6.2(6)
Foreign Language Spoken at Home (Yes only)	0(0)	7.7(1)	6.7(2)	8.7(11)	9.3(9)
Male Parent: missing, step-parent or other	0(0)	0(0)	0(0)	18.3(23)	23.7(23)
Occupation of Male Parent:+					
Professional	0(0)	7.7(1)	6.7(2)	11.1(14)	12.4(12)
Self-Employed	0(0)	0(0)	0(0)	0.3(4)	4.1(4)
Skilled	40.0(2)	30.8(4)	40.0(12)	52.4(66)	55.6(54)
Unskilled	60.0(3)	61.5(8)	50.0(15)	26.2(33)	18.6(18)
Unemployed	0(0)	0(0)	3.3(1)	7.1(9)	8.2(8)
Students:					
Spanish-American	20.0(1)	15.4(2)	10.0(3)	9.5(12)	9.3(9)
Indian	0(0)	0(0)	6.7(2)	9.5(12)	10.3(10)
Black	0(0)	7.7(1)	6.7(2)	10.3(13)	11.3(11)
Oriental	0(0)	0(0)	0(0)	0(0)	0(0)
Other	0(0)	0(0)	3.3(1)	4.0(5)	4.1(4)
Girl Students	20.0(1)	47.1(6)	33.3(10)	56.4(71)	62.9(61)
Transportation Type:					
Walk or Bike	60.0(3)	61.5(8)	73.4(22)	70.6(89)	69.1(67)
Bus or Car	40.0(2)	30.8(4)	23.3(7)	27.8(35)	27.9(28)
Other	0(0)	7.7(1)	3.3(1)	1.6(2)	1.0(1)
Transportation Time (Min.):					
Overall	11.0(5)	9.8(13)	9.6(30)	11.4(126)	12.0(96)
Walk or Bike	8.3(3)	8.7(8)	8.6(22)	10.5(89)	11.1(67)
Bus, Car or Other	15.0(2)	11.6(5)	12.4(8)	13.6(37)	14.0(29)
Lunch Type:					
School - Hot:	20.0(1)	30.8(4)	30.0(9)	47.8(54)	46.4(45)
School Pays	0(0)	50.0(2)	44.5(4)	22.2(12)	17.8(8)
Home Pays	100.0(1)	50.0(2)	55.5(5)	77.8(42)	82.2(37)
School - Box	40.0(2)	45.6(6)	33.3(10)	33.3(42)	33.0(32)
None	0(0)	0(0)	0(0)	0(0)	0(0)
Other	40.0(2)	23.1(3)	33.3(10)	23.8(30)	20.6(20)
Average Score Stanford Subtest (percentile):					
Paragraph Meaning	29.3(3)	37.6(11)	50.7(27)	60.5(132)	63.0(105)
Arith. Comp.	74.0(3)	63.8(11)	69.5(27)	65.0(132)	63.9(105

* 11 students no Birthdates.
+ When male parent is missing, female parent occupation is substituted.

STUDENTS CLASSIFIED BY QUARTILE STANDING

District C

Table 7 summarizes selected information for students classified on the basis of performance on the Stanford Achievement sub-tests: Paragraph Meaning (PA) and Arithmetic Computation (AR). The table reveals the following trends:

With decreasing quartile placement:

1. An increase in learning limitations.
2. A tendency toward an increase in proportion of students over 12 months overage.
3. An increase in proportion of students with professional or unemployed fathers, but a decrease in proportion of children with self-employed, skilled and unskilled fathers.
4. An increase in proportion of Spanish-American, Black, and Other students (almost 50% of the Black students are in the lowest quartile). A decrease in proportion of Indians.
5. An increase in proportion of students who walk or ride bike.
6. A slight increase in time to school (overall). An increase in time to school for students who walk or ride bike.
7. An increase in the proportion of students who have hot school lunch A very slight increase in the proportion of students who have box lunch. A <u>decrease</u> in the proportion of students who have lunch-other.
8. A decrease in average student performance on <u>both</u> sub-tests with decreasing quartile placement.

Table 7

District C, 3rd Grade
Lowest Quartile Students vs. Others

	Percent Lower Q (N=17)	Percent Total Population (N=126)	Percent Middle Q Groups (N=41)	Percent Upper 3/4 Group N=108)	Percent Upper 1/4 Group (N=67)
Hearing Limitations (Yes only):	11.8(2)	7.1(9)	12.2(5)	6.5(7)	3.0(2)
Overage:					
Up to 6 mos.	5.9(1)	13.5(17)	9.7(4)	14.8(16)	17.9(12)
6 to 12 mos.	5.9(1)	6.3(8)	12.2(5)	6.5(7)	3.0(2)
12 mos. and over	5.9(1)	3.4(5)	7.3(3)	3.7(4)	1.5(1)
Foreign Language Spoken at Home (Yes only)	29.4(5)	8.7(11)	7.3(3)	5.6(6)	4.5(3)
Male Parent: Missing, Step, or Other	5.9(1)	18.3(23)	22.0(9)	20.4(22)	19.4(13)
Occupation of Male Parent:+					
Professional	29.4(5)	11.1(14)	7.3(3)	8.4(9)	9.0(6)
Self-Employed	0(0)	0.3(4)	2.4(1)	3.7(4)	4.5(3)
Skilled	41.2(7)	52.4(66)	43.9(18)	55.5(60)	59.8(40)
Unskilled	17.6(3)	26.2(33)	36.6(15)	27.8(30)	22.4(15)
Unemployed	11.8(2)	7.1(9)	9.7(4)	6.5(7)	4.5(3)
Students:					
Spanish-American	17.6(3)	9.5(12)	4.9(2)	8.3(9)	10.4(7)
Indian	5.9(1)	9.5(12)	12.2(5)	11.1(12)	10.4(7)
Black	35.3(6)	10.3(13)	7.3(3)	6.5(7)	6.0(4)
Oriental	0(0)	0(0)	0(0)	0(0)	0(0)
Other	5.9(1)	4.0(5)	2.4(1)	3.7(4)	4.5(3)
Girl Students	47.0(8)	56.4(71)	51.3(21)	58.3(63)	62.7(42)
Transportation Type:					
Walk or Bike	70.6(12)	70.6(89)	65.9(27)	69.9(77)	74.6(50)
Bus, Car or Other	29.4(5)	29.4(37)	34.1(14)	30.1(33)	25.4(17)
Transportation Time (Min.):					
Overall	14.7(17)	11.4(126)	11.3(41)	10.8(110)	10.8(67)
Walk or Bike	15.8(12)	10.5(89)	8.6(27)	9.7(77)	10.2(50)
Bus, Car or Other	12.0(5)	13.6(37)	16.0(14)	13.6(33)	12.6(17)
Lunch Type:					
School - Hot:	47.0(8)	47.8(54)	43.9(18)	43.5(47)	38.8(26)
School Pays	12.5(1)	22.2(12)	22.2(4)	23.4(11)	26.9(7)
Home Pays	77.5(7)	77.8(42)	77.8(11)	76.6(36)	73.1(19)
School - Box:	35.3(6)	33.3(42)	34.2(14)	33.3(36)	32.8(22)
None	0(0)	0(0)	0(0)	0(0)	0(0)
Other	17.6(3)	23.8(30)	22.0(9)	25.0(27)	25.4(17)
Average Score Stanford Subtest (percentile):					
Paragraph Meaning	37.0(21)*	60.5(132)	50.4(39)	64.5(112)	72.1(73)**
Arith. Comp.	24.5(21)*	65.0(132)	49.4(39)	72.8(112)	82.9(73)**

* Students name and scores only - Lower Quartile.
** Students name and scores only - Upper Quartile.
+ When male parent is missing, female parent occupation is substituted.

OVERAGE Vs. NON-OVERAGE STUDENTS

District D

Table 8 summarizes selected information for third grade students classified according to placement in overage or non-overage groups. Students will be considered overage if their birthdays fall before January 1, 1961. The table reveals the following trends:

With increasing overage placement:

1. An increase in proportion of overage students (falls off for students more than six months overage).
2. An increase in proportion of students speaking a foreign language at home (falls off at over six months overage).
3. A general increase in proportion of students with male parent missing, step-, or other (the non-overage students do not quite follow this pattern).
4. A general decrease in proportion of students with professional, self-employed, or skilled fathers (the total overage group does not follow this pattern).
5. A general increase in proportion of students with unskilled or unemployed fathers.
6. A general increase in proportion of students who are Spanish-American or Indian, a general decrease for other minority students: Black and Oriental.
7. A decrease in proportion of girls.
8. A trend toward a decrease in proportion of students who walk or ride bike, and a corresponding increase for those transported by bus or car.
9. A trend toward an increase in time to school overall (falls off for oldest group).
10. A decrease followed by an increase in time to school for both walk or bike and bus or car students.
11. A trend toward a decrease (fluctuates) in the proportion of students who have hot lunch and who have box lunch. An increase in proportion of students reporting no lunch.
12. A decrease in average performance on both achievement sub-tests.

Table 8

District D, 3rd Grade
Overage vs. Non-overage

	Percent Overage Over 12 mos. (N=6)	Percent Overage Over 6 mos. (N=24)	Percent Overage Group (N=74)	Percent Total Population (N=334)	Percent Non-overage (N=227)
Learning Limitations (Yes only)	0(0)	20.8(5)	21.6(16)	12.0(40)	10.6(24)
Foreign Language Spoken at Home (Yes only)	0(0)	4.2(1)	5.4(4)	2.7(9)	2.2(5)
Male Parent: missing, step-parent or other	50.0(3)	33.4(8)	20.3(15)	20.4(68)	23.3(53)
Occupation of Male Parent:+					
Professional	0(0)	8.3(2)	14.9(11)	17.7(59)	21.1(48)
Self-Employed	0(0)	4.2(1)	12.2(9)	10.2(34)	11.0(25)
Skilled	100.0(6)	25.0(12)	37.8(28)	38.9(130)	45.0(102)
Unskilled	0(0)	12.5(6)	29.8(22)	18.9(63)	18.0(41)
Unemployed	0(0)	6.3(3)	5.4(4)	3.9(13)	4.0(9)
Students:					
Spanish-American	0(0)	8.3(2)	2.7(2)	2.6(8)	2.6(6)
Indian	33.3(2)	16.7(4)	14.9(11)	6.8(23)	5.3(12)
Black	0(0)	0(0)	0(0)	0.6(2)	0.9(2)
Oriental	0(0)	0(0)	1.4(1)	1.5(5)	1.7(4)
Girl Students	0(0)	29.2(7)	32.4(24)	49.4(151)	55.9(127)
Transportation Type:					
Walk or Bike	40.0(2)	41.7(10)	39.2(29)	54.0(162)	58.6(133)
Bus or car	60.0(3)	54.2(13)	58.1(43)	46.0(138)	41.4(94)
Transporation Time (Min.):					
Overall	17.0(5)	23.4(23)	15.0(72)	13.9(300)	13.6(228)
Walk or Bike	10.0(2)	10.5(10)	9.0(29)	9.4(162)	9.4(133)
Bus or Car	21.7(3)	17.5(13)	19.1(43)	19.2(138)	19.3(95)
Lunch Type:					
School - Hot:	40.0(2)	33.3(8)	43.3(32)	37.4(125)	40.9(93)
School Pays	0(0)	37.5(3)	15.6(5)	14.3(7)	2.3(2)
Home Pays	100.0(2)	62.5(5)	84.4(27)	85.7(118)	97.7(91)
School - Box	20.0(1)	25.0(6)	33.8(25)	32.0(107)	36.1(82)
None	20.0(1)	4.2(1)	1.4(1)	2.7(9)	3.5(8)
Other	20.0(1)	33.3(8)	17.6(13)	17.1(57)	19.4(44)
Average Score Stanford Subtest (percentile):					
Paragraph Meaning	22.6(5)	38.2(23)	43.6(63)	59.8(307)	63.7(244)
Arithmetic Computation	49.4(5)	56.5(23)	57.9(63)	66.3(303)	68.7(240)

+ When male parent is missing, female parent occupation is substituted.

STUDENTS CLASSIFIED BY QUARTILE STANDING

District D

Table 9 summarizes selected information for students classified on the basis of performance on the Stanford Achievement sub-tests: Paragraph Meaning (PA) and Arithmetic Computation (AR). The table reveals the following trends:

With decreasing quartile placement:

1. An increase in proportion of students reporting learning limitations.

2. An increase in proportion of students overage up to six months and students overage by 12 months and over. The students overage by six to 12 months decrease and then increase with decreasing quartile placement.

3. A trend toward an increasing proportion of students with foreign language spoken at home.

4. A trend toward an increase in proportion of students with male parent missing, step-, or other (trend reverses at upper portion).

5. A decrease in proportion of students with professional and self-employed fathers, and an increase in proportion of students with skilled, unskilled and unemployed fathers.

6. A trend toward an increase in proportion of Indian students; no trend for other minorities.

7. A decrease in proportion of girl students (from middle quartile on down).

8. The proportion of students who walk or ride bike remains relatively stable for each quartile group; the time to school remains relatively stable regardless of transportation type.

9. A trend toward a decrease in proportion of students with box lunch and with no lunch.

10. A decrease in average performance on <u>both</u> standardized test sub-scores.

Table 9

District D, 3rd Grade
Lowest Quartile Students vs. Others

	Percent Lower Q (N=61)	Percent Total Population (N=334)	Percent Middle Q Groups (N=95)*	Percent Upper 3/4 Group (N=280)*	Percent Upper 1/4 Group (N=185)
Learning Limitations (Yes only):	16.4(10)	12.0(40)	15.8(15)	11.1(31)	8.6(16)
Overage:					
Up to 6 mos.	21.3(13)	15.0(50)	21.1(20)	13.2(37)	9.2(17)
6 to 12 mos.	14.8(9)	5.4(18)	1.1(1)	3.2(9)	4.3(8)
12 mos. and over	4.9(3)	1.8(6)	1.1(1)	1.1(3)	1.1(2)
Foreign Language Spoken at Home (Yes only):	3.3(2)	2.7(9)	5.3(5)	2.5(7)	1.1(2)
Male Parent: Missing, Step or Other	29.7(18)	20.4(68)	16.9(16)	18.2(51)	18.9(35)
Occupation of Male Parent:+					
Professional	11.5(7)	17.7(59)	7.4(7)	18.6(52)	24.3(45)
Self-Employed	6.6(4)	10.2(34)	12.6(12)	11.4(32)	10.8(20)
Skilled	34.4(21)	38.9(130)	40.1(38)	39.6(111)	39.4(73)
Unskilled	23.0(14)	18.9(63)	22.2(21)	18.2(51)	16.2(30)
Unemployed	6.6(4)	3.9(13)	5.3(5)	3.6(10)	2.7(5)
Students:					
Spanish-American	1.6(1)	2.6(8)	3.1(3)	2.5(7)	2.2(4)
Indian	14.8(9)	6.8(23)	3.1(3)	5.0(14)	6.0(11)
Black	0(0)	0.6(2)	1.1(1)	0.7(2)	0.5(1)
Oriental, Other	0(0)	1.5(5)	3.1(3)	17.8(5)	1.1(2)
Girl Students	31.7(19)	49.4(151)	80.0(76)	47.9(134)	47.5(88)
Transportation Type:					
Walk or Bike	51.0(26)	54.0(162)	49.5(47)	50.7(142)	51.3(95)
Bus, Car or Other	49.0(25)	46.0(138)	27.9(36)	40.7(114)	42.2(78)
Transportation Time (Min.):					
Overall	14.5(51)	13.9(300)	14.7(73)	13.7(256)	14.0(173)
Walk or Bike	9.7(26)	9.4(162)	9.7(47)	9.4(142)	9.3(95)
Bus, Car or Other	19.6(25)	19.2(138)	17.3(36)	19.1(114)	19.9(78)
Lunch Type:					
School - Hot:	34.4(21)	37.4(125)	59.0(56)	44.7(125)	37.3(69)
School Pays	14.3(3)	14.3(7)	3.6(2)	3.2(4)	2.9(2)
Home Pays	85.7(18)	85.7(118)	96.4(54)	96.8(121)	97.1(67)
School - Box:	26.2(16)	32.0(107)	34.8(33)	33.2(93)	32.4(60)
None	1.6(1)	2.7(9)	3.2(3)	2.9(8)	2.7(5)
Other	19.7(12)	17.1(57)	12.6(12)	16.4(46)	18.4(34)
Average Score Stanford Subtest (percentile):					
Paragraph Meaning	28.1(61)	59.8(307)	57.1(54)	68.9(239)	72.2(185)
Arithmetic Computation	32.2(61)	66.3(303)	44.3(52)	74.7(236)	83.4(184)

* 7 students had scores in both upper and lower quartiles.
+ male parent is missing, female parent occupation is substituted.

OVERAGE Vs. NON-OVERAGE STUDENTS

District E

Table 10 summarizes selected information for third grade students classified according to placement in overage or non-overage groups. Students will be considered overage if their birthdays fall before January 1, 1961. The table reveals the following trends:

With increasing overage placement:

1. A trend toward an increasing proportion of students with reported learning disabilities (falls off for oldest groups).
2. A slight trend toward increasing proportion of students with foreign language spoken at home (falls off for oldest groups).
3. An increase in proportion of students with male parents missing, step-, or other.
4. An increase in proportion of students with professional or self-employed fathers (falls off for oldest groups).
5. A decrease in proportion of students with skilled fathers (trend reverses for oldest group).
6. An increase in proportion of students with unskilled or unemployed fathers.
7. An increase in proportion of Spanish-American, Indian, and Oriental students (trend falls off for Indian students for oldest age group). A decrease in proportion of Black students.
8. A decrease in proportion of girls.
9. A trend toward an increase in proportion of students who walk or ride bike.
10. The time to school remains relatively stable for all groups overall. There is a trend toward a decrease in time to school for students who walk or ride bike, for others no definite trend.
11. A trend toward an increase in proportion of students with hot lunch. An increase in proportion of students with no lunch.
12. A slight trend toward an increase in achievement on both standardized test sub-scores.

Table 10

District E, 3rd Grade
Overage vs. Non-Overage

	Percent Overage over 12 mos. (N=7)*	Percent Overage over 6 mos. (N=24)	Percent Overage Group (N=63)	Percent Total Population (N=219)	Percent Non-overage (N=156)
Learning Limitations (Yes only):	14.3(1)	29.2(7)	38.2(24)	32.8(72)	30.8(48)
Foreign Language Spoken at Home (Yes only):	14.3(1)	16.7(4)	15.9(10)	15.5(34)	15.4(24)
Male Parent: missing, step-parent or other	0(0)	33.3(8)	25.4(16)	16.0(35)	12.2(19)
Occupation of Male Parent:+					
Professional	0(0)	12.5(3)	14.3(9)	12.8(28)	12.2(19)
Self-Employed	0(0)	8.4(2)	12.7(8)	12.3(27)	12.2(19)
Skilled	85.7(6)	45.8(11)	46.0(29)	55.2(121)	58.9(92)
Unskilled	0(0)	20.8(5)	17.5(11)	12.3(27)	10.3(16)
Unemployed	14.3(1)	12.5(3)	9.5(6)	6.8(15)	5.8(9)
Students:					
Spanish-American	14.3(1)	4.2(1)	4.8(3)	4.6(10)	4.5(7)
Indian	0(0)	4.2(1)	8.0(5)	7.8(17)	7.7(12)
Black	0(0)	0(0)	1.6(1)	1.8(4)	1.9(3)
Oriental, Other	14.3(1)	4.2(1)	3.2(2)	1.4(3)	0.6(1)
Girl Students	14.3(1)	12.5(3)	30.2(19)	45.2(99)	51.2(80)
Transportation Type:					
Walk or Bike	14.3(1)	4.2(1)	6.4(4)	8.7(19)	6.4(15)
Bus, Car, or other	85.7(6)	95.8(23)	93.6(59)	91.3(200)	90.4(141)
Transportation Time (min.):					
Overall	18.6(7)	22.5(24)	21.5(63)	21.3(219)	21.3(156)
Walk or Bike	10.0(1)	10.0(1)	7.5(4)	11.3(19)	10.2(15)
Bus, Car or Other	20.0(6)	23.0(23)	22.4(59)	22.3(200)	22.3(141)
Lunch Type:					
School - Hot	57.1(4)	45.8(11)	54.0(34)	49.8(109)	48.1(75)
School Pays	0(0)	18.2(2)	14.7(5)	14.7(16)	14.7(11)
Home Pays	100.0(4)	81.8(9)	85.3(29)	85.3(93)	85.3(64)
School - Box	28.6(2)	50.0(12)	42.9(27)	49.8(109)	52.5(82)
None	14.3(1)	4.2(1)	1.6(1)	0.4(1)	0(0)
Average Score Stanford** Subtest (percentile):					
Paragraph Meaning	24.7(3)	55.1(12)	55.1(42)	54.5(197)	54.4(155)
Arithmetic Computation	53.4(3)	74.9(12)	72.9(42)	70.7(197)	70.3(155)

* 1 student Birthdate listed as 02/22/56?
** 19 students no Stanford Subtests.
\+ When male parent is missing, female parent occupation is substituted.

STUDENTS CLASSIFIED BY QUARTILE STANDING

District E

Table 11 summarizes selected information for students classified on the basis of performance on the Stanford Achievement sub-tests: Paragraph Meaning (PA) and Arithmetic Computation (AR). The table reveals the following trends:

With decreasing quartile placement:

1. An increase (and then a decrease) in proportion of students with reported learning limitations.

2. An increase in overage placement (falls off at lowest quartile for oldest aged groups).

3. A decrease in proportion of students with foreign language spoken at home.

4. A trend toward an increase in proportion of male parents missing, step-, or other (falls off at lowest quartile).

5. A trend toward a decrease in proportion of students with professional, self-employed, or skilled fathers (falls off at lowest quartile for students with professional fathers).

6. A trend toward an increase in proportion of students with unskilled or unemployed fathers.

7. A decrease in proportion of Spanish-American students and an an increase in proportion of Indian and Black students (trend falls off for Indians in lowest quartile).

8. A decrease in proportion of girls.

9. An increase in proportion of students who walk or ride bike.

10. A slight decrease in time to school for students who walk or ride bike and a slight increase in time to school for students who take bus, car or other to school (falls off for lowest quartile students).

11. An increase in proportion of students with hot lunch. A decrease in proportion of students with box lunch.

12. A decrease in average placement on both performance measures.

Table 11

District E, 3rd Grade
Lowest Quartile Students vs. Others

	Percent Lower Q (N=32)	Percent Total Population (N=219)	Percent Middle Q Groups (N=78)	Percent Upper 3/4 Group (N=192)	Percent Upper 1/4 Group (N=114)
Learning Limitations (Yes only):	27.2(9)	32.8(72)	42.3(33)	32.8(63)	26.3(30)
Overage:					
Up to 6 mos.	18.2(6)	17.8(39)	18.0(14)	17.7(34)	17.6(20)
6 to 12 mos.	3.0(1)	7.8(17)	11.5(9)	8.3(16)	6.1(7)
12 mos. and over	6.3(2)	3.2(7)	6.4(5)	3.1(6)	0.9(1)
Foreign Language Spoken at Home (Yes only):	3.0(1)	15.5(34)	16.7(13)	17.2(33)	17.6(20)
Male Parent: missing, step-parent or other	9.4(3)	16.0(35)	24.4(19)	16.7(32)	11.4(13)
Occupation of Male Parent:+					
Professional	18.2(6)	12.8(28)	5.1(4)	12.0(23)	16.7(19)
Self-Employed	9.4(3)	12.3(27)	9.0(7)	13.0(25)	15.8(18)
Skilled	50.0(16)	55.2(121)	51.4(40)	56.3(108)	59.6(68)
Unskilled	18.2(6)	12.3(27)	21.8(17)	10.9(21)	3.5(4)
Unemployed	3.0(1)	6.8(15)	12.8(10)	7.8(15)	4.4(5)
Students:					
Spanish-American	3.0(1)	4.6(10)	3.8(3)	4.7(9)	5.3(6)
Indian	9.4(3)	7.8(17)	12.8(10)	7.3(14)	3.5(4)
Black	6.3(2)	1.8(4)	2.6(2)	1.0(2)	0(0)
Oriental, Other	0(0)	3.2(2)	0(0)	1.0(2)	1.8(2)
Girl Students	40.7(13)	45.2(99)	42.3(33)	46.4(89)	48.2(55)
Transportation Type:					
Walk or Bike	0(0)	8.7(19)	16.7(13)	9.9(19)	5.2(6)
Bus, Car or Other	100.0(32)	91.3(200)	84.6(66)	90.7(174)	94.8(108)
Transportation Time (min.):					
Overall	21.7(32)	21.3(219)	21.8(79)	21.3(193)	21.9(114)
Walk or Bike	0(0)	11.3(19)	11.2(13)	11.3(19)	11.7(6)
Bus, Car and Other	21.7(32)	22.3(200)	23.9(66)	22.4(174)	21.5(108)
Lunch Type:					
School - Hot	65.6(21)	49.8(109)	52.6(41)	47.4(91)	43.8(50)
School Pays	14.3(3)	14.7(16)	22.0(9)	14.3(13)	8.0(4)
Home Pays	85.7(18)	85.3(93)	78.0(32)	85.7(78)	92.0(46)
School - Box	34.4(11)	49.8(109)	47.4(37)	52.6(101)	56.1(64)
None	0(0)	0.4(1)	0(0)	0(0)	0(0)
Average Score Stanford:					
Paragraph Meaning	24.3(41)*	54.5(197)	30.8(37)	60.3(165)	68.9(128)**
Arithmetic Computation	38.2(41)*	70.7(197)	47.6(37)	73.2(165)	88.5(128)**

* 9 Students names and scores only, Lower Quartile.
** 14 Students names and scores only, Upper Quartile.
+ When male parent is missing, female parent occupation is substituted.

STUDENT PERFORMANCE AND OTHER CHARACTERISTICS

AS A FUNCTION OF RESIDENCE AREA

District E

If students are identified as traveling to school by specific methods (walk, bike, or ride car or bus) and are classified according to time traveled, then certain patterns emerge. The students in this county were classified into four groups:

Walk up to 19 minutes

Ride car or bus up to 19 minutes

Ride car or bus 20 to 34 minutes

Ride car or bus 35 or more minutes

Proportions of students in these transportation classifications along with average performances, proportion overage, and proportion of ethnics were computed. The results are displayed in Table 12, arranged in order of average time to school.

Table 12 shows the following:

1. A trend toward an increase in proportion of overage students with increasing time to school (falls off for largest time group).

2. A trend toward an increase in proportion of lower quartile students with increasing time to school.

3. A decrease in average performance in the Paragraph Meaning sub-test with increasing time to school. There is an incomplete trend in this direction for both the overage and the lower quartile students.

4. A trend toward a decrease in average performance on the Arithmetic Computation sub-test with increasing time to school. Similar (though incomplete) trends are present in the same direction for the overage and lower quartile students.

5. A trend toward an increase in proportion of ethnics with increasing time to school (not complete).

Table 12

District E

Selected Characteristics of 3rd Grade Students by Time from School

Area	Time (min)	Total prop.*	Overage prop.*	Lower Q prop.**	Proportion in Each Residence Area ***		Overall Performance						Prop. of Ethnics+
							PA			AR			
					Overage	Lower Q	All	Overage	Lower Q	All	Overage	LQ	
$Ride_{19}$	9.2(63)	38.2(63)	4.3(7)	5.5(9)	11.1(7)	14.3(9)	56.7(52)	58.6(12)	23.3(9)	74.5(53)	78.0(12)	36.4(9)	11.1(7)
$Walk_{19}$	11.3(19)	11.5(19)	24.2(4)	0(0)	21.0(4)	0(0)	57.0(13)	---	---	66.9(13)	---	---	36.8(7)
$Ride_{20}$	23.4(61)	37.0(61)	12.7(21)	7.9(13)	34.4(21)	21.3(13)	56.2(83)	52.1(28)	13.9(13)	71.0(83)	68.2(28)	51.0(13)	55.7(34)
$Ride_{35}$	45.9(22)	13.3(22)	18.2(3)	3.0(5)	13.6(3)	22.7(5)	47.9(21)	53.2(3)	15.8(5)	70.3(21)	70.2(3)	35.0(5)	31.8(7)

* Percentage of total population.

** Percentage of pupils with test scores reported.

*** Numbers in these two columns are percentages within each group

\+ Proportion of pupils in each area of the sum of the students in the categories: Indian, Spanish-American, Spanish surname, and those who speak a foreign language at home.

PA and AR: Average of Stanford Achievement Sub-scores, National Percentiles.

All: All students in particular town (or subdivision).

LQ: Students placing in lower quartile of either subtest.

OVERAGE Vs. NON-OVERAGE STUDENTS

District F

STUDENTS CLASSIFIED BY QUARTILE STANDING

District F

STUDENT PERFORMANCE AND AGE AS A FUNCTION of RESIDENCE AREA

District F

Discussion of the data for the third grade students for this county is included in the previous WN-REC publication:

> Overage Students and Students in Lowest Quartile, District F, Third, Eighth, Ninth Grades, by Theodore G. Brough (Lovelock, Nev.: Western Nevada Regional Education Center, Sept. 15, 1970), 8 pp.

OVERAGE Vs. NON-OVERAGE STUDENTS

District G

Table 13 summarizes selected information for third grade students classified according to placement in overage or non-overage groups. Students will be considered overage if their birthdays fall before January 1, 1961. The table reveals the following trends:

With increasing overage placement:

1. A decrease in proportion of students with reported learning limitations.
2. A decrease in the proportion of students speaking a foreign language at home.
3. An increase in the proportion of students with male parents missing, step-, or other.
4. An increase in the proportion of students with professional or unskilled fathers.
5. A decrease in the proportion of students with skilled or unemployed fathers. (This trend does not hold up for the oldest students with skilled fathers.)
6. An increase in proportion of Spanish-American and Indian students (falls off for oldest Indian group).
7. A decrease in proportion of girls (increases for the oldest group).
8. A trend toward a decrease in proportion of students who walk or ride bike (but not for oldest age group).
9. An increase in time to school for overall and for bus and car students, and a decrease for students who walk or ride bike (these trends fall off for the oldest age group).
10. A decrease in proportion of students who have hot lunch, with a corresponding increase in proportion of students who have box lunch.
11. A decrease in proportion of students who have lunch-other, but an increase in such proportion among the overage groups.
12. A decrease in average performance on both achievement sub-tests.

Table 13

District G, 3rd Grade
Overage vs. Non-Overage

	Percent Overage over 12 mos. (N=5)	Percent Overage over 6 mos. (N=28)	Percent Overage Group (N=56)	Percent Total Population (N=198)	Percent Non-overage (N=142)
Learning Limitations (Yes only):	0(0)	7.2(2)	8.9(5)	14.2(28)	16.2(23)
Foreign Language Spoken at Home (Yes only):	0(0)	0(0)	1.8(1)	4.0(8)	4.9(7)
Male Parent: missing, step-parent or other:	0(0)	21.4(6)	17.9(10)	16.7(33)	16.2(23)
Occupation of Male Parent:+					
Professional	0(0)	21.4(6)	12.5(7)	5.6(11)	2.8(4)
Self-Employed	0(0)	10.7(3)	10.7(6)	10.6(21)	10.6(15)
Skilled	80.0(4)	42.9(12)	48.2(27)	56.6(112)	59.8(85)
Unskilled	20.0(1)	17.8(5)	17.9(10)	17.7(35)	17.6(25)
Unemployed	0(0)	0(0)	3.6(2)	4.5(9)	4.9(7)
Students:					
Spanish-American	0(0)	7.2(2)	3.6(2)	4.0(8)	4.2(6)
Indian	0(0)	7.2(2)	8.9(5)	7.1(14)	6.3(9)
Black	0(0)	0(0)	0(0)	0(0)	0(0)
Oriental, Other	0(0)	0(0)	0(0)	0(0)	0(0)
Girl Students	40.0(2)	32.2(9)	35.8(20)	58.5(116)	67.6(96)
Transportation Type:					
Walk or Bike	40.0(2)	21.4(6)	21.4(12)	27.8(55)	30.3(43)
Bus, Car or Other	60.0(3)	78.5(22)	75.0(42)	70.2(139)	69.0(97)
Transportation Time (min.):					
Overall	12.4(5)	19.2(28)	18.4(54)	16.7(197)	16.0(143)
Walk or Bike	7.5(2)	6.8(6)	7.8(12)	9.3(57)	9.7(45)
Bus, Car or Other	15.7(3)	22.6(22)	21.4(42)	19.7(140)	18.4(98)
Lunch Type:					
School - Hot	20.0(1)	35.7(10)	42.6(23)	46.1(89)	47.4(66)
School Pays	100.0(1)	10.0(1)	17.4(4)	6.7(6)	3.0(2)
Home Pays	0(0)	90.0(9)	82.6(19)	93.3(83)	97.0(64)
School - Box	60.0(3)	56.1(16)	51.9(28)	45.6(88)	43.1(60)
None	0(0)	0(0)	0(0)	0(0)	0(0)
Other	20.0(1)	7.2(2)	5.6(3)	8.4(16)	9.4(13)
Average Score Stanford Subtest (percentile):					
Paragraph Meaning	32.8(4)	42.0(24)	43.3(46)	50.5(205)*	59.5(133)
Arithmetic Computation	42.0(4)	54.9(24)	54.0(46)	57.8(206)*	54.2(130)

* 30 students, names and scores only
+ When male parent is missing, female parent occupation is substituted.

STUDENTS CLASSIFIED BY QUARTILE STANDING

District G

Table 14 summarizes selected information for students classified on the basis of performance on the Stanford Achievement sub-tests: Paragraph Meaning (PA) and Arithmetic Computation (AR). The table reveals the following trends:

With decreasing quartile placement:

1. A trend toward an increase in proportion of students with reported learning limitations.

2. A trend toward an increase in proportion of students who are overage. This is an incomplete trend (peaks at mid-quartile) for the students up to six months and six to 12 months overage.

3. A trend toward a decrease in the proportion of students with foreign language spoken at home.

4. A trend toward an increase in the proportion of students with male parents missing, step-, or other.

5. A trend toward a decrease in the proportion of students with professional, self-employed, and unskilled fathers. The proportion of students with skilled fathers remains virtually constant for all groups. There is a trend toward an increase in the proportion of students with unemployed fathers.

6. An increase, then a decrease, in the proportion of students who are Spanish-American or Indian.

7. An increase and then a decrease in the proportion of girl students.

8. An increase in the proportion of students who walk or ride bike.

9. A trend toward an increase in the time to school for students who walk or ride bike. There is a similar trend for those students who ride bus or car to school.

10. A trend toward an increase in the proportion of students who have hot lunch, with a corresponding decrease in the proportion of students who have sack lunch.

11. A decrease in the average performance of students in both Stanford Achievement sub-tests.

Table 14

District G, 3rd Grade
Lowest Quartile Students vs. Others

	Percent Lower Q (N=48)	Percent Total Population (N=198)	Percent Middle Q Groups (N=75)	Percent Upper 3/4 Group (N=153)	Percent Upper 1/4 Group (N=78)
Learning Limitations (Yes only):	14.6(7)	14.2(28)	16.0(12)	13.7(21)	11.5(9)
Overage:					
Up to 6 mos.	14.6(7)	14.2(28)	18.7(14)	13.7(21)	9.0(7)
6 to 12 mos.	10.4(5)	11.6(23)	14.7(11)	11.8(18)	9.0(7)
12 mos. and over	4.2(2)	2.5(5)	2.7(2)	2.0(3)	1.3(1)
Foreign Language Spoken at Home (Yes only)	4.2(2)	4.0(8)	1.3(1)	3.9(6)	6.4(5)
Male Parent: Missing, Step or Other	16.7(8)	16.7(33)	25.4(19)	17.6(27)	10.3(8)
Occupation of Male Parent:+					
Professional	6.3(3)	5.6(11)	0(0)	5.2(8)	10.3(8)
Self-Employed	10.4(5)	10.6(21)	9.3(7)	10.5(16)	11.5(9)
Skilled	56.3(27)	56.6(112)	56.0(42)	56.2(86)	56.4(44)
Unskilled	14.6(7)	17.7(35)	21.6(16)	18.9(29)	16.7(13)
Unemployed	10.4(5)	4.5(9)	1.3(1)	3.3(5)	5.1(4)
Students:					
Spanish-American	2.1(1)	4.0(8)	6.7(5)	4.6(7)	2.6(2)
Indian	6.3(3)	7.1(14)	9.3(7)	7.2(11)	5.1(4)
Black	0(0)	0(0)	0(0)	0(0)	0(0)
Oriental, Other	0(0)	0(0)	0(0)	0(0)	0(0)
Girl Students	40.7(20)	58.5(116)	82.6(62)	63.4(97)	44.9(35)
Transportation Type:					
Walk or Bike	37.5(18)	27.8(55)	26.7(20)	25.5(39)	24.3(19)
Bus, Car or Other	56.3(27)	70.2(139)	73.3(55)	74.5(114)	75.7(59)
Transportation Time (min.):					
Overall	16.6(44)	16.7(197)	17.3(79)	16.6(156)	15.9(77)
Walk or Bike	9.8(18)	9.3(57)	9.7(21)	7.9(41)	8.1(20)
Bus, Car or Other	21.4(26)	19.7(140)	20.0(58)	18.5(115)	18.6(57)
Lunch Type:					
School - Hot:	51.1(23)	46.1(89)	54.8(40)	45.0(68)	35.9(28)
School Pays	8.7(2)	6.7(6)	10.0(4)	5.9(4)	0(0)
Home Pays	91.3(21)	93.3(83)	90.0(26)	94.1(64)	100.0(26)
School - Box:	37.8(17)	45.6(88)	39.7(29)	47.0(71)	53.9(42)
None:	0(0)	0(0)	0(0)	0(0)	0(0)
Other:	11.1(5)	8.4(16)	5.5(4)	8.0(12)	10.3(8)
Average Score Stanford Subtest (percentile):					
Paragraph Meaning	23.1(56)*	50.5(205)**	48.0(66)	59.9(154)	68.8(88)*
Arithmetic Computation	31.2(57)*	57.8(206)**	52.3(64)	68.1(154)	79.4(90)*

tudents, names and scores only.
tudents, names and scores only.
male parent is missing, female parent occupation is substituted.