

Report on the
1998-99
Administration
of the Illinois
Consumer
Education Proficiency
Test

ILLINOIS STATE BOARD OF EDUCATION
ASSESSMENT DIVISION

School Participation in the 1998-99 ICEPT Test Cycle¹

The Illinois Consumer Education Proficiency Test (ICEPT) was administered twice during the 1998-99 school year: October 6-7, 1998 and January 26-27, 1999. In response to order forms sent to all Illinois public secondary schools announcing the two ICEPT test dates, a total of 31,334 test booklets, 25,125 answer sheets, and related test materials were distributed at no cost to participating schools. Although students are permitted to take the examination only once during each school year, different forms were prepared for the Fall and Winter administration dates in order to maintain the highest possible level of test security.

Table 1 summarizes school participation in the 1998-99 test cycle.² As Table 1 shows, 174 of 654 schools (27%) tested students during both administration periods, 268 (41%) tested students during one of the two administration periods, and 49 (7%) ordered materials for one or both administration periods but did not test any students. A total of 163 schools (25%) did not order materials for either test date.

Description and Demographic Comparisons of Students Participating in Each Test Administration

Table 2 presents descriptive data for a sample of the total population of students participating in the 1998-99 ICEPT test cycle ($n = 12,565$). The sample ($n = 6,920$)³ includes only students who used

¹ This document was prepared by MetriTech, Inc., Champaign, Illinois, under contract to the Illinois State Board of Education. John C. Craig, Ph.D., Assessment Consultant, Assessment Division, directed the project during this period. April 1999.

² For convenience, all of the tables and figures are presented together following the text.

³ Because some students do not code all demographic information used in the subsequent analy-

MetriTech-supplied answer sheets. Since the only information that all schools are required to report is the number of students tested and the number passing, it is not possible to determine how demographically representative this sample is of the total test population. However, with respect to the passing rate, it is important to note that the rate for the total 1998-99 test population obtained from school reports is 19.1% (2,401/12,565) while the rate obtained for the sample described in this report is 16.6%.

Table 2 presents a breakdown of the ICEPT examinee population with respect to ethnicity, gender, current grade in school, and self-reported cumulative GPA. A series of analyses were conducted to compare the Fall test population with the Winter test population. The purpose in doing so was to better understand differences in the composition of the groups that might lead to different passing rates for the two test dates, 20.4% for Fall, 17.7% for the Winter. Tables 3 through 6 present a series of comparisons between the two groups. Each table is organized in the same way. The first column shows data for the Fall testing. The second column shows data for the Winter testing. Each cell in the table contains three entries. The first entry shows the number of students in that category (N), and the second entry shows the percentage of students in that category (%). The third entry shows the difference between the actual cell frequency and the cell frequency expected on the basis of the row and column totals (z_d) expressed in standard score form. This number can be interpreted as representing the cell's contribution to an overall chi-square test of independence. That is, the higher this statistic in absolute value, the greater the departure of the cell from expectation, the larger the resulting χ^2 and the higher

ses, the sample sizes vary slightly from table to table ($n = 6041-6515$).

the probability that the two groups differ with respect to the classification variable.

There are statistically significant differences in the composition of the two groups with respect to ethnicity ($\chi^2 = 14.12$, $df = 5$, $p = .0148$), but these differences are marginal. There are no differences between the two groups with respect to gender ($\chi^2 = 0.08$, $df = 1$, $p = .7709$). In terms of current grade, there is a statistically significant difference in the composition of the two samples ($\chi^2 = 252.69$, $df = 4$, $p < .0000$). Freshmen and sophomores are more likely to test in the Spring, and seniors are more likely to test in the Fall. There is also a statistically significant difference between the groups based on self-reported GPA ($\chi^2 = 20.23$, $df = 9$, $p = .0165$). A and A+ students are more likely to test in Winter, while B-, B, and B+ students are more likely to test in Fall.

Technical Characteristics of the Test Forms

Although two different ICEPT forms were administered during the 1998-99 test cycle, results were pooled for purposes of analyzing student performance on ICEPT in relationship to certain demographic parameters. The two test forms had been designed to be equivalent in content and were calibrated to produce equivalent passing scores. Table 7 presents a summary of certain statistical characteristics of the two test forms used in the 1998-99 test cycle. Students who obtained scores below the chance level were excluded from this analysis. For this reason the sample size is slightly lower than that used in other analyses reported here. As Table 7 shows, the reliabilities of the test forms used in the 1998-99 test cycle are very high. The raw score means, standard deviations, and standard errors of measurement are very similar.

A preliminary one-way analysis of variance (ANOVA) in which raw score was

the dependent variable and test form the independent variable revealed that the difference in means was statistically significant. As noted in the previous section, there were also statistically significant differences between the Fall and Winter examinee groups with respect to grade and ethnicity. On the assumption that group differences might explain a portion of these mean differences between the two forms, a second analysis of variance was conducted in which demographic variables (grade, ethnicity, and self-reported GPA) were treated as covariates. That is, this analysis tested the difference between means for significance when the effects of these three variables were held constant for the two examinee groups. These results are reported in Table 8. As this table shows, both GPA and grade contribute significantly to explaining form differences, although ethnicity does not. When grade and GPA are held constant, there is a significant reduction in form variance.

Analysis of Passing Rate

Table 9 summarizes the ICEPT passing rates by various demographic characteristics. Values in the table show the percentage of students in each category that obtained a passing score on one of the two examinations. For example, the overall passing rate for the 6,515 students on which we have data is 16.6%. The passing rate is 30.4% for Asian males, 21.9% for Asian females, and 25.2% for Asians as a group. As previously noted, these data are based only on those students who used MetriTech-supplied answer sheets.

To examine certain trends suggested by the data in Table 9, a series of analyses of variance were computed. Table 10 presents these results. As the table shows, with passing rate as the dependent variable, gender, GPA, ethnicity, and grade in school all show statistically significant effects. Gender appears

to be the most important factor, and the passing rate for males is significantly higher than for females. As would be expected, students who report having higher overall grade point averages pass at much higher rates than students who report lower overall grade point averages. For example, about 43% of students who reported an overall grade point average of A+ passed the test. Only about six percent of the 61 students who reported an overall GPA of D or lower passed the test. Students who have received more instruction pass at higher rates than other students. There is also a significant effect associated with ethnicity. However, the effect size for ethnicity is the smallest among the demographic variables analyzed.

Historical Analysis of Passing Rate

Since its introduction in the 1986-87 school year, the ICEPT passing rate has shifted. There are probably several reasons for these shifts. As the data in Table 11 show, there was a significant decrease in the number of students tested each year from the beginning of the program until 1993-94. Since then the number of students has remained relatively stable. Because of these large differences in the number of test takers over the years, the composition of the group applying to take the test has undoubtedly shifted over the years. In terms of overall secondary student enrollment, the actual number of students passing the test has remained relatively stable over the years, varying only between .3% and .8%.

Analysis of Student Performance by Topic Area

The specifications for the Illinois Consumer Education Proficiency Test define coverage for a set of 10 primary topic areas and 4 secondary topic areas. Each of the primary topic areas—Money Management, Credit, The Economy, The Mar-

ketplace, Saving/Investing, Insurance, Taxes, Transportation, Housing, and Food—are assessed in each new ICEPT form by a range of 10 to 14 items. The secondary topic areas—Consumer Services, Clothing, Health Care, and Recreation—are assessed by a range of 3 to 5 items. Statistical studies of the primary topic area scales show that the scales are sufficiently reliable from form to form to permit comparisons of group performance across topic areas and across time. The secondary topic areas are not sufficiently reliable to permit such comparisons.

Because the number of items allocated to each topic area varies slightly from form to form, the number correct or raw scores are not directly comparable across areas. In 1993, a new reporting scale was developed that permits direct comparisons across areas and facilitates interpretation of group differences. On this scale, scores may range between 1 and 100. A scale score of 70 corresponds to a passing score on the test.

Table 12 shows how the 1998-99 test population scored in each of the ten primary topic areas. The scores have been arranged from highest to lowest. For each area, the table shows the means of the scale scores. As Table 12 shows, student performance is highest in Area 4 (The Marketplace) and lowest in Area 8 (Transportation). Results of statistical tests for differences across area mean scores are indicated by spaces between areas. For example, student performance in Area 4 (The Marketplace) is significantly higher than in any other area. The second highest area, Area 6 (Insurance), is significantly higher than the remaining eight areas. The third highest area, Area 3 (The Economy), is significantly higher than other areas except Area 10 (Food). Figure 1 presents the results reported in Table 12 in graphic form for ease of interpretation.

Two other comparisons at the area level are shown in Figures 2 and 3. Fig-

ure 2 compares the performance of males and females across the ten primary topic areas. Statistical tests indicate that there are significant gender differences in all areas except Areas 1 (Money Management), 4 (The Marketplace), and 10 (Food). All of the statistically significant differences favor males.

Figure 3 compares student performance in each area across grades. As would be expected, performance in each area is highest for 12th-grade students and lowest for 9th-grade students. For the 1998-99 test population, student performance improved more from 9th to 11th grade (5.7 scale score points) and 11th grade to 12th grade (4.2 scale score points) than from 10th-grade to 11th-grade (2.8 scale score points). This pattern matches previous years' findings as well.

One of the advantages of using the scale score system is that results can be studied across years. These results are shown in Table 13. For each topic area, the table shows scale score values for each of the past five examinee populations. Section A of the table shows results for the total population. Section B provides a breakout by gender, and Section C provides a breakout by year in school.

As Table 13 shows, the general trend is cyclical. That is, there was a decline from 1994-95 to 1995-96 followed by an increase from 1995-96 to 1996-97, followed by a decline from 1996-97 to 1997-98, followed by an increase for the 1998-99 test population. However, this is not true for all areas. For example, Area 8 (Transportation) runs opposite to this general pattern. The cyclical pattern is more pronounced for some areas (e.g., Area 2—Credit) and less obvious for others (e.g., Area 6—Insurance).

As Sections B and C of Table 13 show, there are some interesting variations within various groups. For example, women have regularly scored as high or higher than men in Area 10 (Food), and differences between men and women in

Area 4 (The Marketplace) are negligible. Area 6 (Insurance), and Area 3 (The Economy), which are among the lowest areas for 9th-grade students, become some of the highest for 12th-grade students.

Table 1
Summary of School Participation in the 1998-99 ICEPT Test Cycle

Description	Number
Schools Testing Students During Both Administration Cycles	174
Schools Testing Students During the Fall Administration Period Only	153
Schools Testing Students During the Winter Administration Period Only	115
Schools Ordering Materials for One or Both Administration Period but Not Testing Any Students	49
Schools That Did Not Order Materials for Either Administration Period	163

Table 2
Demographic Composition of the 1998-99 ICEPT Examinee Population

	Frequency	Percent
<i>Ethnicity</i>		
Asian	119	2
Black	137	2
Hispanic	137	2
Native American	13	0
White	5936	93
Other	76	1
<i>Gender</i>		
Male	3205	49
Female	3310	51
<i>Grade in School</i>		
8	3	0
9	619	10
10	1656	26
11	3394	52
12	739	12
<i>GPA (self-report)</i>		
A +	559	9
A	1299	22
A-	938	16
B+	771	13
B	1030	17
B-	478	8
C+	417	7
C	353	6
C-	135	2
< = D	61	1

Table 3
Comparison of Students Participating in the Fall and Winter ICEPT Administration Periods on the Basis of Ethnicity

		Fall	Winter	Total
Asian	N	55	64	119
	%	1.5	2.4	1.9
	Z _d	-1.7	2.0	
Black	N	69	68	137
	%	1.9	2.5	2.1
	Z _d	-1.2	1.4	
Hispanic	N	74	63	137
	%	2.0	2.3	2.1
	Z _d	-0.6	0.7	
Native American	N	5	8	13
	%	0.1	0.3	0.2
	Z _d	-0.9	1.1	
White	N	3480	2456	5936
	%	93.3	91.3	92.5
	Z _d	0.5	-0.6	
Other	N	46	30	76
	%	1.2	1.1	1.2
	Z _d	0.3	-0.3	
TOTAL	N	3729	2689	6418
	%	100	100	100

Table 4
Comparison of Students Participating in the Fall and Winter ICEPT Administration Periods on the Basis of Gender

		Fall	Winter	Total
Male	N	1869	1336	3205
	%	49.0	49.4	49.2
	Z _d	-0.1	0.2	
Female	N	1942	1368	3310
	%	51.0	50.6	50.8
	Z _d	0.1	-0.2	
TOTAL	N	3811	2704	6515
	%	100	100	100

Table 5
Comparison of Students Participating in the Fall and Winter ICEPT Administration Periods on the Basis of Current Grade in School

		Fall	Winter	Total
8	N	1	2	3
	%	0.0	0.1	0.0
	z _d	-0.6	0.7	
9	N	270	349	619
	%	7.2	13.1	9.7
	z _d	-4.8	5.7	
10	N	890	766	1656
	%	23.8	28.8	25.8
	z _d	-2.5	3.0	
11	N	1974	1420	3394
	%	52.7	53.3	52.9
	z _d	-0.2	0.3	
12	N	612	127	739
	%	16.3	4.8	11.5
	z _d	8.7	-10.3	
TOTAL	N	3747	2664	6411
	%	100	100	100

Table 6**Comparison of Students Participating in the Fall and Winter ICEPT Administration Periods on the Basis of GPA (Self-Report)**

		Fall	Winter	Total
A +	N	308	251	559
	%	8.8	9.9	9.3
	z_d	-0.9	1.1	
A	N	713	586	1299
	%	20.3	23.1	21.5
	z_d	-1.5	1.7	
A-	N	552	386	938
	%	15.7	15.2	15.5
	z_d	0.3	-0.4	
B +	N	469	302	771
	%	13.4	11.9	12.8
	z_d	1.0	-1.2	
B	N	603	427	1030
	%	17.2	16.8	17.1
	z_d	0.2	-0.3	
B-	N	306	172	478
	%	8.7	6.8	7.9
	z_d	1.7	-2.0	
C +	N	242	175	417
	%	6.9	6.9	6.9
	z_d	0.0	0.0	
C	N	205	148	353
	%	5.8	5.8	5.8
	z_d	0.0	0.0	
C-	N	69	66	135
	%	2.0	2.6	2.2
	z_d	-1.1	1.2	
< = D	N	38	23	61
	%	1.1	0.9	1.0
	z_d	0.4	-0.5	
TOTAL	N	3505	2536	6041
	%	100	100	100

Table 7
Statistical Summary of Test Forms Used in the 1998-99 Test Cycle

	Fall	Winter
Number of Items	140	140
Number of Scores	3950	2843
Low Scores Excluded	80	47
Mean	77.745	79.818
Lowest Score	35	35
Highest Score	122	125
Standard Deviation	18.766	17.341
Standard Error of Mean	0.299	.325
Reliability	0.918	.906
Standard Error of Measurement	5.361	5.315

Table 8
Analysis of Raw Score Mean Differences Between Fall and Winter Test Administrations

Analysis of Variance Summary Table

		SS	df	MS	F	Sig.
Covariates						
	GPA	562758	1	562758.18	444.75	0.00
	Grade	326012	1	326012.07	257.65	0.00
	Ethnicity	8431	4	2107.87	1.67	0.20
Main Effects	Form	14827	1	14827.44	11.72	0.00
Residual		7426207	5869	1265.33		
Total		8344547	5876	1420.11		

Table 9
Summary of ICEPT Passing Rates

Group		% of Students Obtaining a Passing Score
Overall		16.6
Ethnicity/Gender		
Asian	Male	30.4
	Female	21.9
	Total	25.2
Black	Male	6.7
	Female	6.5
	Total	6.6
Hispanic	Male	10.8
	Female	8.3
	Total	9.5
Native American	Male	25.0
	Female	0.0
	Total	15.4
White	Male	20.2
	Female	13.4
	Total	16.8
Other	Male	22.9
	Female	15.0
	Total	18.7
Gender		
	Male	20.0
	Female	13.2
Grade in School		
	8	0.0
	9	5.7
	10	11.8
	11	17.0
	12	34.6
GPA (self-report)		
	A +	43.3
	A	25.7
	A-	19.7
	B +	12.7
	B	10.5
	B-	5.9
	C +	4.6
	C	3.4
	C-	5.2
	< = D	6.6

Table 10
ANOVA Tests for the Impact of Demographic Characteristics on the ICEPT Passing Score

Summary Table for Ethnicity

	SS	df	MS	F	Sig.
Between Groups	30001.67	5	6000.33	4.35	0.00
Within Groups	8814921.79	6396	1378.19		
Total	8844923.46	6401			

Summary Table for Gender

	SS	df	MS	F	Sig.
Between Groups	74573.01	1	74573.01	54.40	0.00
Within Groups	8928410.88	6513	1370.86		
Total	9002983.88	6514			

Summary Table for Grade In School

	SS	df	MS	F	Sig.
Between Groups	354701.72	4	88675.43	66.68	0.00
Within Groups	8519433.36	6406	1329.91		
Total	8874135.08	6410			

Summary Table for GPA

	SS	df	MS	F	Sig.
Between Groups	764393.61	9	84932.62	65.46	0.00
Within Groups	7825488.86	6031	1297.54		
Total	8589882.47	6040			

Table 11
ICEPT Results 1986-98

Test Year	Number Ordered	Number Tested	Number Passing	Secondary School Enrollment	%
1986-87		38,905	4,510	575,845	0.8
1987-88	47,673	24,441	3,129	560,529	0.6
1988-89	54,545	24,961	3,063	536,448	0.6
1989-90	42,839	19,403	3,255	518,798	0.6
1990-91	40,517	19,101	3,300	516,515	0.6
1991-92	41,400	18,083	1,505	522,167	0.3
1992-93	37,329	15,215	1,938	530,286	0.4
1993-94	36,358	14,899	2,554	537,187	0.5
1994-95	34,977	15,771	3,592	550,296	0.7
1995-96	35,778	15,968	1,414	555,463	0.3
1996-97	33,728	13,699	2,779	563,369	0.5
1997-98	33,077	14,222	1,653	562,905	0.3
1998-99	31,334	12,565	2,401	562,298	0.4

Table 12
ICEPT Area Scores for the Total 1998-99 Test Population

Area		Mean
The Marketplace	4	59
Insurance	6	57
The Economy	3	55
Food	10	55
Saving/Investing	5	54
Taxes	7	54
Housing	9	53
Credit	2	52
Money Management	1	51
Transportation	8	51

Table 13
ICEPT Area Scores 1994-98

A. Total Test Population

Area	94	95	96	97	98
01 Money Management	55	48	54	49	51
02 Credit	56	44	54	50	52
03 The Economy	56	52	55	52	55
04 The Marketplace	58	54	59	51	59
05 Saving/Investing	52	44	51	50	54
06 Insurance	55	54	55	51	57
07 Taxes	55	49	55	52	54
08 Transportation	53	55	51	53	51
09 Housing	54	53	57	50	53
10 Food	57	55	58	54	55

B: Gender Comparisons

Area	Males					Females				
	94	95	96	97	98	94	95	96	97	98
01 Money Management	56	50	54	52	51	54	47	55	48	51
02 Credit	55	45	55	50	53	57	43	53	50	53
03 The Economy	58	55	58	50	57	54	49	54	50	57
04 The Marketplace	58	54	59	54	60	58	53	59	50	60
05 Saving/Investing	55	46	54	53	57	49	42	49	48	57
06 Insurance	58	55	58	54	59	52	53	53	51	59
07 Taxes	56	50	56	52	55	54	48	54	52	55
08 Transportation	53	56	53	53	54	53	54	49	51	54
09 Housing	57	52	58	55	55	52	54	56	49	55
10 Food	56	55	57	52	55	57	55	59	54	55

C. Comparisons by Year in School

Area	9th Grade					10th Grade				
	94	95	96	97	98	94	95	96	97	98
01 Money Management	48	44	49	43	45	53	47	52	48	50
02 Credit	45	42	45	45	44	53	43	50	49	49
03 The Economy	49	47	48	45	48	54	51	53	50	54
04 The Marketplace	50	48	54	47	53	56	53	58	50	59
05 Saving/Investing	45	41	45	46	47	49	43	49	49	52
06 Insurance	43	50	43	45	49	52	53	51	50	55
07 Taxes	44	41	48	47	47	51	46	53	50	52
08 Transportation	44	47	44	46	44	51	53	49	51	50
09 Housing	45	49	51	44	45	51	52	55	49	51
10 Food	47	50	53	48	50	55	54	56	53	55

Area	11th Grade					12th Grade				
	94	95	96	97	98	94	95	96	97	98
01 Money Management	56	50	55	50	53	61	52	61	53	56
02 Credit	58	44	56	51	54	65	46	63	55	58
03 The Economy	57	53	56	52	57	62	57	65	59	62
04 The Marketplace	59	55	60	52	61	66	58	64	56	65
05 Saving/Investing	53	44	52	51	55	59	49	58	56	61
06 Insurance	57	55	58	53	59	62	59	65	57	63
07 Taxes	57	51	56	53	55	64	56	62	59	60
08 Transportation	54	56	52	54	53	59	61	58	57	57
09 Housing	56	54	58	51	54	61	56	64	57	62
10 Food	58	55	59	55	57	63	59	62	59	59

Figure 1
Results Across Topic Areas

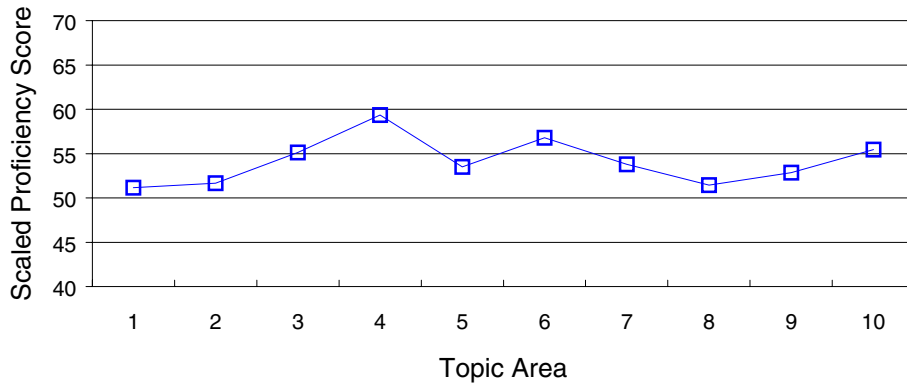


Figure 2
Topic Area Gender Comparisons

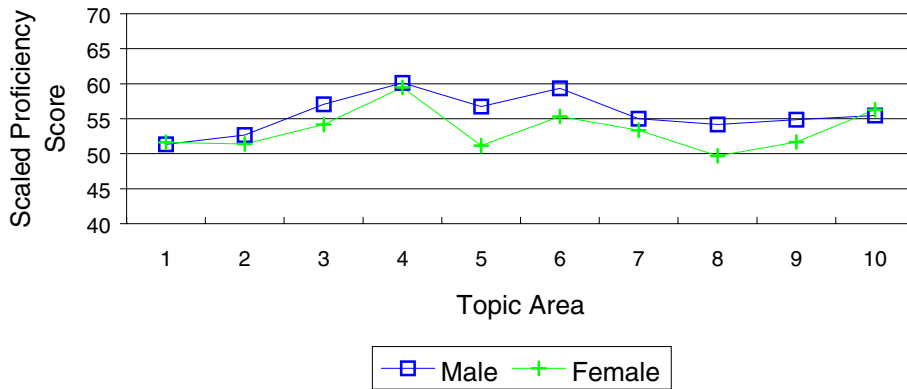


Figure 3
Topic Area Grade Comparisons

